State Capacity and Bureaucratic Recruitment: Evidence from China*

Bo Feng† Qiwei He‡ Xin Jin§ Xu Xu¶

Feburary, 2025

Abstract

This paper demonstrates that state capacity building through tax reform can significantly influence bureaucratic recruitment. Using a dataset of 166,012 government job openings in the National Civil Servant Examination (2010 - 2021), a merit-based bureaucratic recruitment process, we find that China's value-added tax reform attracted more and higher-ability individuals to the tax agency. The effect is particularly pronounced for positions associated with increased regulatory power or greater corruption opportunities following the reform. An online survey indicates that exam takers perceive the reform as enhancing the power and benefits of the tax agency. Evidence from the Chinese General Social Surveys suggests that the talent attracted to government positions post-reform likely come from the private sector.

Keywords: state capacity, tax reform, bureaucratic recruitment, civil service exam

JEL: D73, H20, O38

*Xu Xu received funding from the University Committee on Research in the Humanities and Social Science at Princeton University. We thank Xun Cao, Jiewei Li, Chao Liang, Xueyue Liu, Yali Liu, Ming Lu, Mingqin Wu, Haolong Xu and Li Zhang for data assistance. Jax Peng, Kevin Ma, Kelvin Wang, Yui Wang, and Johnson Zheng provided excellent research assistance. For helpful comments, we thank Raymond Fisman, Justin Jihao Hong, Dan Mattingly, Jennifer Pan, Guo Xu, Yiqing Xu, Changdong Zhang, Shuang Zhang, Congyi Zhou, and seminar participants at APSA 2022 Annual Meeting, LWIPS at Cornell, Cambridge Chinese Politics Research Workshop, 7th Seminar at Zhejiang University of Finance and Economics (ZUFE), and the 6th International Conference of China and Development Studies (ICCDS) Meeting. All remaining errors are our own.

†Ph.D. Candidate, Department of Political Science, Boston University. rbofeng@bu.edu. 232 Bay State Road, Boston, MA 02215. +1(857) 800-3428.

‡Lecturer, School of Economics, University of Edinburgh. qiwei.he@ed.ac.uk (corresponding author). 31 Buccleuch Place, Edinburgh EH8 9JT.

§Senior Quantitative Modeler, Fannie Mae. xin_jin@fanniemae.com. Midtown Center, 1100 15th Street NW, Washington, DC 20005.

¶Assistant Professor of Politics and International Affairs, Princeton University, xx2728@princeton.edu. 403 Robertson Hall Princeton, NJ 08544. +1(609) 258-9168

1 Introduction

State capacity is key to economic development and growth (Besley and Persson 2009). The fiscal capacity and the quality of bureaucracy are both considered important sources of state capacity. While existing literature has shown that state capacity can be significantly strengthened through tax reform (e.g., Pomeranz 2015; Pomeranz and Vila-Belda 2019), or civil service reform (e.g., Evans and Rauch 1999; Besley et al. 2022; Best et al. 2023; Aneja and Xu 2024) independently, different dimensions of state capacity, and their building processes, could evolve with each other. Besley and Persson (2011) provide theoretical explanations to cross-country evidence of "development clusters" - states with greater fiscal capacity often have greater legal capacity, stronger democratic institutions, and a more effective bureaucratic system.[1] However, fine-grained micro-level evidence is limited regarding how the enhancement of one dimension of state capacity (e.g., fiscal reform) affect the input, or source of another (e.g., bureaucracy).

In this paper, we investigate the effect of strengthening fiscal capacity on bureaucratic recruitment, one important source of bureaucratic capacity, in authoritarian regimes. Unlike democratic countries, which often emphasizes representative institutions, the rule of law, and accountability mechanisms that limit the opportunities for public officials to benefit from state capacity, strengthening state capacity in authoritarian regimes invariably yields tangible rewards for government employees.[2] Therefore, enhanced central fiscal capacity enables the regime to allocate more resources, offering state employees better benefits. It can also grant state employees opportunities to extract graft from society (Frye and Shleifer 1997). Improving fiscal capacity in authoritarian countries is likely to attract more and potentially higher-ability individuals to those government positions that become more powerful and lucrative after the enhancement of fiscal capacity.

We empirically study the impacts of China's value-added tax (VAT) reform—an effort to strengthen fiscal capacity—on citizens' preferences for government employment revealed through participation in the National Civil Servant Exam (NCSE). Between 2012 and 2016, China implemented one of the most significant tax reforms in the past two decades by effectively replacing the

[1] Besley and Persson (2009) also explores the complementarity of investing in legal and fiscal capacity.

[2] Government jobs are popular in many authoritarian countries including China, Singapore, Iran, Vietnam, Russia, Egypt, and others. In Bangladesh, the reinstatement of a controversial quota system for civil servant jobs that in 2024 that makes many civil jobs unavailable for ordinary people sparked nationwide student protests and violent crackdowns. https://nyti.ms/41GRpcf.

business tax (BT) with the VAT. The claimed purpose of the VAT reform is to ease the tax burden on service industries, while it has significantly increased central tax agency's tax-extraction capacity (Zhang 2021, Page 53). Moreover, VAT has a self-enforcing nature because it incentivizes downstream client firms to request receipts from suppliers to reclaim the VAT they have paid. This chain of tax enforcement makes tax evasion more challenging for private enterprises (Pomeranz 2015), especially when compared to the BT system, where high nominal tax rates in China made evasion extremely prevalent (Zhang 2021, Page 77). More importantly, the State Administration of Taxation, which is the agency responsible for collecting the VAT, becomes a more powerful government agency.

Government jobs are one of the most popular jobs in contemporary China.[3] China's National Civil Servant Exam (NCSE) has been a merit-based system for recruiting government officials through standardized exams open to all Chinese citizens since 1994 (Liu 2023). In 2021, over 2.12 million participated in the exam, where they have just a one-in-68 chance of landing a government job. The sheer number of applicants and the exam's intense competition underscore the growing allure of government jobs in recent years. This phenomenon is known in China as the "civil servant fever". The NCSE provides a unique opportunity to examine the impact of state capacity building on government recruitment. First, since the NCSE is merit-based, applicant apply for a position based on their preferences.[4] Therefore, the observed application patterns reflect citizens' preferences for specific government jobs. Second, the ability levels of applicants are revealed through their exam performance.

We use a difference-in-differences (DiD) strategy to causally identify the effect of the VAT reform on the popularity of government jobs and applicants' quality. We exploit variations in pre-reform BT to VAT ratios across 289 Chinese prefectures and sort them into a high BT-VAT group and a low BT-VAT group based on the pre-reform mean BT-VAT ratio. Our DID strategy compares

[3] At top Chinese universities such as Tsinghua and Fudan, 50% - 70% of graduates land positions within the state sector every year. For more details about Tsinghua and Fudan graduates, see Figure A1 in the Appendix. Li et al. (2023) also shows that a majority of Chinese college students desired employment in the state sector in recent years. Bai et al. (forthcoming) further show that China's most talented individuals gravitate toward the state sector instead of launching their own firms.

[4] Note that merit-based recruitment through standardized exams does not inherently conflict with systematic corruption: talented individuals can use their skills for corrupt practices if the system permits it. As established in the literature, it is the presence of checks and balances, rather than merit-based recruitment alone, that effectively curtails corruption (Treisman 2007).

these two groups before and after 2016, the year when the VAT reform was fully rolled out. The rationale is that the VAT reform would have increased the power of tax agencies in prefectures with high BT-VAT ratios more than that of those with lower ratios.

We collect a novel dataset that combines all NCSE job postings from 2011 to 2021, a total of 166,012 job posts. The key outcome measures are the number of applicants and the applicant-to-recruitment (App-to-Recruit) ratio, which reflect the popularity and the competitiveness of a position. We also use the cutoff score required for passing the written exam to measure the ability of applicants, as a higher cutoff score indicates a candidate pool with higher ability candidates. Because the VAT reform directly affected the popularity of jobs in agencies responsible for collecting the VAT (State Administration of Taxation) rather than other government agencies, we divide the data into two subsamples: 1) job openings affiliated with the State Administration of Taxation (the SAT sample), and 2) job openings outside the State Administration of Taxation (the Non-SAT sample). We primarily focus on the SAT sample, while the non-SAT sample serves as a placebo test and enables us to examine the spillover effects of power expansion in tax agencies.

We find that, among the SAT sample, the VAT reform increased the number of applicants, the App-to-Recruit ratio, and the minimum score required for passing the written exam by 20.7%, 18.4%, and 1.1% of their respective mean in the high BT-VAT group relative to the low BT-VAT group. Notably, a one-percent change in standard test scores eliminates a substantial number of candidates, so that the quality of those who passed written exam part increased significantly. These effects remain robust when using a continuous treatment measure of BT-VAT ratio, controlling for time-varying prefecture-level covariates, and applying different methods to assign high-low BT-VAT groups. Conversely, these significant effects of the VAT reform were not observed among the Non-SAT sample, suggesting that the talent attracted to SAT positions is unlikely to come from the pool of applicants for other government jobs. As a centralized agency, the SAT may draw talent from the pool of applicants for local government jobs. Although we lack data on local government recruitment, we analyze self-reported employment data from six waves of the Chinese General Social Survey and show that the VAT reform reduces the likelihood of an individual working in the private sector compared to the public sector. The above findings together suggest that the VAT reform likely attracts talent to the SAT from broader society rather than from other state agencies.

Strengthening fiscal capacity helps attract talent to the tax related agencies in the short run

because citizens can easily *perceive* the increased power and benefits associated with government jobs following the expansion of state capacity. However, the long-term impact of state capacity enhancement on talent allocation may be ambiguous and contingent on specific contexts. If an authoritarian regime expands state capacity at society's cost, this can enhance the allure of government jobs even in the long run. On the other hand, state capacity enhancement may facilitate economic growth in countries where the state was previously too weak to offer basic public goods, infrastructure, and social order. If, in the long run, strengthened state capacity proves more beneficial to the private sector than the public one, it could redirect talent away from the state sector. Our evidence appears to support the former scenario in China, as five years following the VAT reform, there is a sustained influx of talent into tax agencies.

One key mechanism by which strengthening state capacity, especially fiscal capacity, in authoritarian regimes attracts talent is the lack of constraints on state power and associated graft opportunities. To explore this mechanism, we first categorize jobs into those with greater power, such as tax inspection jobs, and those with less power, such as office and front desk positions. We find that the VAT reform led to significantly larger increases in the attractiveness of jobs with more power. We further construct a prefecture-level measure of corruption opportunities using the number of investigated officials prior to the 2012 anti-corruption campaign. We find that those prefectures with greater corruption opportunities attract more and better talent after the VAT reform.

We conducted an online survey of 3,700 citizens and identified 788 eligible respondents who have either taken or plan to take the NCSE. We find that most individuals aiming for SAT jobs are aware of the VAT reform, and the vast majority perceive an increase in the power and benefits of SAT jobs following the reform. Regression analyses find that respondents with higher social status and greater educational attainment are more likely to associate the reform with increased power for SAT agencies. These findings indicate that the government attracts societal elites into the state in pursuit of power and personal benefit after strengthening its capacity.

