# BUSTING THE "PRINCELINGS": THE CAMPAIGN AGAINST CORRUPTION IN CHINA'S PRIMARY LAND MARKET*

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Using data on over a million land transactions during 2004–2016 where local governments are the sole seller, we find that firms linked to members of China's supreme political elites—the Politburo—obtained a price discount ranging from 55.4% to 59.9% compared with those without the same connections. These firms also purchased slightly more land. In return, the provincial party secretaries who provided the discount to these "princeling" firms are 23.4% more likely to be promoted to positions of national leadership. To curb corruption, President Xi Jinping stepped up investigations and strengthened personnel control at the province level. Using a spatially matched sample (e.g., within a 500-meter radius), we find a reduction in corruption of between 42.6% and 31.5% in the provinces either targeted by the central inspection teams or whose party secretary was replaced by one appointed by Xi. Accordingly, this crackdown on corruption has also significantly reduced the promotional prospects of those local officials who rely on supplying a discount to get ahead. *JEL* Codes: D73, P26, H7, O17.

## I. INTRODUCTION

It is no secret that the friends and relatives of national leaders around the world are thriving in business, thanks to cronyism (Haber 2002; Kang 2002; Thiessen 2011). However, precisely how cronyism works remains little known. The stereotypical assumption is that corrupt businessmen would bribe powerful government officials in exchange for cheap access to scarce national resources or preferential policy treatment, if not both (Shleifer and Vishny 1993; Olken and Pande 2012; Rose-Ackerman and Palifka 2016). Like many other autocratic countries, China is one in which cronyism has arguably run rampant (e.g., Wedeman 2012; Bai, Hsieh, and Song 2014; Gong 2015; Pei 2016). Unlike the other autocratic countries (e.g., Indonesia), however, China is not ruled by a single dictator but instead by a single political party comprising tight-knit political elites. Steeped in the tradition of

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the *nomenklatura* in the former Soviet Union, members of the Politburo, which in China amount to no more than 30 at any single national congress, wield disproportionate power in setting economic and other policies, including personnel appointment and control. Sitting at the apex of the power pyramid, these elites are targeted by those hoping to seek favors. The fact that family members—in particular the offspring of these top politicians or the so-called princelings as they are popularly referred to in the media[1]—are found to be extraordinarily wealthy suggests that political connections are very much active in China (Shih 2008; Brown 2014; Witt and Redding 2014). In fact, the international media has extensively reported on the family members and relatives of China's top politicians benefiting enormously from their businesses.[2]

If this is how cronyism works in China, it suggests a very different mechanism from the one presumably operating in other contexts. Instead of a private businessman providing an official with a bribe, the bribe is actually furnished by a regional or local official endowed with the (ill-defined) rights over certain state-owned resources and the power to practice price discrimination, presumably in exchange for some not readily observable benefits, such as promotion.[3] Our hypothesis is premised on two institutional features of China's political economy. First, promotion within the party hierarchy is valued highly by members and is typically determined by officials at the level immediately above

1. "Princelings" is a term first coined by the media. See, for example, Page (2011).

2. The former prime minister, Wen Jiabao, is a good case in point. Widely proclaimed as someone coming from an "extremely poor" family, "many relatives of Wen Jiabao, including his son, daughter, younger brother and brother-in-law, have become extraordinarily wealthy during his leadership", according to Barboza (2012). In the same year this piece came out, the *Financial Times* reported the wealth and fortunes of the relatives of virtually all members of the Politburo Standing Committee of the 16th and 17th national congresses—essentially the Chinese national leaders during 2002–2012. See Tsang (2012); "China's Power Families," *Financial Times*, July 6, 2012, http://www.ft.com/intl/cms/s/2/6b983f7a-ca9e-11e1-8872-00144feabdc0.html#axzz3uvcCyhyy.

3. A caveat is in order here. Other types of corruption certainly exist in China. For instance, bribery for promotion is allegedly rampant in the government in general and in the military in particular, as is the exchange of favors between firms and local officials and among state-owned enterprises. We are in no way claiming that the kind of cronyism documented in this study represents the only type of corruption taking place in China, nor are we suggesting that it represents the most serious type of corruption.

(known as the "one-level-up" policy); for example, promotion of the provincial-level officials is determined by members of the Politburo. Second, beginning in the late 1990s, land and other natural resources (e.g., coal mines) have been decentralized to the regional or local governments (from province down to the county), who as a result have the discretion to exercise price discrimination for different classes of buyers, with political connections being an important determinant.

Cronyism must have been prevalent, because the first significant task the new party secretary Xi Jinping took on was to launch an anticorruption campaign to weed out corruption. Xi's campaign differs distinctly from those of his predecessors in a number of crucial respects. First, he strengthened the Central Commission for Discipline Inspection (CCDI), an organization with the goal of ferreting out corrupt officials. Second, the campaign continues to this day with greater intensity (of investigation and arrest). Third, having recognized the land market as a hotbed of corruption, Xi singled it out as a major target. Fourth, he ignored the "diplomatic immunity" implicitly granted to the most powerful political figures within the communist hierarchy and went after a member of the Politburo Standing Committee, Zhou Yongkang.[4]

To unveil the mechanism of cronyism in China, we set out to identify those firms linked to the Politburo members (i.e., the princeling firms) during 1997–2016 from among the universe of firms involved in land purchase. The chosen period spans four national congresses of the Chinese Communist Party (from the 15th to the 18th). We merge these data with the data on land transactions in China's primary land market—a market in which the local government is the sole seller. Doing so provides us with the crucial information on the exact price paid by firms connected to a princeling compared with that paid by firms without such connections for land parcels of similar quality; the difference—the price discount—represents essentially the rents. By this method we hope to go beyond the innovative "market inference" approach pioneered by Fisman (2001), whereby the

4. Some observers see Xi's campaign as representing essentially an attempt to remove his political rivals and consolidate his own power (e.g., Yuen 2014; Eisenman and Chung 2015); others are of the view that Xi's anticorruption campaign has gone beyond mere factional struggle (Lu and Lorentzen 2016). We are primarily concerned with the consequences of Xi's campaign rather than his true intentions.

value of political connections is estimated based on the market reactions, for example, to the rapidly deteriorating health of a national leader as an exogenous shock.[5] Moreover, this direct approach enables us to estimate whether local officials who have provided a discount to the princeling firms are rewarded by these firms (by dint of their connection to members of the Politburo) with better prospects of promotion.

