How Do Individual Politicians Affect Privatization? Evidence from China[*]

Hong Ru[1] and Kunru Zou[2]

[1]Nanyang Technological University and [2]Renmin University of China

Abstract

This paper examines the role of local politicians' patronage connections to top political leaders (i.e., the Central Committee of the Communist Party of China) in privatization outcomes. We find that connected local politicians are more likely to sell state-owned enterprises (SOEs) to corrupt buyers at substantially discounted prices. The SOEs purchased by corrupt buyers engage in significantly more fraudulent and corrupt activities following privatization and thus perform worse. For identification, we use the mandatory retirement ages of Central Committee members in a fuzzy regression discontinuity design. When local politicians lose their connections because Central Committee members step down after reaching mandatory retirement ages, we find a 14.4 percentage point drop in the likelihood of choosing corrupt buyers and a 90.13% drop in price discounts for privatization sales. Consequently, the privatized SOEs experience jumps in efficiency gains after the age cut-offs for mandatory retirement.

Keywords: Patronage Connection, Privatization, Corruption, China

JEL Classification: D73, G30, L33

1. Introduction

Political connections play an important role in economies worldwide (e.g., Fisman, 2001; Khwaja and Mian, 2005; Faccio, 2006).[1] In particular, patronage connections among bureaucrats and politicians form the foundation of political systems in both democratic and autocratic countries (e.g., Grindle, 2012; Xu, 2019), and such connections are often interconnected with corruption (e.g., Nye, 1967; Shleifer and Vishny, 1993; Chu et al., 2021). However, theoretical arguments on how patronage affects economic performance are ambiguous, and the empirical evidence is limited and mixed.[2] In this paper, we aim to understand the fundamental mechanisms underlying the effects of patronage on economic activities in the context of privatization in China, where many state-owned enterprises (SOEs) have been privatized in recent decades.[3]

More specifically, we explore how local politicians' patronage connections to top political leaders (i.e., members of the Central Committee of the Communist Party of China (CPC)) affect privatization implementations and subsequent efficiency gains. We find that in general, privatized SOEs become more efficient, but such gains are significantly lower when the privatization process is conducted by local politicians with patronage connections. Furthermore, connected local politicians are more likely to select buyers that have engaged in corrupt activities and are more likely to sell them SOEs at larger discounts. The privatized SOEs with corrupt buyers as new owners then engage in more fraud and corruption, which hurts post-privatization efficiency gains. To identify the causal effects of patronage connections, we exploit discontinuity of politicians' patronage connections across the mandatory retirement age cut-offs of Central Committee members (e.g., seven up, eight down).[4] These findings from granular data provide detailed and novel evidence showing that corruption underlies the adverse effects of patronage connections on privatization outcomes in China.

For privatization activities, we obtain firm-level panel data from the Chinese Industry Census (CIC), which covers all the manufacturing firms in China with annual sales of more than USD 700

---

[1] For example, firms with political connections enjoy better government supports (e.g., Johnson and Mitton, 2003; Faccio, Masulis, and McConnell, 2006).

[2] See Voth and Xu (2020) for a detailed discussion of the economic implications of "good" and "bad" patronage.

[3] 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 in the world. This makes China the ideal setting to investigate our research question.

[4] The rule of "seven up, eight down" in political power transition in China has profound influences on political and economic systems (e.g., Politburo members cannot renew terms at 68 years old or older, and minister-level politicians cannot renew their Central Committee terms at 64 years old or older). See details in Congressional Research Service report, Understanding China's Political System (Dumbaugh and Martin (2009)).

thousand between 1998 and 2009. For the subsample of privatizations for SOEs listed in stock markets, we obtain transaction-level data on 1,693 negotiated transfer deals from CCERData. For each privatization transaction, we manually collect the corruption records of the buyer and the SOE. To measure politicians' patronage connections, we manually collect the curriculum vitae of 1,048 leading city politicians (i.e., city secretaries of the CPC) across 326 cities in China and 323 Central Committee members between 1998 and 2009.

Using these data, we develop the testable hypothesis: when local politicians (i.e., city secretaries) have patronage connections to Central Committee members, they engage in more corruption during and after privatization, which hurts the privatized SOEs' efficiency. To test this hypothesis, we measure patronage based on city secretaries' connections to the Central Committee members. The Central Committee is comprised of approximately 200 members representing the National Party Congress (NPC), the highest organ of state power in China. We define city secretaries as connected if they have worked as subordinates for Central Committee members.[5] For each city secretary, the connections are time-varying due to turnover in the Central Committee. We restrict the sample to the local SOEs at the city level or below, which are under the direct jurisdiction of the city secretaries. This sample of local SOEs covers 96.7% of the privatization cases in the CIC.

We first document that although privatization generally increases SOEs' efficiency, the gains are significantly less pronounced when the privatization process is conducted by connected city secretaries. Specifically, the panel regressions show that on average, privatized SOEs increase their total factor productivity (TFP), return on assets (ROA), and operating return on assets (OROA) by 4.7%, 15.6%, and 6.4%, respectively, which is consistent with conventional wisdom. However, SOEs whose privatization was conducted by connected city secretaries experience smaller improvements in TFP, ROA, and OROA: 42.2%, 62.3%, and 75.4% smaller, respectively, than the improvements of privatized SOEs associated with unconnected city secretaries. In other words, the patronage connections of city secretaries are associated with substantially lower post-privatization efficiency gains.

One alternative explanation for the smaller increases in the efficiency of privatized SOEs with connected city secretaries is that the connected and unconnected city secretaries might have

---

[5] We employ standard approaches in the literature to define patronage connections among politicians (e.g., Jia, Kudamatsu, and Seim, 2015; Jiang, 2018). See the detailed discussion in Section 3.3.

different types of SOEs before privatization. For example, the unconnected city secretaries could manage SOEs better or select more efficient SOEs for privatization, which could lead to differences in post-privatization efficiency gains. We conduct t-tests to compare the pre-privatization characteristics (i.e., TFP, ROA, OROA, size, investment, and leverage) of SOEs with connected and unconnected city secretaries and find no significant differences. This suggests that the lower efficiency gains of the privatized SOEs with connected city secretaries are due mainly to post-privatization changes rather than pre-privatization differences in efficiency levels.

Furthermore, the variation in patronage connections is semi-exogenous. Specifically, for individual city secretaries, the change in their connections comes from their former bosses' promotions to or retirements from the Central Committee. Additionally, the connections among politicians are determined by their work histories. Thus, the variation in patronage connections is not directly linked to city secretaries' concurrent privatization actions. However, these connections could still correlate with other factors that drive political connections and privatization outcomes. To identify the effects of patronage connections, we employ the fuzzy regression discontinuity (RD) approach by using the mandatory retirement age cut-offs for Central Committee members to explore the discontinuities in city secretaries' connections and privatization outcomes. Every five years, the terms of all Central Committee members end, and members who are at or past the mandatory retirement age at that time are ineligible to renew their terms. The age limits for term renewals of minister-level and national-level Central Committee members are 64 and 68, respectively. This mandatory retirement rule was strictly enforced without a single exception during our sample period.

In the first stage of the fuzzy RD, consistent with the age limit policy, we find that in NPC turnover years, if the age of a Central Committee member crosses the cut-off, the probability of stepping down jumps from almost 0 to 100%. In the second stage of the fuzzy RD, conditioning on city secretaries had connections, we regress the changes in efficiency before and after privatization on the estimated probability that the secretaries' connected Central Committee members stepped down in the most recent NPC turnover year. We find that the increases in TFP, ROA, and OROA two years after privatization jump by approximately 21.5%, 74.9%, and 52.9%, respectively, after the cut-offs.[6]

---

[6] As a robustness check, we restrict the sample to privatizations right before and right after the NPC turnover years of 2002 and 2007 in our sample period. We still find significant jumps in privatization efficiency gains when city

4

To examine the validity of the RD, we repeat the fuzzy RD for city secretaries' other characteristics (e.g., age, gender, ethnicity, education, and length of tenure) and find that none of them have significant changes at the mandatory retirement age cut-offs. This mitigates the concern that other characteristics of the city secretaries might correlate with their political connections, which causes the jumps in privatization efficiency gains after the cut-offs. In additional fuzzy RD analyses, we do not find significant changes in average TFP, ROA, OROA, size, leverage, or investment two years before privatization when city secretaries lose their connections at the age cut-offs. This suggests that the jumps in privatization efficiency gains at the cut-offs are not due to changes in pre-privatization SOE characteristics. Moreover, the ratio of privatized SOE numbers over total SOE numbers at the city level does not jump at the cut-offs, which mitigates the concern that connected politicians might have fewer SOE candidates for privatization and thus might have to choose SOEs with potentially lower efficiency gains. Overall, these fuzzy RD results establish the causal effects of patronage connections on privatization outcomes.

To further understand the negative effects of patronage connections on privatization outcomes, we use the transaction-level data for listed SOEs' privatization deals to show that corruption is the fundamental channel for the heterogeneity in privatization outcomes. Specifically, we follow Fisman and Wang (2014) to estimate the value loss amounts for negotiated transfer privatization deals as the measure of rent-seeking. In particular, the value loss amount is equal to the market value (i.e., the average of the opening price and the closing price one month before the announcement of the transfer deal) of the shares transferred in privatization minus the actual selling price in negotiated transfer. We find that the selling prices of SOE assets by connected city secretaries are deeply discounted from the market value. The fuzzy RD estimates also show that the amount of value loss drops by 90.13% when city secretaries lose their connections due to the retirement of Central Committee members at the age cut-offs. In summary, patronage connections encourage rent-seeking activities in privatization sales.

Next, for each deal, we identify whether the buyer has engaged in corrupt activities (i.e., corrupt buyer). This novel and granular dataset allows us to explore the underlying mechanisms of the link between patronage connections and corruption in privatizations. First, our OLS regression shows that the likelihood of selling SOE shares to corrupt buyers is 10 percentage points

---

secretaries' connected Central Committee members step down due to age limits. We thank the referee for this useful suggestion.

higher for connected city secretaries than for unconnected city secretaries. In addition, the fuzzy RD analysis shows that the likelihood of selling SOEs to corrupt buyers drops by 14.4 percentage points when city secretaries lose their connections because their connected Central Committee members cross the age cut-offs. Second, we find that the value loss amounts are approximately 24.10% higher for corrupt buyers than for other buyers. These findings suggest that connected city secretaries involve corrupt buyers as means of rent-seeking in privatization deals.

Furthermore, to establish the link between corruption and worse post-privatization performance, we study the role of corrupt buyers in post-privatization performance. In particular, we find that privatized SOEs engage in significantly more fraudulent and corrupt activities after privatization when they have corrupt buyers as new owners. Consequently, these SOEs have efficiency losses following privatization. These results suggest that corrupt buyers make privatized SOEs engage in more fraudulent and corrupt activities, which have substantial adverse effects on post-privatization performance. Overall, corrupt buyers increase both rent-seeking during privatization sales and corrupt activities after privatization. These findings on corrupt buyers reveal a novel fundamental mechanism whereby corruption causes lower post-privatization efficiency gains.

The rest of this paper is organized as follows. Section 2 reviews the literature. Section 3 describes the institutional background and proposes the main hypothesis. Section 4 presents the data and summary statistics. Section 5 shows the empirical analyses and results. Section 6 concludes.

2. Literature Review

This paper contributes to two strands of literature. First, our findings add to the literature on privatization. On the one hand, the conventional wisdom is that privatization leads to improved efficiency. For example, Megginson, Nash, and Van Randenborgh (1994) document strong performance improvements after privatization across eighteen countries. La Porta and Lopez-de-Silanes (1999) find that productivity gains and transfers from laid-off workers contribute the most to Mexico's privatization efficiency gains. Megginson and Netter (2001) show that policies such as price deregulation and market liberalization, when coupled with privatization, can further improve efficiency. In the context of China, Allen et al. (2014) find that privatized large commercial banks in China outperformed similar banks in other emerging and developed countries during the financial crisis.

6

On the other hand, many studies show that efficiency gains do not always occur after privatization. Boardman and Vining (1989) find that the performance of private corporations is better than that of SOEs, but partial privatization may not generate efficiency gains. The post-privatization gains depend heavily on the new owners and managers. Barberis et al. (1996) find that new owners and managers equipped with new skills promote restructuring after privatization. Frydman et al. (1999) show that privatization to outsiders, but not insiders, could lead to efficiency gains in the economic transition of Central Europe. Estrin et al. (2009) show that in the Commonwealth of Independent States, privatization to foreign owners leads to higher efficiency gains than privatization to domestic owners. Using a proprietary survey of firms in China, Gan, Guo, and Xu (2017) show that management buy-outs lead to the most significant post-privatization efficiency gains.[7] We add to these studies by showing that corrupt buyers as new owners of the privatized SOEs hurt post-privatization efficiency gains, shedding new light on the literature's mixed evidence on privatization-induced efficiency gains.

The literature has also shown that politics plays an essential role in privatization across the globe. Clarke and Cull (2002) show that the trade-offs between the political benefits and costs are important in privatization decisions for Argentinian banks. Degeorge et al. (2004) note that political pressure on the government and the management team made employees preferred buyers during the France Telecom privatization. Boehmer, Nash, and Netter (2005) find that in non-OECD countries, political factors such as government accountability significantly affect the likelihood of bank privatization. Dinç and Gupta (2011) show that pressure from opposition parties makes governments delay privatization.

In a study closely related to our paper, Fisman and Wang (2014) show that disguised sellers are associated with rent-seeking in asset sales, which is tentatively associated with worse subsequent performance in China's privatizations. We focus on the buyers' side and find that the city secretaries with patronage connections choose to sell SOEs to corrupt buyers, which increases post-privatization fraud and corruption, harming efficiency gains. Our findings provide micro-level empirical evidence for Fisman and Wang (2014)'s argument that buyers who pay off officials in the privatization process to obtain larger discounts might also tunnel value out of the privatized

---

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

SOEs subsequently, hurting performance. In other words, our findings of increased fraudulent and corrupt activities in privatized SOEs with corrupt new owners reveal a fundamental link between corruption and worse post-privatization efficiency gains.[8]

Second, this paper also contributes to the literature examining how patronage affects economic performance. A large body of literature on political economy began with Nordhaus (1975) and has been growing ever since.[9] In particular, patronage plays an essential role worldwide and empowers discretion in both public-sector (e.g., Colonnelli, Prem, and Teso, 2020; Fisman et al., 2018) and private-sector (e.g., Bertrand, 2009) appointments. However, empirical evidence on the economic consequences of patronage is still scant and ambiguous. On the one hand, Prendergast and Topel (1996) show that favoritism from supervisors could disincentivize subordinates, which leads to worse performance. Using British colonial administrative data, Xu (2018, 2019) shows that patronage reduces bureaucrats' incentives to perform, which leads to lower fiscal capacity.

On the other hand, Aghion and Tirole (1997) suggest that patrons have better private information to evaluate and select better-performing subordinates. Voth and Xu (2020) show that naval officers promoted by patrons keep performing better because their patrons have better personal knowledge obtained via family ties. Jia, Kudamatsu, and Seim (2015) show that patronage connections and the performance of local politicians are complements in China's political promotion process.

In sum, the discussion on the nexus of patronage and economics is far from being closed, and the empirical evidence is limited. We add to this discussion by showing that patronage has detrimental effects on economic performance in the context of privatizations in China, with corruption as the fundamental mechanism. We also use patrons' mandatory retirement age cut-offs (e.g., seven up, eight down) to estimate the causal effects of patronage in a fuzzy RD design, which is a step forward in the literature.

Finally, in its focus on the effects of mandatory retirement age, our study is broadly related to

---

[8] We also shed light on the puzzle of why incumbent politicians want to embrace privatization. Shleifer and Vishny (1994) and Boycko, Shleifer, and Vishny (1996) argue that politicians should always keep control rights but prefer higher private ownership because it generates higher bribes. Empirical evidence shows that governments across the globe have been giving up control and cash flow rights (e.g., Kikeri, Nellis, and Shirley, 1992; Boycko, Shleifer, and Vishny, 1993; Megginson, 2005). For a detailed discussion, see Hu et al. (2019).

[9] See, for example, MacRae (1977), Kornai (1979), Alesina and Sachs (1988), Shleifer and Vishny (1994), Biais and Perotti (2002), Sapienza (2004), Dinç (2005), Khwaja and Mian (2005), Cohen, Coval, and Malloy (2011), and Carvalho (2014). Some studies explore how politicians' demographics affect government policies and economic activities (e.g., Levitt, 1996; Dollar, Fisman, and Gatti, 2001; Washington, 2008).

the literature on career concerns. Despite the massive impact of the retirement age limits on political regime transitions in China, few empirical studies exploit the discontinuities around these age cut-offs to examine the political and economic impacts. Bertrand et al. (2020) show that retirements significantly reduce bureaucracies' influence. Jenter and Lewellen (2015) show that retirements can also influence executives' incentives in the private sector, such as their preferences in acquisitions.