Overall, the results of this paper indicate that strengthening one dimension of state capacity can have a significant impact on other dimensions of state capacity. We show that the VAT reform in China increased the popularity of tax agency positions in the National Civil Service Examination (NCSE), particularly powerful and lucrative positions. Even though the tax agency was able to recruit individuals with higher ability after the reform, evidence suggests this came at the expense of

the private sector. Nevertheless, from the perspective of an authoritarian regime, these effects may promote regime survival by enabling the state sector to co-opt more societal actors (de Mesquita et al. 2005; Magaloni 2006; Svolik 2012; Ang 2016; Rosenfeld 2017; Liu 2023).

1.1 Related literature

Our paper contributes to the literature on the impacts of state capacity (Besley and Persson 2009, 2010). Since Besley and Persson (2009) that have explored the complementarity of investing in legal and fiscal capacity, an emerging body of work has documented effects of reforms that strengthened different aspects of state capacity across countries and regions (Dincecco and Katz 2016; Besley et al. 2022). On the one hand, several studies examined effects of bureaucratic-recruitment reforms on state capacity and governance performance (Ujhelyi 2014; Bostashvili and Ujhelyi 2019; Aneja and Xu 2024; Moreira and Pérez 2024). Xu (2018) shows that abolishing patronage appointments, a personnel policy that significantly affects incentives in bureaucracy, can improve the government's performance in tax collection. On the other hand, existing studies on fiscal reforms in many countries, including VAT reforms, mainly focuses on their effects on economic agents' behavior, for example, tax compliance and firm investment. See Pomeranz and Vila-Belda (2019) for an overview.[5] Some papers examine the relationship between tax enforcement and administration, see for instance Khan et al. (2016) and Khan et al. (2019).

Drawing upon the important insight that state capacity is multidimensional (Besley and Persson 2011), we provide evidence on the mechanism through which strengthening fiscal capacity (via tax reform) can significantly affect the pattern of bureaucratic recruitment in authoritarian countries. This will have considerable implications for bureaucratic capacity, as a professionalized bureaucracy is an important component of state capacity. Additionally, our finding suggests that such an impact is likely at the cost of the private sector. In this sense, our paper echoes Acemoglu (2010) by finding that more efficient means of tax extraction could have nuanced, multiple repercussions for other political-economic outcomes.

Second, this paper is related to the literature of political selection and the personnel economics of the state. See Finan et al. (2017) and Dal Bó and Finan (2018) for more discussions. Different

[5]There is now a large body of literature that studies the various aspects of VAT reforms on the economy, see for instance Fan et al. (2018) and Chen et al. (2023).

from most of the existing literature, our paper does not focus on the impact of government recruitment practice, e.g., the cost and benefit of hiring discretion and merit based hiring (Dal Bó et al. 2017; Xu 2018; Colonnelli et al. 2020; Akhtari et al. 2022; Mocanu 2022; Dahis et al. 2024; Aneja and Xu 2024; Moreira and Pérez 2024). Instead, we examine the consequences of state capacity enhancement on individuals' preferences for government jobs under a merit-based bureaucratic recruitment system. Our findings resonate with the literature that highlights the role of incentives in political selection (Dal Bó et al. 2013, 2017; Deserranno 2019; Ashraf et al. 2020; Weaver 2021). Specifically, we find that exam takers during the application stage of the civil service exam reveal a strong preference to positions associated with greater power and benefits, which have been amplified by state capacity enhancement. These positions also tend to attract a pool of applicants with higher ability.

Additionally, this paper belongs to the growing literature on the political selection in China. Fisman et al. (n.d.) studies ability and selection into the Chinese bureaucracy based on the student record of a university. We are related to the empirical study of contemporary Civil Servant Exams (CSE) in China (Lai and Li 2022; He 2024). Lai and Li (2022) examine how anti-corruption campaigns affect candidates' job preferences, using 2012–2017 NCSE data. Our paper differs conceptually from Lai and Li (2022), as we focus on the impact of fiscal reform—an effort aimed at state capacity enhancement—on bureaucratic recruitment. Bai et al. (2021) studies the allocation of talents in China between the entrepreneurial and non-entrepreneurial sectors and find that people who had a higher score in Chinese college entrance exam is more likely to go to the state sector.

The rest of the paper is organized as follows: Section 2 provides a conceptual framework and relevant institutional background; Section 3 describes the data sources and empirical strategy; Section 4 presents the empirical results; and Section 5 concludes.

2 Conceptual Framework and Institutional Background

In this section, we first present a conceptual framework, followed by a brief overview of the VAT reform and the phenomenon of "Civil Servant Fever" in contemporary China.

2.1 Conceptual Framework

Our analysis focuses on authoritarian countries since democratic countries often emphasizes representative institutions, the rule of law, and accountability mechanisms that limit the opportunities for public officials to benefit from enhanced state capacity. For citizens in authoritarian regimes, state capacity enhancement, particularly fiscal capacity, provides government jobs with many advantages. First, a stronger fiscal capacity is more effective at extracting taxes and resources for the regime, allowing it to offer better material benefits to state employees. Second, the increased regulatory power affords bureaucrats more privileges in society and potentially more opportunities to engage in graft. Third, when the power and regulatory capacity of the fiscal department grow, its employees enjoy higher social status. Therefore, we expect that *strengthening authoritarian state capacity, particularly for fiscal capacity, increases the number of applicants to government jobs, and thus the competitiveness of government jobs.* While some of these factors might be applicable in democracies during phases of state power expansion, they are certainly more salient in authoritarian regimes. Importantly, these constitute immediate benefits of government employment that citizens can easily perceive from observing state capacity augmentation.

Moreover, if the job recruitment systems of the state sector is biased towards loyalty and connections rather than pure talent or ability (e.g., Xu 2018; Brassiolo et al. 2020; Colonnelli et al. 2020; Akhtari et al. 2022), the enhancement of state capacity (e.g., fiscal capacity) would not necessarily attract higher-quality individuals to the state sector. However, if the process is paired with a merit-based recruitment system, we would expect it to increase the quality of applicants for government jobs. Consequently, we expect that *strengthening authoritarian state capacity increases the quality of applicants to government jobs when combined with a merit-based recruitment system.*

An important mechanism through which state capacity improvement in authoritarian countries makes government jobs more attractive to citizens is the often-unconstrained power and regulatory prowess associated with those jobs. Since some jobs involve greater regulatory authority than others, fiscal reform will have varying effects on jobs with different levels of power and regulatory prowess. This implies that *strengthening authoritarian state capacity increases the attractiveness of government jobs offering greater regulatory power compared to those offering less power.*

Additionally, it is worth noting that changes in the power dynamics between the state and society is not necessarily a zero-sum game. Sometimes, the increase of state capacity may not weaken the private sector but strengthen it. For example, in countries where the state is too weak to provide basic public goods and infrastructure for economic growth, increasing state capacity may lead to the development of the private sector through securer property rights, better infrastructure, or lower crime rates (Fukuyama 2014; Dincecco and Katz 2016). Once the enhanced state capacity takes effect on the economy, it might increase the attractiveness of private jobs. *In the long run*, if the enhanced state capacity benefits the private sector more than the state sector, it may drive talent away from the state sector.

Importantly, two scope conditions are crucial for observing state capacity enhancement and talent attraction in authoritarian regimes. First, an authoritarian regime must have both the incentives and capabilities to expand the power of the state. Therefore, our argument may not apply to rentier states where rulers can attract talent through resource rents without the need to expand state capacity. Similarly, it may not apply to failed or failing states where rulers lack the ability to strengthen state capacity. Second, the regime must implement at least partially merit-based recruitment for political positions. Without this, the enhancement of state capacity is unlikely to attract high-quality individuals to the state sector, particularly in countries where cronyism, nepotism, and connections predominate in official recruitment.

2.2 The VAT Reform

In 1994, China introduced a tax-sharing system where the central and local governments had different tax sources. The most important new tax was the value-added tax (VAT) levied on most manufactured goods at a uniform rate of 17%, while other industries still paid the Business Tax (BT). The VAT was collected by the new central tax agency, the State Administration of Taxation (SAT). The SAT is a ministerial-level department under the direction of the State Council, and is responsible for the collection of taxes and enforces the state revenue laws. It has branch offices in almost all counties in China. The VAT revenues were shared on a 75%-25% basis between the central and local governments in the 90s.

As part of the revision to the 1994 tax arrangement, the central government implemented the

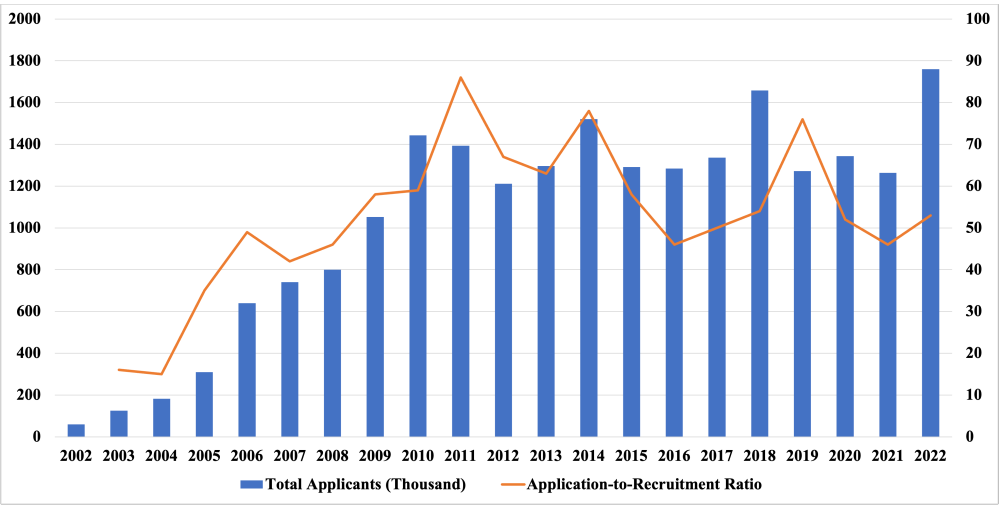
"VAT for business tax" reform (VAT reform for short) to replace business taxes with the VAT from 2012 to 2016. The VAT is an important tax in China because it can reduce tax evasion. Like many developing countries, China relies heavily on indirect taxes on goods and services rather than individual payers, as they are easier to collect. But this led to a narrower tax base and a high nominal tax rate. In China, most taxes come directly from private enterprises, while the nominal tax rates are too high to afford. Consequently, local officials give firms huge amounts of tax breaks to foster economic growth, especially before officials' performance evaluations (Chen and Zhang 2021), and tax evasion was rampant in the post-reform era (Zhang 2021). Since the business tax is levied on private firms' total sales revenue without subtracting firms' intermediate input costs, tax evasion is easy as long as firms do not issue invoices for their sales (and they have no incentives to do so). But the VAT is a different story. With the VAT, a downstream firm needs its upstream suppliers to issue invoices to deduct the costs of its intermediate inputs in the value-added tax calculation. The supply chain and the mutual monitoring make tax evasion much harder. Thus, the shift from the BT to the VAT can significantly expand the strength and scope of state capacity in tax extraction.