Our analysis has yielded the following salient findings. Foremost is that the price discount obtained by the princeling firms is a sizable 55.4%,[6] when we compare the land parcels purchased by the princeling firms with those located in the same district, designated for the same usage, sold in the same month of the same year to nonprinceling firms, and after controlling for a number of transaction-level control variables ranging from the log of the land area sold to the specific sales method employed. To address the concern of a downward bias (i.e., that the princeling firms may selectively purchase land of higher quality or market value), we match and compare the land parcels purchased by the princeling firms with those bought by their unconnected counterparts within a significantly smaller catchment area of a 500-meter radius and one of a 1,500-meter radius in the same year. Doing so yields an even greater price discount—57.0% for the 500-meter radius and 59.5% for the 1,500-meter radius. To check the robustness of our results, we regress the quantity of land sold on princeling purchase and find that the princeling firms also bought more land than their nonprinceling counterparts.

Second, we find that the more powerful the princeling, the larger the discount. Firms connected to a member of the Politburo Standing Committee, for instance, obtain an additional discount of 17.6–20.7% over and above that obtained by those connected to a Politburo member.

Third, we find that those provincial party secretaries who have provided a discount to princeling firms are 23.4% more likely to be promoted, with the likelihood of promotion increasing with the size of the price discount and the quantity (area) of land sold to the princeling firms. The same does not hold true

5. Based on the analysis of 79 publicly listed firms allegedly connected to the children of the Indonesian president Suharto in 1995, Fisman (2001) finds that approximately 23% of the market value of these firms is attributable to connections with the Suharto family. See also Faccio (2006) for a similar approach.

6. All coefficients are transformed using the formula $(\exp(\beta) - 1)$.

for the governors—the number two person in a province.[7] The promotion of governors, who are in charge of economic development, is intimately tied to how much they are able to drive GDP growth relative to other provinces. The findings are similar for the prefectures, albeit with smaller magnitudes.

Fourth, evidence suggests that Xi's anticorruption campaign is effective. For land transactions that took place after 2012, the magnitude of the price discount has shrunk by 11.7–15.1% depending on the estimate. In a more targeted fashion, inspection undertaken by the CCDI has the larger effect of raising the transacted price by 55.6% in the full sample, or a still substantial 42.6% in the matched 500-meter-radius sample. The same occurs as a result of Xi's effort to replace the party secretaries in 14 provinces; the corresponding magnitude is 35.5% in the full sample and 31.5% in the matched sample. Consistently, the effectiveness of the campaign is also evident in the quantity of land sold.

Finally, to check the robustness of our results, we undertake an event study based on the unexpected arrest of Zhou Yongkang; in the 60 days following his arrest, the price discount received by the princeling firms was reduced significantly, against an unchanging volume of overall land transactions, especially those involving the nonprinceling firms, which were not affected by the arrest.

A final qualifying remark is in order. Although corruption among the political elites in China is intimately tied to the unique institutional features of the political system, it is by no means an inevitable outcome. Just as the political selection system was designed to promote competition among regional officials, the action of empowering regional governments by giving them control rights over state assets was designed to facilitate urbanization. It is only when both features are present that the odds of corruption become heightened.

Our findings are related to three bodies of literature. First, we can think of our study as contributing to the sizable literature on the political determinants of corruption. The literature on corruption (Shleifer and Vishny 1993; Olken and Pande 2012; Rose-Ackerman and Palifka 2016) and the value of political

7. Although the provincial governor is the top government official (*zheng*) in a province, he or she is still subject to the authority and command of the party secretary (*dang*), the way power relations are structured in China.

connections as pioneered by Fisman (2001) and others is a case in point. By focusing on the relatives of top leaders, we contribute to the small but growing literature relating to the dynastic political rents expropriated by politician families (Gagliarducci and Manacorda 2016; Cruz, Labonne, and Querubin 2017; Folke, Persson, and Rickne 2017). In a similar vein, our work is related to the literature examining the monetary returns from holding political office (Eggers and Hainmueller 2009; Fisman, Schulz, and Vig 2014). What sets our study apart from the above literature is that the kind of cronyism we analyze is premised on certain unique institutional features of China's political economy—the simultaneous decentralized control of state assets and personnel.

Second, by identifying political exchange between family members of the political elites and local officials in the Chinese context of cronyism, our study augments the literature regarding the factors on which the promotion of regional leaders hinges beyond the usual economic performance and factional ties (Li and Zhou 2005; Shih, Adolph, and Liu 2012; Jia, Kudamatsu, and Seim 2015). Moreover, complementing the literature regarding the effect of clientelism or specifically vote buying on political selection in democratic regimes (Finan and Schechter 2012; Gans-Morse, Mazzuca, and Nichter 2014, among many others), we examine corruption hidden in the process of selecting national leaders in a nondemocratic setting. Finally, by empirically assessing the effectiveness of various anticorruption instruments implemented by Xi, our article contributes to a growing literature devoted to examining the design of political institutions in curbing corruption (Di Tella and Schargrodsky 2003; Ferraz and Finan 2008; Bobonis, Fuertes, and Schwabe 2016; Avis, Ferraz, and Finan 2018).