3. Institutional Background and Hypothesis Development

3.1 History of SOE Privatization Reform in China

The reform aimed at opening up China's economy was initiated in 1978 by Deng Xiaoping. The privatization of SOEs was one of the most critical parts of the reform, and a major privatization wave began in 1998 under former Prime Minister Zhu Rongji. On the one hand, SOEs in China enjoy many privileges and resources by virtue of their political connections, especially the large ones in strategic industries such as energy, telecommunication, and finance (e.g., China National Petroleum Corporation, China Mobile, and China Telecom). Although most SOEs are inefficient, banks are still more willing to lend to them, primarily because of their soft budget constraints.[10] On the other hand, politicians often extract rents from SOEs, and many of them engage in fraud and corruption. This further hurts SOEs' profitability and performance.

The poor performance and enormous losses of SOEs have created substantial burdens for the Chinese government, especially in the banking sector. This is the primary reason for the privatization wave.[11] The government's primary agenda is to keep large SOEs (e.g., central SOEs) untouched while selling small SOEs (e.g., local SOEs) to the private sector. In September 1995, the *Ninth Five-Year Plan and 2010 Long Range Objectives* was announced in the Fifth Plenary Session of the Fourteenth Central Committee. This plan focused on economic transformation, especially SOE reform, with the key slogan "Grasp the large and let go of the small."[12] Shares of

---

[10] For detailed discussions of banks' preferences for SOEs due to their soft budget constraints, which led to credit misallocation in China, see Qian and Roland (1998), Lin and Tan (1999), Cull and Xu (2003), and Song and Xiong (2018), among others.

[11] Yao (2005) uses survey data from 800 SOEs from 1995 to 2001 and finds that many SOEs faced insolvency, and government and state banks did not want to support them anymore. Privatization became the most plausible way out of this problem. More than 40 thousand SOEs were privatized or reorganized by 1998. Xu (2011) documents that Chinese SOEs lost approximately RMB 307 billion in 1998, representing about 3.7% of annual GDP loss.

[12] See the detailed document Ninth Five-Year Plan and 2010 Long Range Objectives. Hsieh and Song (2015) describe the institutional background of the state-sector transformation and find that the government retained control of the large SOEs while privatizing the smaller ones.

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. According to CIC data, SOEs controlled approximately 66.27% of firms' total assets in 1998; by 2009, this figure had dropped to 23.79%.[13]

During this privatization wave, local governments played a key role—perhaps an even larger role than the central government played. Each SOE has a rank in the political hierarchy of China 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 municipal governments. Moreover, each SOE has a CPC committee comprised mainly of the SOE's top management team (e.g., Chairperson and CEO). These executives serve as government officials and bureaucrats who are accordingly attached to the local governments. In short, local governments and local politicians play a significant role in the process of privatization. The implementation of privatization is decentralized and determined primarily by local politicians (e.g., Xu, 2011; Gan, Guo, and Xu, 2017).

3.2 Hypothesis Development

The main goal of our research is to study the role of local politicians' patronage connections in privatization outcomes. In China, factionalism and clientelism play important roles in political and economic systems. For example, Meyer, Shih, and Lee (2016) show that the factional recruitment strategy is widely adopted in the CPC. Huang et al. (2017) document the effects of political factions on the renationalization of privatized SOEs in China. Moreover, patronage connections to political leaders play essential roles in China's political and economic systems. For example, Shih, Adolph, and Liu (2012) show that connections to the top political leaders in the CPC benefit local politicians in various ways, including a higher likelihood of promotion. Fisman et al. (2020) show that hometown and college connections affect the selection of Politburo members of the Central Committee.

In particular, political connection plays an important role in corrupt activities in China and

---

[13] Figure A.1 in the Online Appendix shows the time trend of the 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 occurred during the early 2000s, and the pace has been slowing since 2005. The right panel shows the total assets privatized each year. In Figure A.2 in the Online Appendix, we list the amounts of SOE assets that have been privatized across industries. For example, the textile industry was heavily targeted by the privatization wave.

many other countries across the globe.[14] For example, Faccio (2006) shows that firms with political connections enjoy various benefits (e.g., credit access), especially in corrupt countries. Fisman and Wang (2015) show that political connections increase worker death rates in China, revealing the social costs of corruption. Fan, Wong, and Zhang (2007) find that partially privatized SOEs with politically connected CEOs have lower stock market performance and operating performance, which indicates the rent-seeking of bureaucrats. Thus, we hypothesize that corruption is a channel for the detrimental effects of patronage on privatization outcomes in China.

Hypothesis: When local politicians have patronage connections to top political leaders, they engage in more corrupt activities during and after privatization, which hurts privatized SOEs' efficiency.

3.3 Politician Patronage Connections and Retirement Age Cut-offs

To formally test our hypothesis, we explore the variation in connections to top political leaders across individual city politicians. In particular, we consider city secretaries powerful and have a strong political background if they are connected to Central Committee members. The Constitution of the CPC states that the NPC is the highest organ of state power, and the Central Committee is the leading body. The Central Committee members 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 Commission. Moreover, the Central Committee members usually hold high-ranking government and party positions, such as chief provincial leaders, ministerial politicians of the State Council, and commanders of regional-level military organizations. The Central Committee had approximately 200 members in recent terms, and the membership turns over in NPC every five years.

We define a city secretary as connected if she has worked as a subordinate for at least one Central Committee member. For example, the patronage connection between city secretary A (a junior politician) and Central Committee member B (a senior politician) is formed when junior politician A served as a subordinate to senior politician B. We follow Jia, Kudamatsu, and Seim

---

[14] Corruption is an ancient problem and is closely associated with economics in many countries worldwide (e.g., Becker and Stigler, 1974; Tanzi, 1998; La Porta et al., 1999; Jain, 2001; Fisman and Gatti, 2002; Wei, 2000; Alesina and Weder, 2002; Olken and Barron, 2009; Zhu and Zhang, 2017).

11

(2015) to restrict the junior politician's rank to two levels below the senior politician to ensure that they indeed worked together. To further reduce measurement error, we assume that patronage connections were formed when the senior politicians were provincial secretaries or city secretaries, since these two positions are occupied by leading provincial politicians and city politicians who have the discretion to appoint their subordinates. We further require that the junior politician began her position after the senior politician began hers (Jiang, 2018). In other words, when a senior politician selects or promotes certain junior politicians to work for her, they are considered to be closely connected. It is common in China for provincial and city secretaries to pick certain junior politicians as their subordinates.[15] We identify such patronage connections by examining the work history of 1,048 city secretaries and 323 Central Committee members. For each junior politician, the connections are time-varying, depending on the turnover in the Central Committee over time. The connection begins when the senior politician becomes a Central Committee member. The connection expires when the senior politician steps down from the Central Committee.

Age is one of the most crucial factors in the appointment of Central Committee members. Central Committee members are ranked at the ministerial level or above, e.g., ministers and provincial secretaries, and there is a strict mandatory retirement age for minister-level provincial politicians. According to *Leading Cadres Retirement Provision*, minister-level politicians cannot renew their term if they are 64 years old or older. Moreover, the Politburo of the Central Committee has approximately 25 members who are ranked at the national level, and their age limit for term renewal is 68 years (i.e., seven up, eight down). In sum, national (ministerial) politicians cannot renew their Central Committee terms if they are 68 (64) years old or older in an NPC turnover year. Figure 1 plots the distribution of start-term ages for Central Committee members at the national and ministerial levels in our sample period. We find no exceptions to this retirement age policy.

[Place Figure 1 about here]

4. Data and Summary Statistics

In this section, we first describe the three sets of data used in this paper: (1) the firm-level data on privatizations, (2) the transaction-level data on privatizations with hand-collected corruption data for buyers and SOEs, and (3) the hand-collected politician profile dataset. We then show

---

[15] For example, if city secretary A and her subordinate B worked in the same city, we define the two as connected. When A becomes a Central Committee member, and B becomes a city secretary, we treat B as having patronage connections to the Central Committee.

summary statistics.

4.1 Firm-level Privatization Data

The first dataset we use in this paper is the Chinese Industrial Census by the Chinese National Bureau of Statistics (NBS). It covers all Chinese manufacturing firms with annual sales of more than USD 700 thousand between 1998 and 2009. This period captures the privatization wave under former Prime Minister Zhu Rongji from 1998 to 2005 and several years after the wave, which allows us to study both privatization implementations and subsequent outcomes. For each firm, the data include annual 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, wage, and shareholder). In total, we have 706,976 firms comprising about 40% of the industrial output in China. To our knowledge, the CIC is one of the most detailed and comprehensive databases on Chinese manufacturing firms.

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 an SOE if it is owned by a government department or is collectively owned according to the official NBS classification for SOEs. For each SOE, we can trace changes in its registration type over time to identify the privatization year. We focus on SOEs at the city level or below, given that we examine how city secretaries affect privatization. We also exclude firms that cannot be matched to prefectural cities and firms with 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 information on shareholders to classify SOEs and private firms. The 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 privatization for individual SOEs, since there are many partial privatizations in China (the state often sells just part of an SOE to the private sector, and it may take several sales to fully privatize an SOE).

4.2 Transaction-level Privatization Data

We also obtain transaction-level data on listed SOEs' privatizations from CCERData, which records more granular information than CIC data. In particular, this dataset contains details of all

13

negotiated transfer deals for privatization from February 1995 to December 2019. For each deal, CCERData records the announcement date, transfer price, number of shares transferred, names and identities of the seller and the buyer, and the name and stock code of the privatized SOE. In addition, we download the financial information of listed SOEs from the China Stock Market & Accounting Research (CSMAR) database, such as total assets, leverage, ROA, and stock turnover. To maintain consistency with the CIC sample period, we keep the negotiated transfer deals up to December 2009, for a total of 1,693 deals across 547 SOEs. On average, 13% of total shares are transferred (i.e., privatized) in each deal.

Following Fisman and Wang (2014), we calculate the value loss amount as the market value of the shares transferred in privatization minus the actual selling price (i.e., value loss amount = (market trading price - actual selling price) × total shares transferred). We use the stock market price one month before the announcement of the negotiated transfer to avoid including the effect of privatization on firm value in value loss calculations. The value loss amount is RMB 208 million per deal on average, and the largest value loss amount is RMB 6.2 billion. Deals traded at a premium (i.e., those with negative value losses) are rare, accounting for only 1.29% of all negotiated deal values. To capture rent-seeking activities, we exclude deals with negative value losses and deals that were not complete as of December 2019.

Next, we manually collect data on the fraud and corruption of buyers and privatized SOEs for each deal. Specifically, for each buyer firm, we manually search news articles in Baidu search engine and legal cases in OpenLaw database by keywords for firm names and corrupt activities.[16] We define a buyer firm as corrupt if its top management team members (e.g., CEO, Chairperson, CFO, and Vice President) have records of bribery, monetary issues, misappropriation of company funds, embezzlement of state-owned assets, or regulatory breaches convicted by the China Securities Regulatory Commission (CSRC).[17] We scrutinize each case and exclude ones in which other parties were responsible for the corrupt activities (e.g., the buyer firm is merely a related party and is not guilty in the corruption case). We construct the indicator variable *CorruptBuyer*

---

[16] Baidu is the leading search engine in mainland China. Baidu Encyclopedia, the top Chinese online encyclopedia, includes extensive information on the backgrounds of famous people (e.g., politicians and firms' top management team members). OpenLaw is a comprehensive dataset that records all types of legal cases in China. For example, it has information on 217,187 court judgments related to receiving bribes from 1998 to 2021.

[17] We follow Griffin, Liu, and Shu (2021) to search keywords for fraud and corruption, including *xinghui* (bribe), *shouhui* (receiving bribes), *jingji wenti* (monetary issues), *nuoyong zijin* (misappropriation of company funds), *qintun guoyou zichan* (embezzlement of state-owned assets), and *weigui* (regulation breach). We define a firm as engaging in corruption if we have hits of the firm name and corruption keywords in legal documents or news articles.

denoting that a buyer firm has a record of corruption. 242 (14.29%) out of the 1,693 negotitated transfer deals are sold to corrupt buyers. This variable captures the types of the buyers and their top management team members who, as the new owners or managers, have a substantial influence on the privatized SOE.

Moreover, for the privatized SOEs' fraud and corruption, we obtain data on conviction (e.g., convictions for embezzlement of corporate assets and illegal guarantees) from the Enforcement Actions Research Database of CSMAR. Following Griffin, Liu, and Shu (2021), we exclude cases of non-material accounting errors, since most of these cases involve common accounting mistakes rather than fraudulent and corrupt activities. Moreover, we focus on the cases that are convicted by the CSRC since these cases are more severe, with an average penalty of RMB 1 million. We also focus on the fraud and corruption of the SOEs rather than their shareholders (e.g., insider trading). We aggregate the number of convicted cases at the firm-year level.

4.3 Politician Profile Data

The third dataset records the profiles of politicians in mainland China. It covers the city secretaries of the CPC across 326 cities and the Central Committee members for the 15th to 17th NPC terms, which cover our privatization data from 1998 to 2009.[18] We obtain the city secretary name list and the politicians' biographical information from the CSMAR database. The name list for the Central Committee members is obtained directly from Baidu Encyclopedia. We cross-validate the data using CSMAR and Baidu Encyclopedia and manually search Baidu Encyclopedia for each politician's curriculum vita (CV).

In this study, we focus on the patronage connections of city secretary, the leading politician in a city. The city secretary profile dataset covers 1,048 city secretaries of the CPC. Each CV records the politician's gender, age, educational history, place of birth, and work history. It is common for people to have the same name in China, so we double-check the politicians who share a name and give them unique IDs. We code the complete work histories of politicians from their CVs and complement our data with the Chinese Political Elite Database (Jiang, 2018).

We merge the firm and city secretary profile data. The CIC records an 11-digit number that can locate a firm at the street level. We use the first four digits to identify the city and match city

---

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

politicians at the city level. The CIC data record firms' ranks in the political hierarchy, so we can also observe whether a firm is under the jurisdiction of the central government, provincial government, city government, or below.

As discussed in Section 3.1, the main goal of the privatization wave was to sell 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, there are only 1,189 privatizations for central and provincial SOEs between 1998 and 2009 in the CIC data, while 34,846 SOEs at the city level or below were privatized during the same period. In other words, 96.7% of privatization cases are from SOEs at the city level or below. In total, RMB 3,656 billion SOE assets have been privatized, and around two-thirds of these assets 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 RMB 3,800 billion to RMB 8,309 billion, while the total assets of local SOEs decreased from RMB 3,404 billion to RMB 2,418 billion. Because our study focuses on the role of city secretaries, we restrict our sample to SOEs at the city level or below for both CIC and listed SOE data, which covers most privatization activities in China.

4.4 Summary Statistics

Table I presents the summary statistics of the main variables in our regression sample. Panel A presents the CIC data. In total, there are 706,976 individual firms in the CIC data from 1998 to 2009. We restrict the sample to the firms that first appeared in our database as an SOE and drop firms with non-consecutive annual records, leaving 507,446 firm-year observations. *Private* is an indicator denoting whether the SOE's registration type changed from state-owned to privately owned. This is the primary variable we use to measure privatization progress. The mean of *Private* is 0.225 in the firm-year panel between 1998 and 2009. We also measure privatization progress using the variable *Private Share*, which is the percentage of firm private ownership. During our sample period, 33.8% of firm shares are owned by the private sector. Moreover, for our main efficiency measurements, the averages of *TFP*, *ROA*, and *OROA* are 1.421, 5.294, and 10.291, respectively. We calculate TFP following the Cobb-Douglas form, which is the residual from the regression of log(total revenue) against log(total assets) and log(total employment) in the panel of firms in the CIC survey from 1998 to 2009.

Panel B presents the politician data. There are 3,706 observations with 1,048 unique city secretaries over 326 cities from 1998 to 2009. The average age of city secretaries is approximately

16

51 years, 97.9% are male, 53.5% have obtained master's degrees or above, and 7.6% are members of ethnic minorities (i.e., not Han). The mean of $Connection$ is 0.593, which means that 59.3% of the city secretaries are connected to at least one Central Committee member. The mean of $Connection\#$ is 0.659, and the maximum value is 4, which suggests that the city secretaries in our sample can be connected to a maximum of four Central Committee members.

Panel C presents the listed SOE sample. As in the CIC sample, we focus on SOE firms at the city level or below. In total, our sample covers 610 unique SOEs. We use the indicator $Private$ to denote the post-privatization observations for the listed firm, and the mean is 15.2%.

[Place Table I about here]

5 Empirical Analysis and Results

5.1 Privatization Outcomes and Politician Patronage Connections

We start the empirical analyses by looking at the privatization outcomes, especially the heterogeneity across city secretaries with and without patronage connections. First, we use the CIC data and restrict the sample to firms that have been state-owned. We perform the OLS panel regressions of SOE activities and several efficiency measurements on privatization progress. Formally, the regression specification can be expressed as follows:

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

where $Y_{i,t}$ represents measures of firm i's efficiency in year t, such as TFP, ROA, and $OROA$. $Control_{i,t}$ represents firms' characteristics, such as total sales or total assets. The main variable of interest is the indicator $Private_{i,t}$, which equals one if firm i is registered as a private firm in 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 use the variation within firm, and we control for year fixed effects to condition out the macro time trend. The standard errors are clustered at the firm level.