The VAT reform marked an important milestone in the expansion of taxation capacity in China. Figure A2 in the Appendix shows VAT revenues and total tax revenues relative to the total budgetary fiscal revenues at the national level over time. Following the reform in 2016, the share of VAT in government fiscal revenues has significantly increased. With more reliance on VAT as tax sources since 2016, the government has seen an increase in the share of total tax revenue within the overall fiscal revenue, reversing the previous downward trend. Both figures suggest an increase in the government's tax extraction capacity following the reform.[6] The reform directly embodies authoritarian state capacity enhancement by strengthening central fiscal capacity. As a result, the reform marked a power expansion of the agency responsible for collecting VAT, i.e., State Administration of Taxation (SAT) and its local branches.

[6]We show that the VAT reform enhanced taxation capacity using national-level data because local-level tax data after the reform are not available, yet this enhancement varies locally due to the differing degrees to which local governments relied on business taxes as tax sources before the reform.

2.3 China's Civil Servant Fever

Corresponding to the power expansion of the Chinese state, the number of NCSE applicants increased sharply in the 2000s. In 2003, the number doubled to 125,000 from that of the previous year. Since then, there was a steady increase in the number of applicants and the applicants-to-recruitment ratio (Figure 1). The number of applicants reached 1.4 million in 2010 and became relatively stable afterward. In 2022, more than 2.12 million participated in the NCSE, while the total number of college graduates in that year was 9.1 million. There are also huge variations in the applicants-to-recruitment ratio. In 2022, the average number of applicants per job opening is 68. Some jobs received zero applicants, whereas the most popular job attracted 20,602 applicants.



Source: Data in 2002-2009 come from the Beijing News at https://bit.ly/4bKJCg3. Data in 2010-2022 are authors' calculation.

Figure 1: Total Number of Applicants and Application-to-Recruitment ratio by Year

The NCSE is administered by the State Administration of Civil Service (SACS). It fills positions for three types of government organizations: central party organs, central state administrations (including their local branches), and public administrations governed by the Civil Servant Law. The NCSE fills positions in central departments as well as their branch offices at all levels of government, including the provincial, prefecture, county, and township levels. Parallel to the NCSE is the Provincial Civil Service Exam (PCSE), which fills positions only at local levels. Our empirical study focuses on the NCSE because it includes positions at both central and local levels, especially considering that the VAT reform directly influences the power of the State Administra-

tion of Taxation, a central tax agency with local branches all over China.

3 Data and Empirical Strategy

We compiled a comprehensive database of NCSE job openings and used a difference-in-differences strategy based on the VAT reform to causally estimate the effect of fiscal capacity reform in authoritarian countries on citizens' preferences for civil servant jobs.

3.1 Data and Measures

We collect a unique dataset of the NCSE, which contains both the demand side and supply side information for the civil servants' job market in China from 2011 to 2022. Each year in October, the central government opens application for the next year's NCSE with detailed vacancy postings. Applicants can log on to the application system and choose *one* position that best matches their preferences. The first part of the exam is a written exam. After the written exam, the central government announces the minimum score required for passing the written exam, i.e., eligible for the 2nd round interview, for each position.

The demand-side information in our NCSE data comes directly from the full list of job postings that detail the central governments' needs and requirements for potential civil servant candidates. The supply side information is reflected by the number of applicants for each NCSE position every year. We also collected information about the minimum score required for interview eligibility for each position as a proxy for the quality of the candidate pool. The 2011-2014 NCSE data were collected from the government website. The 2014-2021 NCSE data were scraped from the websites of two major companies that provide training materials to the NCSE exam takers, Huatu Education and Zhonggong Education.[7]

The prefecture-level business tax (BT) and value-added tax (VAT) data for 2007 to 2011 are from the Regional Statistical Yearbooks 2008 to 2012 as in Zhang et al. (2022). We merge the prefecture-level tax data with the NCSE dataset based on the job location at the prefecture level

[7]For the NCSE information on Huatu Education Online, see https://chuzhou.huatu.com/v/kaoshi/guojia.html. For Zhonggong Education Online, see https://www.eoffcn.com. We hand coded geographic information for the years 2011 to 2018 using information in each job posting.

and calculate the BT-to-VAT ratio in year 2011. Excluding prefectures with missing information and extreme values for BT-VAT ratios, we end up with 288 prefectures.[8] Besides, we collected a set of prefecture-level economic variables from the China City Statistical Yearbook 2011 to 2021 as our covariates.

From the NCSE database, we focus on three outcome variables. The first outcome variable is the total number of applicants for a NCSE position i in year t, denoted as $Applicants_{i,t}$.[9] To measure the competitiveness of a position, we construct the *Applicants-to-Recruitment (App-to-Recruit)* ratio of position i in year t as the ratio of the total number of applicants and the total number of actual recruitment, i.e., $\textit{App-to-Recruit}_{i,t} = \frac{Applicants_{i,t}}{Recruitment_{i,t}}$. The last outcome measure is the minimum score required for passing the written exam for position i in year t, denoted as $\textit{Cutoff Score}_{i,t}$.[10] Out of a total of 166,012 positions, we exclude those with missing information in the application, recruitment, locations, and agency affiliations, which reduces our sample to 151,944 positions. We further exclude observations with missing BT-VAT ratios, retaining a sample of 137,245 job openings across all hiring agencies over 12 years.

3.2 Empirical Strategy

To causally identify the effect of fiscal capacity enhancement on citizens' preferences for civil servant jobs in China, we take advantage of the VAT reform and exploit subnational variations in pre-reform tax compositions–the ratios of business taxes to value-added taxes (BT-VAT ratios). Figure 2 presents the geographic distribution of BT-VAT ratios across prefectures in China in 2011, the year before the pilot reform. Intuitively, the VAT reform should have a larger impact on localities where the government levied more business taxes than value-added taxes before the reform. In particular, because the VAT makes tax evasion more difficult, tax agencies in localities with higher BT-VAT ratios thus have larger increases in regulatory power and can potentially collect more tax after the reform. In addition, since the SAT collected the VAT whereas the Local Administration of

[8] The tax data for 48 prefectures, primarily ethnic minority regions in Yunnan, Xinjiang, and Tibet, are not included in the yearbooks. Sanya City in Hainan Province recorded an extreme BT-VAT ratio of 23.25 in 2011 (the national average, excluding Sanya, is 2.164).

[9] t represent the year of registration and examination, a year before the recorded NCSE year.

[10] This variable is only available from 2014 to 2021. To compare applicant qualities across years, we rescale the cutoff score for interview into a 200-point scale for all positions. Most positions use a generic exam with a maximum score of 200 points, whereas exams for positions in law enforcement, requiring uncommon languages, or in financial regulations have a maximum score of 100 points.

Taxation levied the BT before the reform, replacing the BT with the VAT enlarges the tax base for the SAT. This gives more power and revenue for the SAT in localities with higher BT-VAT ratios than the SAT in localities with lower BT-VAT ratios. Given these perceived increases in power and revenue in State tax agencies, we expect the VAT reform to have a larger effect on individuals' preferences for SAT jobs in localities with higher BT-VAT ratios.

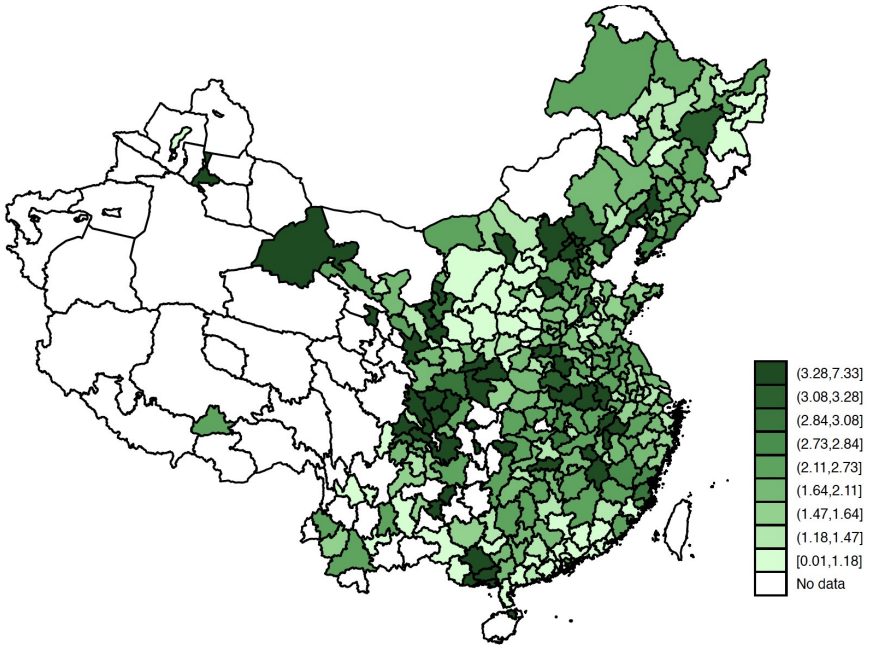


Figure 2: BT-to-VAT Ratio by Prefectures, 2011

Based on this logic, we construct a dummy variable that equals 1 if a prefecture has a pre-reform BT-VAT ratio greater than the national average and 0 otherwise. We end up with 113 prefectures with pre-reform BT-VAT ratios above the national average and 175 prefectures with pre-reform BT-VAT ratios below the national average. Note that, following Cao et al. (2022), we did not use the BT-VAT ratio as a continuous treatment measure for two reasons. First, prefectures' BT-VAT ratios are likely left-skewed because few prefectures have a well-developed tertiary industry–the sector previously subject to the BT levy. Second, individuals' responses to the VAT reform are unlikely to be linear with respect to the reform's intensity in different localities: they tend to remain insensitive to small to moderate changes in tax composition until a certain threshold is reached. Nevertheless, we use the continuous measure in Section 4.3 for robustness checks and the results are similar.

We divide our sample into two subsamples: the SAT sample, which includes jobs affiliated

with the State Administration of Taxation, and the non-SAT sample, which comprises jobs affiliated with all other state agencies. We expect the VAT reform affects people's preferences for the SAT jobs rather than non-SAT jobs. Table 1 presents the summary statistics of the treatment and outcome variables by the two subsamples. The average prefecture-level BT-VAT ratio in our sample is 2.16. Overall, there are more job openings in the SAT sample versus the non-SAT sample. This is because the SAT has the largest body of local branches among all central government agencies. Within the SAT sample, the number of applicants per position is close to 100 in the past 12 years, with about 15 more applicants per position in the high BT-VAT regions than in the low BT-VAT regions on average. The average App-to-Recruit ratio and the minimum score passing the written exam are also higher in the high BT-VAT regions than in the low BT-VAT regions. These patterns are similar in the non-SAT sample.