Our article proceeds as follows. Section II begins by providing a conceptual framework laying out the institutional features that give rise to cronyism in China, followed by an explanation for why the primary land market offers an ideal case for examining corruption and the salient characteristics of Xi Jinping's anticorruption campaign. Section III provides a detailed account of how we construct our unique data set of the princeling firms and land transactions. Section IV reports the magnitude of the rents associated with cronyism in the primary land market, whereas Section V discusses how the provision of a price discount affects one's promotion chances. Section VI examines the effects of Xi's anticorruption campaign, and Section VII concludes the study.

## II. Background

### *II.A. Cronyism in China: A Conceptual Framework*

By "cronyism" we refer to the exchange of favors between politicians and businesspeople to their mutual benefit (Shleifer and Vishny 1993; Olken and Pande 2012; Rose-Ackerman and Palifka 2016). Specifically, one may think of an instance where a politician provides scarce, government-owned resources over which they have control rights to a businessperson to whom he or she is connected at a substantial discount from the market price, in exchange for either certain direct pecuniary benefits (i.e., outright corruption) or indirectly enhanced promotion prospects, or in some cases both. Cronyism assumes this particular form in China due to certain institutional features that evolved from the process of its economic reforms. The first pertains to the decentralization of control rights over a wide range of state-owned assets, such as land, mines, and industrial enterprises (Pei 2016). Take land for example. To facilitate urbanization without privatizing land rights, the state passed a statutory bill in 1998 granting *de jure* ownership over land to local governments in their geographical jurisdictions (Lin and Ho 2005; Kung, Xu, and Zhou 2013; Han and Kung 2015). Local governments, especially prefecture- and county-level governments, are thus assigned exclusive statutory rights to the revenue obtained from selling land usufruct rights (and the accompanying residual income rights), which typically carry a duration of 70 years. This puts local officials in a unique position to practice price discrimination by providing steep discounts to certain classes of buyers in exchange for certain benefits. The question is to whom would they provide the favor?

This brings us to the second institutional feature facilitating cronyism—the "one-level-up" policy. Our conjecture is that firms connected to the princelings—or firms specifically run by the children and extended family of the Politburo members—are the likely beneficiaries. The reason is straightforward. To invigorate economic growth, China has since 1978 (the year when reform began) decentralized its economy, but as befits a Leninist state, its political structure has remained highly centralized. What this means is that the state has relied on a "tournament" in which regional officials (province and lower) are made to compete with one another in growing the economies under their jurisdiction, and those who "win" are rewarded with promotion (Maskin, Qian, and Xu 2000; Li and Zhou 2005; Xu 2011, among others). In the

case of province-level officials, for instance, promotion equates to appointment in the Politburo. Given that appointment and promotion within the party-state in China is decided by the personnel one level up, members of the Politburo are in a unique position to wield influence over the promotion of the province chiefs—especially the province party secretaries. Indeed, in our sample of provincial party secretaries, 52% have been promoted to the Politburo at the end of office. Consisting of no more than two dozen members (e.g., only 21 members were elected at the 19th National Congress, which took place in October 2017), the Politburo is essentially the pinnacle of one's political career within the hierarchy of the Chinese *nomenklatura*. The province chiefs thus have enormous incentives to provide favors of any kind to firms intimately connected to the princelings.[8] Together, the decentralization of control rights over state-owned assets and the one-level-up policy have unwittingly enabled China's crony capitalism to emerge.[9] Thus, corruption of this nature may go beyond rent seeking, to the extent that it undermines the tournament's effectiveness.

### *II.B. Corruption in China's Primary Land Market*

In light of the reasons given in the previous section, China's primary land market, which includes oil fields and coal mines (respectively accounting for less than 2% and 8% in our sample), is ideal for examining the trading of favors between the princeling firms and local officials for two additional reasons. First, because local governments have been made the sole statutory owner and supplier of land in a regional context, they resemble essentially the monopolists modeled in Shleifer and Vishny (1993)—a setting strongly prone to corruption. Related to that is the monumental shift in China's local fiscal system from one based primarily on

8. This is not to suggest that the Politburo members all have a penchant for seeking rents. However, being cognizant of the unique set of rules of appointment and promotion in China, family members and relatives of China's political elites may be inclined to take advantage of their influence to seek favors from high-level local officials.

9. Indeed, back in the 1990s, political elites could only get ahead by placing their children in large state-owned enterprises as senior executives. For example, Li Xiaopeng, the son of the former Prime Minister Li Peng, served as executive manager of Huaneng Power International, one of the "big five" conglomerates in the power industry, worth trillions in assets in 1995, at the relatively young age of 36.

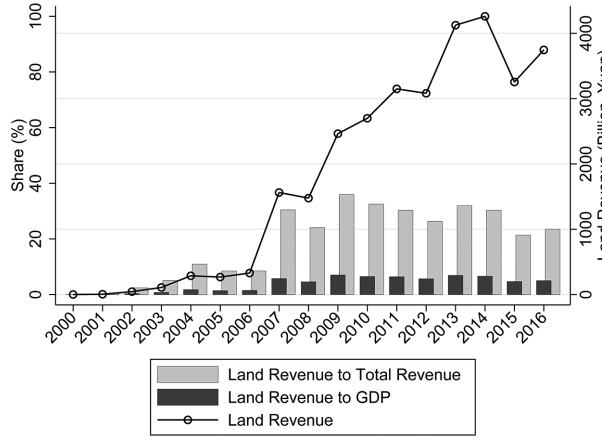


FIGURE I

Size of Land Revenue, 2000–2016

enterprise tax to one based on land tax, resulting in the increasing reliance of local governments at the prefectural level and below on revenues obtained from selling land use rights (Han and Kung 2015; Chen and Kung 2016). To illustrate, in early 2000 land revenue accounted for less than 2% of a county's total revenue, but by 2011 it already represented 30% of the total government revenue, amounting to approximately 6% of total GDP (Figure I). Inherent in this singular reliance on selling land use rights for revenue lies the proclivity for seeking rents.