Table II Panel A shows the regression results. From columns (1) to (3), the coefficients of $Private$ are all significantly positive, suggesting that SOEs increase their efficiency after privatization. For example, for TFP in column (1), the coefficient of $Private$ is 0.067 at the 1% significance level, which means that the TFP of privatized SOEs increases by 4.7% (0.067/1.421). The coefficients of $Private$ in columns (2) and (3) for ROA and $OROA$ are 0.828 and 0.656, respectively, which means that the ROA and $OROA$ of privatized SOEs increases by 15.6%

17

(0.828/5.294) and 6.4% (0.656/10.291), respectively. The efficiency gains from privatization are robust across multiple measurements. In Panel B, instead of using the indicator *Private* as the independent variable, we use *Private Share*, which is the percentage of shares owned by the private sector. Consistent with the results in Panel A, the coefficients of *Private Share* are significantly positive on *TFP*, *ROA*, and *OROA*. Overall, these findings suggest that privatization improves Chinese SOEs' efficiency.

[Place Table II about here]

Next, we explore the heterogeneity in the outcomes of privatization across individual city secretaries. As discussed in Section 3.1, the implementation process is decentralized in China, and city secretaries, as leading politicians in cities, are influential in the implementation and outcomes of privatization. We add the interaction term *Private × Connection* to the panel regressions in Table II, where *Connection* is an indicator that equals one if the city secretary is connected to Central Committee members in the privatization year. We control for firm fixed effects in all regressions so that the time-invariant variable *Connection* is subsumed.

Panel A of Table III shows the results. Consistent with the results in Table II, the indicator *Private* has significantly positive coefficients on *TFP*, *ROA*, and *OROA*, while the coefficients of *Private × Connection* are all significantly negative. For example, in column (1), the coefficient of *Private × Connection* is -0.038 at the 1% significance level, suggesting that the efficiency gain in *TFP* after privatization is significantly lower if a connected city secretary conducts the privatization. On average, the increase in the *TFP* of privatized SOEs under unconnected city secretaries is 0.09, while the increase in *TFP* under connected secretaries is only 0.052, which is equivalent to an approximately 42.2% (0.038/0.09) decrease in *TFP* gains. In columns (2) and (3), the coefficients of *Connection × Private* are -0.828 and -0.908, respectively, both at the 1% significance level. Consistent with results on *TFP*, the efficiency gains measured by *ROA* and *OROA* after privatization are 62.3% (0.828/1.328) and 75.4% (0.908/1.204) lower, respectively, if a connected city secretary conducts the privatization. In Panel B, we interact the indicator *Private* with *Connection#*, and the results are similar to those in Panel A.[19]

---

[19] In robustness tests, we use various measures of TFP (e.g., Van Beveren, 2012; Imrohoroglu and Tuzel, 2014) and repeat the regressions in Tables II and III. We recalculate TFP in two ways: 1) controlling for industry and year fixed effects, and 2) using the value-added amount as the dependent variable. The results are reported in Table A.1 in the Online Appendix. In Table A.2 in the Online Appendix, we conduct the cross-sectional regressions of the changes in

[Place Table III about here]

In summary, in Table III, we find suggestive evidence that although privatization is associated with efficiency gains on average, these benefits are less pronounced when city secretaries have connections to Central Committee members. Consistent with Xu (2011), our findings suggest that privatization implementation is decentralized in China, and city secretaries play an essential role in the process.[20] Notably, we use the variation in the city secretaries' patronage connections, which is time-varying. A city secretary can be considered connected if her connected senior official is appointed as a Central Committee member, and she loses the connection if that connected senior politician steps down. The connection between a local politician and a senior politician is based on their work history. This variation is semi-exogenous since the variation in connections is not directly related to the city secretaries' concurrent actions.

However, this approach does not entirely rule out other factors that could affect both the city secretaries' patronage connections and privatization outcomes. One alternative explanation for the heterogeneous changes in the efficiency of privatized SOEs under connected and unconnected city secretaries is that the cities of these two groups of secretaries might have different types of SOEs before privatization. For example, the unconnected city secretaries could be assigned to less developed cities, they could manage SOEs better, or they might select more efficient SOEs for privatizations, which could lead to differences in post-privatization efficiency gains. To mitigate this concern, we conduct t-tests to compare the pre-privatization characteristics of SOEs associated with connected and unconnected city secretaries. Table A.4 in the Online Appendix shows no significant differences in the pre-privatization TFP, ROA, OROA, size, investment, or leverage of the two groups of SOEs.

5.2 Fuzzy Regression Discontinuity Design

To further identify the causal effects of patronage connections on privatization outcomes, we employ a fuzzy RD design. In this analysis, we use the mandatory retirement ages of Central

---

SOE performance before and after privatization on the city secretary's patronage connection. In Table A.3 in the Online Appendix, we repeat the regressions in Table III by using the listed SOE sample. All of these robustness regressions produce results similar to those in our main tables.

[20] In Table A.5 in the Online Appendix, we use the sample of provincial and central SOEs to repeat our main analysis in Table III. The coefficients of *Private* are positive for TFP, ROA, and OROA, while the interaction term of *Connection×Private* has insignificant coefficients in all columns, suggesting that unlike SOEs at the city level or below, city secretaries' patronage connections are not strongly associated with post-privatization performance in provincial and central SOEs. This serves as a placebo test to support our main results, given that many CEOs in central SOEs rank even higher than city secretaries in China's political hierarchy.

Committee members as cut-offs to explore the discontinuities in city secretaries' connections and privatization outcomes. As discussed in Section 3.3, the mandatory retirement age for Central Committee member appointments is strictly enforced. The age limit for term renewal for a national (ministerial) politician is 68 (64) years old.

We exploit these mandatory retirement age cut-offs by employing fuzzy RD because even if a politician is below the retirement age, the term renewal is not guaranteed. Formally, the RD specification can be expressed as follows:

$$LosePower_{jit} = \beta_{0l} + \beta_{1l} \times Distance_{jit} + D_{jit}[\beta_{0r} + \beta_{1r} \times Distance_{jit}] + \varepsilon_{jit} \quad (2)$$

$$Y_{jit} = \beta_{0l} + \beta_{1l} \times Distance_{jit} + \widehat{LosePower}_{jit}[\beta_{0r} + \beta_{1r} \times Distance_{jit}] + \varepsilon_{jit}, \quad (3)$$

where Equation (2) illustrates the first stage in the fuzzy RD, and Equation (3) illustrates the second stage. In the first stage, $LosePower_{jit}$ is an indicator denoting that when firm j was privatized in year t, its city secretary i's connected senior politician stepped down from the Central Committee in the most recent NPC turnover year. For $Distance_{jit}$, we subtract the retirement cut-off age (i.e., 64 for minister-level politicians or 68 for national-level politicians) from city secretary i's connected senior politician's age at the most recent NPC year (i.e., age at the turnover of the Central Committee). For example, for city secretary i's connected senior politician to be eligible to serve in the Central Committee in the year 2005, the senior minister-level (national-level) politician's age in the most recent NPC turnover year (i.e., 2002) must be below 64 (68), in which case $Distance_{jit}$ is negative. In contrast, if the senior politician's age in the most recent NPC turnover year is higher than or equal to the cut-off age, then the senior politician is no longer eligible to serve in the Central Committee (and thus steps down from the Central Committee in the 2002 NPC turnover), and $Distance_{jit}$ is positive. D_{jit} is an indicator that equals one if $Distance_{jit}$ is positive. 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. For the second stage, $\widehat{LosePower}_{jit}$ is estimated from the first stage, and the outcome variables Y_{jit} are the changes in various efficiency measurements (i.e., ΔTFP_2, ΔROA_2, and $\Delta OROA\_2$) two years before and after firm j's privatization in year t by city secretary i. The regression is cross-sectional at the firm level, and we restrict the sample to privatizations conducted by city secretaries who have connected with Central Committee members.

Figure 2 plots the unconditional probability of stepping down of Central Committee members

around the retirement age cut-offs. We show that at the cut-off, which is zero on the horizontal axis in Figure 2, these top politicians' probability of stepping down jumps from almost 0 to 100%. This is consistent with Figure 1, which shows that none of the minister-level (national-level) Central Committee members could renew another term when they were older than or equal to 64 (68) years old in the NPC turnover year. Note that the probability of stepping down is not precisely zero for young politicians, since their terms might not be renewed for other reasons such as demotion.

[Place Figure 2 about here]

Figure 3 plots the privatization outcomes (i.e., ΔTFP_2, ΔROA_2, and $\Delta OROA\_2$) against the distance between connected senior politicians' ages in the most recent NPC turnover year and their retirement age cut-offs (point zero on the horizontal axis). We find significant jumps in TFP gains following privatization at the cut-offs when the city secretary's connected Central Committee members step down due to mandatory retirement. We also plot the 95% confidence intervals of the linear best fits for the observations on the right and left sides of the cut-offs. The 95% confidence intervals for the right and left sides do not overlap at zero (i.e., cut-offs), which means that the jumps in TFP gains following privatization at the cut-offs are statistically significant. Furthermore, we find similar jumps for ROA and $OROA$ at the cut-offs.

[Place Figure 3 about here]

In addition to studying these unconditional patterns, we conduct nonparametric local linear regressions on both sides of the age cut-offs as in Equations (2) and (3). Table IV reports the conventional and bias-corrected estimates by Calonico, Cattaneo, and Titiunik (2015). Panel A shows the first-stage regression results. The estimates in columns (1) to (3) are all approximately 1, suggesting that the probability of stepping down jumps from almost 0 to 100% at the age cut-offs. This is consistent with the unconditional patterns in Figures 1 and 2. Panel B shows the effects of mandatory retirement on the post-privatization efficiency gains. Consistent with Figure 3, in column (1), the conventional and bias-corrected estimates are 0.306 and 0.319 at the 5% significance level, respectively. This suggests that the average improvement in TFP two years before and after privatization jumps by approximately 21.5% (0.306/1.421) if the city secretary was connected to a senior politician who was just above the retirement age and stepped down from the Central Committee in the most recent NPC turnover year. Column (2) shows the average improvement in ROA two years before and after privatization. The conventional and bias-corrected estimates are 3.969 and 3.880 at the 5% significance level, respectively. In column (3),

21

we use the average improvements in $OROA$ two years before and after privatization, and the conventional estimate and the bias-corrected estimate are 5.447 and 5.657 at the 10% significance levels, respectively. These estimates suggest that the ROA and OROA two years before and after privatization jump by 74.9% (3.969/5.294) and 52.9% (5.447/10.291), respectively.[21]

[Place Table IV about here]

5.3 Robustness and Validity Checks of the Fuzzy RD Analyses

In robustness checks, we repeat the fuzzy RD analyses with 100%, 200%, and 300% optimal bandwidth, respectively, following Imbens and Kalyanaraman (2012), and we find similarly significant jumps, as shown in Table A.7 in the Online Appendix. Furthermore, we restrict the sample to privatizations in the years 2001-2003 and 2006-2008 (i.e., the years right before and after the two NPC turnover years of 2002 and 2007 during our sample period), given that the discontinuities should be prominent right before and right after NPC turnover years. Table A.8 and Figure A.3 in the Online Appendix indeed show substantial discontinuities: when the Central Committee members pass their mandatory retirement age, the privatizations conducted by their connected city secretaries enjoy jumps in efficiency gains. To further check our fuzzy RD estimates, we conduct placebo tests using fictitious age cut-offs for the Central Committee members. The results are reported in Table A.9 in the Online Appendix. In Panels A, B, and C, we move the original age cut-off by 0.5, 1, and 1.5, respectively. We do not observe any statistically significant effects on the post-privatization efficiency gains in these placebo tests.

The retirement of Central Committee members due to the age cut-off is predictable, and our identification in the RD approach comes from discontinuities rather than exogenous shocks. The key identification assumption is local continuity. In particular, local continuity requires that factors other than the treatment variable vary continuously at the age cut-offs. In Panel A of Figure 4, we plot several city secretary characteristics, such as Age, $Gender$, $MinorRace$, $HighEduc$, and $Tenure$, against the distance of their connected senior politician's age at the most recent NPC turnover year to the age cut-offs. None of the graphs show significant jumps at the cut-offs. This suggests that the jumps in post-privatization performance shown in Table IV are not driven by the

---

[21] In Table A.6 in the Online Appendix, we find that when a city secretary loses patronage connections to Central Committee members and is no longer connected, the SOEs privatized by this city secretary could improve its post-privatization performance. This supports our main story that when city secretaries lose connections after privatization, it will help privatized SOEs improve their performance and efficiency.

city secretary's personal characteristics other than patronage connections. We also calculate the ratio of privatized SOE numbers over total SOE numbers ($SOERatio$) at the city level. Again, there are no significant changes in $SOERatio$ at the cut-offs. This mitigates the concern that the connected city secretaries might have smaller pools of SOEs to pick from and thus might have to privatize SOEs with potentially lower efficiency gains. Table A.10 in the Online Appendix shows consistent results of the panel regressions of privatization ratios on patronage connections. There is no significant association between the two. This analysis at the extensive margin rules out the mechanical explanation whereby connected city secretaries tend to conduct more privatizations, lowering the average efficiency gain.

We also plot the pre-privatization characteristics of the SOEs around the retirement age cut-offs. Panel B of Figure 4 shows the pre-privatization characteristics (e.g., average TFP, ROA, OROA, size, investment, and leverage two years before privatization). None of these characteristics show significant changes at the cut-offs. These results show that the SOE pre-privatization characteristics are similar between the still-connected city secretaries and the ones who lose their connections, suggesting that the jumps in efficiency shown in Table IV and Figure 3 are due mainly to post-privatization changes rather than pre-privatization changes in efficiency levels.

[Place Figure 4 about here]

Finally, in Table V, we repeat the fuzzy RD analysis of these factors (i.e., Age, $Gender$, $MinorRace$, $HighEduc$, $Tenure$, $SOERatio$, and pre-privatization efficiency levels) to check the validity of RD. The conventional estimates and the bias-corrected estimates are reported. Consistent with Figure 4, none of the coefficients are statistically significant.

[Place Table V about here]

In summary, we establish the causal effects of city secretaries' patronage connections on privatization outcomes. Patronage connections to powerful senior politicians in the Central Committee lead to worse efficiency gains following privatization. Consistently, when city secretaries lose their connections to top political leaders, their privatizations achieve better efficiency gains.

5.4 Corrupt Activities Underlying Worse Privatization Outcomes

In the previous sections, we show that city secretaries with patronage connections conduct privatizations with worse outcomes. There are several possible explanations for this phenomenon.

For example, connected city secretaries are more likely to be promoted and thus might put less effort into conducting privatization deals, thereby causing lower efficiency gains.[22] In this section, we use transaction-level data on privatization sales to test our hypothesis that corruption is one of the fundamental channels underlying the heterogeneity in privatization outcomes.

5.4.1 Value Loss in Privatizations

We start this strand of analysis by following Fisman and Wang (2014), who show that stealing by selling SOE assets at a discounted price is prevalent in China's privatizations, and this rent-seeking behavior is associated with the worse subsequent operating performance of privatized SOEs.

Specifically, we calculate the discounts of 1,693 privatization deals for listed SOEs, as described in Section 4.2, and we regress the natural logarithm of value loss amounts (i.e., variable $LogValueLoss$) on city secretaries' patronage connections. Table VI shows the results. In columns (1) to (3), the coefficients on the indicator $Connection$ are all significantly positive. These estimates suggest that patronage connections are positively associated with the value losses in selling SOE assets during privatization. For example, the coefficient on $Connection$ in column (1) is 0.236 at the 5% significance level, suggesting that the discounts in selling SOE assets are 23.6% larger under connected city secretaries than under unconnected city secretaries. Patronage connections encourage more rent-seeking (i.e., higher amounts of value losses) from privatization deals. In columns (4) to (6), the coefficients on $Connection\#$ are also significantly positive. We control for multiple deal-level characteristics, such as $FractionTransferred$, $BuyerIdentity$, $Turnover$, $LogAsset$, $Leverage$, and ROA.[23]

In addition, we repeat the fuzzy RD analysis on value loss in Panel B. Consistent with the OLS regression results, the conventional estimate and the bias-corrected estimate are -2.316 and -2.477, respectively. This suggests that the level of value losses drops by 90.13% ($1 - \exp(-2.316)$) when connected city secretaries lose their patronage connections due to the retirement of Central Committee members whose ages exceed the retirement cut-offs. In short,

---

[22] It is theoretically unclear in the literature whether political connections and economic performances are complements or substitutes. Jia, Kudamatsu, and Seim (2015) argue that connected local politicians should put more effort into economic development to signal their connected top politicians or increase the survival chances of these top politicians. In contrast, if connected local politicians know that their promotion chances are already high, they might decrease their efforts. This paper aims to document the role of corruption in privatization, which is not mutually exclusive of other possible channels (e.g., lack of effort).