Table 1: Summary Statistics. NCSE 2010-2021

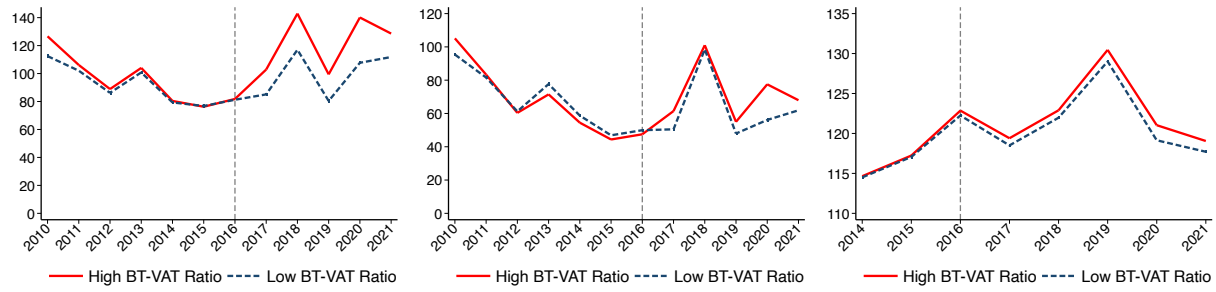
	All		**Low BT-VAT**		**High BT-VAT**	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
Pref. BT-VAT Ratio (2011)	288	2.164	175	1.393	113	3.357
Panel A: SAT Sample						
# of Applicants	75,498	98.56	40,100	93.18	35,398	104.7
App-to-Recruit	75,498	63.12	40,100	61.53	35,398	64.92
Cutoff Score	56,892	120.5	29,486	120.1	27,406	120.9
Recruitment Quota	75,881	1.761	40,237	1.702	35,644	1.828
Panel B: Non-SAT Sample						
# of Applicants	61,747	122.9	24,258	92.33	37,489	142.8
App-to-Recruit	61,747	85.12	24,258	72.05	37,489	93.58
Cutoff Score	41,794	119.4	16,615	118.7	25,179	119.9
Recruitment Quota	64,504	1.698	24,936	1.486	39,568	1.832

We designate post-2016 as the treatment period because the VAT reform was fully implemented until mid-2016. See Table A5 for the timeline of the roll-out of the reform. The pre-2016 pilot reform in transportation and related sectors only affected a small fraction of the economy. As shown in Figure A3 in the Appendix, the share of industrial output from the transportation, storage, and postal-service sectors constituted of roughly 4% of the total GDP. Given the very small share of these sectors in the economy, the pilot reform should have a negligible impact on individuals' job preferences. Therefore, we define our post-treatment year starting from 2017 and estimate the

following model:

$$Y_{i,t} = \alpha_0 + \beta\,(\text{High BT-VAT}_p \times Post2016_t) + \alpha_1 X'_{i,t} + \alpha_2 P'_{p,t} + \delta_p + \delta_t + \epsilon_{i,t}, \tag{1}$$

where $Y_{i,t}$ is one of the three outcome variables: the total number of applicants per position, the App-to-Recruit ratio, and the minimum score required for passing the written exam. High BT-VAT$_p$ is a dummy variable that equals 1 if a position locates in a prefecture with high BT-VAT ratio before the reform (in 2011), and zero otherwise. $Post2016_t$ is a dummy variable that equals 1 if the calendar year is after 2016. δ_p and δ_t are prefecture and year fixed effects, respectively. $X_{i,t}$ is a set of position-specific characteristics, and $P'_{p,t}$ a set of prefecture-level covariates. See Online Appendix A4 for detailed information about the covariates. We are interested in β, which captures the change of individuals' preferences for civil servant jobs located in the high BT-VAT regions versus low BT-VAT regions following the VAT reform. The parallel trends observed between the two groups prior to 2017 (Figure 3) support the validity of the DiD estimation. An event-study design further confirms the lack of pretreatment effects (See Figure 4 in Section 4.2).



(a) # of Applicants (b) App-to-Recruit Ratio (c) Cutoff Score

Notes: Annual averages by high versus low BT-VAT groups are plotted using the SAT sample.

Figure 3: Average NCSE Outcomes by High and Low BT-VAT Prefectures

4 Empirical Findings

This section presents the main results, conducts robustness checks, tests mechanisms, and explores implications for the general labor market.

4.1 Main Results

Table 2 Panel A reports the main effects of the VAT reform on bureaucratic recruitment for civil servant jobs affiliated with the State Administration of Taxation (the SAT sample). Columns (1), (3), (5) include prefecture and year fixed effects. In Columns (2), (4), and (6), we add prefecture-level and position-level covariates. Consistent with our expectations, job openings in prefectures with high pre-reform BT-VAT ratios after the VAT reform see increases in the number of applicants, the App-to-Recruit ratio, and the minimum scores for passing the written exam compared with job openings in prefectures with low pre-reform BT-VAT ratios. The magnitudes are large. We observe an increase of 20 additional applicants (Column [2]) and an 11-percentage-point rise in the Applicant-to-Recruit ratio (Column [4]) for each job opening in high BT-VAT ratio prefectures compared to those in low BT-VAT ratio prefectures after the reform. Both represent increases of more than 20% relative to their pre-reform means. Column (6) further indicates that the minimum score for passing the written exam increased by 1.3 points for each job opening in high BT-VAT ratio prefectures compared with those in low BT-VAT ratio prefectures (the mean is 120 points). This is a significant increase because, in a standard exam, a one-point difference can eliminate a large number of contestants. The findings suggest that the VAT reform increased the number of applicants, made jobs more competitive, and improved the quality of the hire bureaucrats for jobs afflicted to the State Administration of Taxation and its local branches.

By contrast, we do not expect the VAT reform to have a significant impact on the non-SAT sample, as the reform does not alter the powers of those non-SAT government agencies. Indeed, Table 2 Panel B shows that the reform has no statistically significant effects on the popularity and competitiveness of non-SAT jobs. After controlling for prefecture and position covariates, the effect of the reform on the cutoff score in the non-SAT sample is only significant at the 10% level and is smaller than the magnitude observed in the SAT sample in our preferred specification (Column [6]). These results are not only consistent with our expectations but also suggest that the candidates attracted to SAT-affiliated departments is unlikely to be drawn from the talent pool of other State departments.

Table 2: Effects of the VAT Reform on NCSE Outcomes

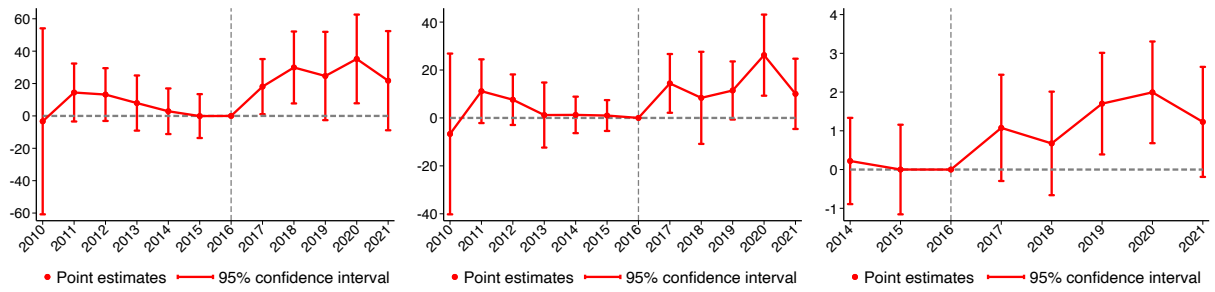
Panel A (SAT Sample, Main Analysis)	# of Applicants		App-to-Recruit Ratio		Cutoff Score	
	(1)	(2)	(3)	(4)	(5)	(6)
D.V. Mean	98.56	97.07	63.12	61.29	120.5	120.5
High BT-VAT × Post2016	18.943*	20.050**	10.895**	11.271**	1.098***	1.310***
	(9.627)	(9.252)	(4.793)	(4.548)	(0.397)	(0.401)
Observations	75,498	70,498	75,498	70,498	56,892	56,086
R-squared	0.068	0.104	0.059	0.094	0.357	0.422
Prefecture FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture Covariates	No	Yes	No	Yes	No	Yes
Position Covariates	No	Yes	No	Yes	No	Yes

Panel B (Non-SAT Sample, Placebo)	# of Applicants		App-to-Recruit Ratio		Cutoff Score	
	(1)	(2)	(3)	(4)	(5)	(6)
D.V. Mean	122.9	119.5	85.12	83.42	119.4	119.5
High BT-VAT × Post2016	-11.183	-6.454	-6.735	-5.451	1.303***	0.707*
	(10.975)	(10.208)	(6.265)	(4.206)	(0.395)	(0.371)
Observations	61,747	56,502	61,747	56,502	41,794	40,244
R-squared	0.043	0.095	0.038	0.107	0.225	0.338
Prefecture FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture Covariates	No	Yes	No	Yes	No	Yes
Position Covariates	No	Yes	No	Yes	No	Yes
Number of Provinces	31	31	31	31	31	31
Number of Prefectures	288	288	288	288	288	288

Notes: Prefecture-level and position-level covariates are added in Columns (2), (4), and (6). Standard errors reported in parentheses are clustered at the prefecture level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2 Event-study

We use a dynamic DiD model to allow for treatment effects to change over time. Figure 4 shows that before the treatment time, the estimated effects cannot be statistically significantly distinguished from zero, indicating the lack of pretrend. Additionally, we also find that that the treatment effects on the number of applicants, the App-to-Recruit ratio, and the minimum scores required for passing the written exam in the SAT sample remain substantial and statistically significant even five years after the VAT reform. This suggests that the reform increased the popularity of SAT jobs in the long term.



(a) # of Applicants (b) App-to-Recruit Ratio (c) Cutoff Score

Note: Point estimates and 95% confidence intervals are estimated based on the SAT sample.

Figure 4: Dynamic Effects on NCSE Outcomes

4.3 Robustness Checks and Alternative Explanations

In the main analysis, we divide the sample into two groups by the mean value of the pre-reform BT-VAT ratio at the prefecture level. This approach is used because individuals' perceptions of the VAT reform are unlikely to be linear; they may remain insensitive to small or moderate changes in tax composition. Nevertheless, we replicate the analysis using the continuous measure of the pre-reform BT-VAT ratio (Appendix Table A2). The results are consistent with those from Table 2. We also use the 2007-2011 (pre-reform period) average BT-VAT ratio instead of the 2011 value to divide the sample, and the results remain robustness (Appendix Table A3).

One may be concerned that our results could be driven by an increase in government job openings in prefectures with high BT-VAT ratios after the reform rather than reflecting changes in applicants' preferences. We address this concern by looking at the impact of the VAT reform on SAT agencies' recruitment quota directly. Results are presented in Appendix Table A4. In Column (1), we examine the impact of the VAT reform on the recruitment quota per position. We find no significant change in high BT-VAT ratio prefectures relative to the low BT-VAT regions. In Column (2), we aggregate the position-level recruitment quotas across all SAT positions for each prefecture and create a prefecture-year panel. We find that the total number of openings did not change significantly in high BT-VAT regions relative to low BT-VAT regions after the reform. These results suggest that the patterns we find in Table 2 are unlikely driven by an increase in job openings.

Our results are unlikely to be driven by the integration of Local Tax Administrations into the SAT. The Chinese central government proposed this integration towards the end of 2018, and it was

not expected to take effect until 2019. However, our dynamic model (Figure 4) identifies effects as early as 2017. This timeline suggests that the observed changes are a direct result of the VAT reform, predating the effects that the integration of tax administrations might have had. Furthermore, the integration of tax administrations is likely to negatively impact individuals' willingness to join the SAT. This is because the increased number of employees within the tax administrations reduces each individual's share of power and benefits, thereby limiting their career prospects.