Indeed, corruption in China's primary land market is widespread. For example, nearly a quarter (23%) of the 2,802 corruption cases reported in the *Procuratorial Daily* or *Jiancha Ribao* between 2000 and 2009 are related to the primary land market (Gong and Wu 2012).[10] In line with this reasoning, the real estate sector has become a "hotbed of crony capitalism in China," as it is capable of generating "most of its profits from obtaining cheap land" (Pei 2016, 50).

The extent to which corruption has run rampant in China's market for land and other natural resources (most notably coal mines) cannot be better illustrated than by the unexpected arrest of Zhou Yongkang, a former member of the Politburo Standing

10. As the mouthpiece of the Supreme People's Procuratorate, the *Procuratorial Daily* contains a column that periodically reports major corruption cases uncovered by the CCDI.

Committee, and his son Zhou Bin, who was apparently running the family businesses. Soon after the father-and-son duo was arrested it was uncovered that the family had amassed a 90 billion *yuan* fortune, primarily by purchasing state-owned land and coal mines from local governments in Sichuan and Yunnan provinces at prices substantially below the market. The then-provincial party secretary of Yunnan, Bai Enpei, subsequently confessed to the crime and was also arrested.[11] By the same token, Jiang Jiemin, the former vice governor of Qinghai province, had sold several land parcels and oil fields to Zhou Bin at a pittance. Later on, Jiang was promoted to become the chair of China National Petroleum Corporation—a position commensurate with a ministerial appointment—presumably with Zhou Yongkang's help.

### *II.C. Xi's Anticorruption Campaign*

It is thus not fortuitous that the general secretary of the Chinese Communist Party, Xi Jinping, singled out land as one of his main targets in the anticorruption campaign, which he initiated soon after assuming office in November 2012.[12] This campaign has several salient features. Foremost is that Xi strengthened the CCDI—an organization set up to detect corruption. Previously, the local or regional commission's effort to detect misconduct had been thwarted by their provincial superiors who were officials from the same province and understandably wanted to cover up scams at the lower levels. To strengthen the political independence of local operations, the new rule requires the head of the provincial commission to be filled by officials from a different province and who are therefore "unlikely to be tied to local patronage networks" (Pei 2016, 75; see also Manion 2016). As a result of this change, the reformed CCDI must rely on their own intelligence and may dispatch investigation teams to the targeted units without warning; this allegedly renders the campaign more effective (Yuen 2014; Pei 2016).

11. Bai confessed that the Zhou family only paid 150 million *yuan* for several land parcels and coal mines in Yunnan, assets that would have been worth more than a hundred billion *yuan* at market price (see http://news.ifeng.com/a/20150114/42925278_0.shtml). 1 Chinese *yuan* = 0.15 U.S. dollars.

12. According to the speech he made to the CCDI on January 23, 2013, Xi stressed that "we must concentrate our crackdown on corruption in critical sectors such as mining resources, land transfers, and real estate development."

Xi's anticorruption campaign has also been more intense and long-lasting than previous campaigns. Unlike campaigns before this one, Xi's has been running for four calendar years and has busted three times as many officials as in any previous campaigns. In 2016 alone more than 100,000 low-ranking officials were indicted for corruption, compared with 30,315 in 2012.

The biggest breakthrough must be that unlike any previous political campaigns, Xi's anticorruption campaign targeted even top party officials. This time, Zhou Yongkang, one of the most powerful political figures, was bluntly taken down with his son on charges of corruption. At the same time, Xi brought down Ling Jihua, chief of the General Office of the Chinese Communist Party between 2007 and 2012, another powerful figure closely connected to the former General Secretary Hu Jintao. According to some observers, Xi was trying to send a strong message to the princelings that he would not tolerate corruption regardless of who backs them (Manion 2016).

## III. Data Construction

In this section, we first explain how we define and identify the princelings from a variety of online sources, followed by identifying the firms connected to them. We then describe the procedure employed to match the land transactions data with those of the princeling firms.

### *III.A. Firms Connected to the Princelings*

For our purpose, princelings are the offspring and other extended family members of China's leaders—specifically members of the Politburo and its Standing Committee. Our definition is thus slightly different from the one that defines princelings as "the children of veteran communists who held high-ranking offices in China before 1966, the first year of the Cultural Revolution" (Bo 2015). A major reason for the difference is that corruption in the present-day context in general, and that tied to transactions in the primary land market in particular, involves primarily children and family members of the elite party members who served between 1997 and 2016. There are two more reasons for choosing this particular period. First, the Politburo began to assume supreme power only after China's paramount leader, Deng Xiaoping, and other founding members of the Chinese Communist

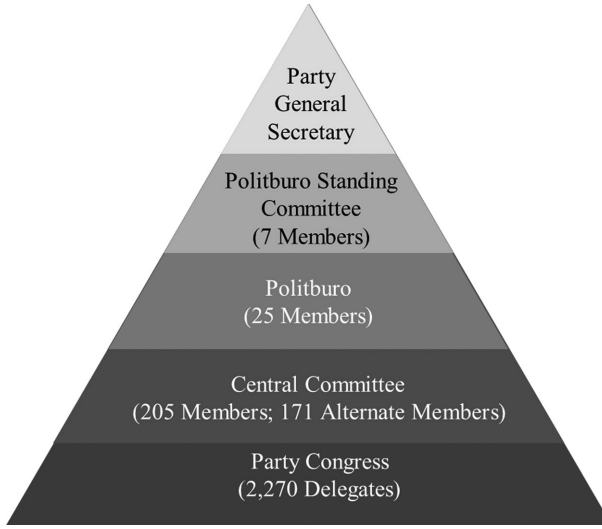


FIGURE II

The Power Pyramid of the 18th National Congress of the Communist Party of China (2012–2017)

Party stepped down in 1997. Prior to that, important decisions pertaining to the party were essentially made by Deng and these founding members. Second, it was not until 1998 that the state devolved statutory rights over land to local governments; before then, no regional government was able to sell land usufruct rights for revenue. In China's one-party rule system, the Politburo is the apex of the power pyramid, consisting of on average 25 members who are elected from among the Central Committee members, who in turn are chosen from thousands of National Congress delegates. Out of these 20 or so elites, 7 to 9 were further elected to become members of the Politburo Standing Committee, with 1 person assuming the position of party General Secretary. Thus, the Politburo and its Standing Committee wield most of the power within the Chinese Communist Party (refer to Figure II). In our sample, there are altogether 64 Politburo members spanning four National Congresses (between the 15th and the 18th). Of these 64 political elites, 36 are Politburo members and 28 are Standing Committee members during the period 1997–2016.