[23] In Table A.11 in the Online Appendix, we include the deals with premiums (i.e., negative value losses) and find qualitatively similar results as in Table VI.

connected city secretaries engage in substantial rent-seeking activities by selling SOE assets at larger discounts, and they reduce these corrupt activities when they lose patronage connections. The results in Table VI suggest that patronage connections encourage rent-seeking activities in privatization sales.

[Place Table VI about here]

5.4.2　Corrupt Buyers in Privatization

To further understand how patronage encourages corruption, we manually collect the deal-level information about the buyers (i.e., the new owners of privatized SOEs) and their corrupt activities, as described in Section 4.2. We perform OLS regressions of the indicator variable *CorruptBuyer*, which denotes buyers who have been involved in corruption, on patronage connections. Table VII Panel A shows the results. In columns (1) to (3), the coefficients of *Connection* are all significantly positive, suggesting that the connected city secretaries are more likely to sell SOEs to corrupt buyers. The likelihood of selling SOE shares to corrupt buyers is approximately 10 percentage points higher for connected city secretaries. Moreover, in columns (4) to (6), the coefficients on *Connection#* are also positive.

We repeat the fuzzy RD analysis by using *CorruptBuyer* as the outcome variable in the second stage. In Panel B, we find that the conventional estimate and the bias-corrected estimate are -0.144 and -0.132, respectively. This suggests that the likelihood of selling SOE shares to corrupt buyers decreases by 14.4 percentage points after the city secretaries' Central Committee members pass the retirement age cut-offs. Consistent with the OLS results in Panel A, connected city secretaries are more likely to select corrupt buyers, and this preference is significantly weakened when their connected Central Committee members step down due to mandatory retirement. In addition, the average value loss for deals with corrupt buyers is RMB 249.06 million, which is approximately 24.10% higher than the average value loss for deals without corrupt buyers (RMB 200.69 million). In summary, connected city secretaries' preferences for corrupt buyers reveal a fundamental link between patronage connections and corruption in privatization sales.

[Place Table VII about here]

5.4.3　Corrupt Buyers and Privatization Outcomes

In this section, we further examine how corrupt buyers, as the new owners of the privatized SOEs, harm post-privatization performance. Specifically, we regress firm efficiency measures (i.e., TFP, ROA, and OROA) on the indicator *Private* and its interaction term with the indicator

CorruptBuyer. In Table VIII, the coefficients of *Private* on the efficiency measures are once again significantly positive in all columns, suggesting that overall, privatizations are associated with efficiency gains. Moreover, the coefficients of *CorruptBuyer* × *Private* are significantly negative in all columns, suggesting that the efficiency gains are significantly lower if the new owners are corrupt.[24]

Furthermore, we study how the corrupt buyers hurt the post-privatization efficiency by using the data on SOEs' fraud and corruption events before and after privatization. For each privatized SOE, we calculate the number of fraud and corruption events, *FirmFrauds*, each year (e.g., before and after privatization), and we perform the panel regressions of *FirmFrauds* on the indicator *Private* and its interaction term with the indicator *CorruptBuyer*. Table IX reports the results. In column (1), the coefficient of *Private* is insignificant, while the coefficient of *CorruptBuyer* × *Private* is 0.039 at the 5% significance level. In column (2), we use the natural logarithm of one plus the number of the SOE's fraudulent and corrupt events as the dependent variable and find similar results.

These findings in Table IX suggest that SOEs' fraudulent and corrupt activities without corrupt buyers do not change significantly after privatization. In contrast, the SOEs with corrupt new owners engage in significantly more fraudulent and corrupt activities after privatization. This explains the lower efficiency gains of privatizations with corrupt buyers, as shown in Table VIII.[25] In summary, these results of corrupt buyers and increased fraudulent and corrupt activities post-privatization establish the link between corruption and post-privatization performance, further supporting our hypothesis. They also complement the results of Fisman and Wang (2014), which show that post-privatization performance is worse when the seller is disguised.

6   Conclusion

This study examines the role of politicians in privatization outcomes in the context of China. We show that politicians' patronage connections adversely affect the efficiency gains from

---

[24]   In addition to studying corrupt buyers, we construct an indicator for corrupt SOE top management team members. Table A.12 in the Online Appendix shows that privatized SOEs under connected city politicians have more top management team members who are corrupt, and Table A.13 in the Online Appendix shows that these corrupt top management team members hurt post-privatization performance.

[25]   In reality, increased fraudulent and corrupt activities could significantly hurt firms' profitability and performance. For example, one of the negotiated transfer deals in our sample is to sell an SOE, Hunan Genuine New Material Group Co., Ltd. (GNMG), to a corrupt buyer who made GNMG engage in illegal external guarantees after privatization. This caused more than RMB 541 million losses for GNMG.

privatization. For the first time, we show an essential mechanism for these effects: patronage connections induce local politicians to sell SOE shares to corrupt buyers, who increase the newly privatized entity's corrupt activities.

Patronage is widespread not only in China but also in many other countries across the globe. Our findings shed new light on the debate about the impact of patronage on economic performance. Our study's implications extend beyond the setting of privatization, since corruption is prevalent in many other areas of society (e.g., Shleifer and Vishny, 1993), and patronage is one of the primary drivers of corruption.

Appendix Table: Variable Definitions and Constructions

Variable	Description
Private	Indicator variable that equals one if the firm is concurrently registered as a private enterprise, and zero otherwise.
Private Share	Percentage of shares owned by private parties, such as individuals, foreign investors, and non-government institutes.
TFP	Following the Cobb-Douglas form, total factor productivity (*TFP*) for a CIC firm is the residual value in the regression of the natural logarithm of total revenues against the natural logarithm of total assets and the natural logarithm of total employment in the panel of all firms in the CIC survey from 1998 to 2009. The *TFP* for a A-shared listed firm is the residual of the regression of the natural logarithm of total revenues against the natural logarithm of total assets and the natural logarithm of total employment in all A-shared listed firms from 1998 to 2009. It is winsorized at 1% and 99%.
ROA	Net income divided by current year total assets times 100. It is winsorized at 1% and 99%.
OROA	Operating profit divided by current year total assets times 100. It is winsorized at 1% and 99%.
LogSale	The natural logarithm of the operating income of the firm.
LogAsset	The natural logarithm of the total assets of the firm.
ΔTFP_2	Average TFP two years after privatization minus average TFP two years before privatization.
ΔROA_2	Average ROA two years after privatization minus average ROA two years before privatization.
ΔOROA_2	Average OROA two years after privatization minus average OROA two years before privatization.
Connection	Indicator variable that equals one if the city politician is connected to at least one full Central Committee member of the CPC, and zero otherwise. The connection between the senior and junior politicians is formed when the senior politician serves as provincial secretaries or city secretaries, and the junior politician serves as the senior politician's subordinate (within two levels). The junior politician must start her position as the subordinate after the senior politician begins hers.
Connection#	The number of Central Committee members that the city politician is concurrently connected to.
Age	City politician's age.
Gender	Indicator variable that equals one if the city politician is male, and zero otherwise.
MinorRace	Indicator variable that equals one if the city politician's ethnicity is non-Han, and zero otherwise.
Tenure	The number of years the city politician has been in this position.
HighEduc	Indicator variable that equals one if the city politician's educational attainment is higher than or equal to a master's degree, and zero otherwise.

(To be continued)

28

Appendix Table: Variable Definitions and Constructions - *continued*

Variable	Description
LogValueLoss	The natural logarithm of the value loss amounts in the privatization deal. The value loss amount is equal to the market value of the shares transferred in privatization minus the actual selling price (i.e., (market trading price - actual selling price) × total shares transferred). The market trading price is the average of the opening price and the closing price one month before the announcement of the negotiated transfer deal.
CorruptBuyer	Indicator variable that equals one if the buyer firm's leader is found to have bribed, received bribes, had monetary issues, misappropriated company funds, embezzled state-owned assets, or breached regulation as convicted by the CSRC.
FirmFrauds	The number of fraudulent and corrupt activities convicted by the CSRC.
LogFirmFrauds	The natural logarithm of one plus the number of fraudulent and corrupt activities convicted by the CSRC.
BuyerIdentity	Indicator variable that equals one if the buyer of the share transfer deal is registered as a privately owned enterprise.
FractionTransferred	The ratio of the number of shares transferred in the deal to all outstanding shares.
Turnover	Average daily turnover of the stock in the last year.
Leverage	The ratio of total borrowing to total assets of the firm.
SOERatio	The ratio of the number of firms privatized to the total number of SOEs in a city.

References

Aghion, P., and Tirole, J. (1997) Formal and real authority in organizations. *Journal of Political Economy*, *105(1)*: 1-29

Allen, F., Qian, J., Shan, S. C., and Zhao, M. (2014) The IPO of Industrial and Commercial Bank of China and the 'Chinese Model' of privatizing large financial institutions. *The European Journal of Finance, 20(7-9)*: 599-624

Alesina, A., and Sachs, J. (1988) Political parties and the business cycle in the United States, 1948-1984. *Journal of Money, Credit and Banking, 20(1)*: 63-82.

Alesina, A., and Weder, B. (2002) Do corrupt governments receive less foreign aid? *American Economic Review 92(4)*: 1126-1137

Barberis, N., Boycko, M., Shleifer, A., and Tsukanova, N. (1996) How does privatization work? Evidence from the Russian shops. *Journal of Political Economy, 104(4)*:764–790

Becker, G. S., and Stigler, G. J. (1974) Law enforcement, malfeasance, and compensation of enforcers. *The Journal of Legal Studies 3(1)*: 1-18

Bertrand, M. (2009) CEOs. *Annual Review of Economics*, *1(1)*: 121-150

Bertrand, M., Burgess, R., Chawla, A., and Xu, G. (2020) The glittering prizes: Career incentives and bureaucrat performance. *The Review of Economic Studies*, *87(2)*: 626-655

Biais, B., and Perotti, E. (2002) Machiavellian privatization. *American Economic Review, 92(1)*:240–258

Boardman, A. E., and Vining, A. R. (1989) Ownership and performance in competitive environments: A comparison of the performance of private, mixed, and state-owned enterprises. *The Journal of Law and Economics*, *32(1)*: 1-33

Boehmer, E., Nash, R. C., and Netter, J. M. (2005) Bank privatization in developing and developed countries: Cross-sectional evidence on the impact of economic and political factors. *Journal of Banking and Finance, 29(8)*: 1981-2013

Boycko, M., Shleifer, A., and Vishny, R. W. (1993) Privatizing Russia. *Brookings Papers on Economic Activity*, *1993(2)*: 139-192

Boycko, M., Shleifer, A., and Vishny, R. W. (1996) A theory of privatization. *The Economic Journal, 106(435)*: 309-319

Calonico, S., Cattaneo, M. D., and Titiunik, R. (2014) Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica: Journal of the Econometric Society, 82(6)*: 2295-2326

Calonico, S., Cattaneo, M. D., and Titiunik, R. (2015) Optimal data-driven regression discontinuity plots. *Journal of the American Statistical Association*, *110(512)*: 1753-1769

Carvalho, D. (2014) The real effects of government-owned banks: Evidence from an emerging

market. *The Journal of Finance*, *69(2)*: 577-609

Chu, J., Fisman, R., Tan, S., and Wang, Y. (2021) Hometown ties and the quality of government monitoring: Evidence from rotation of Chinese auditors. *American Economic Journal: Applied Economics*, forthcoming

Clarke, G. R. G., and Cull, R. (2002) Political and economic determinants of the likelihood of privatizing Argentine public banks. *The Journal of Law and Economics, 45(1)*: 165-197

Cohen, L., Coval, J., and Malloy, C. (2011) Do powerful politicians cause corporate downsizing? *Journal of Political Economy*, *119(6)*: 1015-1060

Colonnelli, E., Prem, M., and Teso, E. (2020) Patronage and selection in public sector organizations. *American Economic Review, 110(10)*: 3071-3099

Cull, R., and Xu, L. C. (2003) Who gets credit? The behavior of bureaucrats and state banks in allocating credit to Chinese state-owned enterprises. *Journal of Development Economics, 71(2)*: 533-559

Degeorge, F., Jenter, D., Moel, A., and Tufano, P. (2004) Selling company shares to reluctant employees: France Telecom's experience. *Journal of Financial Economics, 71(1)*: 169-202

Dinç, I. S. (2005) Politicians and banks: Political influences on government-owned banks in emerging markets. *Journal of Financial Economics*, *77(2)*: 453-479

Dinç, I. S., and Gupta, N. (2011) The decision to privatize: Finance and politics. *The Journal of Finance, 66(1)*: 241–269

Dollar, D., Fisman, R., and Gatti, R. (2001) Are women really the "fairer" sex? Corruption and women in government. *Journal of Economic Behavior and Organization, 46(4)*: 423-429

Dumbaugh, K., and Martin, M. F. (2009) Understanding China's political system. Library of Congress Washington DC Congressional Research Service

Estrin, S., Hanousek, J., Kočenda, E., and Svejnar, J. (2009) Effects of privatization and ownership in transition economies. *Journal of Economic Literature, 47(3)*: 699–728

Faccio, M. (2006) Politically connected firms. *American Economic Review, 96(1)*: 369-386

Faccio, M., Masulis, R. W., and McConnell, J. J. (2006) Political connections and corporate bailouts. *The Journal of Finance, 61(6)*: 2597-2635

Fan, J. P. H., Wong, T. J., and Zhang, T. (2007) Politically connected CEOs, corporate governance, and post-IPO performance of China's newly partially privatized firms. *Journal of Financial Economics, 84(2)*: 330-357

Fisman, R. (2001) Estimating the value of political connections. *American Economic Review, 91(4)*: 1095-1102

Fisman, R., and Gatti, R. (2002) Decentralization and corruption: Evidence across countries.

Journal of Public Economics 83(3): 325-345

Fisman, R., and Wang, Y. (2014) Corruption in Chinese privatizations. *The Journal of Law, Economics, and Organization, 31(1)*: 1–29

Fisman, R., and Wang, Y. (2015) The mortality cost of political connections. *The Review of Economic Studies 82(4)*: 1346-1382

Fisman, R., Shi, J., Wang, Y., and Xu, R. (2018) Social ties and favoritism in Chinese Science. *Journal of Political Economy, 126(3)*: 1134–1171

Fisman, R., Shi, J., Wang, Y., and Wu, W. (2020) Social ties and the selection of China's political elite. *American Economic Review, 110(6)*: 1752-1781

Frydman, R., Gray, C., Hessel, M., and Rapaczynski, A. (1999) When does privatization work? The impact of private ownership on corporate performance in transition economies. *The Quarterly Journal of Economics, 114(4)*: 1153-1191

Gan, J., Guo, Y., and Xu, C. (2017) Decentralized privatization and change of control rights in China. *The Review of Financial Studies*, *31(10)*: 3854-3894

Griffin, J., Liu, C., and Shu, T. (2021) Is the Chinese anti-corruption campaign authentic? Evidence from corporate investigations. *Management Science*, forthcoming

Grindle, M. S. (2012) *Jobs for the Boys: Patronage and the State in Comparative Perspective.* Harvard University Press.

Hsieh, C-T, and Song, Z. M. (2015) Grasp the large, let go of the small. *Brookings Papers in Economic Activity, 2015(2)*: 295-346.

Hu, Q., Li, W., Lin, C., and Wei, L. (2019) What causes privatization? Evidence from import competition. Working Paper.

Huang, Z., Li, L., and Ma, G., and Qian, J. (2017) The reversal of privatization: Determinants and consequences. Working paper.

