How Do Individual Politicians Affect Privatization? Evidence from China*

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Abstract

This paper investigates how politicians' career concerns affect privatization outcomes in China. Privatizations increase firm efficiency and productivity, which help local politicians' career advancements under GDP tournaments in China. Local politicians connected to top political leaders have high promotion chances regardless of GDP growth. Consequently, the privatizations conducted by connected local politicians achieve lower efficiency gains. For identification, we exploit discontinuities in local politicians' connections and privatization outcomes around the compulsory retirement age of top politicians. Moreover, older and less educated politicians have lower promotion chances and thus have greater need for GDP growth and choose privatizations with better outcomes.

Keywords: Privatization, Local Politician, Network, Career Concern

JEL Classification: D73, G30, L33

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1. Introduction

The privatization of state-owned enterprises (SOEs) has been one of the most important economic reforms since the 1980s across the globe in places such as Central Europe, China, Mexico, and the Soviet Union (e.g., Megginson (2005)). SOEs still play a vital role in many countries worldwide.[1] The central questions in the debate are why countries privatize SOEs and what the economic consequences are. After decades of research, these discussions are far from being closed. In particular, little is known about why politicians with noneconomic objectives, such as career concerns, would ever embrace privatization (e.g., Shleifer and Vishny (1994))[2] and how politicians' personal attributes affect privatization decisions and outcomes.[3]

This paper fills this gap by studying the role of individual politicians in privatization outcomes in the context of China, where the implementation of privatization is decentralized and conducted mainly by local politicians (Xu (2011)). We find that, in general, privatized SOEs increase efficiency and productivity, which fuel local GDP growth and the subsequent promotion chances of local politicians.[4] There is vast heterogeneity in efficiency gains following privatization across individual politicians. The local politicians with strong political backgrounds (i.e., connected to top leaders or worked in Beijing) enjoy better promotion chances regardless of local GDP growth. This fact reduces the incentives of such politicians to promote the local economy, which causes worse privatization outcomes. Additionally, the efficiency gains from privatization are

[1] Kowalski et al. (2013) show that over 10% of the world's largest firms are state-owned. China has the highest number of SOEs, especially in strategic industries. Many of them rank among the largest corporations across the globe.
[2] There is limited evidence showing government motivations for privatizations, e.g., Hu, Li, Lin and Wei (2019) shows that the increased competition from lowering import tariffs pushes privatization progress in China.
[3] It is inconclusive whether privatization necessarily leads to efficiency gains, especially in transitional economies. See, for example, the survey by Megginson and Netter (2001), which shows that the efficiency gains from privatization depend on a firm's ownership concentration, methods of privatization, or whether the new owners are insiders or outsiders.
[4] Instead of being elected, local politicians in China are appointed by the central power of the Communist Party of China and their promotion depends heavily on local GDP performance (e.g., Li and Zhou (2005)).

significantly larger for older and less educated local politicians who have smaller chances of promotion through tournaments. This paper, for the first time, shows how individual politicians' characteristics affect the outcomes of privatization from the perspective of career concerns.

We use firm-level panel data from the Chinese Industry Census (CIC) between 1998 and 2009, which recorded detailed annual financial statements and firm characteristics, such as ownership. We merge the CIC with manually collected data from the curricula vitae of 1,750 politicians across 326 cities in China between 1998 and 2009. Our analyses focus on city secretaries of the Communist Party of China (CPC), who are the leading politicians for cities in China. We also restrict the sample to the local SOEs at the city level or below, which are under the direct jurisdiction of those city secretaries. This sample covers 96.7% of the privatization cases in CIC.

We begin the analyses by estimating the changes in SOEs' efficiency and productivity following privatization. In the multivariate analyses, consistent with the conventional wisdom, we find that, on average, privatized SOEs increase their total factor productivity (TFP), sales per worker, return on assets (ROA), and operating return on assets (OROA) by 14.8%, 12.0%, 15.4%, and 5.9%, respectively. Moreover, both economic factors and politicians' attributes play roles in choosing privatization targets. In particular, SOEs with higher ROAs, larger assets, and fewer employees are more likely to be privatized. City secretaries conduct more privatizations if they are male, older, or well educated, suggesting that local politicians play an essential role in privatizations in China.

Next, we explore the heterogeneity in privatization outcomes across local politicians from the perspective of career concerns. China has adopted both meritocracy and elitism in determining politicians' promotions, and merit-based factors such as GDP performance and political

backgrounds are major considerations in promotions (e.g., Li and Zhou (2005); Meyer, Shih and Lee (2016); Huang, Li, Ma and Qian (2017); Fisman, Shi, Wang and Wu (2019)). Our hypothesis is that when local politicians have strong political backgrounds (e.g., connection to top leaders), they are more likely to be promoted regardless of GDP performance. Consequently, these politicians engage in fewer promising privatizations. Our maintained assumption is that local politicians have sufficient information to predict the efficiency gains following privatizations. It is well-documented that local governments and politicians in China are much better informed than the political leaders in the central government regarding local economic conditions (e.g., Xu (2011); Huang, Li, Ma and Xu (2017)).

To test our hypothesis, we measure local politicians' political backgrounds based on their connections to members of the Central Committee of the CPC. The Central Committee is comprised of approximately 200 full member representatives to the National People's Congress, the highest organ of state power. We define local politicians as connected if they have worked as subordinates for Central Committee members.[5] For each local politician, the connections are time-varying due to turnover in the Central Committee. We find that although privatizations generally increase SOEs' efficiency, the gains are significantly less pronounced when connected local politicians conduct the privatizations. On average, compared to unconnected local politicians, the improvements in the TFP, sales per worker, ROA, and OROA of privatized SOEs are reduced by 34.3%, 31.33%, 54.4%, and 30.7%, respectively, for connected local politicians. In short, when local politicians have strong political backgrounds (i.e., connections to top leaders), the

[5] For example, if a local politician in a particular city (e.g., city secretary or mayor) has worked for a provincial secretary. We define this local politician as connected to the provincial leader. When this provincial leader becomes a member of the Central Committee, we consider her connected lower level politicians more politically powerful. Jiang (2018) uses a similar method to construct an interpolitician network and finds that these connections are closely associated with local economic activities.

privatizations conducted by them achieve lower efficiency gains than those of unconnected politicians. We control for time-varying firm characteristics and firm and year fixed effects.

To further support our hypothesis, we examine the fundamental reasons behind such heterogeneity in privatization outcomes. First, it is well known that high GDP growth increases the promotion chances of local politicians (e.g., Li and Zhou (2005); Landry, Lü and Duan (2018)), and we find the same pattern in our data. A one standard deviation increase in GDP growth is associated with a 23% increase in promotion probability for a city secretary. Moreover, privatizations are associated with higher GDP growth, especially for those with higher subsequent efficiency gains. Second, in addition to such merit-based factors, we find that political backgrounds also matter for promotion. For example, local politicians' connections to the Central Committee significantly increase their promotion chances by 67.5%. Furthermore, when local politicians are connected, GDP growth has almost no effect on subsequent promotions.

These findings support our hypothesis that the career concerns of local politicians play a role in the privatizations of local SOEs. Under China's political system, which uses both meritocracy and elitism, on the one hand, the GDP tournament in China aligns the incentives of local politicians with the agenda of economic growth, given that the primary goal of politicians is to climb the ladder in the political hierarchy. Local politicians choose to privatize SOEs with the best potential for productivity improvements, which leads to higher GDP growth. On the other hand, when local politicians do not need high GDP growth for career advancements (e.g., connected to top leaders), they are less incentivized to engage in promising privatizations, which leads to worse outcomes.

To further strengthen the examination of politician career concerns' role in privatization outcomes, we look at other characteristics of local politicians, such as age, education, and work

experience. In particular, in addition to GDP growth and interpolitician connections, local politicians who are older or have less education are significantly less likely to be promoted, and they conduct privatization deals with higher subsequent efficiency gains. This finding is consistent with our hypothesis that local politicians need higher local economic growth for promotion when they have disadvantages in other areas (e.g., age and education). Furthermore, if local politicians have worked in Beijing, their promotion chances are 37.14% higher than that of those without work experience in Beijing. Beijing is the capital city and political center in China; working there can help local politicians establish relationships with national political leaders. Moreover, the TFP increase of privatized SOEs is 18.1% lower under those politicians with work experience in Beijing. This finding complements our earlier analysis of interpolitician connections.

The variation in interpolitician connections is semiexogenous. Specifically, for individual local politicians, the change in their connections comes from their former bosses' promotions to the Central Committee. Additionally, the network among politicians is predetermined by their past working histories. Thus, the variation in interpolitician connections is not directly linked to local politicians' concurrent actions. However, these connections could still be correlated with other factors that drive both political connections and privatization outcomes. To build the causality, we employ the fuzzy regression discontinuity design (RDD) by using the compulsory retirement age cut-off for the Central Committee members to explore the discontinuities in local politicians' connections and privatization outcomes. In China, the age limit for term renewal is 64 for Central Committee members at the ministerial level.[6]

[6] In China, the turnover of the Central Committee occurs every five years. Central Committee members are normally ranked at the ministerial level, and the age limit for term renewal is 64. The Politburo of the Central Committee is comprised of approximately 25 people who are national-level leaders, and their age limit for renewal is 68 years old. We exclude the Politburo members in our main RDD analysis, and our results are robust when we include the Politburo members. See a detailed discussion in Section 2.2.

In the first stage of fuzzy RDD, consistent with the age limit policy, we find that all Central Committee members step down when they are 64 or older in turnover years. In the second stage of the fuzzy RDD, we regress the changes in efficiency before and after the privatization on whether the local politicians who conduct the privatization lose connections due to the estimated stepping down of the Central Committee members they are connected to. We find that the efficiency gains of privatizations jump significantly when the local politicians lose their connections. For example, the TFP increases one year after privatization jump by approximately 60.3% for local politicians who lose connections due to the stepping down at the retirement age cut-off of the Central Committee members they are connected to. This finding suggests that when local politicians lose connections to top leaders, they have greater need for merit-based measures for career advancement (i.e., GDP) and thus conduct the privatizations with better outcomes.

Furthermore, we repeat the RDD for other local politicians' characteristics (e.g., age, Beijing work experience, minority ethnicity, education level), and none of them have significant changes around the cut-off of 64 years old. This mitigates the concern that other local politicians' characteristics correlate with their political connections and drive the jumps in privatization efficiency gains around the cut-off. In addition, the total amount of SOE assets at the city level also does not jump at the cut-off, which mitigates the concern that the connected politicians might have smaller pools of SOEs to pick from for privatization and have to choose ones with low-efficiency gains. Overall, these results establish the causal effects of politician career concerns on privatization implementations and outcomes. As we specifically indicate, the stepping down of Central Committee members due to the age cut-off is predictable, and our identification comes from the discontinuities rather than exogenous shocks.

Finally, we explore potential explanations for why connected and powerful local politicians deviate from GDP maximization and choose less optimal privatization targets. In other words, when GDP growth becomes less essential for local politicians' career advancement, what other motivations of local politicians lead to worse privatization outcomes. One possible channel is documented in Fisman and Wang (2014), which shows that, in China, local politicians can steal from privatizations by selling the SOEs' assets at a discounted price. This rent-seeking behavior leads to the worse subsequent operating performance by privatized SOEs. Consistent with the rent-seeking incentives in Fisman and Wang (2014), we find that the amounts of corruption are significantly higher for connected local politicians than for unconnected politicians when they are under investigations by anti-corruption campaigns.

This article contributes to the literature in three ways. First, it adds to the literature on the nexus of politics and economics in privatization. The literature on political economy starts with Nordhaus (1975) and has been growing ever since, showing how politicians distort economic activities for personal agendas.[7] A prominent case is privatization, where politics play an important role (e.g., Clarke and Cull (2002); Boehmer, Nash and Netter (2005); Dinc and Gupta (2011)). This paper, for the first time, shows the heterogeneity in privatization decisions and outcomes across individual politicians with various attributes.[8] Notably, it is novel to show the interactions between meritocracy and elitism regarding the role of politicians' political backgrounds and merit-based determinants of promotions based on privatizations outcomes. One closely related study is

[7] See, for example, MacRae (1977), Kornai (1979), Alesina and Sachs (1988), Sapienza (2004), Dinc (2005), Khwaja and Mian (2005), Cohen, Coval and Malloy (2011), Carvalho (2014).
[8] Some studies explore how politicians' demographics affect government policies and economic activities (e.g., Levitt (1996); Dollar, Fisman and Gatti (2001); Washington (2008)).

by Fan, Wong and Zhang (2007), which shows that in China, partially privatized SOEs with politically connected CEOs perform worse in the stock market than those without connections.

Second, although the conventional wisdom has shown that privatization leads to improvements in efficiency (e.g., Boardman and Vining (1989); Megginson, Nash and Van Rrandenborgh (1994); La Porta and Lopez-de-Silanes (1999); Megginson and Netter (2001)), this is not always the case. Efficiency gains depend largely on the methods of implementation of privatizations, such as new owners and managers of privatized SOEs (e.g., Barberis et al. (1996); Frydman et al. (1999); Estrin et al. (2009); Gan, Guo and Xu (2017)). For example, Fisman and Wang (2014) show that, in China, corruption and rent-seeking in the privatization process are prevalent and lead to worse subsequent operating performance.[9] Our findings of heterogeneous outcomes of privatizations across individual politicians shed new light on the mixed evidence of efficiency gains from privatization.

Third, this paper also adds to the literature on state vs. private ownership. The social view argues that SOEs should invest in negative NPV projects with positive spill-over effects (e.g., Sappington and Stiglitz (1987); Stiglitz (1993)). The agency view argues that the managers of SOEs have weak incentives due to multiple objectives for multiple masters (e.g., Alchian (1965); Tirole (1994); Dixit (1997); Vickers and Yarrow (1988, 1991)). Both of these views assume that the government is benevolent and aims to maximize social welfare so that performance and efficiency gains serve as a fundamental impetus for privatization. In contrast, the political view argues that spending politicians capture SOEs for their personal goals, such as election and rent-seeking (e.g., Shleifer and Vishny (1994); Biais and Perotti (2002)). However, there is limited

[9] Other studies have also shown opposing effects of privatizations in China. Jefferson and Su (2006) show that the conversion of SOEs to shareholding enterprises increase the productivity and innovation efforts in China. Sun and Tong (2003) show that privatizations in China improve the earnings ability but not profit returns.

empirical evidence on what motivates nonbenevolent politicians to privatize SOEs.[10] This paper fills this gap by showing that career concerns motivate politicians to implement privatizations not only in China but also elsewhere in the world with a comparable environment (e.g., meritocracy). One related study exploring the factors contributing to privatization is by Hu et al. (2019), which finds that increased product market competition leads to more privatizations in China.

The rest of this paper is organized as follows. Section 2 describes the institutional backgrounds in China. Section 3 presents the data and summary statistics. Section 4 shows the empirical analysis and results. Section 5 concludes.

2. Background and Hypothesis

2.1. History of SOE Privatization Reform in China

The economic reform opening-up policy in China was started in 1978 by Xiaoping Deng. The privatization of SOEs was one of the most critical parts of the reform, and a major privatization wave started in 1998 under former Prime Minister Rongji Zhu.[11] In China, SOEs have many privileges and resources from their political connections, especially the large ones in strategic industries such as energy, telecommunications, and finance (e.g., China National Petroleum Corporation, China Mobile, and China Telecom). Although most SOEs are inefficient, banks are

[10] Shleifer and Vishny (1994) and Boycko, Shleifer and Vishny (1996) argue that governments should have always kept control rights and preferred higher private ownership for higher bribes. However, empirical evidence shows that governments have been giving up both control and cash flow rights across the globe (e.g., Kikeri, Nellis and Shirley (1992); Boycko, Shleifer and Vishny (1993); Megginson (2005)).