After identifying these political elites, we searched online for their family members—children and relatives. We relied on

TABLE I
CHARACTERISTICS OF PRINCELINGS

| Total | 134 | |
|---|---|---|
| By relation to the Politburo and Politburo Standing Committee members | | |
| Son/daughter and son-/daughter-in-law | 78 | 58.21% |
| Wife and other in-laws | 31 | 23.13% |
| Brother and sister | 18 | 13.43% |
| Nephew and niece | 7 | 5.22% |
| By occupation | | |
| SOE high executives | 39 | 29.10% |
| Private firm owners or investors | 61 | 45.52% |
| Government officials | 13 | 9.70% |
| Army officials | 8 | 5.97% |
| Others | 13 | 9.70% |

multiple sources, including Western media (*Bloomberg*, *New York Times*, *Washington Post*, and *The Guardian*), China's news groups (*China Digital Times* and *Boxun.com*), and the International Consortium of Investigative Journalists (ICIJ). Altogether we have identified 134 family members related to 48 Politburo and Standing Committee members.[13] Table I reports the distribution of these 134 princelings in terms of their relationship with the Politburo and the Standing Committee members and their reported occupation. For instance, about 58.21% of our sample are either children or in-laws of the Politburo members, and nearly half of them (45.52%) are affiliated with the private sector (as owners or investors). The closeness of these relationships gives us confidence in the reliability of our data.

The same sources provide information on the firms connected to these 134 princelings in the capacity of founder or shareholder. For example, Zhou Bin, the elder son of Zhou Yongkang, owned hundreds of firms in the provinces of Sichuan, Yunnan, and Beijing.[14] It is not necessary for the princelings to run the business

13. Of the remaining 16 Politburo members, some, like Premier Le Keqiang, are corruption free. It remains to be seen whether this claim will stand the test of time, given that as many as 13 of these Politburo members were newly elected after 2012 and that it may take a while for any misconduct to come to light. Also, we cannot rule out the possibility that these newly elected members are likely less corrupt to the extent that Xi was able to influence decisions over whom to select into the new Politburo.

14. The relationship among the princelings may also be nebulous, as is demonstrated by the investment that Zhou Bin and his mother-in-law had in

themselves to benefit from dealing with local officials. They can, for instance, invest in a private business; doors would open as soon as the key investors are revealed. For example, consider Dalian Wanda, a real estate firm owned by one of China's richest businessmen, Wang Jianlin. According to the *New York Times* (Forsythe 2015), with business operations in 133 Chinese cities, this firm has connections to at least four families of the Politburo Standing Committee members. Altogether we are able to identify 3,530 firms (including the subsidiaries) connected to at least one princeling firm. Although the princeling firms make up a mere 0.81% of all the firms (437,776) that had ever purchased land in the primary market between 2004 and 2016, the value of their transactions in the overall land revenue is twice as much (1.71%), involving 4.3 trillion *yuan*.

In terms of ownership, although private ownership predominates in both instances, state ownership is proportionately lower in princeling firms (23.64%) than in their nonprinceling counterparts (34.66%), a pattern consistent with the observation that the private real estate sector is where the princeling firms tend to operate. In terms of size, princeling firms are typically larger; about 72.61% of them can be classified as large (0.3 billion *yuan* or more in annual business revenue),[15] for instance, in comparison to 41.37% for the nonprinceling firms. Nearly two-thirds of the princeling firms set up their headquarters in either the national or provincial capital (65.3%), whereas only 25% of the nonprinceling firms did the same. Finally, in terms of sectoral distribution, the majority of princeling firms are in real estate (36.67%), financial (18.7%), or real estate–related sectors such as leasing and business service (5.20%) (Table II). The predominance of princeling firms in the real estate sector suggests that the primary land market is an area where rents are up for grabs.

Chengdu Fantasia Property—a subsidiary of Fantasia Property, a real estate firm listed on the Hong Kong Stock Exchange and owned by Zeng Baobao, the niece of another Politburo Standing Committee member Zeng Qinghong. See http://business.sohu.com/s2014/jrzj285/.

15. Firms are classified as large, medium-sized, small, or micro if their annual business revenue in *yuan* is greater than or equal to 0.3 billion, greater than or equal to 30 million but less than 0.3 billion, greater than or equal to 3 million but less than 30 million, or less than 3 million, respectively.