Imbens, G., and Kalyanaraman, K. (2012) Optimal bandwidth choice for the regression discontinuity estimator. *The Review of Economic Studies, 79(3)*: 939-959

İmrohoroğlu, A., and Şelale T. (2014) Firm-level productivity, risk, and return. *Management Science 60(8)*: 2073-2090

Jain, A. K. (2001) Corruption: A review. *Journal of Economic Surveys 15(1)*: 71-121

Jefferson, G. H., and Su, J. (2006) Privatization and restructuring in China: Evidence from shareholding ownership, 1995–2001. *Journal of Comparative Economics, 34(1)*:146–166

Jenter, D., and Lewellen, K. (2015) CEO preferences and acquisitions. *The Journal of Finance, 70(6)*: 2813-2852

Jia, R., Kudamatsu, M., and Seim, D. (2015) Political Selection in China: The complementary

roles of connections and performance. *Journal of the European Economic Association, 13(4)*: 631-668

Jiang, J., 2018. Making bureaucracy work: Patronage networks, performance incentives, and economic development in China. *American Journal of Political Science, 62(4)*: 982-999

Johnson, S., and Mitton, T. (2003) Cronyism and capital controls: Evidence from Malaysia. *Journal of Financial Economics*, *67(2)*: 351-382

Khwaja, A. I., and Mian, A. (2005) Do lenders favor politically connected firms? Rent provision in an emerging financial market. *The Quarterly Journal of Economics*, *120(4)*: 1371-1411

Kikeri, S., Nellis, J. R., and Shirley, M. M. (1992) Privatization: The lessons of experience. *The World Bank*

Kornai, J., 1979. Resource-constrained versus demand-constrained systems, *Econometrica: Journal of the Econometric Society, 47(4)*: 801-819

Kowalski, P., Büge, M., Sztajerowska, M., and Egeland, M. (2013) State-owned enterprises: Trade effects and policy implications. *OECD Trade Policy Papers*, No. 147, OECD Publishing

La Porta, R., and Lopez-de-Silanes, F. (1999) The benefits of privatization: Evidence from Mexico. *The Quarterly Journal of Economics, 114(4)*: 1193-1242

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (1999) The quality of government. *The Journal of Law, Economics, and Organization 15(1)*: 222-279

Levitt, S. D. (1996) How do senators vote? Disentangling the role of voter preferences, party affiliation, and senator ideology. *American Economic Review, 86(3)*: 425-441

Lin, J. Y., and Tan, G. (1999) Policy burdens, accountability, and the soft budget constraint. *American Economic Review, 89(2)*: 426-431

MacRae, C. D. (1977) A political model of the business cycle. *Journal of Political Economy*, *85(2)*: 239-263

Megginson, W. L., Nash, R. C., and Van Randenborgh, M. (1994) The Financial and operating performance of newly privatized firms: An international empirical analysis. *The Journal of Finance, 49(2)*: 403-452

Megginson, W. L., and Netter, J. M. (2001) From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature, 39(2)*: 321-389

Megginson, W. L. (2005) The financial economics of privatization. *New York: Oxford University Press*

Meyer, D., Shih, V. C., and Lee, J. (2016) Factions of different stripes: Gauging the recruitment logics of factions in the reform period. *Journal of East Asian Studies, 16(1)*: 43-60

Nordhaus, W. D. (1975) The political business cycle, *The Review of Economic Studies, 42(2)*: 169-

190

Nye, J. S. (1967) Corruption and political development: A cost-benefit analysis." *The American Political Science Review* 61(2): 417-427

Olken, B. A., and Barron, P. (2009) The simple economics of extortion: Evidence from trucking in Aceh. *Journal of Political Economy 117(3)*: 417-452

Prendergast, C., and Topel, R. H. (1996) Favoritism in organizations. *Journal of Political Economy, 104(5)*: 958-978

Qian, Y., and Roland, G. (1998) Federalism and the soft budget constraint. *American Economic Review, 88(5)*: 1143-1162

Sapienza, P. (2004) The effects of government ownership on bank lending. *Journal of Financial Economics, 72(2)*: 357-384

Shleifer, A., and Vishny, R. W. (1993) Corruption. *The Quarterly Journal of Economics, 108(3)*: 599-617

Shleifer, A., and Vishny, R. W. (1994) Politicians and firms. *The Quarterly Journal of Economics, 109(4)*: 995-1025

Shih, V., Adolph, C., and Liu, M. (2012) Getting ahead in the Communist Party: Explaining the advancement of Central Committee members in China. *American Political Science Review, 106(1)*: 166-187

Song, Z. M., and Xiong, W. (2018) Risks in China's financial system. *Annual Review of Financial Economics, 10(1)*: 261-286

Sun, Q., and Tong, W. H. S. (2003) China share issue privatization: The extent of its success. *Journal of Financial Economics, 70(2)*: 183-222

Tanzi, V. (1998) Corruption around the world: Causes, consequences, scope, and cures. *Staff Papers 45(4)*: 559-594

Van Beveren, I. (2012) Total factor productivity estimation: A practical review." *Journal of Economic Surveys 26(1)*: 98-128

Voth, J., and Xu, G. (2020) Discretion and destruction: Promotions, performance, and patronage in the Royal Navy. Working Paper

Washington, E. L. (2008) Female socialization: How daughters affect their legislator fathers. *American Economic Review, 98(1)*: 311-332

Xu, C. (2011) The fundamental institutions of China's reforms and development. *Journal of Economic Literature, 49(4)*:1076–1151

Xu, G. (2018) The costs of patronage: Evidence on the British Empire. *American Economic Review*, *108(11)*: 3170-3198

Xu, G. (2019) The colonial origins of fiscal capacity: Evidence from patronage governors. *Journal of Comparative Economics*, *47(2)*: 263-276

Yao, Y. (2005) Chinese privatization: Causes and outcomes. *China and World Economy* 13: 66-80.

Wei, S.-J., (2000) How taxing is corruption on international investors? *Review of Economics and Statistics* 82(1): 1-11

Zhu, J., and Zhang, D. (2017) Weapons of the powerful: Authoritarian elite competition and politicized anti-corruption in China. *Comparative Political Studies, 50(9)*: 1186-1220
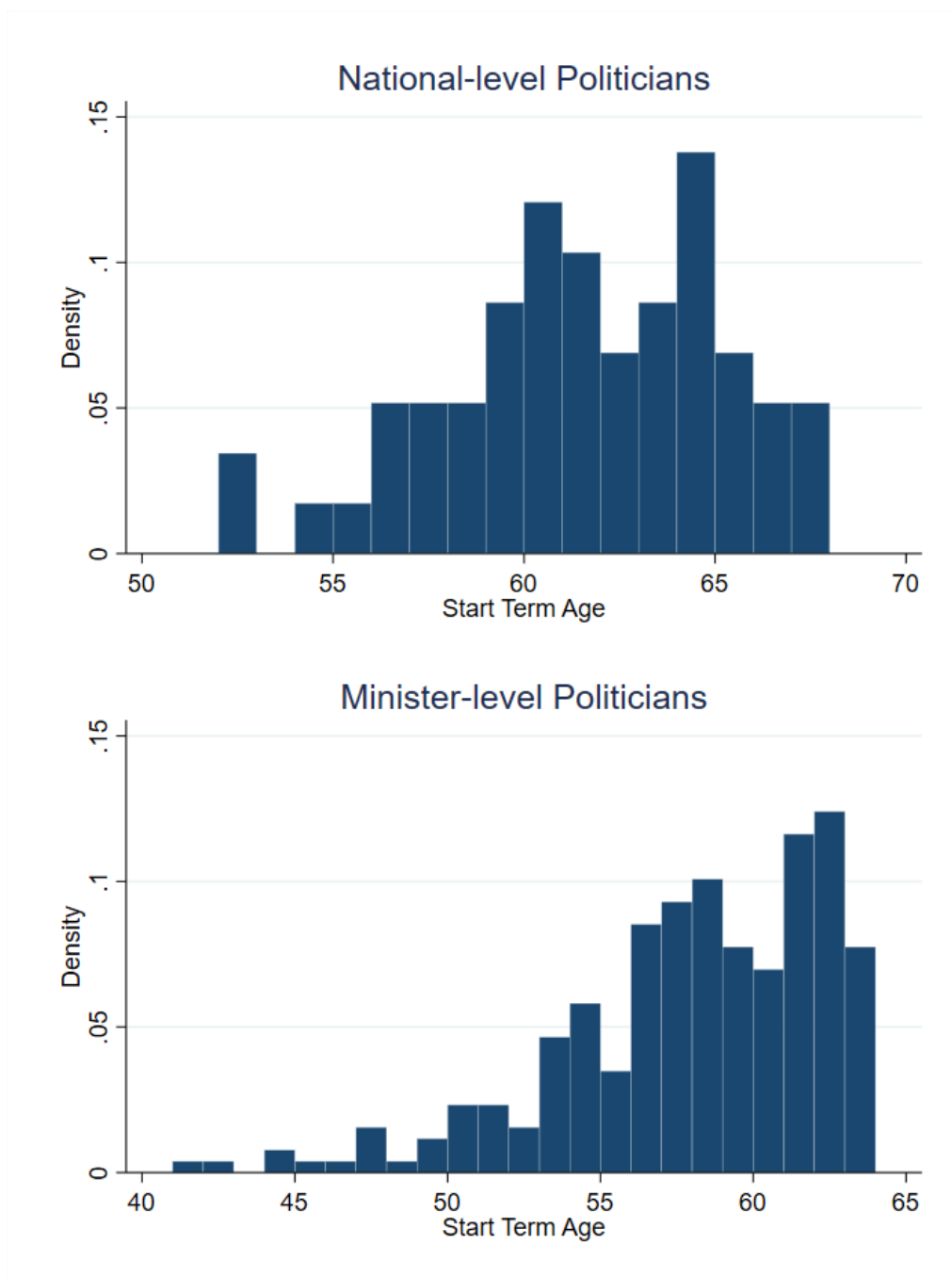
Figure 1: Age at the NPC Turnover Year. This figure presents the age distribution of Central Committee members at the turnover years from term 16th to term 17th NPC. The top panel plots start-term age (renew or newly appointed) distribution for national-level politicians. The bottom panel is for minister-level politicians. The horizontal axis represents the start-term age, and the vertical axis represents the density of the age groups.

36
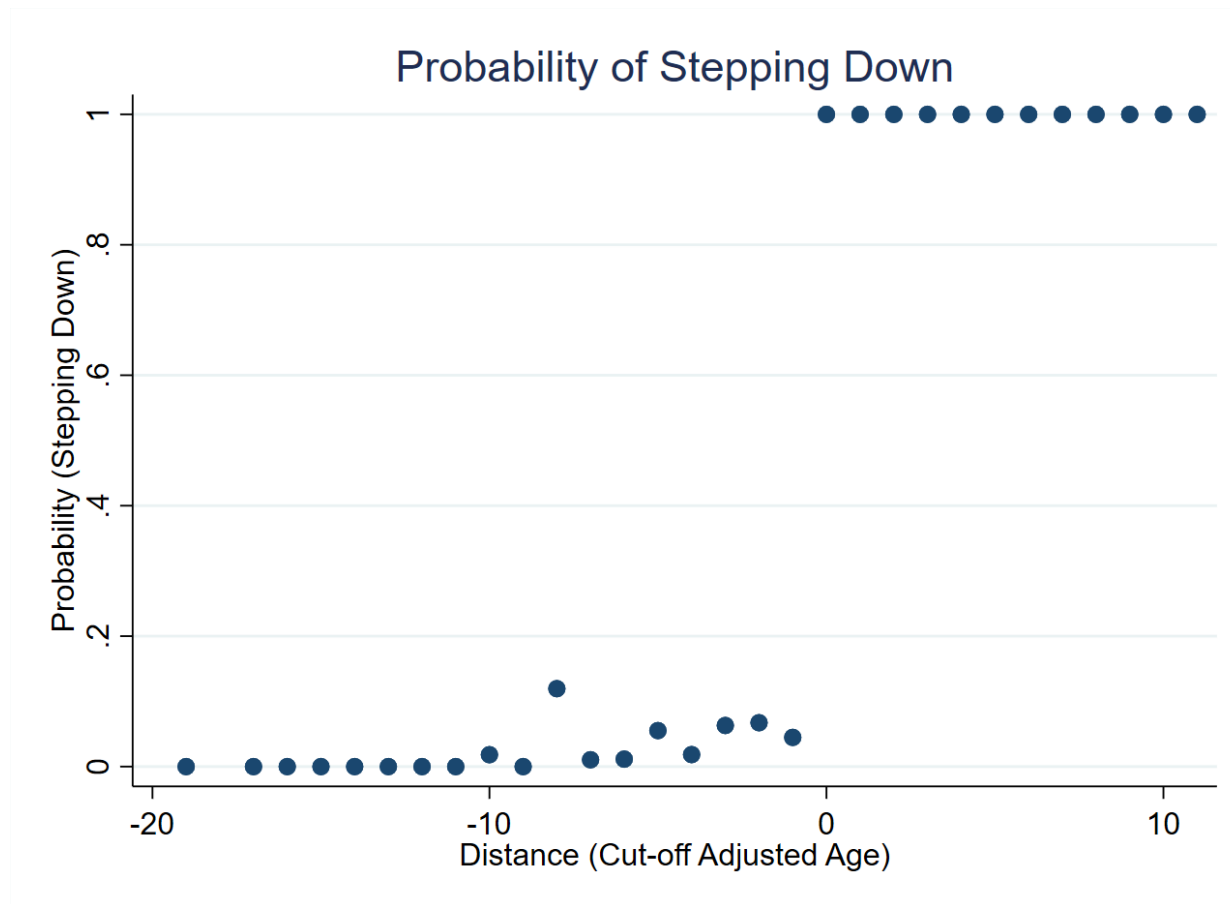
Figure 2: Probability of Stepping Down. This figure plots the unconditional probability of stepping down for the Central Committee members against cut-off adjusted age (senior politician's age at the most recent NPC turnover year minus retirement cut-off ages, which is 64 for minister-level politicians and 68 for national-level politicians, respectively). The vertical axis shows the probability of stepping down across age groups of Central Committee members. In the horizontal axis, to the right of 0 (including 0) are Central Committee members whose ages at the most recent turnover year are larger than or equal to the retirement cut-off ages. To the left of 0 (excluding 0) are the Central Committee members whose ages at the most recent turnover year are below cut-off ages.
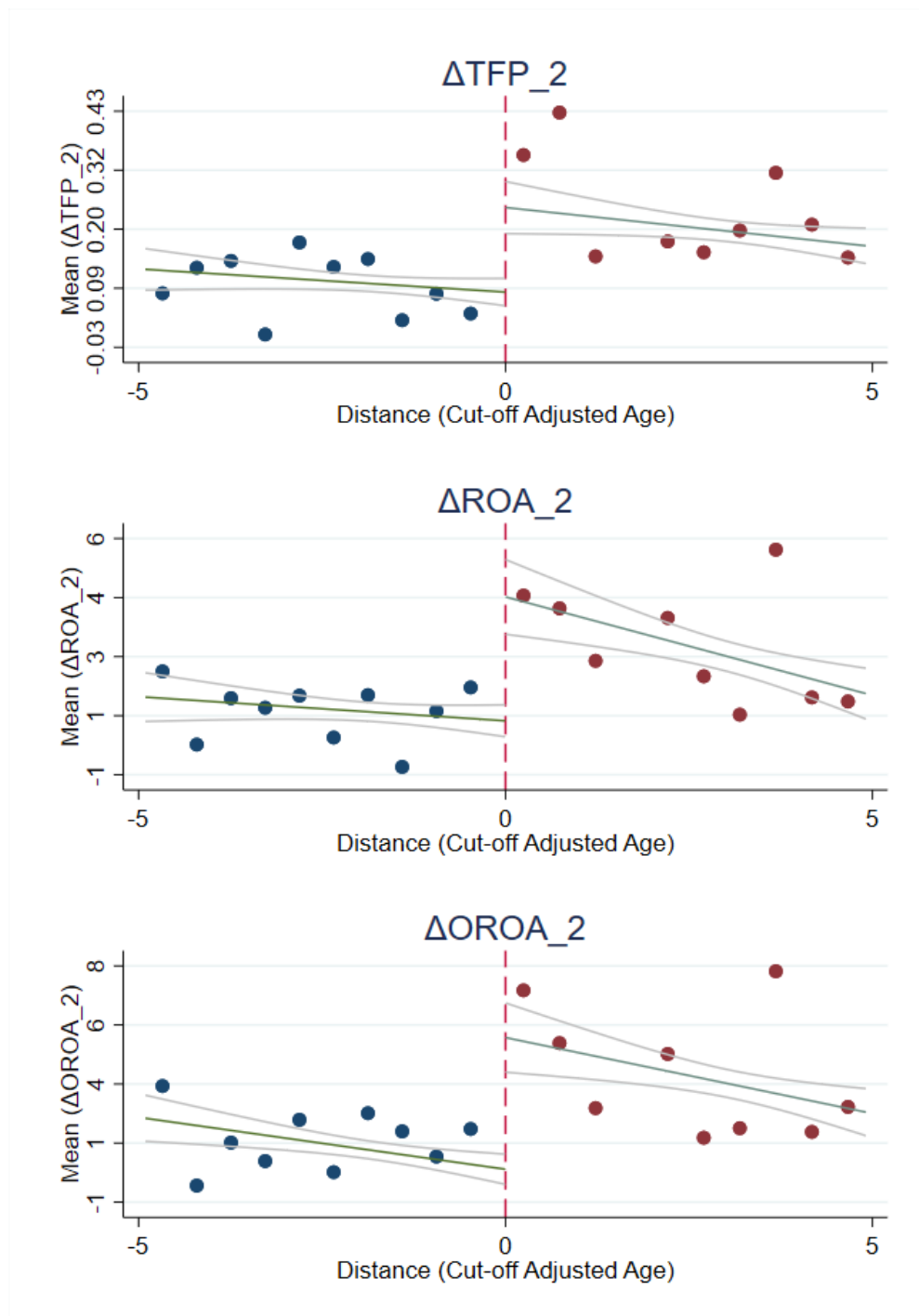
Figure 3: Jumps in Post-privatization Efficiency Gains. This figure displays the fitted regression curves of privatization efficiency changes around the connected Central Committee member's mandatory retirement age cut-offs. The vertical axis represents SOE efficiency changes. *ΔTFP_2*, *ΔROA_2*, and *ΔOROA_2*, are the average annual changes in *TFP*, *ROA*, and *OROA* two years before and after the privatization, respectively. The horizontal axis represents *distance*, which equals the connected Central Committee's ages at the most recent turnover year minus the mandatory retirement ages (i.e., 64 for minister-level politicians and 68 for national-level politicians). In the horizontal axis, to the left (right) of the cut-off are for the SOEs that are privatized by city secretaries who are connected to the Central Committee members whose ages at the most recent turnover year are lower (higher) than the mandatory retirement ages. 95% confidence intervals are drawn around the linear best fit.