[11] The first privatization attempts took place from 1978 to 1984, and SOEs started to pay taxes instead of giving their profits directly to the government. This change failed to incentivize SOEs since the tax rate was too high (around 55%), and many SOEs were not able to pay. The second attempt took place from 1984 to 1998. During this period, SOEs contracted out some of their businesses to private sectors. However, most contractors extracted as much rent as possible, which harmed the SOEs and state assets.

still more willing to lend to SOEs due mainly to their soft budget constraints.[12] The lousy performance and enormous losses of SOEs have created an enormous fortune for the Chinese government, especially in the banking sector. It is the primary reason for this privatization wave.[13]

The primary agenda of this privatization wave is to keep the large SOEs (e.g., central SOEs) untouched while selling small SOEs (e.g., local SOEs) to the private sector. Specifically, in September 1995, the *Ninth Five-Year Plan* and the *2010 Long Range Objectives* were announced in the Fifth Plenary Session of the Fourteenth Central Committee. This plan focused on economic transformation, especially the SOE reform, with the key slogan of "grasp the large and let go of the small".[14] Shares of SOEs are sold in various ways (e.g., sales to private owners, public offerings, joint ventures, leasing). For example, the original purpose of establishing the stock market in China was to fund SOEs. In the CIC data, SOEs controlled approximately 66.27% of the assets in 1998, which dropped to 23.79% in 2009.

During this privatization wave, in addition to the central government, local governments play a key or even a more prominent role in the entire process. In China, each SOE has a rank in the political hierarchy and is under the control of different levels of the State-owned Assets Supervision and Administration Commission (SASAC). For example, municipal-level SOEs are owned by the city-level SASAC and need to give their profits to local municipal governments.

[12] For detailed discussions of banks' preference regarding SOEs due to their soft budget constraints, which lead to credit misallocation in China, see, for example, Qian and Roland (1998), Lin and Tan (1999), Cull and Xu (2003), Song and Xiong (2018).

[13] Yao (2005) uses a survey data of 800 SOEs from 1995 to 2001 and finds that insolvency was the big problem facing many SOEs, and government and state bank did not want to support these firms anymore. Privatization became the most plausible way out of this problem. There were more than 40 thousand SOEs privatized or re-organized by 1998. Xu (2011) documents that the total loss of SOEs in 1998 was approximately RMB 307 billion in China, which is about 3.7% of annual GDP loss.

[14] See the detailed document of the Ninth Five-Year Plan and the 2010 Long Range Objectives at http://www.gov.cn/test/2008-04/21/content_950407.htm. Additionally, Hsieh and Song (2015) described the institutional background of the state sector transformation and found that the government retained control of the large SOEs while privatizing the smaller ones.

Moreover, each SOE has a committee in the Communist Party of China (CPC), which is mainly comprised of the SOE's executive management team (e.g., Chairman and CEO). These people serve as government officials who are accordingly attached to the local governments. In short, local governments and local politicians play a significant role in the progress of privatization. In other words, the implementations of privatization are decentralized and are mainly determined by local politicians (e.g., Xu (2011); Gan, Guo and Xu (2017)).

2.2. Hypothesis Development

The main focus of our study is on the role of local politicians' career concerns in privatization outcomes. In particular, as in many other countries, career advancement is the primary goal of politicians in China (e.g., Nordhaus (1975); MacRae (1977)), and politicians in China are primarily motivated to climb the ladder in the political system (e.g., Xu (2011)). The CPC has adopted both meritocracy and elitism in its promotion scheme. In particular, the promotion of local politicians depends heavily on their GDP performance. Apart from GDP performance, factors such as age, education, political background and connections are also essential determinants for local politicians' promotions.

Hypothesis*: Local politicians are motivated to conduct privatizations with efficiency gains to fuel local GDP growth to help their subsequent promotions; politicians with strong political backgrounds do not need GDP numbers for promotion and thus have weaker incentives to push privatization deals with good outcomes.*

To formally test this hypothesis, we explore the variation in connections to top political leaders across individual city politicians. In particular, a city politician is considered to be powerful and to have a strong political background if she is connected to Central Committee members. The

Constitution of the CPC states that the National Congress (i.e., Party Congress) is the highest organ of state power, and the Central Committee is the leading body. The Central Committee members vote and elect the most prominent politicians in China, such as the general secretary (e.g., President Xi Jinping), the members of the Politburo, and the members of the Central Military Commissions. Moreover, the members of the Central Committee usually hold high ranking government and party positions, such chief provincial leaders, ministerial politicians of the State Council, and commanders of military-regional level organizations. The Central Committee has had approximately 200 full members and 150 alternate members in recent terms (i.e., from the 15th to the 18th Central Committees), and each term lasts five years. Alternate members fill empty seats on the Central Committee according to the number of votes by which they were elected.

We define a city secretary as connected (i.e., more powerful) if she has worked as a subordinate for at least one member of the Central Committee. For example, if city secretary A in city B has worked for provincial secretary C in province D (B is a city under province D), we define this local politician A as connected to provincial leader C. When provincial leader C becomes a member of the Central Committee, we consider her connected lower-level politician A to be more powerful and connected. More specifically, when a city mayor or secretary and the provincial secretary worked in the same province, their connection is made. To reduce measurement error, we require that the city leader begins in her position before the provincial secretary begins in hers. In other words, when provincial leaders select certain city leaders to work for them, they are closely connected. In China, it is common for provincial leaders to appoint their subordinates as city leaders in their provinces (e.g., Jiang (2018)). We identify such connections among 1,750 city politicians (2,754 observations of work experience as mayors or city secretaries) and 84 provincial politicians (107 observations of work experience as provincial secretaries). For

each local politician, the connections are time-varying, depending on the changes in Central Committee members over time; Central Committee members are elected every five years.

For promotion to the Central Committee, age is one of the most crucial factors. Specifically, the members of the Central Committee are generally at the ministerial level, such as ministers and provincial secretaries. There is a strict compulsory retirement age for ministerial-level provincial politicians in China. According to "*Leading Cadres Retirement Provision*", ministerial-level politicians cannot renew their term if they are 64 years old or older.[15] Moreover, the Politburo of the Central Committee has approximately 25 members who are ranked at the subnational level or above, and their age limit for term renewal is 68 years old. In this paper, we restrict the sample to ministerial-level Central Committee members and use 64 as the cut-off in the RDD analysis. In our sample period, we find no exception to this policy.

3. Data and Summary Statistics

We utilize two datasets for our empirical analyses. The first one is the firm-level data from the Chinese Industry Census. The second one is hand-collected politician profile dataset.

3.1. Chinese Industry Census Data

The first dataset we use in this paper is the Chinese Industrial Census (CIC) collected by the Chinese National Bureau of Statistics (NBS). It covers all the manufacturing firms in China with annual sales of more than USD700 thousand between 1998 and 2009. This period captures the entire privatization wave under Prime Minister Rongji Zhu from 1998 to 2005 and several years after the wave, which allows us to study the privatization decisions and subsequent outcomes. The

[15] See the detailed document at http://cpc.people.com.cn/GB/64162/71380/102565/182144/10994167.html

data record yearly accounting statements (e.g., balance sheet, income statement, and cash flow statement) as well as other firm characteristics (e.g., number of workers, industry classification, physical location, registration type, political hierarchy, government subsidy, wages, and shareholders) for each firm. In total, we have 706,976 firms which comprised about 40% of industrial output in China. To our knowledge, CIC is the most detailed database on Chinese manufacturing firms with comprehensive information and sufficient quality.

We use two methods to classify the SOEs and private firms in the CIC. First, we use the firm registration type and define a firm as SOE if it is owned by a government department or collective-owned based on the official NBS classification. For each SOE, we can trace the changes in its registration types over time to identify the privatization timing. Since we are examining how city leaders affect privatization, we focus on firms that are not subject to the central or provincial government. We also exclude those firms that cannot be matched to sub-provincial or prefectural cities and that have non-consecutive records due to missing observations. There are 113,682 SOEs in the sample, and 28,411 of them are privatized. Second, we use the shareholders' information to classify SOEs vs. private firms. In particular, CIC data disclose the shareholdings by five types of owners: state ownership, collective ownership, individual ownership, corporation ownership, and foreign ownership. We calculate the percentage of state ownership by combining the first two. This captures the dynamics of privatizations for individual SOEs since there are many partial privatizations in China (i.e., the state sells part of the SOEs to the private sector, and it usually takes several sales to fully privatize a SOE.)

3.2. Politician Profile Data

The second data record the politician profiles in mainland China from 1998 to 2009. It covers all the mayors and secretaries of CPC across all 326 cities in China and all the provincial governors and secretaries for 32 provinces in China. We get the name list and the biographic information of these politicians from the China Stock Market & Accounting Research (CSMAR) Database. However, the quality of politician's profile might still vary among different cities, especially for small ones. We cross-validate the data using information from CSMAR and Baidu Encyclopedia. Specifically, we manually search for politicians' curriculum vitae (CV) from the Baidu Encyclopedia, which is a Chinese language collaborative web-based encyclopedia provided by the Chinese search engine Baidu. Baidu Encyclopedia is the top Chinese online encyclopedia and generally offers extensive backgrounds of famous people (e.g., politicians).

In total, this profile dataset includes 1,750 city-level politicians and 84 province-level politicians. Each CV has a politician's gender, age, history of education, place of birth, work experience. Moreover, in China, it is common for people of the same name. We double-check the politicians who have the same name and give them unique IDs. We trace back to 1996 in politicians' CV and obtained the working relationship between the provincial leaders and city leaders. For their political connections, we use the working history to build the interpolitician network, as discussed in Section 2.2.

The CIC data also include firm names and addresses. In particular, the CIC records an 11-digit number that can locate a firm at the street level. We cut the first four digits to identify the city and use it to match municipal politicians (i.e., city secretary and mayor) at the city level.[16] Moreover, the CIC also gives us firms' ranks in the political hierarchy so that we can observe

[16] In total, we have 326 cities in the sample. We exclude Beijing, Tianjin, Shanghai, and Chongqing, which are province-level municipalities under the direct control of the state council. These four cities are classified as provinces.

whether a firm is under the jurisdiction of the central government, provincial governments, municipal governments, or below.

As discussed in Section 2.1, the main goal of the privatization wave is to sell the small local SOEs while keeping the large SOEs (e.g., central SOEs) state-owned (i.e., "grasp the large and let go of the small"). Consistent with this policy, in the CIC data, there are only 1,189 privatizations for central and provincial SOEs, while 34,846 SOEs at the city level or below have been privatized between 1998 and 2009. In other words, 96.7% of privatization cases are from SOEs at the city level or below. In total, RMB3,656 billion SOE assets have been privatized, and around 2/3 of them are from local SOEs at the city level or below from 1998 to 2009. Over this period, the total assets of central and provincial SOEs increased from RMB3,800 billion to RMB8,309 billion, while the total assets of local SOEs decreased from RMB3,404 billion to RMB2,418 billion. Our study mainly focuses on the role of city politicians, and we restrict the sample to the SOEs at the city level or below, which covers most privatization activities in China.

3.3. Summary Statistics

Figure A.1 shows the time trend of privatization wave in China. The left panel shows the number of privatized SOEs over time. Consistent with the privatization agenda, the major wave of privatization is during the early 2000s. After 2005, the pace has been slowing down. The right panel shows the total assets privatized each year and have similar patterns as the number of privatized SOEs. In Figure A.2, we listed the percentages of SOEs that have been privatized across industries. Most of the privatization activities concentrate on strategic industries such as energy, chemical, and mining. The textile industry was also heavily targeted by the privatization wave.

Table I is the summary statistics of the main variables in the regression sample in this paper. Panel A is for CIC data. In total, there are 706,976 individual firms in CIC data from 1998 to 2009. To investigate how city leaders affect privatization, we focus on firms that are not subject to central or provincial governments. We restrict the sample to the firms that have been state-owned and also exclude the firms with incomplete ownership information in our sample period. We end up with 507,448 observations at the firm-year level. The dummy *Private* is for whether the SOEs have changed the registration types from state-owned to privately owned. This is the primary variable we use to measure privatization progress.[17] On average, 22.5% of the SOEs have been privatized between 1998 and 2009. We also use the variable *PrivateShare* to measure privatization progress, which is the percentage of private ownership of SOEs. On average, 33.8% of the shares are sold to private sectors. Moreover, for our main efficient measurements, the average TFP, $ROA(in\ percent)$, and $OROA(in\ percent)$ are -0.177, 5.518, and 11.19, respectively.[18]

Table I Panel B is for politician data at the city-year level. In China, the secretary of CPC is the leading politician in cities, and we focus on them in the analyses. There are 3,507 observations with 1,052 unique local politicians over 326 cities from 1998 to 2009. On average, the age of city secretaries is approximately 51.2. 97.9% of them are male, and 39.9% of them started their career in SOEs. Moreover, 7.7% of them have minority ethnicities (i.e., other than Han). For education, 55.6% have obtained master's degrees or above. For political connections, approximately 83% of

[17] There are few cases that the registration types of privatized SOEs revert to state-owned, then become private-owned again. The reverse of the privatization in China is documented in Huang, Li, Ma and Qian (2017). We use the last change from state-owned to private-owned as the privatization time. For robustness check, we use the first change, and the results are similar.

[18] We calculate the TFP following Cobb-Douglas form which is the residual in the regression of the log(total revenue) against log(total assets) and log(total employment) in the panel of firms in the CIC survey from 1998 to 2009.

local politicians are connected to at least one full member of the Central Committee, and the maximum number of connections is three.

[Place Table I about here]

4. Empirical Analysis and Results

4.1. Privatization Outcomes and Individual Politicians

We start the empirical analyses by looking at the privatization outcomes, especially the heterogeneity across local politicians. In particular, we restrict the sample to firms that have been state-owned and perform the OLS regressions of SOE activities and several performance measurements on privatization progress. Formally, the regression can be expressed as follows:

$$Y_{i,t} = \alpha + \beta \times Private_{i,t} + \gamma \times Control_{i,t} + \eta_i + \zeta_t + \varepsilon_{i,t}, (1)$$

where $Y_{i,t}$ represents the measurements of the efficiency of firm i in year t, such as TFP, ROA, $OROA$, $Log(Sales/Worker)$ and other firm activities such as sales and market share. $Control_{i,t}$ represents firms' characteristics, such as total sales or total assets. The main variable of interest is the dummy $Private_{i,t}$, which represents whether firm *i* is registered as a private firm or not at year *t*. In other words, when $Private_{i,t}$ changes from zero to one in year *t*, the SOE is privatized in that year. We control for firm fixed effects to tease out the variation within the firm and control for year fixed effects to condition out the macro time trend. The sample is a panel at the firm×year level, and the standard errors are clustered at the firm level.

Table II Panel A shows the regression results. From columns (1) to (6), the coefficients of *Private* are all significantly positive, suggesting that privatized SOEs increase their efficiency and business activities. For example, for TFP in column (1), the coefficient of *Private* is 0.148 at the 1% significance level, which means that the TFP of SOEs increases by 14.8%. We also find the

significant positive coefficients of *Private* in columns (2) to (4) for $Log(Sales/Worker)$, ROA, and $OROA$ respectively, suggesting that the gains from privatization are robust across measurements of firm efficiency. Moreover, the coefficients of *Private* in columns (5) and (6) for $Log(Sales)$ and $MktShare$ are also significantly positive. Therefore, the performance of privatized SOEs also improves significantly, which is consistent with the efficiency gains shown in columns (1) to (4). In Panel B, instead of dummy *Private*, we use $PrivateShare$ as the independent variable, which is the percentage of shares owned by the private sector. Consistent with Panel A, the coefficients of $PrivateShare$ have significantly positive coefficients on TFP, $Log(Sales/Worker)$, ROA, $OROA$, $Log(Sales)$, and $MktShare$. Overall, these findings suggest that, as in many other countries, privatization improves the efficiency and performance of SOEs in China.