4.4 Mechanisms: Power, Benefits, and Corruption Opportunities

To test the mechanisms through which the VAT reform made SAT jobs more attractive, we first conduct an online survey of 3,700 individuals from 28 provinces in China to identify NCSE takers and ask their perceptions about the VAT reform directly. Online Appendix A5 provides details about this survey. Table 3 presents descriptive statistics. Out of the total 2,216 respondents whose education attainment are potentially eligible for the NCSE, around 35% (788 individuals) respondents had taken or will take the NCSE. Within this group, a significant proportion, 70% of respondents (546 individuals), had applied or will apply for positions affiliated with the SAT. Among them, awareness of the VAT Reform was high, with 86% (471 individuals) indicating familiarity to the reform. Consistent with our argument, a majority (62%, 292 individuals) of those aware of VAT Reform believed that the VAT reform increased the power of the SAT department. Additionally, 70% (320 individuals) perceived that after the VAT reform, government officials who work in the SAT experienced an increase of compensation and welfare.

Table 3: Individual Perceptions of Government Jobs in Response to the VAT Reform

Take NCSE?	**Apply SAT?**	**Know VAT Reform?**	**Power?**	**Compensation & Welfare?**
Yes (788/35.12%)	Yes (546/69.47%)	Yes (471/86.26%)	Increase (292/62.26%)	Increase (320/69.57%)
			No Change (85/18.12%)	No Change (85/18.48%)
			Decrease (92/19.62%)	Decrease (55/11.96%)
		No (75/13.74%)		
	No (240/30.53%)			
No (1456/64.88%)				

Notes: The sample includes individuals whose education attainment is eligible for the NCSE. See Appendix A5 for details about the survey items.

Moreover, Table A1 presents a regression analysis based on the survey data. Results show that elites–individuals in higher social classes or with higher educational attainments–are more

likely to perceive increases in power and benefits associated with the SAT agencies after the VAT reform. In particular, elites are significantly more likely to expect an increase in power following the VAT reform. Together, the two pieces of evidence from this survey support our argument that job applicants, especially those in higher social classes or with higher education levels, applying for positions affiliated with the SAT in the NCSE perceive that the reform has made those positions more powerful and lucrative.

State capacity enhancement in authoritarian regimes makes government jobs particularly attractive because the lack of power constraints on government officials allows them to benefit from the amplified power and regulatory prowess. This logic implies that powerful positions in the state sector should attract more applicants than positions with less power. To test this, we examine the heterogeneous effects of the VAT reform on the popularity of different job openings within the SAT agencies. Certain roles in the SAT agencies entail greater discretionary power over taxation issues of the private sectors, endowing SAT employees with more authority, privileges, and graft opportunities. Our interviews with SAT employees indicate that roles in tax-base management, auditing, and enforcement possess greater authority than other jobs, such as front desk and office jobs. If the VAT reform amplified the power and benefits linked to certain SAT roles, job posts involving such roles would be perceived by applicants as particularly empowering and therefore attract more applicants.

We utilize the description and title of job posts in the NCSE dataset to identify powerful positions. Following the suggestions of our interviewees working in tax agencies, we consider a position "powerful" if the text information contains keywords such as: "tax base," "tax inspection," "tax audit," and "tax law enforcement," In total, we identified around 12% of all SAT positions as "powerful". Note that "powerful" and "less powerful" positions are in relative terms. Appendix A6 provides detailed information of the categorization.

Table 4 presents the results for both "powerful" and "less powerful" jobs. We observe an 80% larger increase in the number of applicants and a 130% larger increase in the applicant-to-recruitment ratio for "powerful" positions, compared to "less powerful" positions. This evidence suggests that the VAT reform made powerful SAT positions much more attractive to applicants than less powerful ones. We find that the increase in the minimum score required for passing the written exam for "powerful" positions is less significant. This is reasonable, as "powerful" positions have

Table 4: Effects of the VAT Reform on NCSE Outcomes: Heterogeneous Analysis

Variables	# of Applicants		App-to-Recruit		Cutoff Score	
	(1)	(2)	(3)	(4)	(5)	(6)
Positions	**Powerful**	Less powerful	**Powerful**	Less powerful	**Powerful**	Less powerful
D.V. Mean	95.01	96.14	62.15	61.79	120.6	119.5
High BT-VAT × Post2016	31.713*	17.751*	21.274**	9.381**	0.278	1.381***
	(16.869)	(9.451)	(8.838)	(4.695)	(0.790)	(0.405)
N of Observations	7,723	62,757	7,723	62,757	4,636	51,431
R-squared	0.157	0.109	0.140	0.097	0.499	0.423
Prefecture FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Position Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Number of Provinces	29	31	29	31	28	31
Number of Prefectures	190	288	190	288	151	288

Notes: Columns (1), (3), and (5) are for powerful SAT-agency positions, while Columns (2), (4), and (6) are for less powerful SAT-agency positions. Standard errors reported in parentheses are clustered at the prefecture level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Please refer to Appendix A6 for the details of categorizing powerful and less powerful SAT positions.

already been attracting high-ability applicants even before the VAT reform, as indicated by their higher pre-reform average cutoff score (120 points for powerful positions versus 117 points for less powerful positions). After the reform, the average cutoff score for "powerful" positions (120.6) is still higher than that for "less powerful" positions (119.5). Nevertheless, the heterogeneous effects of the VAT reform among different positions provide strong evidence for the mechanism that state capacity enhancement makes government jobs more attractive by increasing the regulatory power of those jobs.

To more directly test whether candidates prefer positions with greater corruption opportunities, we examine the heterogeneous effect of the reform based on regional variations in historical corruption cases. Using the anti-corruption campaign database from Wang and Dickson (2022), we construct a prefecture-level measure of corruption cases.[11] In 2012, Chinese President Xi Jinping lunched an anti-corruption campaign that is still ongoing. Cases investigated in a prefecture after 2012 may reflect the intensity of the crackdown and potentially political purges in that region. In contract, the number of corruption cases in a prefecture before 2012 reflects corruption opportu-

[11]The database, compiled by Tencent, include information on convicted government officials such as their names, positions, localities, ranks, and the grounds for investigation. For more details, see Wang and Dickson (2022).

nities in that region, as investigations during this period were more random. Thus, we restrict our analysis to cases before the 2012 campaign.

Table 5 shows that, following the reform, SAT positions in regions with higher perceived opportunities for corruption, as indicated by the number of past corruption cases, attract significantly more applicants and exhibit higher applicant-to-recruit ratios. Furthermore, SAT positions in these more corruption-prone areas also shows higher passing scores, indicating that these positions are being filled by candidates with higher measured abilities. These results provide further evidence that state capacity enhancement attracts candidates by increasing graft opportunities of government jobs.

Table 5: Effects of the VAT Reform on NCSE Outcomes: Heterogeneous Analysis Continued

Variables	# of Applicants	App-to-Recruit	Cutoff Score
	(1)	(2)	(3)
Positions	SAT	SAT	SAT
D.V. Mean	97.14	61.36	120.5
High BT-VAT * Post2016	17.615***	5.500**	0.352***
* Perceived Corruption Opportunities	(4.617)	(2.601)	(0.121)
High BT-VAT × Post2016	6.236	16.941*	1.015**
	(7.587)	(4.203)	(0.410)
N of Observations	70,334	70,334	55,955
R-squared	0.107	0.094	0.422
Prefecture FEs	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
Prefecture Covariates	Yes	Yes	Yes
Position Covariates	Yes	Yes	Yes
Number of Provinces	31	31	31
Number of Prefectures	287	287	287

Notes: Standard errors reported in parentheses are clustered at the prefecture level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.5 State-Society Talent Allocation

Another important question is whether the talent attracted to state agencies experiencing power expansion comes from other state sectors or from society at large, especially the private sector. To explore the impact of the VAT reform on the general labor market, we use six waves of the

China General Social Survey (CGSS) from 2010 to 2017.[12] The CGSS is a national representative survey project run by Chinese academic institutions since 2003. It contains a wide range of employment information, including the ownership type of an individual's employer. We aggregate our prefecture-level BT-VAT measure to provincial level and merge it to the CGSS data, as province is the finest geographic unit in the CGSS.[13] The average BT-VAT ratio at the provincial level is about 2.4, which is comparable to the prefecture-level average. Following our main analysis, we construct a dummy variable, "High BT-VAT", which equals 1 if a province's 2011 BT-VAT ratio is above the national mean, and 0 otherwise.

Table 6: The Effect of the VAT Reform on Private Sector Employment, CGSS 2010-2017

	Work in the Private Sector (as opposed to the Public Sector)					
	Higher educated group			**Placebo**: Lower educated group		
	(1)	(2)	(3)	(4)	(5)	(6)
D.V. Mean	0.425	0.425	0.425	0.786	0.786	0.786
High BT-VAT × Post2016	-0.069**	-0.069**	-0.069*	0.002	0.005	0.005
	(0.027)	(0.027)	(0.038)	(0.016)	(0.016)	(0.028)
High BT-VAT	0.175***	0.159	0.159	-0.233***	-0.085	-0.085
	(0.051)	(0.178)	(0.261)	(0.031)	(0.108)	(0.077)
Post2016	0.151***	0.147***	0.147**	0.060***	0.092***	0.092***
	(0.023)	(0.044)	(0.065)	(0.012)	(0.026)	(0.022)
Male		0.012	0.012		-0.035***	-0.035***
		(0.011)	(0.011)		(0.006)	(0.007)
Log GDP		0.006	0.006		-0.051	-0.051*
		(0.058)	(0.090)		(0.035)	(0.026)
N of Observations	7,497	7,497	7,497	16,606	16,606	16,606
R-squared	0.013	0.031	0.031	0.005	0.008	0.008
Province FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Cluster SE at Provinces	No	No	Yes	No	No	Yes
Number of Provinces	28	28	28	28	28	28

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

We use a difference-in-differences specification to estimate the effect of the VAT reform on the general labor market outcome. The outcome variable is a dummy variable that equals 1 if an individual works in the private sector and 0 if this individual works in the public sector.[14] Within

[12] We use the CGSS data because data on China's private sector labor market are not available. The CGSS data after 2017 has not published yet. During the sample period, the CGSS was not implemented in 2014 and 2016. We exclude data from Xinjiang and Tibet due to small size (85 obs and 204 obs across six waves respectively).

[13] Following our main analysis, we exclude Hainan Province because of its extremely high BT-VAT ratio.

[14] Individuals who work in the private sector include those with their own business, or those who work in an enter-

survey respondents who have active employment in non-agricultural sectors (24,103 observations in 28 provinces), we focus on individuals with college educations (the higher educated group, 7,497 observations), since the NCSE requires all applicants to have a bachelor degree or above. Consequently, the subgroup who has a high-school or below education (the lower educated group, 16,606 observations, unqualified for the NCSE) serves as a placebo test. The VAT reform should have no effect on their occupation choices, since they are not qualified for the NCSE.

Table 6 presents the results. Columns (1), (2), and (3) show that the VAT reform significantly reduced the likelihood of higher-educated individuals working in the private sector as opposed to the public sector. In contrast, the placebo tests in Columns (4), (5), and (6) reveal that the VAT reform has no significant impact on the group with lower education. This suggests that the enhanced tax extraction capacity of the Chinese state may have redirected talent away from the private sector. This shift could be attributed to both the increased power and benefits within the state sector and a decline in the private sector due to the strengthened state capacity, although it is challenging to separate these effects.