38

Validity Check

Panel A: City Secretary Characteristics and Privatization Pool

(*To be continued*)

Electronic copy available at: https://ssrn.com/abstract=3251361
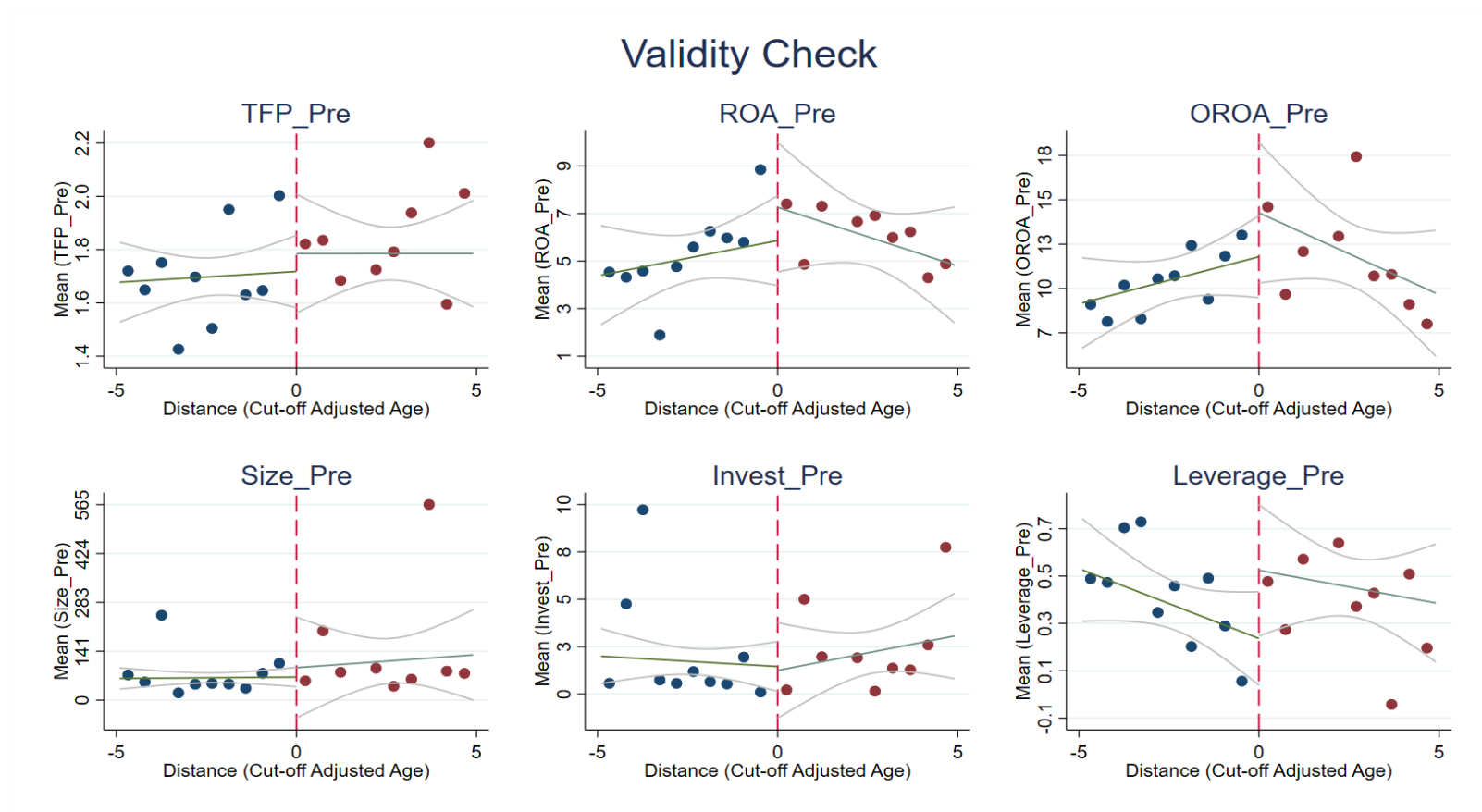
Panel B: Pre-Privatization SOE Characteristics

Figure 4: RD Validity Check. This figure presents the graphical validity check on the RD. Panel A plots the city secretary's personal characteristics and the privatization pool size. The vertical axis shows average *Age*, *Gender*, *MinorRace*, *HighEduc*, *Tenure*, and *SOERatio* for city secretaries. Panel B plots the pre-privatization SOE characteristics. *TFP_Pre*, *ROA_Pre*, *OROA_Pre*, *Size_Pre*, *Invest_Pre*, and *Leverage_Pre* are the average total factor productivity, net income on assets, operating profit over assets, total assets, long-term investment, and long-term liability over equity two years before privatization, respectively. The horizontal axis represents *distance*, which equals the connected Central Committee's ages at the most recent turnover year minus the mandatory retirement ages (i.e., 64 for minister-level politicians and 68 for national-level politicians). In the horizontal axis, to the left (right) of the cut-off are for the SOEs that are privatized by city secretaries who are connected to the Central Committee members whose ages at the most recent turnover year are lower (higher) than the mandatory retirement ages. 95% confidence intervals are drawn around the linear best fit.

Table I Summary Statistics

This table describes the summary statistics of our sample. Panel A provides the summary statistics of the CIC firm-year panel data from 1998 to 2009. The sample is restricted to firms that are at the city level or below and that first appeared in the database as an SOE. In total, there are 113,682 unique firms in the CIC sample, with 507,446 observations across 326 cities. Panel B provides the summary statistics of prefecture-level city secretary panel data at the city-year level. It covers 1,048 unique city secretaries across 326 cities from 1998 to 2009. Panel C provides the summary statistics of listed SOE firm-year panel data from 1998 to 2009. The sample is restricted to firms that are not subject to central or provincial governments and that first appeared in the database as an SOE. In total, there are 610 unique firms with 6,177 observations across 122 cities. See the Appendix Table for detailed variable definitions.

Variables	Mean	N	S.D.	P25	Median	P75
Panel A: CIC Sample						
Private	0.225	507,446	0.418	0.000	0.000	0.000
Private Share	0.338	467,015	0.448	0.000	0.000	1.000
TFP	1.421	495,876	1.339	0.737	1.582	2.297
ROA	5.294	497,223	15.562	-0.047	0.911	6.150
OROA	10.291	497,299	17.838	0.962	3.744	10.670
Panel B: City Secretary Profile Sample						
Connection	0.593	3,706	0.491	0.000	1.000	1.000
Connection#	0.659	3,706	0.603	0.000	1.000	1.000
Age	51.171	3,598	4.076	48.000	51.000	54.000
Gender	0.979	3,706	0.142	1.000	1.000	1.000
MinorRace	0.076	3,706	0.265	0.000	0.000	0.000
Tenure	3.090	3,705	1.736	2.000	3.000	4.000
HighEduc	0.535	3,706	0.499	0.000	1.000	1.000
FiscalExpense	52.461	3,691	69.458	16.290	30.800	62.590
FiscalRevenue	30.350	3,687	58.504	6.660	13.120	29.310
Panel C: Public Firm Sample						
Private	0.152	6,177	0.359	0.000	0.000	0.000
TFP	0.474	5,736	0.716	0.036	0.461	0.933
ROA	2.068	6,177	7.764	0.861	3.027	5.498
OROA	2.532	6,177	8.199	0.780	3.400	6.392
FirmFraud	0.014	6,177	0.118	0.000	0.000	0.000

41

Table II Privatization Outcome

This table presents the results of OLS panel regressions of privatization outcomes. The firm-year panel is from 1998 to 2009, and the sample is restricted to local SOEs at the city level or below. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. In Panel A, the main independent variable, *Private*, is an indicator that equals one if the firm is concurrently registered as a private firm. In Panel B, the main independent variable *Private Share* is the percentage of shares owned by the private sector. *LogAsset* is controlled in column (1). *LogSale* are controlled in columns (2) and (3). Firm and year fixed effects are controlled in all columns. See the Appendix Table 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: Registration Type			
	(1)	(2)	(3)
Variables	TFP	ROA	OROA
Private	0.067***	0.828***	0.656***
	(0.005)	(0.077)	(0.094)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	495,876	497,218	497,294
Adj. R-squared	0.068	0.039	0.052
Panel B: Private Ownership			
	(1)	(2)	(3)
Variables	TFP	ROA	OROA
PrivateShare	0.082***	0.749***	0.558***
	(0.004)	(0.071)	(0.088)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	462,052	466,784	466,863
Adj. R-squared	0.069	0.035	0.050

Table III Patronage Connection and Privatization Outcome

This table presents the results of OLS panel regressions of privatization outcomes under connected city secretaries versus unconnected city secretaries. The firm-year panel is from 1998 to 2009, and the sample is restricted to local SOEs at the city level or below. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. *Connection* is an indicator that equals one if the firm is privatized by a city secretary who is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. *Private* is an indicator that equals one if the firm is concurrently registered as a private firm. *LogAsset* is controlled in column (1). *LogSale* are controlled in columns (2) and (3). Firm and year fixed effects are controlled in all columns. See the Appendix Table 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: Connection Indicator

Variables	(1) TFP	(2) ROA	(3) OROA
Private	0.090***	1.328***	1.204***
	(0.007)	(0.129)	(0.155)
Connection × Private	-0.038***	-0.828***	-0.908***
	(0.009)	(0.160)	(0.195)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	495,876	497,218	497,294
Adj. R-squared	0.068	0.039	0.052

Panel B: Number of Connections

Variables	(1) TFP	(2) ROA	(3) OROA
Private	0.089***	1.267***	1.166***
	(0.007)	(0.119)	(0.143)
Connection# × Private	-0.031***	-0.622***	-0.723***
	(0.007)	(0.118)	(0.144)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	495,876	497,218	497,294
Adj. R-squared	0.068	0.039	0.052

Table IV Fuzzy Regression Discontinuity

This table reports the firm-level fuzzy RD estimates for the effects of city secretary's losing patronage connection on the privatization efficiency gains. The sample is restricted to SOEs privatized by city secretaries who have ever connected with Central Committee members. Panel A reports first-stage estimates of the fuzzy RD following equation (2). The assignment variable is *distance* between the connected Central Committee's age at the most recent NPC turnover year and the mandatory retirement age (i.e., age cut-off). The dependent variable, *LosePower*, is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. Panel B reports the effects of the city secretary's losing patronage connection on the privatization outcomes following equation (3). The assignment variable is the same as that of Panel A. The treatment is variable is *LosePower*. The dependent variables, *ΔTFP_2*, *ΔROA_2*, and *ΔOROA_2*, are the average annual changes in *TFP*, *ROA*, and *OROA* two years before and after privatization, respectively. On both sides around the age cut-off, we use the Mean Square Error optimal bandwidth following Calonico, Cattaneo, and Titiunik (2014). The triangular kernel is used in the local linear regression. Two treatment effect estimates are reported: conventional local Wald estimate and bias-corrected estimate proposed by Calonico, Cattaneo, and Titiunik (2015). See the Appendix Table for detailed variable definitions. Standard errors clustered at the local politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Probability of Stepping Down (First Stage)

Variables	(1) *LosePower*	(2) *LosePower*	(3) *LosePower*
Conventional	1.026***	1.033***	1.023***
	(0.034)	(0.037)	(0.035)
Bias-corrected	1.040***	1.048***	1.031***
	(0.034)	(0.037)	(0.035)
Observations	14,469	14,657	14,665

Panel B: Privatization Consequences (Second Stage)

Variables	(1) *ΔTFP_2*	(2) *ΔROA_2*	(3) *ΔOROA_2*
Conventional	0.306**	3.969**	5.447*
	(0.139)	(1.940)	(3.269)
Bias-corrected	0.319**	3.880**	5.657*
	(0.139)	(1.940)	(3.269)
Observations	14,469	14,657	14,665

44

Table V Fuzzy Regression Discontinuity Validity Check

This table reports city secretary-term level fuzzy RD estimates for the city secretary's characteristics, privatization activity, and firms' per-privatization characteristics. The sample is restricted to city secretaries who have ever connected with Central Committee members. The assignment variable is *distance* between the connected Central Committee's age at the most recent NPC turnover year and the mandatory retirement age (i.e., age cut-off). The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. In Panel A, the outcome variables are the personal characteristics and the privatization activity of the city secretary (i.e., *Age*, *Gender*, *MinorRace*, *HighEduc*, *Tenure*, and *SOERatio*. In Panel B, the outcome variables are the averaged pre-privatization SOE characteristics. *TFP_Pre*, *ROA_Pre*, *OROA_Pre*, *Size_Pre*, *Invest_Pre*, and *Leverage_Pre* are the average total factor productivity, net income on assets, operating profit over assets, total assets, long-term investment, and long-term liability over equity two years before privatization, respectively. All firm-level ratio variables are winsorized at 1% and 99%. On both sides around the age cut-off, we use the Mean Square Error optimal bandwidth following Calonico, Cattaneo, and Titiunik (2014). The triangular kernel is used in the local linear regression. Two treatment effect estimates are reported: conventional local Wald estimate and bias-corrected estimate proposed by Calonico, Cattaneo, and Titiunik (2015). Standard errors clustered at the local politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: City Secretary Characteristics and Privatization Pool

Variables	(1) Age	(2) Gender	(3) MinorRace	(4) HighEduc	(5) Tenure	(6) SOERatio
Conventional	-0.431	-0.027	0.040	0.146	-0.578	-0.030
	(0.866)	(0.030)	(0.076)	(0.105)	(0.381)	(0.027)
Bias-corrected	-0.415	-0.027	0.053	0.142	-0.622	-0.038
	(0.866)	(0.030)	(0.076)	(0.105)	(0.381)	(0.027)
Observations	1,486	1,508	1,508	1,508	1,508	1,507

(*To be continued*)

45

Table V Fuzzy Regression Discontinuity Validity Check - *continued*

Panel B: Pre-Privatization SOE Characteristics

Variables	(1) *TFP_Pre*	(2) *ROA_Pre*	(3) *OROA_Pre*	(4) *Size_Pre*	(5) *Invest_Pre*	(6) *Leverage_Pre*
Conventional	0.139	1.617	3.564	12.02	-0.112	0.086
	(0.217)	(2.767)	(4.562)	(74.98)	(2.048)	(0.263)
Bias-corrected	0.169	1.761	4.817	-10.29	0.248	0.060
	(0.217)	(2.767)	(4.562)	(74.98)	(2.048)	(0.263)
Observations	1,146	1,147	1,147	1,147	1,147	1,144

Table VI Patronage Connection and Rent-seeking

This table reports regression results for value loss in negotiated transfer deals under connected city secretaries versus unconnected city secretaries. Panel A shows the results of OLS regression at the deal level with *LogValueLoss* as the dependent variable. The independent variable, *Connection*, is an indicator that equals one if the city secretary is concurrently connected with at least one Central Committee member in the privatization deal year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization deal year. *FractionTransferred*, *Turnover*, *BuyerIdentity*, *LogAsset*, *Leverage*, and *ROA* were controlled in all columns. Robust standard errors are reported in parentheses. Panel B reports the fuzzy RD estimates for value loss at the city secretary-year level. We restrict the sample to negotiated transfer deals conducted by city secretaries who are ever connected with Central Committee members. The assignment variable is the distance between the connected Central Committee's age at the most recent turnover year and the age cut-off. The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. We use the Mean Square Error optimal bandwidth on both sides around the age cut-off following Calonico, Cattaneo, and Titiunik (2014). The triangular kernel is used in the local linear regression. Two treatment effect estimates are reported: conventional local Wald estimate and bias-corrected estimate proposed by Calonico, Cattaneo, and Titiunik (2015). Standard errors clustered at the local politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: OLS Regression

Variables	(1) LogValue Loss	(2) LogValue Loss	(3) LogValue Loss	(4) LogValue Loss	(5) LogValue Loss	(6) LogValue Loss
Connection	0.236**	0.200*	0.314*			
	(0.112)	(0.117)	(0.169)			
Connection#				0.304***	0.269***	0.333***
				(0.098)	(0.096)	(0.122)
Controls	YES	YES	YES	YES	YES	YES
Politician FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	NO	YES	YES	NO
Industry FE	NO	YES	NO	NO	YES	NO
Firm FE	NO	NO	YES	NO	NO	YES
Observations	1,537	1,534	1,389	1,537	1,534	1,389
Adj. R-Squared	0.639	0.669	0.773	0.640	0.671	0.774