[Place Table II about here]

Next, we explore the heterogeneity in the outcomes of privatizations across individual local politicians. As discussed in Section 2.1, the implementation of privatizations is decentralized in China, and city secretaries are essential in the process. To formally test this theory, we interact the dummy *Private* and the dummy *Top200P* in the panel regressions, as in Table II, where *Top200P* is the dummy for whether the city secretary of the SOE is connected to full Central Committee members in the year of privatization. Since firm fixed effects are controlled in all regressions, the time-invariant *Top200P* is thus subsumed. Table III shows the results. Consistent with Table II, the dummy *Private* has significantly positive coefficients on TFP, $Log(Sales/Worker)$, ROA, $OROA$, and $Log(Sales)$. Moreover, in column (1) of Panel A, the coefficient of *Private ×Top200P* is -0.073 and is significant at the 1% level, suggesting that the efficiency gain in ROA after privatization is significantly less if a connected city secretary conducts the privatization deal. On

average, the improvement in the TFP of privatized SOEs under unconnected city secretaries is 21.3%, while the increase in TFP is only 14% under connected secretaries, which is equivalent to an approximately 34.27% decrease in efficiency gains. In columns (2) and (3) of Panel A, the coefficients of $Top200P \times Private$ are -0.052 and -0.895, respectively, and are both significant at the 1% level. This means that the efficiency gain of $Log(Sales/Worker)$ and ROA after privatization is significantly less if a connected city secretary conducts the privatization. In Panel B, we expand the connection to both full and alternate members of the Central Committee, i.e., $Top400P$. The results are similar to those in Panel A.

[Place Table III about here]

Additionally, we run the cross-sectional regressions of changes in SOE performance before and after the privatization on the city secretary's political connections. Consistent with Table III, we find that privatizations implemented by connected city secretaries are significantly worse than those implemented by unconnected city secretaries. In Table IV, we calculate ΔTFP, $\Delta Log(Sales/Worker)$, ΔROA, $\Delta OROA$, $\Delta Log(Sales)$, and $\Delta MktShare$ one (or two) year(s) before and after the privatization from columns (1) to (6). In column (1) of Panel A, the coefficient $Top200P$ is -0.051 and is significant at the 1% level, which means that a one-year change in TFP after privatization implemented by connected city secretaries is -0.051 lower than the TFP change after privatizations implemented by unconnected secretaries. In columns (2) to (5), the coefficients of $Top200P$ are all significantly negative, which suggests that privatizations implemented by connected city secretaries performed worse than those executed by unconnected secretaries. The results still hold if we expand the window to two years of average change before and after privatization in Panel B. In Table A.3, we expand the connection to both full members and alternate

members of the Central Committee as robustness checks. The coefficients of $Top400P$ are significantly negative in most of the columns.[19]

[Place Table IV about here]

In summary, we find suggestive evidence in Tables III and IV that although privatization is associated with efficiency increases on average, these benefits of privatizations are less pronounced when local politicians with connections to top leaders conduct the privatizations. Consistent with Xu (2011), our findings suggest that privatization implementations are decentralized in China, and local politicians play an important role in the process. Furthermore, in Table A.2 in the Appendix, we perform the regressions of privatization targets on the firm and politician characteristics. We find that SOEs with higher ROAs, larger assets, and fewer employees are more likely to be privatized. Local politicians (i.e., mayors and city secretaries) conduct more privatizations if they are male, older, or well educated. This finding further suggests the role of local politicians in the privatization wave in China.

4.2. Career Concerns and Privatization Outcomes

Next, we explore the fundamental reasons for heterogeneous privatization outcomes across local politicians with various political connections. As discussed in Section 2.2, our hypothesis is that, under the GDP tournaments among local politicians in China, privatizations with good outcomes help local GDP growth, thus increasing the subsequent promotion chances of local politicians. In contrast, when local politicians have strong political backgrounds, they do not need GDP numbers for promotion and have weaker incentives to push privatization deals with substantial potential efficiency gains.

[19] We also analyze the association between city leader connection and three years of performance change before and after privatization, and the results are generally similar.

To formally test this hypothesis, we analyze the promotion determinants of city politicians in China. From the career paths found in individual politicians' CVs, we defined promotion as serving in a higher-ranked position in the government or the CPC political hierarchy. In particular, most city secretaries of the CPC are at the department director level in the political system in China. They are promoted if they move to a higher ranked position, such as at the vice-ministerial level. We also define city politicians' moving to positions in the central government as promotions. In addition, for city secretaries in deputy provincial cities, they are promoted if they serve as deputy provincial secretary of the CPC after their terms as city secretaries.[20] Following Li and Zhou (2005), we employ the ordered logit regressions of the variable *promotion,* which is an ordinal variable with the values of 0, 1, and 2 for retirement (or termination and death), parallel transfer to the same ranked position, and promotion, respectively. The independent variables are local politicians' characteristics and local economic conditions. Formally, the regression can be expressed as follows:

$$Ln\left(\frac{Prob(Promotion \leq 0|x)}{1 - Prob(Promotion \leq 0|x)}\right) = \alpha_1 - x\beta \quad (2)$$

$$Ln\left(\frac{Prob(Promotion \leq 1|x)}{1 - Prob(Promotion \leq 1|x)}\right) = \alpha_2 - x\beta, \quad (3)$$

[20] Yao and Zhang (2015) also considered mayors' and city secretaries' promotion to the central government, even if their administrative level had not changed. Moreover, city secretaries in deputy provincial cities are at the deputy-ministerial level. When they become deputy provincial secretaries (*zhuan zhi fu shu ji*), although they still rank at the deputy-ministerial level, a deputy provincial secretary is ranked 3rd in the CPC provincial standing committee (right after provincial secretary and governor) and is the highest subministerial level position within each province. Our data show that almost all of the deputy provincial secretaries are promoted to ministerial-level positions. We consider the move from city secretary in a deputy provincial city to deputy provincial secretary a promotion.

where x is a set of variables including politicians' age, gender, ethnicity, Beijing experience, education level, local economic performance, political connection, and the interaction term of political connection and local economic performance. The sample is a panel at the city-year level.

Table V shows the regression results. First, consistent with the wisdom received in the literature, the coefficients of $GDP\ Growth$ are significantly positive. In contrast, the interaction variable $GDP\ Growth \times Top200$ has significantly negative coefficients. For example, in column (1), the coefficient of $GDP\ Growth$ is 3.808 at the 10% significance level. The marginal effect of $GDP\ Growth$ is 0.31 in the case of promotion when evaluated at the mean, suggesting that a one standard deviation increase in $GDP\ Growth$ (0.082) is associated with a 2.54% (0.082×0.31) increase in the probability of city secretaries' promotions. Given that the average promotion rate is 11.04%, this 2.54% is equivalent to a 23% increase in promotion chances. In contrast, the coefficient of $GDP\ Growth \times Top200$ is -4.433 at the 5% significance level, making the overall effects of GDP growth slightly negative for connected politicians. Moreover, the coefficient of $Top200$ is 0.907 at the 5% significance level. The marginal effect of $Top200$ is 0.0745 so that, compared to unconnected politicians, connected politicians' promotion probability is 7.45% higher. Given that the average promotion rate is 11.04%, this 7.45% is equivalent to 67.5% (7.45%/11.04%) of the average promotion probability. Furthermore, in column (2), we use the number of connections to Central Committee members as the independent variable to capture the effects of connections on promotion chances at the intensive margin. We find similar results as in column (1), i.e., one more connection to Central Committee members significantly increases the promotion chances by 5.82%. Moreover, in columns (3) and (4), we show similar patterns when we use the number of connections and the connections to full and alternate members of the Central Committee (i.e., $Top400, Top400\#$). These findings suggest that compared to unconnected city

secretaries, connected secretaries are more likely to be promoted, which does not depend on local GDP growth. In short, Table V shows the interactions between meritocracy and elitism in China's political promotion system. Political connection dominates the merit-based factors regarding the promotion of local politicians in China.

[Place Table V about here]

Taken together, the findings in Tables III, IV, and V support our hypothesis that when local politicians have stronger political backgrounds (e.g., connections), they enjoy the privileges of being promoted and depend less on local GDP numbers. Thus, connected politicians have weaker incentives to conduct promising privatizations, which leads to worse efficiency gains, as shown in Tables III and IV.[21] The career concerns of local politicians play an essential role in privatization implementations and outcomes.

To further strengthen the role of career concerns in privatization outcomes, we also look at other personal characteristics of politicians in relation to promotion decisions. For example, in Table V, the coefficients of Age are significantly negative, and the coefficients of $HighEducation\ and\ BeijingExperience$ are significantly positive. First, age is an essential determinant in politicians' career advancements. As discussed in Section 2.2, the age cap for term renewal for ministerial-level politicians is 64 years old. For city politicians at the prefectural level, the age limit for promotion is 55 years old, which is consistent with the negative coefficients of Age in Table V.[22] Moreover, many city secretaries have work experience in Beijing (11.6%), which could help them establish good relationships with the central government and help their

[21] In Table A.4 in the Appendix, we find that privatization progress is strongly associated with local GDP growth, especially for privatizations with larger efficiency gains.

[22] Kou and Tsai (2014) and Landry, Lü and Duan (2018) summarized the age of ineligibility. For example, Kou and Tsai (2014) show that cadres are no longer eligible for promotion to the ranks of Division Head, Deputy Bureau Director, Bureau Director, and Deputy Minister once they reach the age of 50, 52, 55, and 58, respectively.

career advancement. Moreover, education levels are also positively associated with promotion chances. Next, we examine the heterogeneity in privatization outcomes across these politician characteristics.

More superficially, we perform the same panel regressions as in Table III and add three additional interaction terms: $BeijingExperienceP \times Private$, $HighEducationP \times Private$, and $AgeP \times Private$. Table VI shows the results. In particular, the coefficients of $Private$ remain significantly positive for TFP, $Log(Sales/Worker)$, ROA, and $Log(Sales)$, and the coefficients of $Top200P \times Private$ are still significantly negative for those outcome variables. Moreover, the coefficients of $BejingExperienceP \times Private$ are significantly negative in all the columns, suggesting that the local politicians with work experience in Beijing are more likely to be promoted. Thus, they have weaker incentives to push privatizations with high potential efficiency gains. Additionally, the coefficients of $AgeP \times Private$ are positive, and the coefficients of $HighEducationP \times Private$ are negative, suggesting that young and well-educated politicians are more likely to be promoted and thus engage in less productive privatization deals.

[Place Table VI about here]

Taken together, the findings in Tables V and VI provide consistent evidence to support our hypothesis that when local politicians enjoy higher promotion chances due to factors other than GDP growth (e.g., highly educated and young local politicians), they have weaker incentives to choose privatization deals with substantial efficiency gains, which is associated with worse privatization outcomes.

4.3. Regression Discontinuity Design

In Tables III and VI, we use the variation in the local politician's connections, which is time-varying. A city leader can be considered connected if a top official to which she is connected is elected as a member of the Central Committee, while she might also lose the connection if the connected senior politician steps down. The connection between a local politician and a senior politician is based on their previous work experience. This variation is semiexogeneous since the variation in connections is not directly related to the city leader's concurrent action. However, this approach does not entirely rule out other factors that could drive both the city leaders' connections and privatization outcomes. For example, the connected local politicians could be assigned to more developed cities with relatively more efficient SOEs than the unconnected politicians, which explains the lower efficiency gains of the privatizations conducted by the connected local politicians.

To identify the causal effect of political connection on privatization outcomes, we use the mandatory retirement age cut-off for provincial leaders in the Central Committee to explore the discontinuities in local politicians' connections and privatization outcomes in the setting of fuzzy regression discontinuity design (RDD). As discussed in Section 2.2, the age limit for Central Committee member appointments is strictly enforced. In particular, the age cap for term renewal for ministerial-level politicians is 64 years old. To be precise, ministerial-level politicians such as provincial secretaries cannot renew their Central Committee membership if they are 64 years old or older in the year of turnover. Figure A.3 plots the distribution of start term ages for Central Committee members at the ministerial level.[23] No one started the term if they were 64 years old or

[23] For Central Committee members in the Politburo, the rank is at the sub-national level or above, and the age limit for term renewal is 68 years old. It is also strictly enforced, as shown in Figure A.6 in the Appendix. We exclude the sub-national members in the main RDD analyses and use 64 years as the cut-off.

older. This is consistent with the mandatory age requirements of the *Leading Cadres Retirement Provision*, and there is no exception in China during our sample period.

Based on the compulsory retirement cut-off age of 64 years old, we employ a fuzzy RDD since even if a provincial politician is less than 64 years old, the term renewal is not guaranteed. Formally, the RDD regressions can be expressed as follows:

$$LosePower_{it} = \beta_{0r} + \beta_{1r} \times Distance_{it} + D_{it}[\beta_{0l} + \beta_{1l} \times Distance_{it}] + \varepsilon_{it} \quad (4)$$

$$Y_{jit} = \beta_{0r} + \beta_{1r} \times Distance_{it} + \widehat{LosePower}_{it}[\beta_{0l} + \beta_{1l} \times Distance_{it}] + \varepsilon_{it}, \quad (5)$$

where equation (4) illustrates the first stage in the fuzzy RDD, and equation (5) illustrates the second stage. The outcome variables Y_{jit} is the change in various efficiency measurements (i.e., ΔTFP_1, ΔTFP_2, $\Delta Log(Sales/Worker)\_1$, and $\Delta Log(Sales/Worker)\_2$ following the privatization of firm *j*, which is privatized in year *t* by city secretary *i*. The regression is cross-sectional at the firm level, and we restrict it to privatizations conducted by city secretaries with connections. For independent variables, $\widehat{LosePower}_{it}$ is estimated from the first stage outcome variable $LosePower_{it}$, which is a dummy that is equal to one if city secretary *i* is connected to a senior politician who has stepped down in year *t* when firm *j* is privatized. $Distance_{it}$ is the percent (relative) distance between city secretary *i*'s connected senior politician's start term age and the cut-off age of 64 years old.[24] For example, when city secretary *i*'s connected senior politician serves in the Central Committee in year *t*, the senior politician's age when she started this term must be below 64, and $Distance_{it}$ is negative. In contrast, when city secretary *i*'s

[24] We follow Falato and Liang (2016) by using the percent distance to the cut-off in RDD. Specifically, the percent distance is calculated from the real distance between the connected senior politician and the age cutoff in the RDD regression sample on both sides around the cut-off. When a city secretary is connected to multiple Central Committee members, we use the start term age of the oldest member.

connected senior politician does not serve in the Central Committee at the year *t*, the senior politician's age when she started the term might be higher than or equal to 64 (has stepped down from the Central Committee), and $Distance_{it}$ is positive. D_{it} is a dummy variable that takes the value of one if $Distance_{it}$ is positive and zero for negative $Distance_{it}$. The coefficients β with subscripts *r* and *l* stand for estimations on data exclusively to the right and left of the cut-off age, respectively.

Figure A.4 plots the results from the first stage regressions. We show that around the age cut-off of 64 years old, which is zero in the horizontal axis in Figure A.4, top politicians' stepping down (i.e., treatment) probability jumps from almost 0 to 1. This is consistent with Figure A.3, which shows that none of the ministerial level Central Committee members could renew another term when they are older than or equal to 64 years old in the turnover year. Moreover, the probability of stepping down is not precisely zero for young politicians since they might not be able to renew their term for other reasons, such as being investigated by anti-corruption campaigns.