5 Conclusion

State capacity is multi-dimensional. This paper demonstrates that strengthening the fiscal capacity can have a significant impact on another source of state capacity through bureaucratic recruitment. We show that the VAT reform in China increased the popularity of tax agency positions in the National Civil Service Examination (NCSE). We highlight a crucial mechanism by which strengthening state capacity in authoritarian regimes attracts talent to government positions: state employees can benefit from the amplified regulatory power due to the lack of constraints on government officials in such regimes. Our finding is particularly notable against the backdrop of an ongoing corruption crackdown that deters applications for government positions in China (Lai and Li 2022). Theoretically, this attraction to power and corruption opportunities is more pronounced in authoritarian regimes than in democracies, which potentially explain the high appeal of civil servant jobs in China compared to the U.S. This may also explain why Chinese civil servants exhibit a relatively more meritocracy than U.S. federal employees (Boittin et al. 2016). Future

prise with domestic employers, employers from Hong Kong, Macaw, or Taiwan, or foreign employers.

research could explore the impact of state capacity enhancement expansion on talent allocation in democratic contexts.

The findings of this paper have several implications. First, although this paper does not examine talent attraction and regime stability, it highlights a potential mechanism of authoritarian survival– authoritarian rulers may enhance state capacity to attract talent to the regime, instead of leaving them in society as sources of instability (Rosenfeld 2017). Second, there might be an irreconcilable tension between authoritarianism and the market economy. Authoritarian governments have a tendency to restrict the private sector because a thriving private sector may threaten regime survival. Moreover, efforts to expand state power and limit the private sector could drain talent from the market, further exacerbating its decline. Thus, even though some authoritarian regimes may experience rapid economic growth initially, the long-term economic prospects of these regimes might be questionable. Third, as we show that state building, along with merit-based recruitment, attracts talent to the state sector, it would be interesting to see how talent could further enhance state capacity. This feedback loop may explain why strong states emerged in some authoritarian regimes, such as Communist China, Vietnam, Singapore, pre-war Japan, and South Korea before 1988. Future research in these directions is worth exploring.

References

Acemoglu, Daron, "Institutions, factor prices, and taxation: Virtues of strong states?," *American Economic Review*, 2010, *100* (2), 115–119.

Akhtari, Mitra, Diana Moreira, and Laura Trucco, "Political turnover, bureaucratic turnover, and the quality of public services," *American Economic Review*, 2022, *112* (2), 442–493.

Aneja, Abhay and Guo Xu, "Strengthening state capacity: Civil service reform and public sector performance during the gilded age," *American Economic Review*, 2024, *114* (8), 2352–2387.

Ang, Yuen Yuen, "Co-optation & clientelism: Nested distributive politics in China's single-party dictatorship," *Studies in Comparative International Development*, 2016, *51* (3), 235–256.

Ashraf, Nava, Oriana Bandiera, Edward Davenport, and Scott S Lee, "Losing prosociality in the quest for talent? Sorting, selection, and productivity in the delivery of public services," *American Economic Review*, 2020, *110* (5), 1355–1394.

Bai, Chong-En, Ruixue Jia, Hongbin Li, and Xin Wang, "Entrepreneurial reluctance: Talent and firm creation in China," Technical Report, National Bureau of Economic Research 2021.

_ , _ , _ , and _ , "Entrepreneurial Reluctance: Talent and Firm Creation in China," *The Economic Journal*, forthcoming.

Besley, Timothy and Torsten Persson, "The origins of state capacity: Property rights, taxation, and politics," *American economic review*, 2009, *99* (4), 1218–44.

_ and _ , "State capacity, conflict, and development," *Econometrica*, 2010, *78* (1), 1–34.

_ and _ , *Pillars of prosperity: The political economics of development clusters*, Princeton University Press, 2011.

_ , Robin Burgess, Adnan Khan, and Guo Xu, "Bureaucracy and development," *Annual Review of Economics*, 2022, *14* (1), 397–424.

Best, Michael Carlos, Jonas Hjort, and David Szakonyi, "Individuals and organizations as sources of state effectiveness," *American Economic Review*, 2023, *113* (8), 2121–2167.

Bó, Ernesto Dal and Frederico Finan, "Progress and perspectives in the study of political selection," *Annual Review of Economics*, 2018, *10*, 541–575.

_ , _ , and Martín A Rossi, "Strengthening state capabilities: The role of financial incentives in the call to public service," *The Quarterly Journal of Economics*, 2013, *128* (3), 1169–1218.

_ , _ , Olle Folke, Torsten Persson, and Johanna Rickne, "Who becomes a politician?," *The Quarterly Journal of Economics*, 2017, *132* (4), 1877–1914.

Boittin, Margaret, Greg Distelhorst, and Francis Fukuyama, "Reassessing the quality of government in China," 2016.

Bostashvili, David and Gergely Ujhelyi, "Political budget cycles and the civil service: Evidence from highway spending in US states," *Journal of public economics*, 2019, *175*, 17–28.

Brassiolo, Pablo, Ricardo Estrada, and Gustavo Fajardo, "My (running) mate, the mayor: Political ties and access to public sector jobs in Ecuador," *Journal of Public Economics*, 2020, *191*, 104286.

Cao, Jiarui, Yiqing Xu, and Chuanchuan Zhang, "Clans and calamity: How social capital saved lives during China's Great Famine," *Journal of Development Economics*, 2022, *157*, 102865.

Chen, Ling and Hao Zhang, "Strategic Authoritarianism: The Political Cycles and Selectivity of China's Tax-Break Policy," *American Journal of Political Science*, 2021, *65* (4), 845–861.

Chen, Zhao, Xian Jiang, Zhikuo Liu, Juan Carlos Suárez Serrato, and Daniel Yi Xu, "Tax policy and lumpy investment behaviour: Evidence from China's VAT reform," *The Review of Economic Studies*, 2023, *90* (2), 634–674.

Colonnelli, Emanuele, Mounu Prem, and Edoardo Teso, "Patronage and selection in public sector organizations," *American Economic Review*, 2020, *110* (10), 3071–3099.

Dahis, Ricardo, Laura Schiavon, and Thiago Scot, "Selecting top bureaucrats: Admission exams and performance in brazil," *Review of Economics and Statistics*, 2024, pp. 1–18.

de Mesquita, Bruce Bueno, Alastair Smith, Randolph M Siverson, and James D Morrow, *The logic of political survival*, MIT press, 2005.

Deserranno, Erika, "Financial incentives as signals: experimental evidence from the recruitment of village promoters in Uganda," *American Economic Journal: Applied Economics*, 2019, *11* (1), 277–317.

Dincecco, Mark and Gabriel Katz, "State capacity and long-run economic performance," *The Economic Journal*, 2016, *126* (590), 189–218.

Evans, Peter and James E Rauch, "Bureaucracy and growth: A cross-national analysis of the effects of" Weberian" state structures on economic growth," *American sociological review*, 1999, pp. 748–765.

Fan, Haichao, Yu Liu, Nancy Qian, and Jaya Wen, "Computerizing VAT invoices in China," Technical Report, National Bureau of Economic Research 2018.

Finan, Frederico, Benjamin A Olken, and Rohini Pande, "The personnel economics of the developing state," *Handbook of economic field experiments*, 2017, *2*, 467–514.

Fisman, Raymond, Hui Lin, Yongxiang Wang, and Weixing Wu, "Ability and selection into the Chinese bureaucracy."

Frye, Timothy and Andrei Shleifer, "The Invisible Hand and the Grabbing Hand.," *American Economic Review*, 1997.

Fukuyama, Francis, *Political order and political decay: From the industrial revolution to the globalization of democracy*, Macmillan, 2014.

He, Qiwei, "Estimating Matching Games Without Individual-level Data: Multi-dimensional Sorting in Government Recruitment," *Working Paper*, 2024.

Khan, Adnan Q, Asim I Khwaja, and Benjamin A Olken, "Tax farming redux: Experimental evidence on performance pay for tax collectors," *The Quarterly Journal of Economics*, 2016, *131* (1), 219–271.

_ , Asim Ijaz Khwaja, and Benjamin A Olken, "Making moves matter: Experimental evidence on incentivizing bureaucrats through performance-based postings," *American Economic Review*, 2019, *109* (1), 237–270.

Lai, Weizheng and Xun Li, "China's Anti-Corruption Campaign and Civil Servant Fever," *Available at SSRN 3662406*, 2022.

Li, Hongbin, Lingsheng Meng, Yanyan Xiong, and Sinclair L Cook, "Job Preferences and Outcomes for China's College Graduates," *The China Quarterly*, 2023, pp. 1–19.

Liu, Hanzhang, "Meritocracy as authoritarian co-optation: Political selection and upward mobility in China," *American Political Science Review*, 2023, pp. 1–17.

Magaloni, Beatriz, *Voting for autocracy: Hegemonic party survival and its demise in Mexico*, Vol. 296, Cambridge University Press Cambridge, 2006.

Mocanu, Tatiana, "Designing gender equity: Evidence from hiring practices and committees," Technical Report, Working paper 2022.

Moreira, Diana and Santiago Pérez, "Civil service exams and organizational performance: Evidence from the pendleton act," *American Economic Journal: Applied Economics*, 2024, *16* (3), 250–291.

Pomeranz, Dina, "No taxation without information: Deterrence and self-enforcement in the value added tax," *American Economic Review*, 2015, *105* (8), 2539–2569.

_ **and José Vila-Belda**, "Taking state-capacity research to the field: Insights from collaborations with tax authorities," *Annual Review of Economics*, 2019, *11* (1), 755–781.

Rosenfeld, Bryn, "Reevaluating the middle-class protest paradigm: A case-control study of democratic protest coalitions in Russia," *American Political Science Review*, 2017, *111* (4), 637–652.

Svolik, Milan W, *The politics of authoritarian rule*, Cambridge University Press, 2012.

Treisman, Daniel, "What have we learned about the causes of corruption from ten years of cross-national empirical research?," *Annu. Rev. Polit. Sci.*, 2007, *10* (1), 211–244.

Ujhelyi, Gergely, "Civil service rules and policy choices: evidence from US state governments," *American Economic Journal: Economic Policy*, 2014, *6* (2), 338–380.

Wang, Yuhua and Bruce J Dickson, "How corruption investigations undermine regime support: evidence from China," *Political Science Research and Methods*, 2022, *10* (1), 33–48.

Weaver, Jeffrey, "Jobs for sale: Corruption and misallocation in hiring," *American Economic Review*, 2021, *111* (10), 3093–3122.

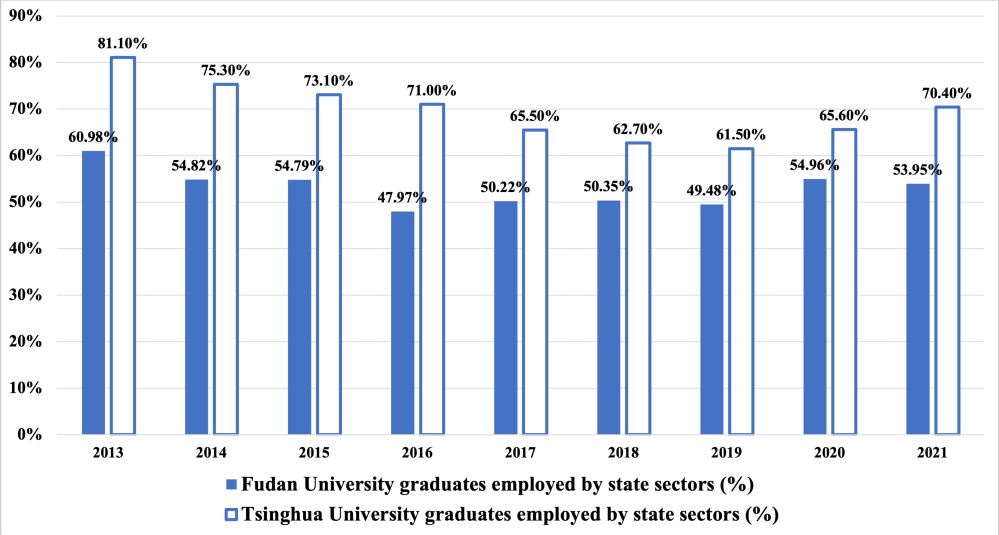
Xu, Guo, "The costs of patronage: Evidence from the british empire," *American Economic Review*, 2018, *108* (11), 3170–3198.