Panel B: Regression Discontinuity

Variables	(1) LogValueLoss
Conventional	-2.316**
	(0.985)
Bias-corrected	-2.477***
	(0.985)
Observations	568

47

Table VII Patronage Connection and Corrupt Buyer

This table reports regression results for the likelihood of having corrupt buyers in negotiated transfer deals under connected city secretaries versus unconnected city secretaries. Panel A shows the results of OLS regression at the deal level with *CorruptBuyer* as the dependent variable. *CorruptBuyer* is an indicator at the negotiated transfer deal level that equals one if the buyer of the negotiated deal is found to be corrupt. The independent variable, *Connection*, is an indicator that equals one if the city secretary is concurrently connected with at least one Central Committee member in the privatization deal year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization deal year. *FractionTransferred*, *Turnover*, *BuyerIdentity*, *LogAsset*, *Leverage*, and *ROA* are controlled in all columns. Robust standard errors are reported in parentheses. Panel B reports the fuzzy RD estimates for the likelihood of corrupt buyers at the city secretary-year level. We restrict the sample to deals conducted by city secretaries who are ever connected with Central Committee members. The assignment variable is the distance between the connected Central Committee's age at the most recent turnover year and the age cut-off. The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. We use the Mean Square Error optimal bandwidth on both sides around the age cut-off following Calonico, Cattaneo, and Titiunik (2014). The triangular kernel is used in the local linear regression. Two treatment effect estimates are reported: conventional local Wald estimate and bias-corrected estimate proposed by Calonico, Cattaneo, and Titiunik (2015). Standard errors clustered at the local politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: OLS Regression

Variables	(1) Corrupt Buyer	(2) Corrupt Buyer	(3) Corrupt Buyer	(4) Corrupt Buyer	(5) Corrupt Buyer	(6) Corrupt Buyer
Connection	0.091**	0.113**	0.101*			
	(0.046)	(0.046)	(0.054)			
Connection#				0.091**	0.100***	0.064
				(0.038)	(0.039)	(0.045)
Controls	YES	YES	YES	YES	YES	YES
Politician FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	NO	YES	YES	NO
Industry FE	NO	YES	NO	NO	YES	NO
Firm FE	NO	NO	YES	NO	NO	YES
Observations	1,537	1,534	1,389	1,537	1,534	1,389
Adj. R-squared	0.185	0.220	0.413	0.186	0.221	0.412

Panel B: Regression Discontinuity

Variables	(1) CorruptBuyer
Conventional	-0.144**
	(0.065)
Bias-corrected	-0.132**
	(0.065)
Observations	578

48

Table VIII Corrupt Buyer and Privatization Outcome

This table presents the results of OLS panel regressions of privatization outcomes between selling SOE shares to corrupt buyers and to other buyers. The firm-year panel is from 1998 to 2009, and the sample is restricted to listed local SOEs at the city level or below. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. *Private* is an indicator that takes the value of one if the firm is registered as a private firm and after the privatization year. The privatization year is the year when majority shares are transferred. *CorruptBuyer* is an indicator at the firm level that equals one if any buyer of the negotiated deals in the privatization year is found to be corrupt. *LogAsset* and *Leverage* are controlled in column (1). *LogSale* and *Leverage* are controlled columns (2) and (3). Firm and year fixed effects are controlled in all columns. See the Appendix Table 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.

Variables	(1) *TFP*	(2) *ROA*	(3) *OROA*
Private	0.096*	1.797***	1.860***
	(0.050)	(0.609)	(0.647)
CorruptBuyer × Private	-0.162*	-1.938*	-2.118*
	(0.096)	(1.136)	(1.283)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	5,736	6,177	6,177
Adj. R-squared	0.116	0.115	0.154

49

Table IX Corrupt Buyer and Privatized SOEs' Fraud and Corruption

This table presents the results of OLS panel regressions of privatized SOEs' fraud and corruption between privatized SOEs with and without corrupt buyers as new owners. The firm-year panel is from 1998 to 2009, and the sample is restricted to listed local SOEs at the city level or below. The main dependent variable, *FirmFrauds*, is the number of fraud and corrupt activities of the listed firms convicted by the CSRC. *LogFirmFrauds* is the natural logarithm of one plus *FirmFrauds*. *Private* is an indicator that takes the value of one if the firm is registered as a private firm and after the privatization year. The privatization year is the year when majority shares are transferred. *CorruptBuyer* is an indicator at the firm level that equals one if any buyer of the negotiated deals in the privatization year is found to be corrupt. *LogSale* and *Leverage* are controlled in all columns. Firm and year fixed effects are controlled in all columns. See the Appendix Table 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.

Variables	(1) *FirmFrauds*	(2) *LogFirmFrauds*
Private	-0.005	-0.003
	(0.010)	(0.007)
CorruptBuyer × Private	0.039**	0.027**
	(0.018)	(0.013)
Controls	YES	YES
Firm FE	YES	YES
Year FE	YES	YES
Observations	6,177	6,177
Adj. R-squared	0.012	0.012

Online Appendix for

How Do Individual Politicians Affect Privatization? Evidence from China

Hong Ru
Nanyang Technological University

Kunru Zou
Renmin University of China

Contents

Figure A.1: Privatization Trend Over Time. This figure illustrates the number of privatization and privatized assets of local SOEs at the city level or below from 1999 to 2009. The left graph shows the number of privatized firms per year, and the right graph shows the amount of privatized assets per year.

Privatization Progress Across Industries 1999-2004

Industry	Privatized Asset (in Billion RMB)	Average State Owned Asset (in Billion RMB)
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

Panel A

A-3

Panel B

Figure A.2: Privatization Across Industries. This figure shows local SOEs' privatization progress across industries. *Privatized Asset* denotes the amount of assets that are privatized in the industry. For each firm, privatized asset amount equals the privatization dummy times the firm's total assets. *Average State-Owned Asset* denotes the average amount of assets owned by the government in the industry. Asset amount owned by the government in each firm equals total assets times the percentage share owned by the government. The top 10 industries (sorted by privatized asset amounts) are displayed. Panel A and Panel B illustrate the privatization progress across industries in 1999-2004 and 2005-2009, respectively.

A-4
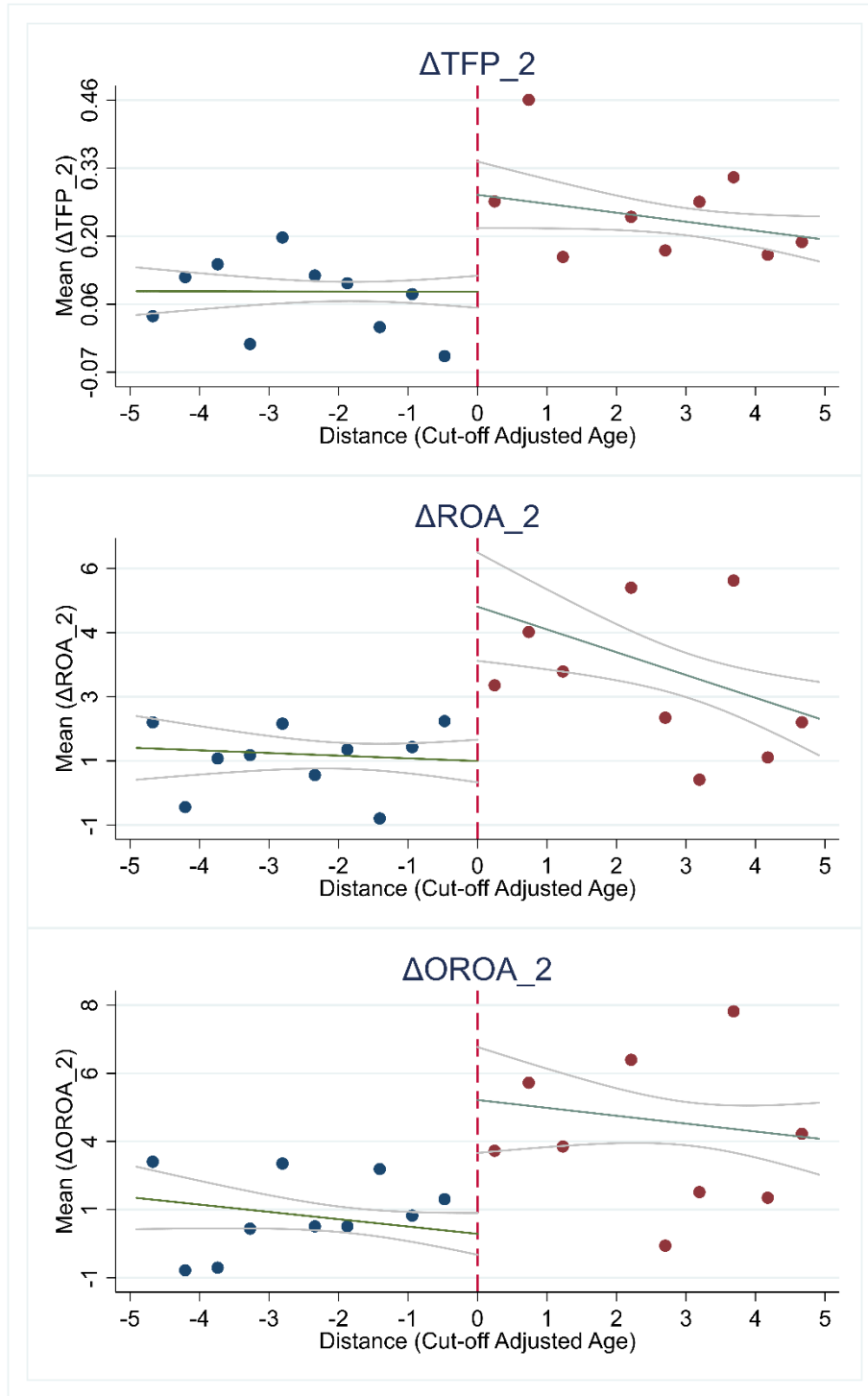
Figure A.3: Privatization Consequence (Privatizations Around NPC Turnover Years). This figure shows the graphical results of the RD on the privatization consequences (i.e., TPF, ROA, and OROA). Only firms that are privatized in the years of 2001-2003 and 2006-2008 are included. The vertical axis denotes the firm's privatization outcomes, as in Table IV. In the horizontal axis, to the left (right) of the cut-off are the firms that are privatized by city secretaries who are connected to the Central Committee members whose age at the most recent turnover year is lower (higher) than the mandatory compulsory retirement age (i.e., 64 for minister-level politicians and 68 for national-level politicians). 95% confidence intervals are drawn around the linear best fit.

A-5

Table A.1: Patronage Connection and Privatization Outcome (Alternative TFP Measures)

This table presents the results of OLS panel regressions of privatization outcomes. The firm-year panel is from 1998 to 2009, and the sample is restricted to local SOEs at the city level or below. The main dependent variable, *TFP (With Fixed Effects)*, is the residual in the regression of *LogSale* against *LogAsset* and *LogEmployment* in the panel of firms with industry fixed effects and year fixed effects. *TFP (Value Added)* is calculated with the same regression as *TFP (with Fixed Effects)* except replacing *LogSale* by *Log(Value-Added)*. *Private* is an indicator that equals one if the firm is concurrently registered as a private firm. *Private Share* is the percentage of shares owned by the private sector. In Panel B, *Connection* is an indicator that equals one if the city secretary is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. *LogAsset* is controlled in all columns. Firm and year fixed effects are controlled in all columns. See the Appendix Table 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: Privatization Consequence

Variables	(1) TFP (With Fixed Effects)	(2) TFP (Value Added)	(3) TFP (With Fixed Effects)	(4) TFP (Value Added)
Private	0.057***	0.062***		
	(0.005)	(0.007)		
Private Share			0.080***	0.079***
			(0.004)	(0.006)
Controls	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	495,876	304,281	462,052	297,398
Adj. R-squared	0.099	0.051	0.099	0.048

Panel B: Political Connection and Privatization Consequence

Variables	(1) TFP (With Fixed Effects)	(2) TFP (Value Added)	(3) TFP (With Fixed Effects)	(4) TFP (Value Added)
Private	0.081***	0.095***	0.081***	0.093***
	(0.007)	(0.011)	(0.007)	(0.010)
Connection × Private	-0.040***	-0.055***		
	(0.009)	(0.013)		
Connection# × Private			-0.034***	-0.045***
			(0.007)	(0.009)
Controls	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	495,876	304,281	495,876	304,281
Adj. R-squared	0.099	0.051	0.099	0.051

A-6

Table A.2: Patronage Connection and Privatization Outcome (Cross-sectional)

This table presents the results of cross-sectional regressions of privatization outcomes for SOE privatizations from 1998 to 2009. The main dependent variables are *ΔTFP_1*, *ΔROA_1*, and *ΔOROA_1*, which are the changes in *TFP*, *ROA*, and *OROA* one year before and after the privatization, respectively. *ΔTFP_2*, *ΔROA_2*, and *ΔOROA_2* are the average annual changes in *TFP*, *ROA*, and *OROA* two years before and after the privatization, respectively. *Connection* is an indicator that equals one if the firm is privatized by a city secretary who is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. *Log(Average Asset)* are controlled in columns (1) and (4). *Log(Average Sales)* is controlled in columns (2), (3), (5), and (6). The fixed effects of the privatization year are controlled in all columns. See the Appendix Table 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: Connection Indicator

Variables	(1) ΔTFP_1	(2) ΔROA_1	(3) ΔOROA_1	(4) ΔTFP_2	(5) ΔROA_2	(6) ΔOROA_2
Connection	-0.026***	-0.416***	-0.640***	-0.033***	-0.732***	-0.919***
	(0.008)	(0.142)	(0.174)	(0.009)	(0.171)	(0.206)
Controls	YES	YES	YES	YES	YES	YES
Privatization Year FE	YES	YES	YES	YES	YES	YES
Observations	27,240	27,614	27,639	14,955	15,233	15,239
Adj. R-squared	0.009	0.003	0.005	0.012	0.014	0.016

Panel B: Number of Connections

Variables	(1) ΔTFP_1	(2) ΔROA_1	(3) ΔOROA_1	(4) ΔTFP_2	(5) ΔROA_2	(6) ΔOROA_2
Connection#	-0.020***	-0.341***	-0.515***	-0.021***	-0.482***	-0.667***
	(0.006)	(0.109)	(0.133)	(0.007)	(0.127)	(0.153)
Controls	YES	YES	YES	YES	YES	YES
Privatization Year FE	YES	YES	YES	YES	YES	YES
Observations	27,240	27,614	27,639	14,955	15,233	15,239
Adj. R-squared	0.009	0.003	0.005	0.012	0.013	0.016

Table A.3: Patronage Connection and Privatization Outcome (Listed SOEs)

This table presents the results of OLS panel regressions of privatization outcomes under connected city secretaries versus unconnected city secretaries. The firm-year panel is from 1998 to 2009, and the sample is restricted to listed local SOEs at the city level or below. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. *Connection* is an indicator that equals one if the firm is privatized by a city secretary who is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. The privatization year is the year when majority shares are transferred. *Private* is an indicator that takes the value of one if the firm is registered as a private firm and after the privatization year. *LogSale* and *Leverage* are controlled in all columns. Firm and year fixed effects are controlled in all columns. See the Appendix Table 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.

Variables	(1) TFP	(2) ROA	(3) OROA	(4) TFP	(5) ROA	(6) OROA
Private	0.196***	3.038***	2.955***	0.173***	2.599***	2.584***
	(0.058)	(0.867)	(0.964)	(0.053)	(0.796)	(0.880)
Connection × Private	-0.126*	-2.561**	-2.377**			
	(0.069)	(1.043)	(1.144)			
Connection# × Private				-0.075	-1.555**	-1.494*
				(0.050)	(0.720)	(0.784)
Controls	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	5,736	6,177	6,177	5,736	6,177	6,177
Adj. R-squared	0.480	0.116	0.155	0.480	0.115	0.154

A-8

Table A.4: Patronage Connection and Pre-Privatization SOE Characteristics

This table presents the t-tests to compare the characteristics of SOEs which are in the cities governed by connected versus unconnected city secretaries. *TFP_Pre*, *ROA_Pre*, *OROA_Pre*, *Size_Pre*, *Invest_Pre*, and *Leverage_Pre* are the average total factor productivity, net income on assets, operating profit over assets, total assets (in Million RMB), long-term investment (in Million RMB), and long-term liability over equity two years before privatization, respectively. *Connection* is an indicator that equals one if the city secretary is connected with at least one Central Committee member during the two years before privatization. All firm-level ratio variables are winsorized at 1% and 99%. The mean values are reported with the observation numbers reported in parentheses below. The differences in variables between columns (1) and (2) are reported in column (3), with the t-stats and p-values reported in columns (4) and (5), respectively.