TABLE II

SECTORAL CHARACTERISTICS OF PRINCELING FIRMS

| | Princeling firms | | Nonprinceling firms | |
|---|---|---|---|---|
| | Number of firms | % of firms | Number of firms | % of firms |
| Sector | | | | |
| Real estate | 1,294 | 36.67 | 116,829 | 26.69 |
| Financial | 660 | 18.70 | 4,985 | 1.14 |
| Information technology and computer | 391 | 11.08 | 11,067 | 2.53 |
| Manufacturing | 258 | 7.33 | 137,323 | 31.37 |
| Electricity, gas, and water supply | 222 | 6.31 | 19,061 | 4.35 |
| Other | 214 | 6.07 | 30,303 | 6.92 |
| Leasing and business services | 183 | 5.20 | 737 | 0.17 |
| Environment and public facilities | 105 | 2.99 | 371 | 0.08 |
| Wholesale and retail trade | 68 | 1.93 | 22,671 | 5.18 |
| Transportation and storage | 35 | 1.01 | 17,338 | 3.96 |
| Accommodation and catering services | 25 | 0.72 | 8,918 | 2.04 |
| R&D | 22 | 0.63 | 2,198 | 0.50 |
| Agriculture | 15 | 0.43 | 22,913 | 5.23 |
| Service industry | 13 | 0.39 | 37,696 | 8.61 |
| Mining | 8 | 0.24 | 1,758 | 0.40 |
| News media and publisher | 6 | 0.19 | 154 | 0.04 |
| Education | 1 | 0.05 | 1,069 | 0.24 |
| Health and Social Services | 1 | 0.05 | 2,385 | 0.54 |
| Of which: | | | | |
| State-owned firms | 834 | 23.64 | 151,733 | 34.66 |
| Large firms (annual revenue >0.3 billion *yuan*) | 2,563 | 72.61 | 181,546 | 41.37 |
| Headquartered in national/provincial capital | 2,305 | 65.29 | 107,562 | 24.57 |
| Total | 3,530 | | 437,776 | |

### *III.B. Matching Land Transactions with the Princeling Firms*

To estimate the price discount obtained by firms connected to the princelings, we rely on a data set that covers all land transactions in China's primary land market between 2004 and 2016.[16] According to the Ministry of Land and Resources,[17] there were altogether 1,628,635 transactions in this period, of which 1,151,358 land parcels, that is, over 70%, were purchased by firms (the rest were acquired by private individuals). For each transaction, the ministry provides detailed information on the size and location of

16. Although land rights were devolved to the local governments as early as 1998, transactions in the primary land market were infrequent back then and did not pick up until the early to mid-2000s (Chen and Kung 2016).

17. The land transaction data set is obtained from the website of the Land Transaction Monitoring System (http://www.landchina.com/). According to the Law of Land Management, the prefectural bureau of land and resources is required to report each land transaction in their jurisdiction electronically on this website.

the land parcel (with address and postal code), total payment, date of transaction, names of seller and buyer, the specific method of transaction,[18] a two-digit code of land usage (e.g., industrial versus commercial), land parcel quality (as subjectively evaluated by the official-in-charge on a 20-point scale), a three-digit industry code of the buyer's firm, and so forth.

We then match the data on land transactions with those of the firms (including their subsidiaries) connected to the princelings based on the firm's name.[19] Figure III shows the geographic distribution of the land parcels purchased by these firms. In total, 19,812 (1.6%) land parcels were purchased by the princeling firms during the period in question.

### *III.C. A Spatially Matched Sample for Identification*

The key challenge for us lies in causally identifying the economic rents obtained by the princeling firms among a number of unobserved firm and transaction characteristics. To achieve this goal, we use a spatial matching approach. Specifically, to ensure that we are comparing like with like, we generate a sample of transactions involving land parcels purchased by firms unconnected to the princelings in the same year and within the same distances, for example, within a 500-meter radius (about three blocks) and a 1,500-meter radius (about eight blocks) (refer to Figure III),[20] under the assumption that land parcels of a similar size and sold within the same area and in the same year

18. Transactions can be carried out in one of four ways: bilateral agreement (*xieyi*); invited bidding (*zhaobiao*); listing auction (*guapai*), which is the most frequently used method (72%); and finally English auction (*paimai*). Cai, Henderson, and Zhang (2013) analyze the efficiency properties of these various transaction methods as they are used in the Chinese context.

19. We first obtained a list of full names of the princeling firms (including their subsidiaries) from various media reports, and confirmed their existence based on the information available from the State Administration of Industry and Commerce (where they registered for their business license). We connected a firm with the land transaction(s) under its name using the database on the Ministry of Land and Resources' website. One might be concerned about the reliability of media information on the princelings' connections. We address this concern by checking the robustness of our estimates in Section IV using the probably more accurate information on firms connected to the convicted case of Zhou Yongkang and on China's publicly listed firms more generally.

20. These calculations are based on the average size of the land parcel, which is about 3.53 hectares—approximately 188 × 188 square meters.

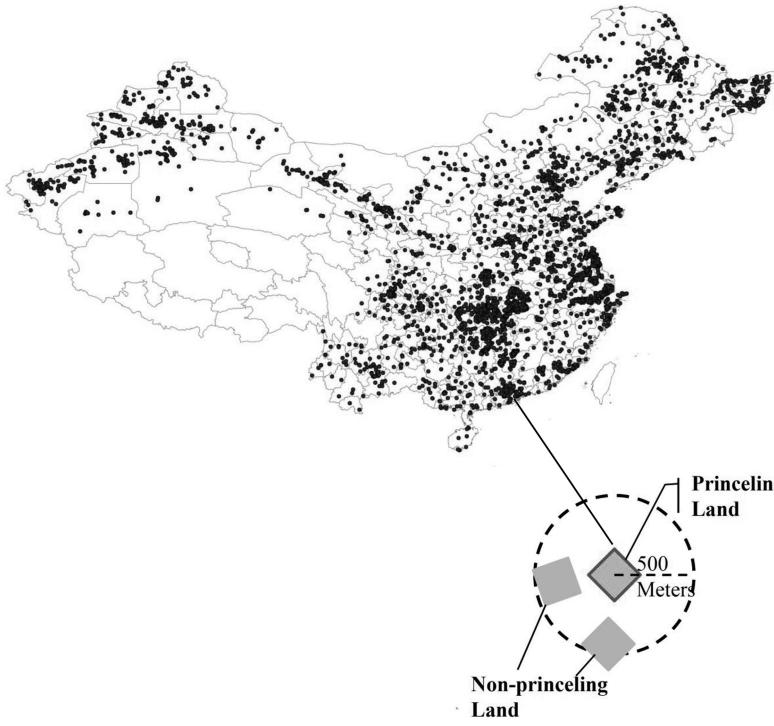


FIGURE III

Geographic Distribution of Land Transactions Conducted by Princeling Firms

are highly comparable in quality and therefore price.[21] In other words, we treat land parcels purchased by firms unconnected to the princelings as the control group, and hence any price difference between the parcels paid by these two types of firms can be attributed to the preferential treatment the local governments provide to the princeling firms. Altogether we are able to identify 359,539 land parcels within the 1,500-meter radius and 207,564 land parcels within the 500-meter radius purchased by the nonprinceling firms. The summary statistics of all three types of land parcels (overall, 500-meter radius, 1,500-meter radius) is summarized in Table III.