Zhang, Changdong, *Governing and ruling: The political logic of taxation in China*, University of Michigan Press, 2021.

Zhang, Li, Ming Lu, and Yali Liu, "Tax incentives and supply structure of commercial and residential land," *China Economic Quarterly (Chinese)*, 2022, *22* (4), 1425–1446.

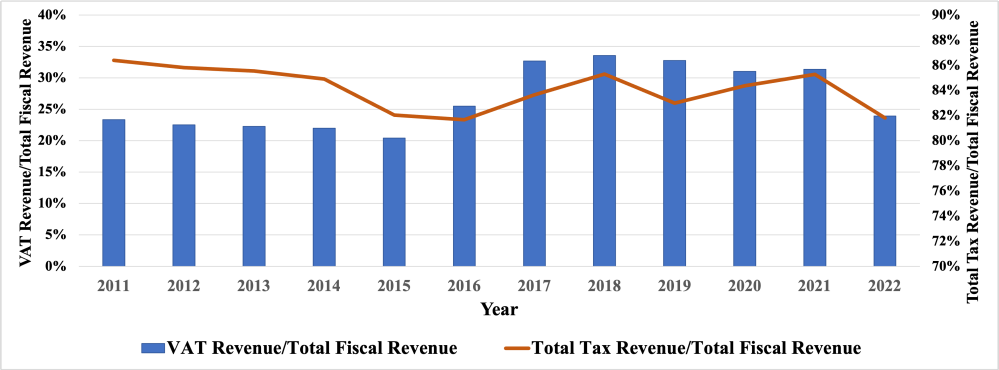
Appendix

A1 Figures



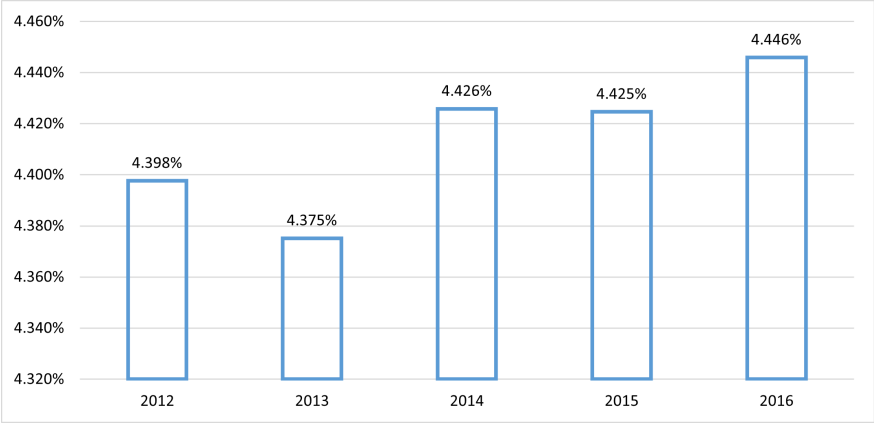
Notes: Data on state-sector employment proportions for Fudan University and Tsinghua University graduates are from https://xxgk.fudan.edu.cn/bysjyzlndbg/list.htm and https://career.tsinghua.edu.cn/tzgg.htm, respectively. State sectors include: (1) party and government organs ("党政机关"); (2) public institutions ("事业单位", including scientific R&D institutions, medical and public health agencies, schools, and others); (3) state-owned enterprises ("国有企业"); (4) the military ("部队").

Figure A1: State Sector Employment (%) among Fudan and Tsinghua University Graduates



Notes: Data on VAT revenue, total tax revenue, and total fiscal revenue are from the China Statistical Yearbook (2012-2022), compiled by the National Bureau of Statistics of China. The y-axis on the left-hand side indicates the level of VAT/Total Fiscal Revenue, and the y-axis on the right-hand side indicates the level of Total Tax/Total Fiscal Revenue.

Figure A2: VAT and Total Tax Revenues as Shares of the National Total Fiscal Revenue



Notes: Data on GDP and sector outputs are from the China Statistical Yearbook (2013-2017), compiled by the National Bureau of Statistics of China.

Figure A3: The GDP Shares of Transportation, Storage, and Postal Industries Outputs

A2 Tables

Table A1: Social Elites and Individual Perception of Power and Benefits

	Power: Increase			Compensation & Welfare: Increase		
	OLS	OLS	Probit	OLS	OLS	Probit
	(1)	(2)	(3)	(4)	(5)	(6)
D.V. Mean	0.627	0.634	0.635	0.631	0.636	0.635
Social status	0.036***	0.044***	0.125***	0.028	0.026	0.078
	(0.008)	(0.010)	(0.031)	(0.017)	(0.020)	(0.062)
College or above	0.189**	0.155*	0.416**	0.042	0.031	0.110
	(0.071)	(0.078)	(0.206)	(0.074)	(0.101)	(0.308)
Age		-0.002	-0.006		-0.003	-0.008
		(0.003)	(0.008)		(0.004)	(0.011)
Female		-0.055	-0.136		0.136**	0.423***
		(0.055)	(0.151)		(0.050)	(0.152)
CCP member		-0.089	-0.249		0.069	0.208
		(0.081)	(0.227)		(0.070)	(0.230)
Married		0.072	0.200		-0.091*	-0.283*
		(0.055)	(0.150)		(0.048)	(0.153)
Minority		-0.002	0.006		-0.216	-0.586*
		(0.143)	(0.384)		(0.130)	(0.344)
Observations	453	415	411	444	407	392
R-squared	0.058	0.116		0.019	0.110	
Pseudo R-squared			0.0825			0.0759
Province FEs	No	Yes	Yes	No	Yes	Yes
Number of Provinces	28	27	23	28	27	21

Notes: The sample includes individuals with at least short-course college education level ("大专学历"). The dependent variable "Power: Increase" for Columns (1), (2) and (3) is a dummy variable which equals 1 if an individual perceived that the VAT reform increased the power of government positions affiliated with the SAT agencies, and 0 otherwise. The dependent variable "Compensation & Welfare: Increase" for Columns (4), (5) and (6) is a dummy variable which equals 1 if an individual perceived that the VAT reform increased the welfare and compensation associated with government positions affiliated with the SAT agencies, and 0 otherwise. "Social status" is a continuous, self-reported measure of an individual's social class and status, quantified on an 11-point scale ranging 0 (the lowest status) to 10 (the highest class). "College or above" is a dummy variable which equals 1 if an individual had a bachelor degree or above, and 0 if only short-course college education. "Age" is a continuous measure of individuals' age, which equals 2023 minus the numeric values of their birth years. "CCP member" is a dummy variable, which equals 1 if an individual is a CCP member, and 0 otherwise. "Married" is a dummy variable, which equals 1 if an individual is in a marriage, and 0 otherwise. "Minority" is a dummy variable, which equals 1 if an individual is an ethnic minority, and 0 otherwise. Columns (1), (2), (4) and (5) present OLS estimates, while Columns (3) and (6) present Probit estimates. Province fixed effects are added in Columns (2), (3), (5) and (6). Standard errors reported in parentheses are clustered at the province level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Effects of the VAT Reform on NCSE Outcomes with Continuous BT-VAT Ratio Treatment

SAT Sample	# of Applicants	App-to-Recruit Ratio	Cutoff Score
	(1)	(2)	(3)
D.V. Mean	97.07	61.29	120.5
BT-VAT 2011 Ratio × Post2016	8.961*	4.746**	0.474**
	(5.041)	(2.013)	(0.185)
Observations	70,498	70,498	56,086
R-squared	0.105	0.094	0.422
Prefecture FEs	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
Prefecture Covariates	Yes	Yes	Yes
Position Covariates	Yes	Yes	Yes
Number of Provinces	31	31	31
Number of Prefectures	288	288	288

Notes: Results are based on the SAT sample. "# of Applicants" is the number of applicants for each position. "App-to-Recruit" is the abbreviation of position-level ratio of the number of applicants to recruitment quota. "Cutoff Score" is the minimum scores for passing the written exam, normalized to a 200-point scale for all the job positions. BT-VAT Ratio 2011 is a prefecture's 2011 BT-VAT ratio (logged). $Post2016$ equals 1 for all years later than 2016 and 0 otherwise. Prefecture fixed effects, year fixed effects, prefecture-level covariates, and position-level covariates are included across all the specifications. Standard errors reported in parentheses are clustered at the prefecture level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Effects of the VAT Reform on NCSE Outcomes with Alternative Treatment Assignment

SAT Sample	# of Applicants		App-to-Recruit Ratio		Cutoff Score for Interviews	
	(1)	(2)	(3)	(4)	(5)	(6)
D.V. Mean	98.56	97.07	63.12	61.29	120.5	120.5
I(Ave. BT-VAT $>$ Mean) $\times$ Post2016	17.738*	15.813*	10.368**	9.063**	0.994**	1.090***
	(9.692)	(9.420)	(4.816)	(4.567)	(0.401)	(0.408)
Observations	75,498	70,498	75,498	70,498	56,892	56,086
R-squared	0.068	0.104	0.059	0.093	0.357	0.422
Prefecture FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Position Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Number of Provinces	31	31	31	31	31	31
Number of Prefectures	288	288	288	288	288	288

Notes: Results are based on the SAT sample. "# of Applicants" is the number of applicants for each position. "App-to-Recruit" is the abbreviation of position-level ratio of the number of applicants to recruitment quota. "Cutoff Score" is the minimum score for passing the written exam, normalized to a 200-point scale for all the job positions. "I(Ave. BT-VAT $>$ Mean)" equals 1 if a prefecture's average BT-VAT ratio during years from 2007 to 2011 is higher than that period's cross-prefecture average. $Post2016$ equals 1 for all years later than 2016 and 0 otherwise. Prefecture fixed effects, year fixed effects, prefecture-level covariates, and position-level covariates are included across all the specifications. Standard errors reported in parentheses are clustered at the prefecture level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Effects of the VAT Reform on NCSE Position-Level Demand and Prefecture-Level Aggregate Demand

SAT Sample	Recruitment Quota **(position-level)**	Aggregate # of Recruitment Quota **(prefecture-level)**
	(1)	(2)
D.V. Mean	1.774	38.99
High BT-VAT × Post2016	-0.041	2.411
	(0.061)	(2.111)
Observations	70,867	3,385
R-squared	0.260	0.776
Prefecture FEs	Yes	Yes
Year FEs	Yes	Yes
Prefecture Covariates	Yes	Yes
Position Covariates	Yes	No
Number of Provinces	31	31
Number of Prefectures	288	288

Notes: In Column (1), the dependent variable is the position-level recruitment quota for SAT agencies. In Column (2), the dependent variable is the total number of recruitment quotas across all SAT positions, aggregated to the prefecture level. "High BT-VAT" equals 1 if a prefecture's 2011 BT-VAT ratio is higher than the average. $Post2016$ equals 1 for all years later than 2016 and 0 otherwise. Prefecture fixed effects, year fixed effects, and prefecture covariates are included across all the specifications, while position covariates are added in Column (1). Standard errors reported in parentheses are clustered at the prefecture level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A3 VAT Reform: Timeline

Table A5 shows the timeline of the gradual roll-out of the VAT reform. The VAT reform started in 2012 with a pilot only in Shanghai. In the same year, the pilot was expanded to two more central-administered municipalities, Beijing and Tianjin, and other eight provinces. In these pilot regions, the BT was replaced with the VAT partly in transportation and modern service industries. From August 2013 to June 2014, the central government expanded the VAT reform to the rest of the country, but only covers a few small industries as pilots, such as the transportation and modern service industries and part of radio, film, and television products and telecommunication industries. In May 2016, the VAT reform was fully implemented for the entire country and covered all industries.