In Figure I, we plot the privatization outcomes against the percent distance of connected senior politicians' start term age to the age cut-off of 64 (point zero in the horizontal axis). In particular, we plot the changes in TFP one year and two years before and after privatization (i.e., ΔTFP_1 and ΔTFP_2) in the left and right panels, respectively. We find significant jumps in TFP gains following privatization at the cut-off when the local politician's connected Central Committee members step down due to the age limit. In Figure I, we also plot the 95% confidence intervals of the linear best fits for the observations in the right and left sides of the cut-offs, respectively. The 95% confidence intervals for the right and left sides do not overlap at zero, which means that the jumps in TFP gains following privatization at the cut-off of 64 are statistically significant.

[Place Figure I about here]

In addition to the unconditional patterns in Figure I, we employ the fuzzy RDD to run the nonparametric local linear regression as in equations (4) and (5). Table VII reports the conventional estimation and the bias-corrected estimation by Calonico, Cattaneo, and Titiunik (2015) with two calculations for standard errors used in the regressions. Consistent with Figure I, in column (1), the local Wald estimators are 0.0917 and 0.0955 at the 5% significance level for the conventional estimation and the bias-corrected estimation, respectively. When we use the bias-corrected estimation with robust standard errors, the local Wald estimator is 0.0955 at the 10% significance level. This suggests that the improvement in TFP one year before and after privatization jumps by approximately 9.2% if the city secretary is connected to a senior politician who is just above the age of retirement and has stepped down from the Central Committee. Column (2) shows the improvement in $Log(Sales/Worker)$ one year before and after privatization (i.e., $\Delta Log(Sales/Worker)\_1$). The local Wald estimators are 0.160 and 0.164 at the 1% significance level for the conventional estimation and the bias-corrected estimation, respectively. In columns (3) and (4), we use the improvements in TFP and $Log(Sales/Worker)$ two years before and after privatization (i.e., $\Delta TFP\_2, \Delta Log(SalesWorker)\_2$), and the conventional local Wald estimators are 0.122 and 0.212 at the 5% and the 1% significance levels, respectively. This suggests that the improvements in TFP and $Log(Sales/Worker)$ two years before and after privatization jump by 12.2% and 21.2% if the city secretary is connected to a senior politician who is just above the age of retirement and has stepped down from the Central Committee.

[Place Table VII about here]

For robustness checks, we repeat the RDD regressions with 100%, 200%, 300%, and 400% optimal bandwidth, respectively, following Imbens and Kalyanaraman (2012) and find similar significant jumps in Table A.5. Moreover, in Table VII, we restrict the sample to the Central Committee members at the ministerial level since all of them have the same term renewal cut-off age of 64 years old. As discussed in Section 2.2, for the subnational members of the Central Committee, the term renewal age cut-off is 68 years old since they are ranked at the subnational level or above. The 68-year-old cap is also strictly enforced for Politburo members, as shown in Figure A.6, and the RDD regressions in Table A.7 still show significant jumps in efficiency gains following privatizations at the cut-offs when we include the Politburo members in the analysis.

The stepping down of Central Committee members due to the age cut-off is predictable. Specifically, our identification in the RDD approach comes from discontinuities rather than exogenous shocks. The key identification assumption is local continuity. In particular, local continuity requires that all factors other than the treatment variable vary continuously at the age cut-off. In Figure A.5, we plot several politician characteristics, such as local politicians' Age, $FirstJobSOE$, $MinorRace$, $BeijingExperience$, $Education$, against the percent distance of their connected senior politician's start term age to the age cut-off. In all the graphs, we do not find any significant jumps around the cut-offs. This suggests that the privatization performance jumps documented in Table VII are not driven by the city secretary's personal characteristics other than the connection. Moreover, we also plot the total SOE assets across cities and compare the differences across the percent distance to the age cut-offs for city secretaries' connected senior politicians' start term age. Again, we do not observe significant jumps around the cut-off. This mitigates the concern that the connected local politicians might have smaller pools of SOEs to pick from for privatization and have to choose SOEs with low-efficiency gains.

Furthermore, we repeat the RDD regressions of these other factors (i.e., Age, $FirstJobSOE$, $MinorRace$, $BeijingExperience$, $Education$, $SOE\ Pool$) in Table VIII. The conventional estimation and the bias-corrected estimation by Calonico, Cattaneo and Titiunik (2015) with two calculations of standard errors used in the regressions. Consistent with Figure A.5, none of the coefficients are statistically significant under the conventional estimation and biased-corrected estimation with or without robust standard errors. For a robustness check, we also use the 100%, 200%, 300%, and 400% optimal bandwidth generated by Imbens and Kalyanaraman (2012) and found similar results in Table A.6.

[Place Table VIII about here]

In summary, we establish the causal effects of local politicians' connections on privatization implementation and its consequences. In particular, local politicians with relationships to powerful senior politicians in the Central Committee prefer to choose privatization deals with lower efficiency gains. When local politicians lose connections to top political leaders, they also lose advantages in the promotion competition and have greater need for local GDP performance. Thus, these politicians would choose the privatization deals with the best potential for efficiency gains, which leads to better outcomes of privatized SOEs.

4.4. Possible Explanations for Worse Privatization Outcomes

In the sections above, we show that the powerful local politicians (i.e., connected) conduct privatizations with worse outcomes since they do not need local GDP growth for career advancements. In this section, we further explore several possible explanations for why these powerful local politicians deviate from the GDP maximization and choose worse privatization targets.

One of the potential explanations is the rent-seeking of local politicians in the privatization process, which could hurt the subsequent performance of privatized SOEs. For example, Fisman and Wang (2014) show that the stealing from selling SOE assets at a discounted price is prevalent in China's privatization wave, and this rent-seeking behavior leads to the worse subsequent operating performance of privatized SOEs. Under the motivation of rent-seeking, instead of choosing the privatization deals with sound economic outcomes, the local politicians would prefer the privatization deals they can extract higher rents. The rent-seeking would also hurt the firm performance directly. The outcomes of privatization under career concerns should be better than the outcomes under rent-seeking.

To test this explanation, we obtain the data for the anticorruption investigation cases in China and collect the information of corruption amount for each anti-corruption investigations of city leaders. In Table A.8, we regress the corruption amount reported in the investigation records on the connections of the local politicians. The coefficients of $Top200$, $Top200\#$, $Top400$, $Top400\#$ are significantly positive, which suggests that the connected local politicians use their political power to do more corruption activities and extract more rents. This is consistent with the stealing behavior of local politicians from privatization deals documented in Fisman and Wang (2014). In short, we find that political connections reduce the needs for GDP growth for local politicians' promotion in China and increase the incentives of rent-seeking of local politicians regarding the implementations of privatizations. This serves as one of the potential reasons behind the worse efficiency gains from privatizations that are conducted by the connected local politicians.

5. Conclusion

This study examines the role of politicians in privatization outcomes in the context of China. We, for the first time, show that local politician's position in the interpolitician network is an

essential determinant for the efficiency gains from privatization. This leads to vast heterogeneity in outcomes of privatizations. In particular, under the combination of meritocracy and elitism in China's political system, local politicians with weaker political backgrounds (e.g., no connection to the senior leaders in Central Committee) are incentivized to privatize the SOEs with better efficiency gains, which increases the local GDP growth as well as their promotion chances. In contrast, the connected local politicians enjoy higher promotion chances, which make them less motivated to conduct promising privatizations. Instead, they might choose to engage in destructive activities in privatization implementation, such as rent-seeking. This hurts the ex-post performance of the privatized SOEs.

As in China, politicians in many countries are not entirely benevolent and mainly seek personal successes such as being elected or promoted. This career concern has significant impacts on economic activities and could lead to positive consequences under certain environments, not only in privatization but also in other economic policies. Our findings shed new lights on the debate of the nexus of politics and economics, which is a global phenomenon. It is important to consider various incentives of individual politicians when we design and implement economic policies.

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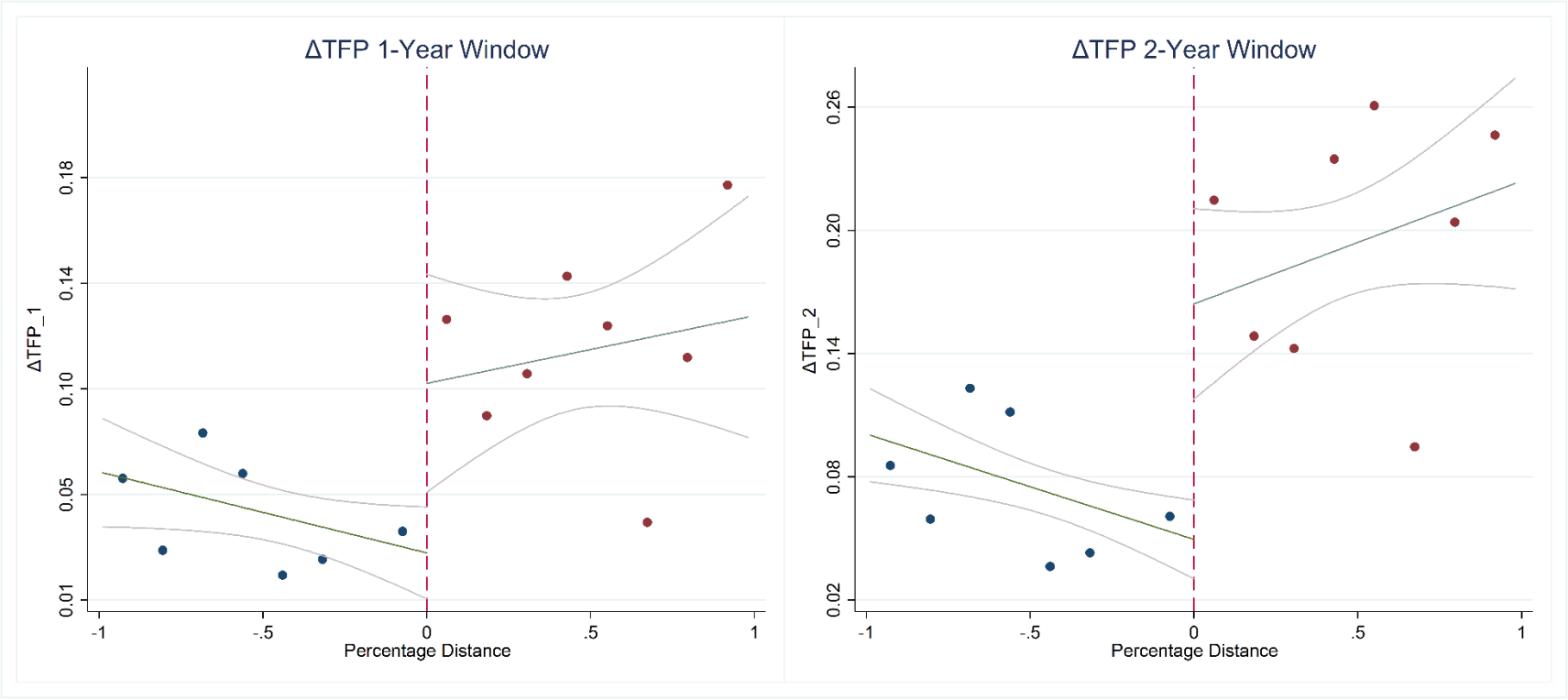


Figure I: This figure illustrates privatization outcomes against percent distance to age cut-off. The vertical axis denotes the firm's privatization outcomes. In the horizontal axis, to the left (right) of the cutoffs are the firms that are privatized by city secretaries who are connected to the Central Committee members with ages lower (higher) than the mandatory renewable age. 95% confidence intervals are drawn around the linear best fit. The left and right panels are for the changes of *TFP* one and two years before and after privatization, respectively.

Table I Summary Statistics

This table describes the summary statistics of our sample. Panel A provides the summary statistics of CIC datasets from 1998 to 2009. Firm year panel data are restricted to firms that are not subject to the provincial government and central government and first appeared in our database as a state-owned enterprise. Firms without available prefecture-level or sub-provincial-level city identifier are excluded. Firms located in the four municipalities are excluded (e.g., Beijing, Shanghai, Tianjin, and Chongqing). In total, there are 113,682 unique firms in the sample with 507,448 observations across 326 cities. *TFP, Log(Sales/Worker), ROA, OROA* are winsorized at 0.1% at both ends. Panel B provides the summary statistics of prefecture-level or sub-provincial-level city secretary data, which is a city-year panel. City secretary data covers 1,052 unique city secretaries across from 1998 to 2009. See Table A.1 for detailed variable definitions.

Panel A

	Observations	Mean	S.D.	Min	P25	P50	P75	Max
Private	507,446	0.225	0.418	0	0	0	0	1
PrivateShare	467,015	0.338	0.448	0	0	0	1	1
TFP	495,876	-0.177	2.248	-17.608	-0.786	0.094	0.909	3.906
Log(Sales/Worker)	495,888	4.333	2.217	-6.908	3.683	4.622	5.489	9.279
ROA(percent)	497,223	5.518	19.181	-78.175	-0.047	0.911	6.150	207.483
OROA(percent)	497,299	11.186	24.979	0.000	0.962	3.744	10.670	350.000
LogAsset	506,246	9.342	2.671	-6.908	8.563	9.506	10.564	19.022
LogSale	506,242	8.932	3.464	-6.908	8.570	9.463	10.496	18.180
LogWage	471,343	1.794	1.510	-6.908	1.536	1.978	2.444	5.149
LogWorker	496,970	4.869	1.250	0.001	4.094	4.852	5.659	11.925
Emply/Popu	490,436	0.825	2.252	0.003	0.128	0.296	0.712	44.199

(To be continued)

Table I Summary Statistics— *continued*

Panel B

	Observations	Mean	S.D.	Min	P25	P50	P75	Max
Top200	3,507	0.839	0.367	0	1	1	1	1
Top400	3,507	0.864	0.343	0	1	1	1	1
Top200#	3,507	0.972	0.543	0	1	1	1	3
Top400#	3,507	1.162	0.723	0	1	1	1	4
Age	3,507	51.236	4.055	37	48	52	54	63
Tenure	3,507	3.119	1.741	1	2	3	4	12
Gender	3,507	0.979	0.143	0	1	1	1	1
MinorRace	3,507	0.077	0.267	0	0	0	0	1
FirstJobSOE	3,507	0.399	0.490	0	0	0	1	1
HighEducation	3,507	0.556	0.497	0	0	1	1	1
BeijingExperience	3,507	0.116	0.320	0	0	0	0	1
GDP Growth	3,507	0.144	0.082	-0.129	0.093	0.140	0.192	0.377
Promotion	3,507	1.084	0.361	0	1	1	1	2

Table II Privatization Consequence

This table presents the results of OLS panel regressions on privatization consequences. The panel is from 1998 to 2009 and restricts to local SOEs at the city level or below with non-missing observation in the sample period. In panel A, the main independent variable *Private* is a dummy that takes the value of one if the firm is concurrently registered as a private firm. In Panel B, the main independent variable *PrivateShare* is the share of ownership that is not owned by the state. *Log(Sales)* are controlled in columns of *ROA* and *OROA*. *Log(Asset)* is controlled in the rest columns. Firm and year fixed effects are controlled in each column. See Table A.1 for detailed variable definitions. Standard errors are clustered at the firm level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TFP	Log(Sales/Worker)	ROA	OROA	LogSale	MktShare
Private	0.148***	0.120***	0.852***	0.659***	0.181***	0.004***
	(0.008)	(0.007)	(0.098)	(0.141)	(0.009)	(0.001)
Control	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	495,876	495,876	497,218	497,294	506,227	506,227
Adjusted R-squared	0.016	0.232	0.026	0.031	0.384	0.001
Panel B						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TFP	Log(Sales/Worker)	ROA	OROA	LogSale	MktShare
PrivateShare	0.151***	0.127***	0.708***	0.471***	0.167***	0.003***
	(0.007)	(0.006)	(0.093)	(0.138)	(0.008)	(0.001)
Control	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	462,052	462,052	466,784	466,863	467,014	467,014
Adjusted R-squared	0.019	0.092	0.023	0.030	0.088	0.001