21. The average size of a princeling parcel is 0.0267 *mu* (1 *mu* = 0.0667 hectare), strikingly similar to that purchased by a nonprinceling firm within the 500-meter radius (0.0272 *mu*).

TABLE III
SUMMARY STATISTICS OF LAND TRANSACTIONS

| | All | | ≤ 1,500 meters | | ≤ 500 meters | |
|---|---|---|---|---|---|---|
| | Obs. | Mean | Obs. | Mean | Obs. | Mean |
| Log of land price | 1,151,357 | 5.864 | 335,860 | 5.971 | 193,053 | 5.748 |
| Princeling purchase | 1,208,621 | 0.016 | 359,539 | 0.055 | 207,564 | 0.095 |
| Land quality | 1,208,621 | 12.969 | 359,539 | 13.876 | 207,564 | 13.448 |
| Log of land area | 1,184,522 | 4.813 | 349,929 | 4.691 | 201,515 | 4.690 |
| Sales methods | | | | | | |
| Bilateral agreement | 226,910 | 0.188 | 82,733 | 0.230 | 44,905 | 0.216 |
| English auction | 99,854 | 0.083 | 29,096 | 0.081 | 14,655 | 0.071 |
| Invited bidding | 14,281 | 0.012 | 4,698 | 0.013 | 2,627 | 0.013 |
| Listing auction | 867,576 | 0.718 | 243,012 | 0.676 | 145,377 | 0.700 |

TABLE IV
LAND PARCELS PURCHASED BY PRINCELING AND NONPRINCELING FIRMS, 2004–2016

| | Number of transactions | | Average price | |
|---|---|---|---|---|
| | Commercial and residential land | Industrial land | Commercial and residential land | Industrial land |
| All | 586,974 (48.57%) | 621,647 (51.43%) | 1,383.99 | 280.28 |
| Princelings' land | 16,717 (84.38%) | 3,095 (15.62%) | 812.1 | 270.42 |
| Nonprincelings' land in 500-meter radius | 90,568 (48.24%) | 97,184 (51.76%) | 1,457.191 | 306.15 |
| Difference | | | –645.09 | –35.73 |

## IV. PRICE DISCOUNT OBTAINED BY PRINCELING FIRMS

We begin with a simple comparison of the characteristics of the land parcels purchased by firms connected and unconnected to the princelings by highlighting the enormous difference between the prices paid for commercial-*cum*-residential land and industrial land and the types of land purchased by the princeling and nonprinceling firms. First, as Table IV shows, a commercial-*cum*-residential land parcel was worth 1,384 *yuan* per square meter on average—five times more expensive than an industrial land parcel (280 *yuan*). Second, although the nonprinceling firms purchased slightly more industrial land than commercial-*cum*-residential land (52%), the princeling firms mostly purchased the

latter (84%). But the princeling firms did not pay the full price. In fact, they paid only 812 *yuan* for these land parcels, that is, 41% or precisely 572 *yuan* less than the average. This is hardly a fair comparison. To compare like with like, we compare only those land parcels in the "matched sample"—those purchased by both types of firms within the 500-meter radius and in the same year. Doing so yields an even wider gap. The average per-square-meter price of 812 *yuan* as paid by the princeling firms is now 44% lower than that of the full sample (812 versus 1,457 *yuan*), suggesting that the princeling firms purchased land of higher quality (as measured by market value) for a lower-than-market price. Although the princeling firms also obtained a discount for the land parcels designated for industrial use, it was much smaller—the difference of 36 *yuan* amounts to a discount of a mere 12%. This suggests that the discount enjoyed by the princeling firms mostly comes from the commercial-*cum*-residential land.

To estimate the price discount obtained by the princeling firms we employ the following regression model:

$$Price_{ickst} = \beta_0 + \beta_1 PrincelingPurchase_{ikjt} + \gamma X_i + T_{cst} + \nu_{ickst}.$$

The dependent variable $Price_{ickst}$ is the log of price (*yuan* per square meter) for land parcel $i$ sold by municipal government $c$ to firm $k$ for usage $s$ in month-year $t$. The key explanatory variable, $PrincelingPurchase_{ikjt}$, is a dummy variable equal to 1 if a firm $k$ is connected to a princeling $j$, and 0 otherwise. In all specifications, we control for a number of transaction-level control variables, including the log of the land area sold, land quality as evaluated by the officials in charge of selling the land (rated on a 20-point scale), the specific sales method employed, firm size, and firm ownership. Moreover, to compare only those land parcels located in the same city designated for the same usage and sold in the same month of the same year, we employ a high-dimensional control of city-year-usage fixed effects, month fixed effects, and the three-digit industry fixed effects, and subjected our standard errors to two-way clustering by province and by firm.