Table A5: The Timeline of Experimentation and Completion of VAT reforms in China

Time	Experimented Locations	Experimented Industries
Jan 2012	Shanghai	**Part** of transportation and modern service industries
Sept 2012	Shanghai, Beijing	**Part** of transportation and modern service industries
Oct 2012	Shanghai, Beijing, Jiangsu, Anhui,	**Part** of transportation and modern service industries
Nov 2012	Shanghai, Beijing, Jiangsu, Anhui, Fujian, Guangdong	**Part** of transportation and modern service industries
Dec 2012	Shanghai, Beijing, Jiangsu, Anhui, Fujian, Guangdong, Tianjin, Zhejiang, Hubei	**Part** of transportation and modern service industries
Aug 2013	Nationwide	**Part** of transportation and modern service industries + Radio, film, and television products
Jan 2014	Nationwide	**All** of transportation and modern service industries + Radio, film, and television products
June 2014	Nationwide	**All** of transportation and modern service industries + Radio, film, and television products + Telecom industries
May 2016	Nationwide	**All** of transportation and modern service industries + Radio, film, and television products + Telecom industries + Housing and real estates, finance, construction, consumer service industries

A4 Covariates in the Constructed NCSE Data

We include a set of position-specific characteristics and a set of prefecture-level covariates in the main empirical model. Position-level covariates include dummy variables for position types (regular positions or special positions such as those with special language requirements), location of jobs (whether the position is in remote or poor areas), nature of the hiring agencies (e.g., the Party organs, State Council administrative units, functional departments of the government etc.), the administrative rank of the hiring agency's director, and requirements on education, majors, and gender. We consider these position-level covariates because job characteristics and requirements affect individuals' preferences for the position and their eligibility to apply. Prefecture-level covariates include logged GDP per capita, logged population of permanent residents, and the combined share of the secondary and tertiary sectors' outputs in total GDP.

A5 Survey Questionnaire

The survey questions regarding the National Civil Servant Exam (NCSE) were included in two other online surveys conducted by one of the authors of this paper. The samples for the two surveys were collected by a US-based survey company from July to August, and from August to November 2023, respectively.

We have given careful consideration to ethics. These surveys were approved by the Institutional Review Board (IRB) of the author's home institution. We also adhere to EGAP principles regarding research transparency and the protection of research team staff. Furthermore, we implemented two measures to minimize potential risks to respondents and research team staff. First, we collected only non-identifiable information, which is securely stored on servers outside China. We informed respondents about the protection of privacy and data security at the beginning of the survey and allowed them to exit the survey at any time. Second, the survey questions for this study ask respondents about whether they have taken civil servant exams and their understanding of the Value Added Tax Reform, which are not sensitive at all. Together, these measures minimize any potential risks to the survey participants and research staff.

In total, we obtained a sample of 4,585 respondents. These respondents are all adults and come from most provinces in China, except Qinghai, Ningxia, Xinjiang, and Tibet, due to data availability issues in those regions. While this sample is not nationally representative, we employed a quota sampling strategy to target age, gender, education, and geographic distributions as closely as possible.

Below we present survey questions that we use for our analysis in Table 3 and Table A1:

- (**Question: sedu**) Your highest education attainment is: (您的最高学历[最高已完成的学历]是:)
  - (1) Primary school or below (小学或小学以下)
  - (2) Junior high school (初中)
  - (3) Vocational secondary or high school, or equivalents (职业高中或同等技术学校)
  - (4) Regular senior high school (普通高中)

  - (5) College with short-cycle courses (大学专科)
  - (6) College with normal courses (大学本科)
  - (7) Master degrees (硕士)
  - (8) Doctoral degrees (博士)

- (**Question: sbirthy**) What is your birth year? Please fill in a 4-digit integer. (您的出生年份是[请填写4位整数]?) _____

- (**Question: sprov**) Which province and city are you permanently living? (您目前长期居住的省市是?) _____

  - (**Variable name: sprov_1**) Province (省)
  - (**Variable name: sprov_2**) City (市)

- (**Question: dparty**) What is your political identity? (您的政治面貌是")

  - (1) CCP member (共产党员)
  - (2) CCP Youth League member (共青团员)
  - (3) Democratic parties' member (民主党派)
  - (4) Mass (群众)

- (**Question: dclass**) Which social class do you think you are in? 0 means the lowest class, and 10 means the highest class. (您认为您的家庭在中国社会中处于哪个阶级层次? 0表示最底层, 10表示最顶层")

  - (0)
  - (1)
  - (2)
  - (3)
  - (4)
  - (5)

  - (6)
  - (7)
  - (8)
  - (9)
  - (10)

- (**Question: dmarri**) What is your current marital status? (您目前的婚姻状况是")
  - (1) Unmarried (未婚)
  - (2) In marriage (已婚)
  - (3) Divorced (离异)
  - (4) Widowed (丧偶)

- (**Question: dethn**) What is your ethnic identity? (您的民族是)
  - (1) Han (汉族)
  - (2) Minority (少数民族)

- (**Question: djob**) Do you have a full-time job, currently or before retirement? If you are a student, please choose "No." (您目前(或退休前)是否有全职的工作?若您是学生, 选择"否")
  - (1) Yes (是)
  - (2) No (否)

- (**Question: ncse1**) Have you applied for, or are you planning to apply for, the National Civil Service Examination (the NCSE)? (请问您是否曾经参加过, 或正打算参加国家公务员考试?)
  - (1) Yes (是)
  - (2) No (否)

- (**Question: ncse2**) [If "Yes" to **Question ncse1**] Have you applied for, or are you planning to apply for, any government job openings affiliated with the State Administration of Tax (SAT)? (请问, 对于公务员考试, 您是否曾经报考过或计划报考税务系统的职位?)
  - (1) Yes (是)
  - (2) No (否)
- (**Question: ncse3**) [If "Yes" to **Question ncse2**] Do you know about the Value-Added Tax (VAT) reform? (请问您知道"营改增"这一政策吗?)
  - (1) Yes (是)
  - (2) No (否)
- (**Question: ncse4**) [If "Yes" to **Question ncse3**] Do you think that the VAT reform increased or decreased the power of the SAT agencies? (请问您觉得"营改增"这一政策, 是增加了还是减少了国税部门的权力?)
  - (1) Increase (增加)
  - (2) Decrease (减少)
  - (3) No Change (保持不变)
- (**Question: ncse5**) [If "Yes" to **Question ncse3**] How do you think the VAT reform would affect the welfare and compensation for the bureaucrats affiliated to the SAT agencies? (请问您觉得"营改增"这一政策, 如何影响国税系统工作人员的待遇和福利?)
  - (1) Increase (增加)
  - (2) Decrease (减少)
  - (3) No Change (保持不变)

The NCSE requires that applicants should have at least college education levels (including college with short-cycle courses). Hence, to estimate the results in Table 3, we limit our sample to the following two subgroups (A) and (B), whose education attainment is eligible for the NCSE:

(A) those respondents who chose one of the last four options in **Question sedu** (with at least a

college education level, 大学专科), and

(B) those respondents who chose the fourth option in **Question sedu** (regular senior high school, 普通高中) and "No" for in **Question djob** (no full-time job) but with a birth year 1998 or later in **Question sbirthy** (25 years old or younger).

We include the second subgroup because they are most likely undergraduate students who were still in the college when participating in the survey.

The responses to Questions **ncse1**, **ncse2**, **ncse3**, **ncse4**, and **ncse5** are used to estimate the results in Column (1), (2), (3), (4) and (5) of Table 3, respectively.

To estimate the results in Table A1, we further limit our sample to subgroup (A) only, the group who had *at least* short-course college education level (大学专科) when participating in the survey. We calculate respondents' age by subtracting the numeric values of their birth years from 2023.

A6 SAT Agencies: Powerful and Less powerful Positions

In this section, we detail our methodology for identifying relatively powerful positions from the SAT within the NCSE dataset. We elicit information on the nature of work for different job openings from the texts that the following four identification variables contain: the names of job posts ("职位名称"), the names of affiliated agencies or departments ("部门名称"), the names of the agency branches ("用人司局"), and the descriptions of job posts ("职位简介").

We conduct expert interviews with employees of the State Administration of Taxation (SAT) in China, who possess at least eight years of working experience in tax administration. These interviews are separate field work activities from the survey we introduce in Appendix A5. These interviews did not need IRB review, because they did not involve human subjects, determined by the home institution of one of the authors with the IRB protocol number 7060X. The questions appearing in the interviews are only about the functioning of the institutions in which the interviewees work. No question in the interview is about the interviewees themselves.

During the interviews, we provided them with a comprehensive list of keywords extracted from the texts contained by the above four identification variables in our dataset. The list presented to the experts is shown below.

- Tax Sources & Collection: Tax Base Management, Tax Collection, Tax Collection and Management and Non-tax Revenue Department.
- Tax Services & Administration: Tax Services, Tax Handling Services, Tax Law Enforcement, Tax Business/Operations, Tax Comprehensive Business/Operations, Tax Comprehensive Management Department, Tax Comprehensive Department.
- Tax Inspections & Cases: Tax Inspections, Tax Audit, Case Review/Trial, Case Execution/Enforcement, Tax Management.
- International & Special Taxes: International Tax Affairs, Goods and Services Tax, Horse Racing Taxation, Vehicle Purchase Tax, Vehicle Acquisition Tax, Import and Export Tax, Income Tax

After reviewing the list, these SAT-employee interviewees identified a set of keywords that,

based on their experience, signify "powerful" positions. Specifically, the keywords used to identify "powerful" positions include: "**tax base** (税源)," "**tax inspections** (稽查)," "**tax audit** (审计)," and "**tax law enforcement** (执法)."

All the other positions whose identification variables do not include the above four keywords in their texts are categorized as "less powerful." Furthermore, we regard positions with designated locations in financially challenged areas, remote locations, or poor areas as "less powerful" as well. The geographic locations of such job openings indicate that it is less likely for their roles to be empowered by the VAT reform than those "powerful" positions. To identify these positions with special designated geographic locations, we use information extracted from the texts contained by the above four identification variables that include the following keywords: "financially challenged (财政困难)," "difficult (困难)", "poor county (贫困县)," "poor areas (贫困地区)," "hardship (艰苦)," and "geographically peripheral areas (偏远)."