Table III Political Connection and Privatization Consequence

This table presents the results of OLS panel regressions of privatization outcomes implemented by connected politicians versus unconnected politicians. The sample is from 1998 to 2009 and restricts to local SOEs at the city level or below with non-missing observation in the sample period. *Top200P* (*Top400P)* is dummy variable that takes the value of one if the SOE is privatized by a city secretary who is concurrently connected with at least one full (full or alternate) Central Committee members. *Private* is a dummy variable that takes the value of one if the firm is concurrently registered as a private firm. *Log(Sales)* are controlled in columns of *ROA* and *OROA*. *Log(Asset)* is controlled in the rest columns. Firm and year fixed effects are controlled in each column. See Table A.1 for detailed variable definitions. Standard errors are clustered at the firm level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TFP	Log(Sales/Worker)	ROA	OROA	LogSale	MktShare
Private	0.213***	0.166***	1.645***	0.906**	0.252***	0.003
	(0.018)	(0.017)	(0.286)	(0.375)	(0.018)	(0.004)
Top200P×Private	-0.073***	-0.052***	-0.895***	-0.278	-0.079***	0.001
	(0.018)	(0.018)	(0.301)	(0.397)	(0.019)	(0.004)
Control	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	495,876	495,876	497,218	497,294	506,227	506,227
Adjusted R-squared	0.016	0.232	0.026	0.031	0.384	0.001

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TFP	Log(Sales/Worker)	ROA	OROA	LogSale	MktShare
Private	0.214***	0.168***	0.967***	0.106	0.249***	0.006
	(0.020)	(0.019)	(0.288)	(0.394)	(0.020)	(0.004)
Top400P×Private	-0.072***	-0.052***	-0.127	0.610	-0.075***	-0.003
	(0.020)	(0.019)	(0.302)	(0.414)	(0.020)	(0.004)
Control	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	495,876	495,876	497,218	497,294	506,227	506,227
Adjusted R-squared	0.016	0.232	0.026	0.031	0.384	0.001

Table IV Political Connection and Privatization Consequence (Cross-sectional)

This table presents the results of cross-sectional regressions of privatization outcomes implemented by connected politicians versus unconnected politicians. The panel is from 1998 to 2009 and restricts to local SOEs at the city level or below with non-missing observation in the sample period. *Top200P* is dummy variable that takes the value of one if the SOE is privatized by a city secretary who is concurrently connected with at least one full Central Committee members. In Panel A, *ΔTFP_1*, *ΔLog(Sales/Worker)_1*, *ΔROA_1*, *ΔOROA_1, ΔLogSale_1*, and *ΔMktShare_1* are the changes in *TFP*, *Log(Sales/Worker)*, *ROA*, *OROA*, *LogSale*, and *MktShare* one year before and after the privatization, respectively. In Panel B, *ΔTFP_2*, *ΔLog(Sales/Worker)_2*, *ΔROA_2*, *ΔOROA_2, ΔLogSale_2*, and *ΔMktShare_2* are the average annual changes in *TFP*, *Log(Sales/Worker)*, *ROA*, *OROA*, *LogSale*, and *MktShare* two years before and after the privatization, respectively. *Log(Average Sales)* are controlled in columns of ROA and OROA. *Log(Average Asset)* is controlled in the rest columns. The fixed effects of privatization year are controlled in each column. See Table A.1 for detailed variable definitions. Standard errors are clustered at the firm level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ΔTFP_1	ΔLog(Sales/Worker)_1	ΔROA_1	ΔOROA_1	ΔLogSale_1	ΔMktShare_1
Top200P	-0.051***	-0.035***	-0.499**	-0.599**	-0.024*	0.000
	(0.013)	(0.013)	(0.241)	(0.290)	(0.013)	(0.000)
Control	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	27,827	27,827	28,208	28,233	28,389	28,389
Adjusted R-squared	0.014	0.010	0.002	0.005	0.016	0.006

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ΔTFP_2	ΔLog(Sales/Worker)_2	ΔROA_2	ΔOROA_2	ΔLogSale_2	ΔMktShare_2
Top200P	-0.055***	-0.036**	-0.568**	-0.519*	-0.040**	0.000
	(0.013)	(0.014)	(0.234)	(0.280)	(0.018)	(0.000)
Control	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	28,114	28,114	28,275	28,290	28,396	28,396
Adjusted R-squared	0.016	0.020	0.009	0.014	0.024	0.008

Table V Politician Promotion: Meritocracy vs. Elitism

This table presents the results of ordered logit regressions of city secretaries' turnovers. The sample is from 1998 to 2009 and covers 1052 unique city secretaries in 326 cities. *Promotion* is an ordinal variable with promotion taking on the value of 2, parallel transfer to positions of same rank 1, retirement, termination and death 0. City and year fixed effects are controlled in all columns. See Table A.1 for detailed variable definitions. Standard errors are clustered at the politician level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	Promotion	Promotion	Promotion	Promotion
Top200	0.907**			
	(0.416)			
GDP Growth × Top200	-4.433**			
	(2.259)			
Top200#		0.709**		
		(0.279)		
GDP Growth × Top200#		-3.454**		
		(1.520)		
Top400			1.000**	
			(0.474)	
GDP Growth × Top400			-4.484*	
			(2.549)	
Top400#				0.628***
				(0.211)
GDP Growth × Top400#				-2.881**
				(1.147)
GDP Growth	3.808*	3.455*	3.953	3.412*
	(2.215)	(1.874)	(2.527)	(1.749)
Age	-0.088***	-0.086***	-0.088***	-0.087***
	(0.021)	(0.021)	(0.021)	(0.021)
Tenure	0.472***	0.474***	0.479***	0.490***
	(0.046)	(0.046)	(0.047)	(0.048)
Gender	-0.726**	-0.726**	-0.731**	-0.759**
	(0.367)	(0.368)	(0.369)	(0.373)
FirstJobSOE	0.619***	0.611***	0.626***	0.629***
	(0.138)	(0.139)	(0.139)	(0.139)
MinorRace	0.280	0.302	0.277	0.292
	(0.301)	(0.300)	(0.302)	(0.301)
BeijingExperience	0.500**	0.506**	0.490**	0.506**
	(0.198)	(0.198)	(0.200)	(0.199)
HighEducation	0.617***	0.610***	0.617***	0.617***
	(0.149)	(0.150)	(0.149)	(0.150)
Fixed Effects	YES	YES	YES	YES
Observations	3,507	3,507	3,507	3,507
Log Likelihood	-1314	-1313	-1314	-1312

Table VI Politician Attribute and Privatization Consequence

This table presents the results of OLS panel regressions of privatization outcomes on politician attributes. The panel is from 1998 to 2009 and restricts to local SOEs at the city level or below with non-missing observation in the sample period. *Private* is a dummy variable that takes the value of one if the firm is concurrently registered as a private firm. *Top200P* is a dummy variable that takes the value of 1 if the firm is privatized by a city secretary who is concurrently connected with at least one full central committee members. *BeijingExperienceP* is a dummy variable that takes the value of one if the firm is privatized by a city secretary who worked in Beijing before she becomes the city leader. *HighEducationP* is a dummy variable that takes the value of one if the firm is privatized by a city secretary whose concurrent highest education level is master or above. *AgeP* is the contemporaneous age of city secretary who implemented the privatization minus minimum city secretary age. *Log(Sales)* are controlled in columns of *ROA* and *OROA*. *Log(Asset)* is controlled in the rest columns. Firm and year fixed effects are controlled in each column. See Table A.1 for detailed variable definitions. Standard errors are clustered at the firm level and reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	TFP	Log(Sales/Worker)	ROA	OROA	LogSale	MktShare
Private	0.215***	0.164***	0.941**	-0.291	0.267***	0.003
	(0.033)	(0.030)	(0.408)	(0.548)	(0.034)	(0.005)
Top200P×Private	-0.070***	-0.051***	-0.827***	-0.125	-0.073***	0.001
	(0.018)	(0.018)	(0.306)	(0.405)	(0.019)	(0.004)
BeijingExperienceP ×Private	-0.039**	-0.044**	-1.459***	-1.876***	-0.043**	-0.003***
	(0.018)	(0.017)	(0.273)	(0.392)	(0.018)	(0.001)
HighEducactionP× Private	-0.011	0.016	0.102	-0.383	-0.034**	-0.003
	(0.014)	(0.013)	(0.202)	(0.286)	(0.015)	(0.002)
AgeP×Private	0.000	-0.000	0.049**	0.097***	0.000	0.000
	(0.002)	(0.001)	(0.019)	(0.027)	(0.002)	(0.000)
Control	YES	YES	YES	YES	YES	YES
Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	495,876	495,876	497,218	497,294	506,227	506,227
Adjusted R-squared	0.016	0.232	0.026	0.031	0.384	0.001

Table VII Regression Discontinuity Design

This table reports firm-level regression results from the fuzzy regression discontinuity design. The sample is restricted to firms that are privatized by city secretaries who have ever connected with Central Committee members at the ministerial level. On both sides around the age cut-off, we use the Mean Square Error optimal bandwidth following Calonico, Cattaneo, and Titiunik (2014). Uniform kernel is used in the local linear regression. Two treatment effect estimators are reported: conventional local Wald estimator and bias-corrected estimator proposed by Calonico, Cattaneo, and Titiunik (2015). Biased-corrected with robust variance is also reported. The assignment variable is percent distance between the connected Central Committee's start term age and the age cut-off. Treatment variable is a dummy that takes the value of 1 if the connected Central Committee member has completed his final term. The outcome variable is the privatization outcomes at the firm level. *ΔTFP_1* and *ΔLog(Sales/Worker)_1* are the changes in *TFP* and *Log(Sales/Worker)* one year before and after the privatization, respectively. *ΔTFP_2* and *ΔLog(Sales/Worker)_2* are the average annual changes in *TFP* and *Log(Sales/Worker)* two years before and after the privatization, respectively. See Table A.1 for detailed variable definitions. Standard errors are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	ΔTFP_1	ΔLog(Sales/Worker)_1	ΔTFP_2	ΔLog(Sales/Worker)_2
Conventional	0.0917**	0.160***	0.122**	0.212***
	(0.0443)	(0.0566)	(0.0596)	(0.0637)
Bias-corrected	0.0955**	0.164***	0.115*	0.206***
	(0.0443)	(0.0566)	(0.0596)	(0.0637)
Bias-corrected Robust	0.0955*	0.164**	0.115*	0.206***
	(0.0535)	(0.0637)	(0.0633)	(0.0700)
Observations	11,198	11,198	11,340	11,340

Table VIII Regression Discontinuity Design (Continuity Assumption)

This table reports city secretary×term level results from the fuzzy regression discontinuity for the personal characteristics and city secretary×year level results from the fuzzy regression discontinuity for the SOE pool. The sample is restricted to city leaders who have ever connected with Central Committee members at the ministerial level. On both sides around the age cut-off, we use the Mean Square Error optimal bandwidth following Calonico, Cattaneo, and Titiunik (2014). Uniform kernel is used in the local linear regression. Two treatment effect estimators are reported: conventional local Wald estimator and bias-corrected estimator proposed by Calonico, Cattaneo, and Titiunik (2015). Biased-corrected with robust variance is also reported. The assignment variable is percent distance between the connected Central Committee's start term age and the age cut-off. Treatment variable is a dummy that takes the value of 1 if the connected Central Committee member has completed his final term. The outcome variables are the personal characteristics as in Table V and the SOE pool in the city, which is governed by the city secretary. *Age* is the local politician's age at the end of the Central Committee term. *FirstJobSOE* is a dummy variable which takes the value of 1 if the politician starts her work in the SOE, 0 otherwise. *MinorRace* is a dummy variable which takes the value of 1 if the politician's ethnicity is non-Han, 0 otherwise. *BeijingExperience* is a dummy variable that takes the value of 1 if the politician worked in Beijing before she becomes city leader, 0 otherwise. *Education* is a category variable that equals 1, 2, 3, 4, and 5, if the politician's highest educational achievement is high school, junior college, bachelor, master, and doctorate, respectively. *Ln(SOEPool)* is the natural logarithm of total state-owned assets in the city governed by the city secretary. Standard errors are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Age	FirstJobSOE	MinorRace	BeijingExperience	Education	Ln(SOEPool)
Conventional	-0.320	0.285	-0.228	0.114	-0.545	-3.340
	(0.972)	(0.216)	(0.192)	(0.165)	(0.792)	(5.513)
Bias-corrected	-0.199	0.321	-0.258	0.0777	-0.786	-2.524
	(0.972)	(0.216)	(0.192)	(0.165)	(0.792)	(5.513)
Bias-corrected Robust	-0.199	0.321	-0.258	0.0777	-0.786	-2.524
	(1.166)	(0.229)	(0.232)	(0.162)	(0.739)	(7.054)
Observations	891	891	891	891	624	2,317