Variables	(1) *Connection* = 0	(2) *Connection* = 1	(3) Difference	(4) t-stats	(5) p-value
TFP_Pre	1.848	1.83	0.017	1.168	0.243
	(9,159)	(6,379)			
ROA_Pre	7.247	7.495	-0.248	-1.025	0.305
	(9,161)	(6,379)			
OROA_Pre	11.041	11.393	-0.352	-1.259	0.208
	(9,161)	(6,379)			
Size_Pre	69.585	62.138	7.448	1.248	0.212
	(9,166)	(6,379)			
Invest_Pre	3.071	2.833	0.238	0.321	0.749
	(9,166)	(6,379)			
Leverage_Pre	0.427	0.388	0.039	1.610	0.107
	(9,154)	(6,376)			

Table A.5: Patronage Connection and Privatization Outcome

(Central and Provincial SOEs)

This table presents the results of OLS panel regressions of privatization outcomes under connected city secretaries versus unconnected city secretaries. The firm-year panel is from 1998 to 2009, and the sample is restricted to provincial and central SOEs. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. *Connection* is an indicator that equals one if the firm is privatized by a city secretary who is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. *Private* is an indicator that equals one if the firm is concurrently registered as a private firm. *LogAsset* is controlled in column (1). *LogSale* are controlled in columns (2) and (3). Firm and year fixed effects are controlled in all columns. See the Appendix Table 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: Connection Indicator

Variables	(1) TFP	(2) ROA	(3) OROA
Private	0.108***	0.311	0.814*
	(0.034)	(0.463)	(0.462)
Connection × Private	-0.043	0.433	-0.649
	(0.043)	(0.553)	(0.561)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	47,551	47,133	47,132
Adj. R-squared	0.193	0.008	0.012

Panel B: Number of Connections

Variables	(1) TFP	(2) ROA	(3) OROA
Private	0.105***	0.352	0.745*
	(0.031)	(0.419)	(0.411)
Connection# × Private	-0.033	0.318	-0.466
	(0.032)	(0.433)	(0.387)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	47,551	47,133	47,132
Adj. R-squared	0.193	0.008	0.012

A-10

Table A.6: Patronage Connection and Firm Post-privatization Performance

This table presents the results of OLS panel regressions on the effects of patronage connection on SOE post-privatization performance. The firm-year panel is from 1998 to 2009, and the sample is restricted to local SOEs at the city level or below in the years after privatization. Only firms that are privatized by connected local politicians are included. *LoseConnection* is an indicator that equals one if the firm is in a city whose city secretary is no longer connected with any Central Committee members. *LogAsset* is controlled in the columns of *TFP*. *LogSale* are controlled in columns of *ROA* and *OROA*. Firm and year fixed effects are controlled in each column. See the Appendix Table 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.

Variables	(1) TFP	(2) ROA	(3) OROA
LoseConnection	0.027***	0.309*	0.522**
	(0.008)	(0.165)	(0.205)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	68,782	68,895	68,920
Adj. R-squared	0.057	0.074	0.075

Table A.7: Fuzzy Regression Discontinuity (Different Bandwidths)

This table reports the firm-level fuzzy RD estimates of the effects of local politicians' losing patronage connections on the privatization efficiency gains. The sample is restricted to SOEs privatized by city secretaries who are ever connected with Central Committee members. The assignment variable is the distance between the connected Central Committee's age at the most recent turnover year and the age cut-off. The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. The dependent variables, *ΔTFP_2*, *ΔROA_2*, and *ΔOROA_2*, are the average annual changes in *TFP*, *ROA*, and *OROA* two years before and after privatization, respectively. Denominators are the first stage estimates from the fuzzy RD (i.e., the effects of the Central Committee member's age at the most recent turnover year on her probability of stepping down around the age cut-off). Numerators are the effects of the compulsory retirement of Central Committee members on the privatization efficiency gains around the age cut-off. On both sides around the cut-off, 100%, 200%, and 300% optimal bandwidths given by Imbens and Kalyanaraman (2012) are used. The triangular kernel is used in the local linear regression. Local Wald Estimator equals the Numerator divided by the Denominator. Standard errors clustered at the politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables	(1) ΔTFP_2	(2) ΔROA_2	(3) $\Delta OROA\_2$
Numerator 100%	0.296**	3.261**	5.743
	(0.137)	(1.444)	(3.589)
Denominator 100%	0.954***	0.935***	0.939***
	(0.0185)	(0.0257)	(0.0241)
Local Wald Estimator 100%	0.310**	3.489**	6.116
	(0.144)	(1.544)	(3.818)
Numerator 200%	0.239***	3.186**	4.838**
	(0.0814)	(1.258)	(1.935)
Denominator 200%	0.932***	0.930***	0.928***
	(0.0266)	(0.0240)	(0.0258)
Local Wald Estimator 200%	0.257***	3.425**	5.215**
	(0.0876)	(1.358)	(2.088)
Numerator 300%	0.172***	2.867**	4.344**
	(0.0546)	(1.148)	(1.706)
Denominator 300%	0.926***	0.936***	0.933***
	(0.0260)	(0.0206)	(0.0226)
Local Wald Estimator 300%	0.186***	3.061**	4.658**
	(0.0593)	(1.231)	(1.835)
Observations	14,469	14,657	14,665

A-12

Table A.8: Fuzzy Regression Discontinuity (Around NPC Turnover Years)

This table reports the firm-level fuzzy RD estimates of the effects of local politicians' losing patronage connections on the privatization efficiency gains. The sample is restricted to SOEs privatized in the years of 2001-2003 and 2006-2008. The assignment variable is the distance between the connected Central Committee's age at the most recent turnover year and the age cut-off. The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. The dependent variables, ΔTFP_2, ΔROA_2, and $\Delta OROA\_2$, are the average annual changes in TFP, ROA, and $OROA$ two years before and after privatization, respectively. Denominators are the first stage estimates from the fuzzy RD (i.e., the effects of the Central Committee member's age at the most recent turnover year on her probability of stepping down around the age cut-off). Numerators are the effects of the compulsory retirement of Central Committee members on the privatization efficiency gains around the age cut-off. On both sides around the cut-off, 100%, 200%, and 300% optimal bandwidths given by Imbens and Kalyanaraman (2012) are used. The triangular kernel is used in the local linear regression. Local Wald Estimator equals the Numerator divided by the Denominator. Standard errors clustered at the politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables	(1) ΔTFP_2	(2) ΔROA_2	(3) $\Delta OROA\_2$
Numerator 100%	0.223*	2.615*	4.048**
	(0.118)	(1.492)	(1.725)
Denominator 100%	0.955***	0.948***	0.973***
	(0.0179)	(0.0175)	(0.0229)
Local Wald Estimator 100%	0.234*	2.757*	4.160**
	(0.124)	(1.571)	(1.765)
Numerator 200%	0.196**	3.922***	4.375***
	(0.0769)	(1.517)	(1.553)
Denominator 200%	0.973***	0.943***	0.942***
	(0.0240)	(0.0163)	(0.0198)
Local Wald Estimator 200%	0.201**	4.160***	4.643***
	(0.0792)	(1.610)	(1.648)
Numerator 300%	0.194***	3.684***	3.965***
	(0.0578)	(1.400)	(1.355)
Denominator 300%	0.953***	0.946***	0.954***
	(0.0215)	(0.0147)	(0.0128)
Local Wald Estimator 300%	0.204***	3.892***	4.157***
	(0.0608)	(1.480)	(1.422)
Observations	9,605	9,751	9,759

A-13

Table A.9: Fuzzy Regression Discontinuity (Placebo Cut-offs)

This table reports the firm-level fuzzy RD estimates of the effects of local politicians' losing patronage connections on the privatization efficiency gains around Placebo age cut-offs. The sample is restricted to firms that are privatized by city secretaries who are ever connected with Central Committee members. The assignment variable is the distance between the connected Central Committee's age at the most recent turnover year and the age cut-off. The treatment variable is an indicator that equals one if the connected Central Committee member stepped down at the most recent NPC turnover year. In Panels A, B, and C, we move the age cut-off by 0.5, 1, and 1.5, respectively. In the first (last) three columns of each panel, we move the age cut-off left (right). The dependent variables, ΔTFP_2, ΔROA_2, and $\Delta OROA\_2$, are the average annual changes in *TFP*, *ROA*, and *OROA* two years before and after privatization, respectively. Denominators are the first stage estimates from the fuzzy RD (i.e., the effects of the Central Committee member's age at the most recent NPC turnover year on her probability of stepping down around the age cut-off). Numerators are the effects of the compulsory retirement of Central Committee members on the privatization efficiency gains around the age cut-off. 100% optimal bandwidths suggested by Imbens and Kalyanaraman (2012) are used. The triangular kernel is used in the local linear regression. Local Wald Estimator equals the Numerator divided by the Denominator. Standard errors clustered at the politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Move the Cut-off Left				Move the Cut-off Right		
Panel A: Move 0.5							
	(1)	(2)	(3)		(4)	(5)	(6)
Variables	ΔTFP_2	ΔROA_2	$\Delta OROA\_2$		ΔTFP_2	ΔROA_2	$\Delta OROA\_2$
Local Wald Estimator 100%	0.0229	-1.274	-37.90		0.146	2.092	3.230
	(2.553)	(3.871)	(471.0)		(0.234)	(1.706)	(2.312)
Observations	14,469	14,657	14,665		14,469	14,657	14,665
Panel B: Move 1							
	(1)	(2)	(3)		(4)	(5)	(6)
Variables	ΔTFP_2	ΔROA_2	$\Delta OROA\_2$		ΔTFP_2	ΔROA_2	$\Delta OROA\_2$
Local Wald Estimator 100%	1.473	-15.15	-41.18		-5.145e+27	0.413	0.117
	(2.350)	(27.32)	(62.63)		(1.781+e41)	(1.982)	(2.811)
Observations	14,469	14,657	14,665		14,469	14,657	14,665
Panel C: Move 1.5							
	(1)	(2)	(3)		(4)	(5)	(6)
Variables	ΔTFP_2	ΔROA_2	$\Delta OROA\_2$		ΔTFP_2	ΔROA_2	$\Delta OROA\_2$
Local Wald Estimator 100%	-0.286	-3.354	-0.921		-0.275	3.386	1.339
	(0.196)	(5.009)	(8.985)		(0.170)	(6.136)	(2.892)
Observations	14,469	14,657	14,665		14,469	14,657	14,665

Table A.10: Patronage Connection and Privatization Pool

This table presents the OLS regressions of privatization pool size. The sample is a city-year panel aggregated from the CIC firm-year data. In Panel A, the main independent variable *Connection* is an indicator that equals one if the concurrent city secretary is connected with at least one Central Committee member. In Panel B, the main independent variable, *Connection#* is the number of connections that the concurrent city secretary possesses with the Central Committee. In columns (1) and (2), the dependent variable *SOERatio* is the ratio of the number of firms privatized over the total number of SOEs in this city. In columns (3) and (4), the dependent variable *AssetRatio* is the ratio of total privatized assets over total assets of all SOEs in this city. City and year fixed effects are controlled in all columns. *LogFiscalExpense* and *LogFiscalRevenue* are controlled in columns (2) and (4). Standard errors are clustered at the city level and reported in parenthesis. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Connection Indicator

Variables	(1) SOERatio	(2) SOERatio	(3) AssetRatio	(4) AssetRatio
Connection	-0.103	-0.090	-1.045	-1.023
	(0.361)	(0.365)	(0.644)	(0.642)
LogFiscalExpense		0.696		0.821
		(0.661)		(1.355)
LogFiscalRevenue		-0.060		-1.240
		(0.656)		(1.325)
City FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	3,693	3,673	3,403	3,401
Adj. R-squared	0.173	0.171	0.048	0.048

Panel B: Number of Connections

Variables	(1) SOERatio	(2) SOERatio	(3) AssetRatio	(4) AssetRatio
Connection#	-0.044	-0.043	-0.735	-0.718
	(0.285)	(0.287)	(0.503)	(0.501)
LogFiscalExpense		0.696		0.831
		(0.663)		(1.356)
LogFiscalRevenue		-0.063		-1.242
		(0.656)		(1.323)
City FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	3,693	3,673	3,403	3,401
Adj. R-squared	0.173	0.171	0.048	0.048

Table A.11: Patronage Connection and Rent-seeking (Including Deals with Negative Value Loss)

This table reports deal-level ordered-probit regression results for value loss in negotiated transfer deals under connected city secretaries versus unconnected city secretaries. The sample includes deals with positive and negative value loss. *ValueLossQ10* goes from 0-10 with 0 denoting the negative value loss deals and 1-10 denoting the first to tenth deciles of the *LogValueLoss* in the positive value loss deals. *LogValueLoss* is the natural logarithm of the value loss amount in the negotiated transfer deal, where the value loss amount is calculated by the average price (mean of opening and closing price) on the announcement day times number of shares transferred times the discount to the average price. The independent variable, *Connection*, is an indicator that equals one if the city secretary is concurrently connected with at least one Central Committee member in the privatization year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization year. *FractionTransferred*, *Turnover*, *BuyerIdentity*, *LogAsset*, *Leverage*, and *ROA* were controlled in all columns. Standard errors clustered at the local politician level are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables	(1) ValueLossQ10	(2) ValueLossQ10	(3) ValueLossQ10	(4) ValueLossQ10	(5) ValueLossQ10	(6) ValueLossQ10
Connection	0.280*	0.315*	0.650*			
	(0.162)	(0.177)	(0.350)			
Connection#				0.354***	0.336**	0.625**
				(0.138)	(0.145)	(0.256)
Controls	YES	YES	YES	YES	YES	YES
Politician FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	NO	YES	YES	NO
Industry FE	NO	YES	NO	NO	YES	NO
Firm FE	NO	NO	YES	NO	NO	YES
Observations	1,667	1,667	1,667	1,667	1,667	1,667
Pseudo R^2	0.255	0.277	0.446	0.255	0.278	0.446

A-16

Table A.12: Patronage Connection and Corrupt Top Management Team

This table reports results from OLS regression of the likelihood of having corrupt top management team members in negotiated transfer deals under connected city secretaries versus unconnected city secretaries. The dependent variable *CorruptTMT* is an indicator at the deal level that equals one if the negotiated deal is done by a top management team with CEO or Chairperson of the privatized SOE who was found to be corrupt. For each CEO or Chairperson, we searched "CEO/Chairperson name" + "corruption keywords" in baidu.com and openlaw.cn to check whether there is any related news report or judgment document for the person. The independent variable, *Connection*, is an indicator that equals one if the city secretary is concurrently connected with at least one Central Committee member in the privatization deal year. *Connection#* is the number of contemporaneous connections that the city secretary has with Central Committee members in the privatization deal year. *ROA*, *LogAsset, FractionTransferred*, *BuyerIdentity*, *Leverage*, and *Turnover* are controlled in all columns. Robust standard errors are reported in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables	(1) CorruptTMT	(2) CorruptTMT	(3) CorruptTMT	(4) CorruptTMT	(5) CorruptTMT	(6) CorruptTMT
Connection	0.117***	0.112**	0.142**			
	(0.039)	(0.044)	(0.057)			
Connection#				0.067*	0.070*	0.075*
				(0.035)	(0.037)	(0.044)
Controls	YES	YES	YES	YES	YES	YES
Politician FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	NO	YES	YES	NO
Industry FE	NO	YES	NO	NO	YES	NO
Firm FE	NO	NO	YES	NO	NO	YES
Observations	1,537	1,534	1,389	1,537	1,534	1,389
Adj. R-squared	0.367	0.393	0.737	0.365	0.392	0.735

Table A.13: Corrupt Top Management Team and Privatization Outcome

This table presents the results of OLS panel regressions of privatization outcomes between SOEs with and without corrupt top management team members. The firm-year panel is from 1998 to 2009, and the sample is restricted to listed local SOEs at the city level or below. The main dependent variables are *TFP*, *ROA*, and *OROA* to measure firm efficiency. *CorruptTMT* is an indicator at the firm level that equals one if the negotiated deals in the privatization year are done by a top management team with CEO or Chairperson who was found to be corrupt. For each CEO or Chairperson, we searched "CEO/Chairperson name" + "corruption keywords" in baidu.com and openlaw.cn to check whether there is any related news report or judgment document for the person. The privatization year is the year when majority shares are transferred. *LogSale* and *Leverage* are controlled in all columns. Firm and year fixed effects are controlled in all columns. See the Appendix Table 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.

Variables	(1) TFP	(2) ROA	(3) OROA
Private	0.141***	1.727***	1.957***
	(0.038)	(0.586)	(0.620)
CorruptTMT × Private	-0.151**	-1.845	-3.171**
	(0.076)	(1.353)	(1.537)
Controls	YES	YES	YES
Firm FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	5,736	6,177	6,177
Adj. R-squared	0.480	0.114	0.155