Online Appendix for

How Do Individual Politicians Affect Privatization? Evidence from China

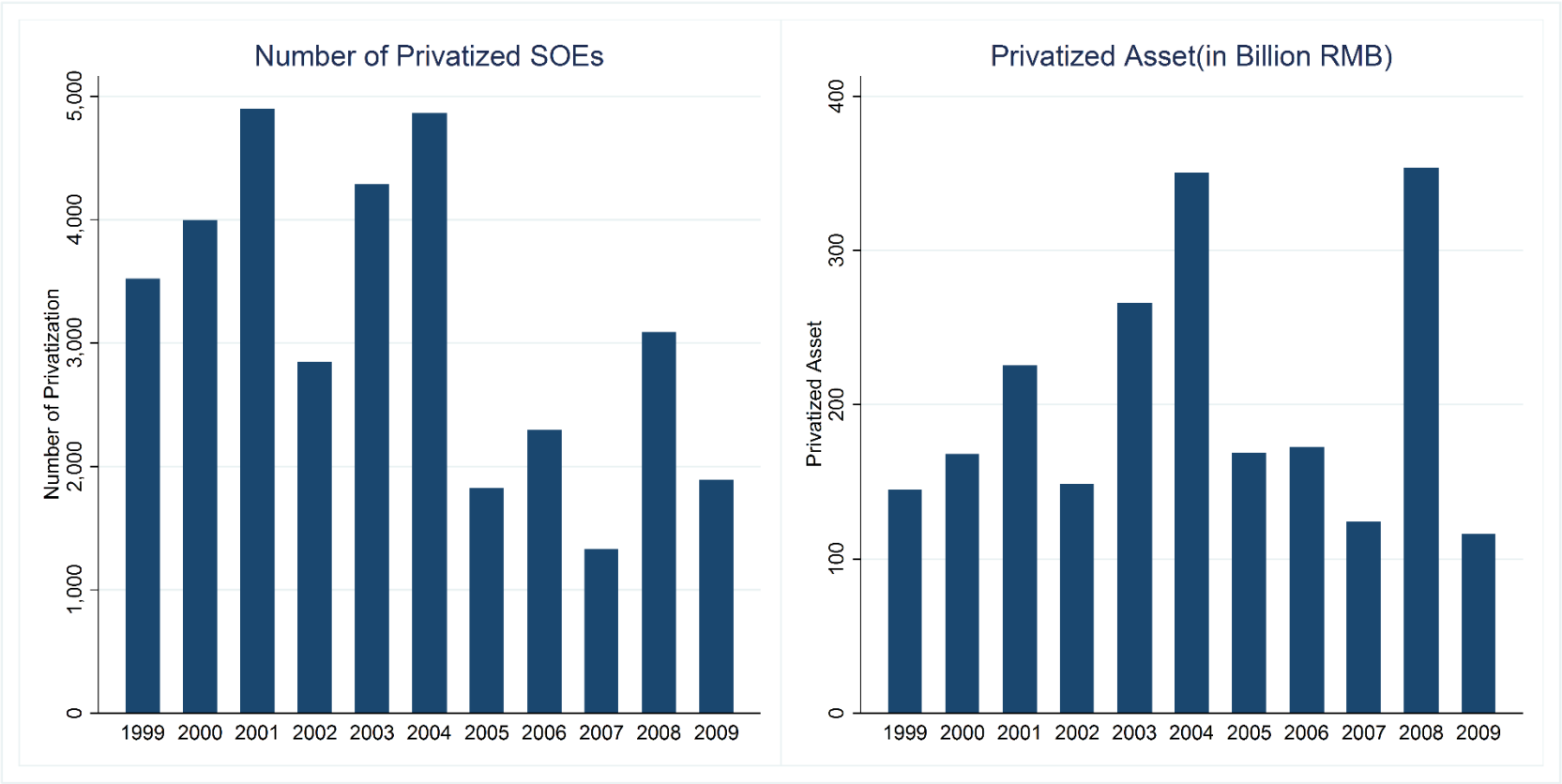
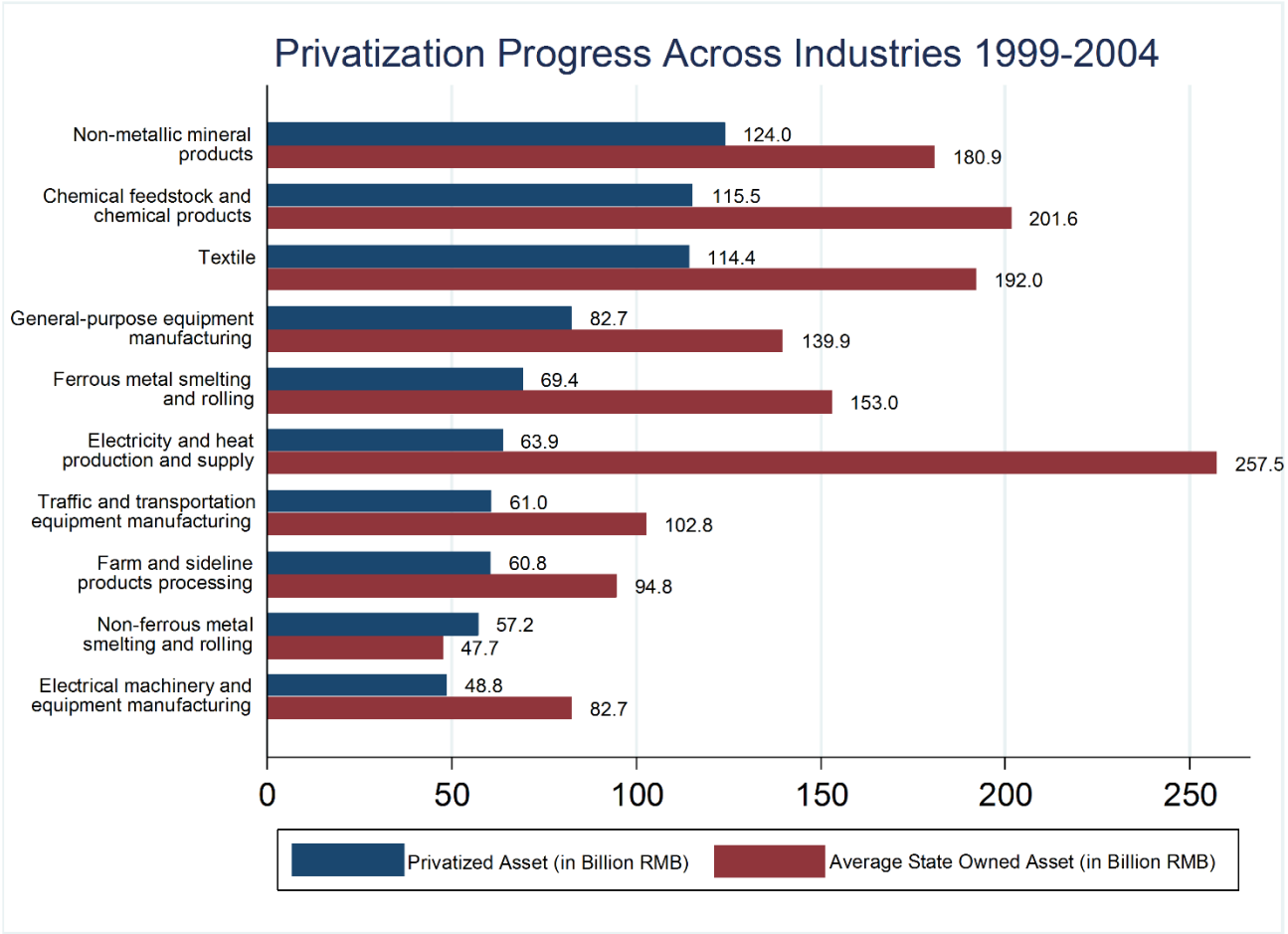
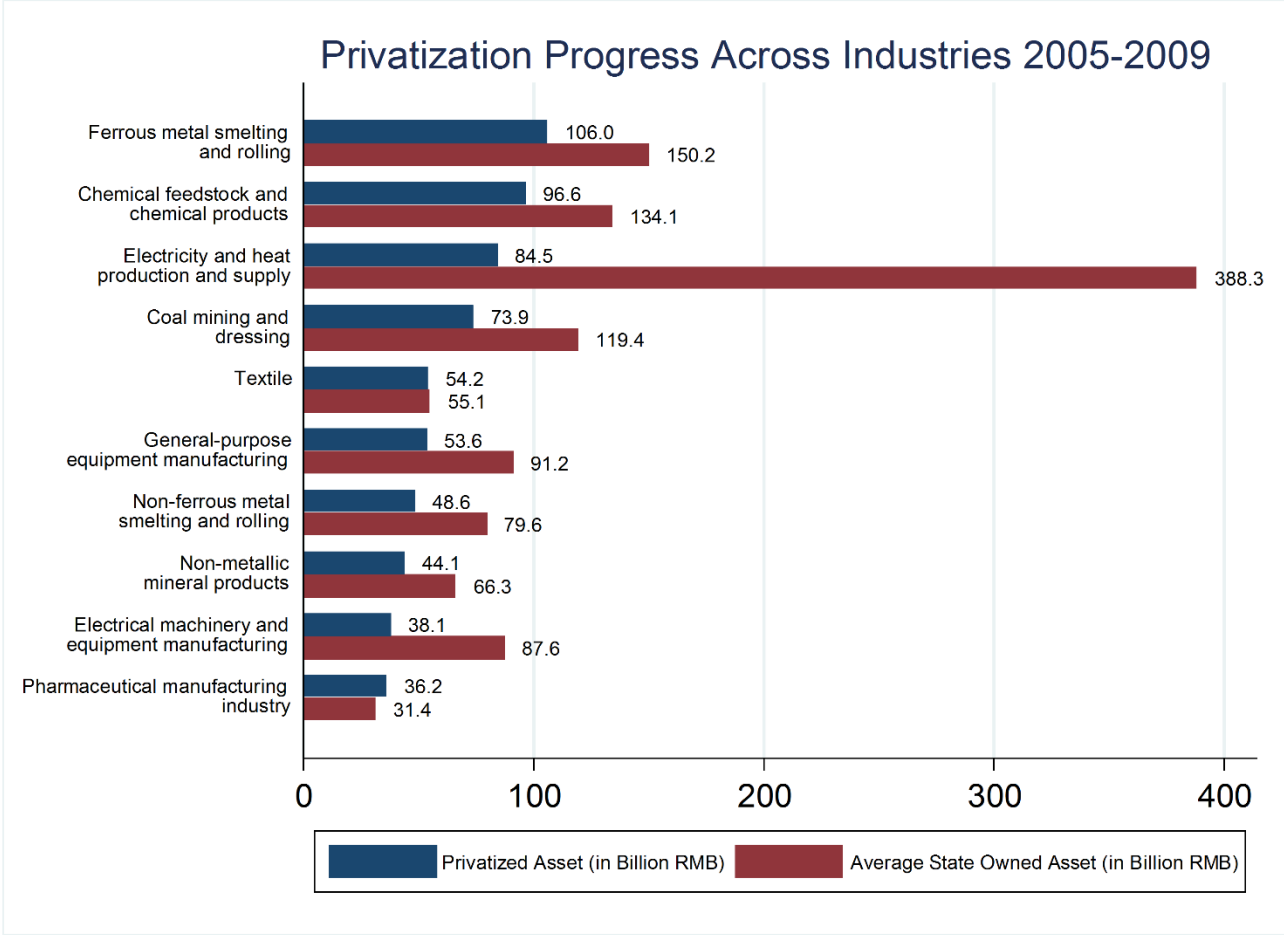


Figure A.1: Number of privatization and privatized assets of local SOEs at the city-level or below over time. This figure illustrates the privatization pattern from 1999 to 2009. The left graph shows the number of privatized firms per year, and the right graph shows the amount of privatized asset per year.


Privatization Progress Across Industries 1999-2004
Non-metallic mineral products
124.0
180.9
Chemical feedstock and chemical products
115.5
201.6
Textile
114.4
192.0
General-purpose equipment manufacturing
82.7
139.9
Ferrous metal smelting and rolling
69.4
153.0
Electricity and heat production and supply
63.9
257.5
Traffic and transportation equipment manufacturing
61.0
102.8
Farm and sideline products processing
60.8
94.8
Non-ferrous metal smelting and rolling
57.2
47.7
Electrical machinery and equipment manufacturing
48.8
82.7
0
50
100
150
200
250
Privatized Asset (in Billion RMB)
Average State Owned Asset (in Billion RMB)

Panel A



Panel B

Figure A.2: This figure shows the local SOEs' privatization progress across industries. Privatized Asset denotes the assets that are privatized within each industry for each period. For each firm, privatized asset equals the privatization dummy times the firm's total asset. Average State-Owned Asset denotes the averaged assets owned by the government within each industry in each period. Asset owned by the government in each firm equals total asset times the percentage share owned by the government. Top 10 industries (sorted by privatized asset) are displayed. Panel A and Panel B illustrate the privatization progress across industries in 1999-2004 and 2005-2009, respectively.

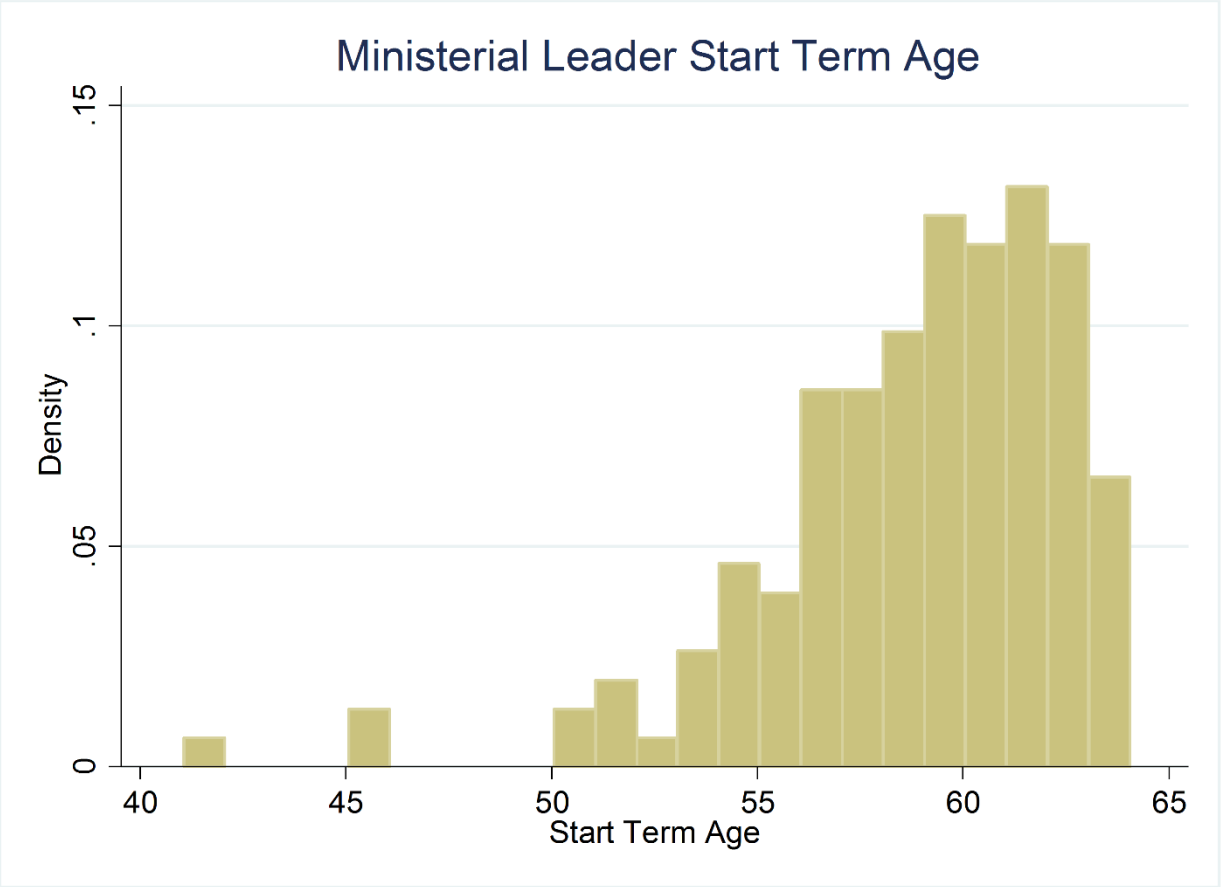


Figure A.3: This figure plots the start term age distribution of 16th-18th (i.e., 2002-2012) ministerial-level Central Committee members in our sample. We focus on Central Committee members who have served as provincial or city politicians. The horizontal axis is for the start term age, and the vertical axis is for the density of the age distribution. Start term age is the age of politician at the turnover of the Central Committee.

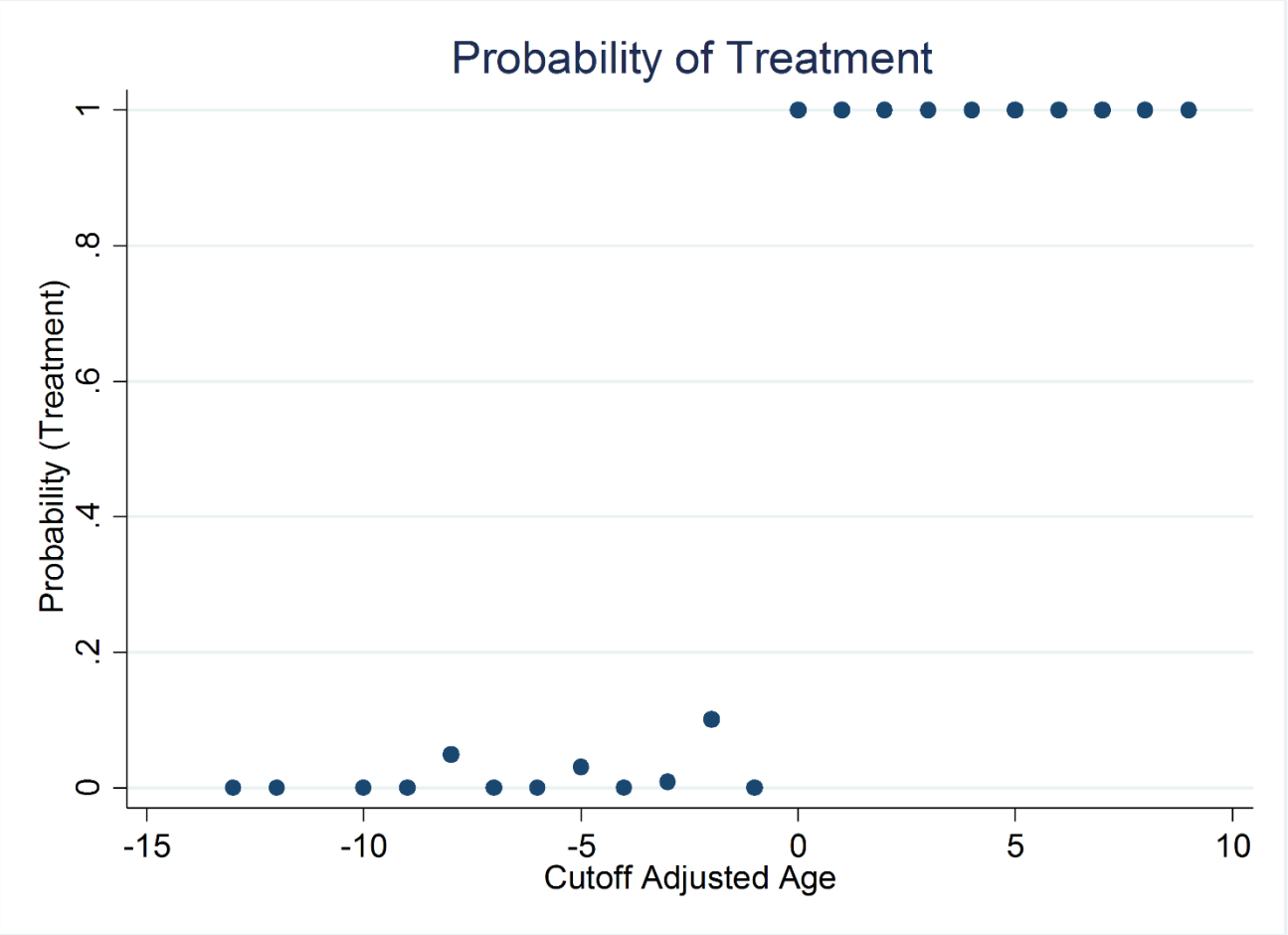


Figure A.4: This figure shows the first-stage fuzzy RDD plot of treatment probability against age (adjusted for the cut-off of 64 years old). The vertical axis shows the probability of treatment (i.e., step down) across age groups of ministerial-level Central Committee members. In the horizontal axis, to the right of 0 (including 0) are the ministerial-level Central Committee members whose age at the time of term renewal is larger than or equal to 64. To the left of 0 (excluding 0) are the ministerial-level Central Committee members whose age at the time of term renewal is below 64.

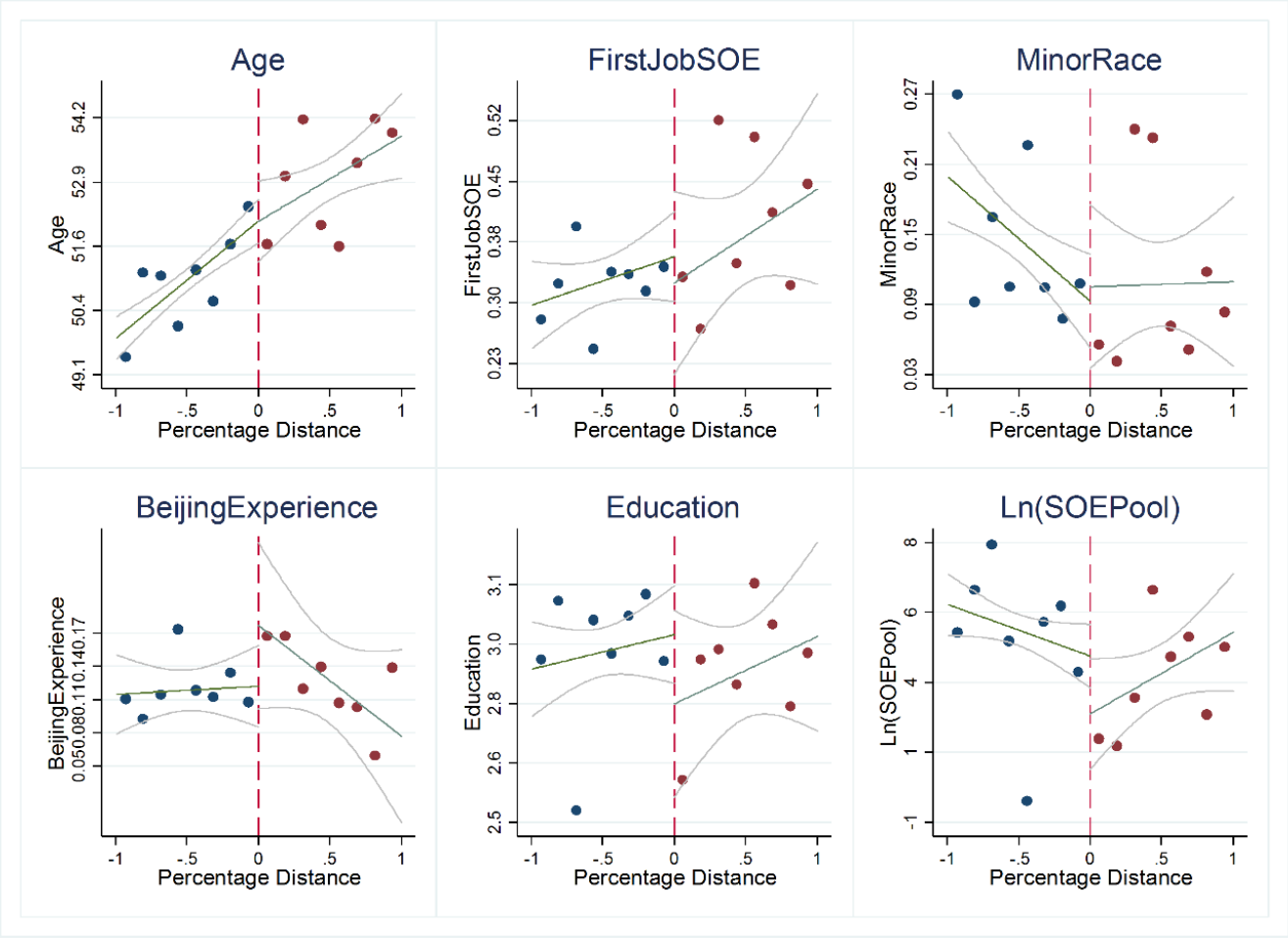


Figure A.5: This figure illustrates the local politician characteristics against percent distance to the age cutoff to check the validity of the RDD. In the horizontal axis, to the left (right) of the cutoffs are city secretaries who are connected to central committee members with ages lower (higher) than the mandatory renewable age. Local politicians characteristics, such as *Age, FirstJobSOE, MinorRace, Beijing Experience, Education,* and *SOE pool* in the city that is governed by the city secretary are drawn separately. Detailed variable description can be found in Table VIII. 95% confidence intervals are drawn around the linear best fit.

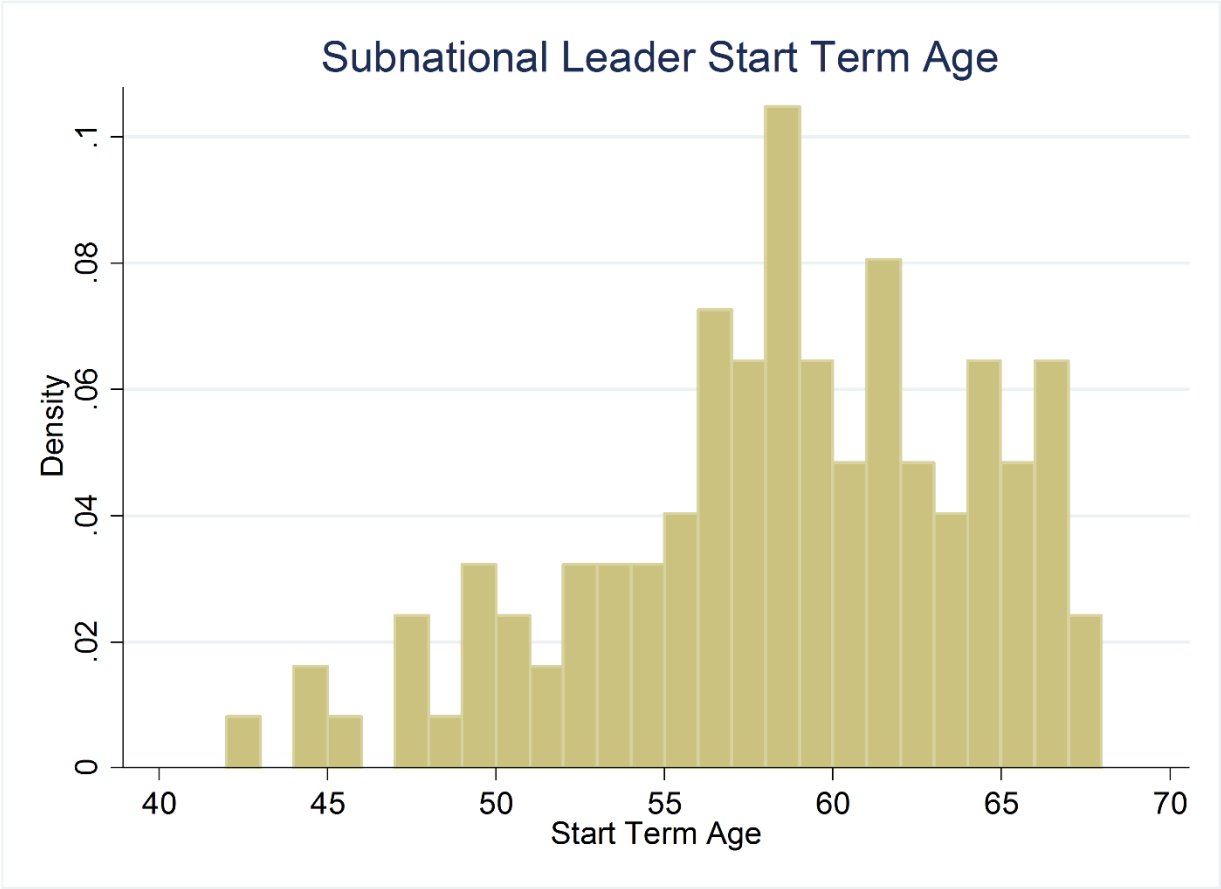


Figure A.6: This figure plots the start term age distribution of 16th-18th (i.e., 2002-2012) subnational level Central Committee members in our sample. We focus on Central Committee members who have served as provincial or city politicians. The horizontal axis is for the start term age, and the vertical axis is for the density of the age distribution. Start term age is the age of the politician at the election date of Central Committee.

Table A.1: Variable Definitions and Constructions

Variable	Description
ROA	Net income divided by the current year total asset times 100. It is winsorized at 0.1% at both ends.
OROA	Operating profit divided by the current year total asset times 100. It is winsorized at 0.1% at both ends.
Log(Sales/Worker)	The natural logarithm of sales per worker. It is winsorized at 0.1% at both ends.
TFP	Total factor productivity is the residual value obtained from the regression of the natural log of total revenues on the natural log of total assets and the natural log of total employment following Cobb-Douglas form in the panel of the firms in the CIC survey from 1998 to 2009. It is winsorized at 0.1% at both ends.
LogAsset	The natural logarithm of total asset.
LogSale	The natural logarithm of operating income.
MktShare	The firm's share of operating revenue in the 2-digit industry times 100.
LogSub	The natural logarithm of subsidized income.
LogWage	The natural logarithm of the average wage.
LogWorker	The natural logarithm of the number of employees.
GDP Growth	The annual GDP growth rate.
Private	Dummy variable that takes the value of 1 if the firm is concurrently registered as a private enterprise.
PrivateShare	Share of ownership that is not owned by the state.
Age	Politician's contemporaneous age.
Tenure	The number of years the politician has been in this position.
Gender	Dummy variable which takes the value of 1 if the politician is male.
FirstJobSOE	Dummy variable which takes the value of 1 if the politician starts her career in the SOE.
MinorRace	Dummy variable which takes the value of 1 if the politician's ethnicity is non-Han.
BeijingExperience	Dummy variable which takes the value of 1 if the politician worked in Beijing before she becomes a city leader.
HighEducation	Dummy variable which takes the value of 1 if the politician's concurrent highest education level is master or above.
Promotion	Ordinal variable with promotion taking the value of 2, parallel transfer to positions of same rank 1, retirement, termination and death 0.

(To be continued)

Table A.1: Variable Definitions and Constructions — *continued*

Variable	Description
Top200	Dummy variable which takes the value of 1 if the politician is concurrently connected to at least one full central committee member of CPC.
Top400	Dummy variable which takes the value of 1 if the politician is concurrently connected to at least one full or alternate central committee member of CPC.
Top200#	The number of concurrent connections that the politician possesses with full members of the central committee of CPC.
Top400#	The number of concurrent connections that the politician possesses with full or alternate members of the central committee of CPC.
Top200P	Dummy variable which takes the value of 1 if the firm is privatized by a city secretary who is concurrently connected to at least one full central committee member of CPC.
Top400P	Dummy variable which takes the value of 1 if the firm is privatized by a city secretary who is concurrently connected to at least one full or alternate central committee member of CPC.
AgeP	Contemporaneous age of city secretary who implemented the privatization minus minimum city secretary age (36).
BeijingExperienceP	Dummy variable that takes the value of 1 if the firm is privatized by a city secretary worked in Beijing before she becomes city leader.
HighEducactionP	Dummy variable that takes the value of 1 if the firm is privatized by a city secretary whose concurrent highest education level is master or above.

Table A.2: Privatization Determinants

This table presents the results of Cox proportional hazard regressions following Wooldridge (2002) and the OLS regression on privatization determinants. Cox proportional hazard regression results are presented in column (1), (2), and (3) while OLS regression results are presented in columns (4), (5), and (6). The sample runs from 1998 to 2009 since registration type in CIC is missing in 2010. Firm year panel data are restricted to firms that are not subject to the provincial government and central government and first appeared in our database as a state-owned enterprise. The origin and failure event are the years in which the firm first appeared in the database and the year in which the firm finally got privatized, respectively. *ROA* is the ratio of net income over total asset times 100. *LnAsset* is the natural logarithm of the firm's total asset. *Emply/Popu* is the ratio of the firm's number of employees over the population of the city where the firm registered. *LnGDP* is the natural logarithm of city GDP. *Age* is the city secretary's contemporaneous age. *Tenure* counts the number of years the city secretary has been in this position. *Gender* is a dummy variable which takes the value of 1 if the city secretary is male, 0 otherwise. *FirstJobSOE* is a dummy variable which takes the value of 1 if the city secretary starts her work in the SOE, 0 otherwise. *MinorRace* is a dummy variable which takes the value of 1 if the city secretary's ethnicity is non-Han, 0 otherwise. *BeijingExperience* is a dummy variable that takes the value of 1 if the city secretary worked in Beijing before she becomes a city leader, 0 otherwise. *HighEducation* is a dummy variable that takes the value of 1 if the city secretary's concurrent highest education level is master of above, 0 otherwise. Variable names end with 2 denote the politician characteristics of mayors. City, Industry, and Year fixed effects are controlled in each column. Standard errors are clustered at the firm level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

(*To be continued*)

Table A.2: Privatization Determinants —*continued*

VARIABLES	(1) Privatize	(2) Privatize	(3) Privatize	(4) PrivateShare	(5) PrivateShare	(6) PrivateShare
ROA(t-1)	0.005***	0.005***	0.005***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LnAsset(t-1)	0.070***	0.067***	0.064***	0.007***	0.008***	0.008***
	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)
Emply/Popu(t-1)	-0.021***	-0.021***	-0.019***	-0.005***	-0.005***	-0.005***
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)
LnGDP(t-1)	-0.239***	-0.154**	-0.165**	-0.007	-0.017*	-0.027**
	(0.060)	(0.063)	(0.065)	(0.010)	(0.010)	(0.011)
Age		0.002	0.003		0.000	0.001*
		(0.002)	(0.002)		(0.000)	(0.000)
Tenure		0.010**	0.011**		0.001**	0.002***
		(0.004)	(0.004)		(0.001)	(0.001)
Gender		0.206***	0.280***		0.014*	0.021***
		(0.056)	(0.061)		(0.007)	(0.008)
FirstJobSOE		0.112***	0.126***		0.007***	0.008***
		(0.015)	(0.015)		(0.002)	(0.002)
MinorRace		-0.028	-0.011		0.016***	0.015***
		(0.042)	(0.043)		(0.005)	(0.006)
BeijingExperience		0.003	0.022		-0.003	-0.003
		(0.022)	(0.023)		(0.003)	(0.004)
HighEducation		0.068***	0.077***		0.004*	0.010***
		(0.017)	(0.017)		(0.002)	(0.003)
Age2			-0.001			0.000
			(0.002)			(0.000)
Tenure2			0.008*			-0.001**
			(0.004)			(0.001)
Gender2			0.105***			0.006
			(0.039)			(0.005)
FirstJobSOE2			0.067***			-0.005*
			(0.016)			(0.002)
MinorRace2			0.042			0.000
			(0.076)			(0.008)
BeijingExperience2			0.114***			0.000
			(0.025)			(0.004)
HighEducation2			-0.027			0.001
			(0.017)			(0.002)
Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	291,187	280,166	263,477	348,868	337,710	319,582
Chi-squared	17369	16947	73409			
Adjusted R-squared				0.212	0.213	0.211

Table A.3: Political Connection and Privatization Consequence (Robust)

This table presents the results of cross-sectional regressions of privatization outcomes implemented by connected politicians versus unconnected politicians. The panel is from 1998 to 2009 and restricts to local SOEs at the city level or below with non-missing observation in the sample period. *Top400P* is dummy variable that takes the value of one if the SOE is privatized by a city secretary who is concurrently connected with at least one full or alternate Central Committee members. In Panel A, *ΔTFP_1*, *ΔLog(Sales/Worker)_1*, *ΔROA_1*, *ΔOROA_1, ΔLogSale_1*, and *ΔMktShare_1* are the changes in *TFP*, *Log(Sales/Worker)*, *ROA*, *OROA*, *LogSale*, and *MktShare* one year before and after the privatization, respectively. In Panel B, *ΔTFP_2*, *ΔLog(Sales/Worker)_2*, *ΔROA_2*, *ΔOROA_2, ΔLogSale_2*, and *ΔMktShare_2* are the average annual changes in *TFP*, *Log(Sales/Worker)*, *ROA*, *OROA*, *LogSale*, and *MktShare* two years before and after the privatization, respectively. *Log(Average Sales)* are controlled in columns of ROA and OROA. *Log(Average Asset)* is controlled in the rest columns. The fixed effects of privatization year are controlled in each column. See Table A.1 for detailed variable definitions. Standard errors are clustered at the firm level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ΔTFP_1	ΔLog(Sales/Worker)_1	ΔROA_1	ΔOROA_1	ΔLogSale_1	ΔMktShare_1
Top400P	-0.059***	-0.035**	-0.460*	-0.652**	-0.028*	0.000
	(0.014)	(0.014)	(0.260)	(0.313)	(0.015)	(0.000)
Control	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	27,827	27,827	28,208	28,233	28,389	28,389
Adjusted R-squared	0.014	0.010	0.002	0.005	0.016	0.006

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ΔTFP_2	ΔLog(Sales/Worker)_2	ΔROA_2	ΔOROA_2	ΔLogSale_2	ΔMktShare_2
Top400P	-0.066***	-0.041***	-0.381	-0.253	-0.037*	0.000
	(0.014)	(0.015)	(0.252)	(0.302)	(0.019)	(0.000)
Control	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	28,114	28,114	28,275	28,290	28,396	28,396
Adjusted R-squared	0.016	0.020	0.009	0.014	0.024	0.008

Table A.4: Privatization and GDP Performance

This table presents the results of OLS panel regression on GDP growth and privatized amount. GDP Growth is the annual GDP growth rate. *PrivNum* is the number of firms which is privatized in this year. The total number of privatized firms are divided into high-efficient privatized firms and low-efficient privatized firms. *HighEffPrivNum_1* is the number of privatized firms whose 1-year *ROA* change is above the median while *LowEffPrivNum_1* is the number of privatized firms whose 1-year *ROA* change is below or equal to the median. *HighEffPrivNum_2* is the number of privatized firms whose 2-year *ROA* change is above the median while *LowEffPrivNum_2* is the number of privatized firms whose 2-year *ROA* change is below or equal to the median. *PrivAsset* is the amount of asset which is privatized in this year. The total amount of privatized asset is divided into high-efficient privatized assets and low-efficient privatized assets by the *ROA* change around the privatization year. *HighEffPrivAsset_1* is the sum of the privatized asset whose 1-year *ROA* change is above the median while *LowEffPrivAsset_1* is the sum of the privatized asset whose 1-year *ROA* change is below or equal to the median. *HighEffPrivAsset_2* is the sum of the privatized asset whose 2-year *ROA* change is above the median while *LowEffPrivAsset_2* is the sum of the privatized asset whose 2-year *ROA* change is below or equal to the median. City and Year fixed effects are controlled in each column. Standard errors are clustered at the city level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

(To be continued)

Table A.4: Privatization and GDP Performance —*continued*

VARIABLES	(1) GDP Growth(t+1)	(2) GDP Growth(t+1)	(3) GDP Growth(t+1)	(4) GDP Growth(t+1)	(5) GDP Growth(t+1)	(6) GDP Growth(t+1)
PrivNum	0.145***					
	(0.006)					
HighEffPrivNum_1		0.181***				
		(0.019)				
LowEffPrivNum_1		0.110***				
		(0.013)				
HighEffPrivNum_2			0.188***			
			(0.017)			
LowEffPrivNum_2			0.102***			
			(0.014)			
PrivAsset				0.006***		
				(0.001)		
HighEffPrivAsset_1					0.006***	
					(0.002)	
LowEffPrivAsset_1					0.005***	
					(0.002)	
HighEffPrivAsset_2						0.007***
						(0.002)
LowEffPrivAsset_2						0.005***
						(0.002)
City Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	2,729	2,729	2,729	2,729	2,729	2,729
Adjusted R-squared	0.792	0.795	0.798	0.214	0.213	0.215

Table A.5: Regression Discontinuity Design (Robust)

This table reports firm-level results from the fuzzy regression discontinuity. The sample is restricted to firms that are privatized by city secretaries who are ever connected with central committee members (except Politburo members). For a robustness check, on both sides around the cutoff, 100%, 200%, 300%, and 400% optimal bandwidths given by Imbens and Kalyanaraman (2012) are used. The uniform kernel is used in the local linear regression. The assignment variable is the adjusted start term age of the connected Central Committee member in this term. Treatment variable is a dummy that takes the value of 1 if the connected Central Committee member has completed his final term. The outcome variable is the firm-level privatization consequence, as in Table IV. *ΔTFP_1* is *TFP* of the year just after privatization minus *TFP* of the year just before privatization. *ΔLog(Sales/Worker)_1* is the *Log(Sales/Worker)* of the year just after privatization minus the *Log(Sales/Worker)* of the year just before the privatization. *ΔTFP_2* is the two years average *TFP* just after privatization minus the two years average *TFP* just before the privatization. *ΔLog(Sales/Worker)_2* is the two years average *Log(Sales/Worker)* just after privatization minus the two years average *Log(Sales/Worker)* just before the privatization. Standard errors clustered at the politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	ΔTFP_1	ΔLog(Sales/Worker)_1	ΔTFP_2	ΔLog(Sales/Worker)_2
Local Wald Estimator 100	0.0615	0.120**	0.124*	0.168***
	(0.0652)	(0.0570)	(0.0690)	(0.0499)
Local Wald Estimator 200	0.0718*	0.0986***	0.121***	0.170***
	(0.0391)	(0.0378)	(0.0440)	(0.0424)
Local Wald Estimator 300	0.0721**	0.0983***	0.118***	0.169***
	(0.0354)	(0.0349)	(0.0402)	(0.0422)
Local Wald Estimator 400	0.0707**	0.0975***	0.118***	0.169***
	(0.0342)	(0.0344)	(0.0397)	(0.0423)
Observations	11,198	11,198	11,340	11,340

Table A.6: Regression Discontinuity Design - Continuity Assumption (Robust)

This table reports city secretary×term level results from the fuzzy regression discontinuity for the personal characteristics and city secretary×year level results from the fuzzy regression discontinuity for the SOE pool. The sample is restricted to city leaders who are ever connected with central committee members (except Politburo members). For a robustness check, on both sides around the cutoff, 100%, 200%, 300%, and 400% optimal bandwidths given by Imbens and Kalyanaraman (2012) are used. The uniform kernel is used in the local linear regression. The assignment variable is percent distance between the connected Central Committee's start term age and the age cut-off. Treatment variable is a dummy that takes the value of 1 if the connected Central Committee member has completed his final term. The outcome variable is the personal characteristics, as in Table V. *Age* is the politician's age at the end of the Central Committee term. *FirstJobSOE* is a dummy variable which takes the value of 1 if the politician starts her work in the SOE, 0 otherwise. *MinorRace* is a dummy variable which takes the value of 1 if the politician's ethnicity is non-Han, 0 otherwise. *BeijingExperience* is a dummy variable that takes the value of 1 if the politician worked in Beijing before she becomes city leader, 0 otherwise. *Education* is a category variable that equals 1, 2, 3, 4, and 5, if the politician's highest educational achievement is high school, junior college, bachelor, master, and doctorate, respectively. *Ln(SOEPool)* is the natural logarithm of total state-owned assets in the city governed by the city secretary. Standard errors clustered at the politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Age	FirstJobSOE	MinorRace	BeijingExperience	Education	Ln(SOEPool)
Local Wald Estimator 100	-0.350	-0.0641	-0.222	0.146	-0.420	-4.968*
	(0.824)	(0.216)	(0.215)	(0.0912)	(0.456)	(2.700)
Local Wald Estimator 200	-0.304	-0.0202	-0.160	0.0830	-0.315	-2.684
	(0.612)	(0.140)	(0.141)	(0.0627)	(0.325)	(2.315)
Local Wald Estimator 300	-0.424	-0.0166	-0.0605	0.0721	-0.288	-2.342
	(0.568)	(0.126)	(0.111)	(0.0585)	(0.303)	(2.228)
Local Wald Estimator 400	-0.460	-0.0154	-0.0334	0.0680	-0.270	-2.194
	(0.559)	(0.121)	(0.0914)	(0.0570)	(0.287)	(2.182)
Observations	891	891	891	891	624	2,317

Table A.7: Regression Discontinuity Design (All Central Committee Members)

This table reports firm-level results from the fuzzy regression discontinuity. The sample is restricted to firms that are privatized by city secretaries who are ever connected with central committee members (including subnational members). For a robustness check, on both sides around the cutoff, 100%, 200%, 300%, and 400% optimal bandwidths given by Imbens and Kalyanaraman (2012) are used. The uniform kernel is used in the local linear regression. The assignment variable is percent distance between the connected Central Committee's start term age and the age cut-off. Treatment variable is a dummy that takes the value of 1 if the connected Central Committee member has completed his final term. The outcome variable is the firm-level privatization consequence, as in Table IV. *ΔTFP_1* is *TFP* of the year just after privatization minus *TFP* of the year just before privatization. *ΔLog(Sales/Worker)_1* is the *Log(Sales/Worker)* of the year just after privatization minus the *Log(Sales/Worker)* of the year just before the privatization. *ΔTFP_2* is thetwo years average *TFP* just after privatization minus the two years average *TFP* just before the privatization. *ΔLog(Sales/Worker)_2* is the two years average *Log(Sales/Worker)* just after privatization minus the two years average *Log(Sales/Worker)* just before the privatization. Standard errors are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	ΔTFP_1	ΔLog(Sales/Worker)_1	ΔTFP_2	ΔLog(Sales/Worker)_2
Local Wald Estimator 100	0.081**	0.124***	0.147***	0.220***
	(0.0396)	(0.0355)	(0.0412)	(0.0584)
Local Wald Estimator 200	0.076***	0.081***	0.124***	0.189***
	(0.0255)	(0.0243)	(0.0263)	(0.0408)
Local Wald Estimator 300	0.068***	0.067***	0.103***	0.161***
	(0.0226)	(0.0223)	(0.0238)	(0.0314)
Local Wald Estimator 400	0.064***	0.064***	0.097***	0.137***
	(0.0220)	(0.0222)	(0.0233)	(0.0269)
Observations	18,374	18,375	18,546	18,547

Table A.8: Political Connection and Corruption

This table presents the results of OLS panel regressions on the determinants of corruption amount with political connection and politicians' characteristics. The sample included all the investigated politicians who have served as city secretaries or mayors from 1998 to 2009. *Ln(CorruptAmnt)* is the natural logarithm of the corruption amount of investigated politicians. *Top200* and *Top400* are dummy variables that take the value of 1 if the politician is connected to at least one full central committee and full or alternate central committee members in the year of investigation respectively, 0 otherwise. *Top200#* and *Top400#* count the number of unique connections that the politician has with the full central committee members(s) and full or alternate central committee member(s) in the year of investigation, respectively. As in Table V, we control for politician's characteristics such as *Gender*, *FirstJobSOE*, *MinorRace*, *BeijingExperience*, and *HighEducation*. Standard errors are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
VARIABLES	Ln(CorruptAmnt)	Ln(CorruptAmnt)	Ln(CorruptAmnt)	Ln(CorruptAmnt)
Top200	0.621*			
	(0.321)			
Top200#		0.696***		
		(0.182)		
Top400			0.862***	
			(0.307)	
Top400#				0.695***
				(0.161)
Gender	2.115	2.353**	2.172*	2.255**
	(1.279)	(1.033)	(1.273)	(1.029)
FirstJobSOE	0.502	0.503	0.472	0.465
	(0.340)	(0.324)	(0.329)	(0.312)
MinorRace	-0.387	-0.421	-0.391	-0.354
	(0.500)	(0.532)	(0.510)	(0.535)
BeijingExperience	0.361	0.380	0.373	0.331
	(0.799)	(0.794)	(0.809)	(0.712)
HighEducation	1.875***	1.800***	1.871***	1.784***
	(0.366)	(0.360)	(0.355)	(0.364)
Observations	71	71	71	71
R-squared	0.367	0.420	0.390	0.442