The results are reported in Table V. Column (1), which uses the full sample, shows that the coefficient of $PrincelingPurchase_{ikjt}$, –0.808, is statistically significant at the 0.1% level and also very large. To deal with the selection bias arising from princeling firms attempting to purchase land of a higher quality or market value (e.g., land that is closer to

TABLE V

PRINCELING PURCHASE AND LAND PRICE, 2004–2016

| | Log of land price | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | ≤ 1,500 meters | ≤ 500 meters | All | ≤ 1,500 meters | ≤ 500 meters | All | ≤ 1,500 meters | ≤ 500 meters |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Princeling firms | −0.808*** | −0.904*** | −0.844*** | −0.545*** | −0.666*** | −0.620*** | −0.808*** | −0.894*** | −0.835*** |
| | (0.025) | (0.034) | (0.033) | (0.035) | (0.043) | (0.043) | (0.030) | (0.040) | (0.038) |
| Princeling firms * PSCM | | | | −0.442*** | −0.420*** | −0.396*** | | | |
| | | | | (0.037) | (0.048) | (0.049) | | | |
| Princeling firms * Retired | | | | | | | −0.001 | −0.051 | −0.044 |
| | | | | | | | (0.056) | (0.063) | (0.058) |
| Control variables | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Two-way clustering by firm and province | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| City-year-usage FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Month fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 1,144,507 | 334,232 | 191,896 | 1,144,507 | 334,232 | 191,896 | 1,144,507 | 334,232 | 191,896 |
| Adjusted $R$-squared | 0.692 | 0.727 | 0.755 | 0.692 | 0.728 | 0.756 | 0.692 | 0.727 | 0.755 |

*Notes.* Control variables include land quality, land area, sales method dummies, firm size (classified as large, medium-sized, small, or micro if its revenue in *yuan* is 0.3 billion or more, 30 million or more but below 0.3 billion, 3 million or more but below 30 million, or under 3 million, respectively), and ownership type; robust standard errors in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

TABLE VI
QUANTITY OF LAND PURCHASED BY PRINCELING FIRMS, 2004–2016

| | Log of quantity of land purchased | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Princeling firms | 0.002*** | 0.001** | 0.002*** |
| | (0.000) | (0.000) | (0.000) |
| Princeling firms * PSCM | | 0.031*** | |
| | | (0.004) | |
| Princeling firms * Retired | | | −0.001 |
| | | | (0.001) |
| Control variables | Yes | Yes | Yes |
| Clustering by firm | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |
| Number of observations | 5,690,984 | 5,690,984 | 5,690,984 |
| Adjusted $R$-squared | 0.015 | 0.016 | 0.015 |

*Notes.* Control variables include firm size (classified as large, medium-sized, small, or micro if its revenue in *yuan* is greater than or equal to 0.3 billion, greater than or equal to 30 million but less than 0.3 billion, greater than or equal to 3 million but less than 30 million, or less than 3 million, respectively), and ownership type; robust standard errors in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

the central business district or a mass transit railway station), we turn to the matched samples within the two radii for more accurate estimates.[22] The results are reported in columns (2) and (3) of Table V. As predicted, removing the selection bias increases the size of $Princeling Purchase_{ikjt}$ substantially. For example, the price advantage for firms connected to the princelings based on results for the 500-meter-radius sample is 57%—a magnitude similar to the difference in Table IV.[23] To ensure that our results are not driven by a few outliers, we plot Figure IV, which compares the prices paid by princeling firms with those paid by their nonprinceling counterparts within the 500-meter radius,

22. To ensure that land parcels sold to the princeling firms and their nonprinceling counterparts within the 500-meter radius are comparable, we provide information on distance to the nearest main road, subway station, hospital, bank, shopping mall, hotel, restaurant, and so on, and find that there are no significant differences between the two (refer to Table AI in the Online Appendix).

23. The conservative estimate of a 57% price discount is translated into 2,469.525 billion *yuan* (4,332.50 × 0.57), amounting to nearly 1% of the total land revenue for the period under analysis. This means that on average a princeling firm gets to pocket a substantial 18.43 billion *yuan* (calculation based on 134 princelings).

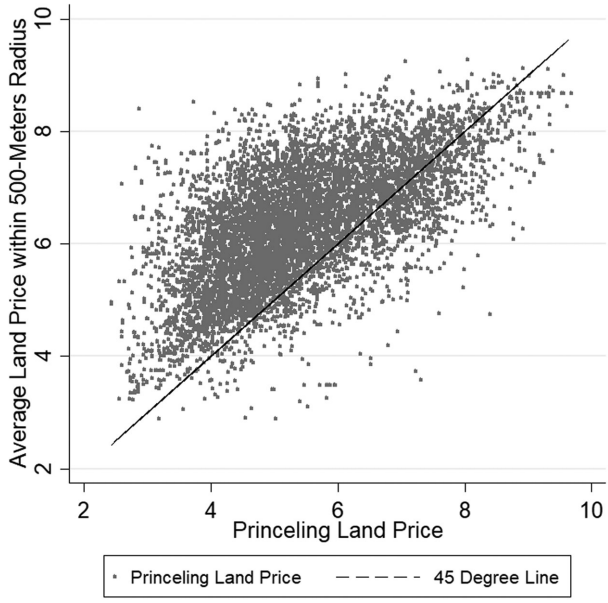


FIGURE IV

Land Prices within the 500-Meter Radius, Princeling and (Average) Nonprinceling Prices Compared

and we find that the princelings paid less (to the left of the 45-degree line) in the great majority of cases (80%).[24]

In addition to examining the main effect of princeling connections, we examine whether there may be additional effects due to differences in political power and status of the princelings and to retirement. First, given the supreme political status and power of the Politburo Standing Committee, their influence over the price discount may be even larger than that exerted by the ordinary members of the Politburo. Likewise, it is also widely believed that after retirement, top political elites in China continue to exert influence over matters of personnel selection and appointment (Joseph 2010; Li 2012).[25]

24. This percentage rises to 85% when comparing plots within the 1,500-meter radius.

25. For example, the "Eight Elders," as they are referred to, belong to a group of elderly members of the Chinese Communist Party who continued to hold substantial and lifelong power during the 1980s and 1990s, long after retiring from office (December 28, 2012, *Bloomberg*; December 27, 2012, *The Telegraph*).

By interacting $PrincelingPurchase_{ikjt}$ with $PSCM_{jp}$, a dummy variable indicating whether a national leader $p$ to whom a princeling $j$ is connected is a member of the Politburo Standing Committee (the reference group consists of Politburo members), we find that the discount on price is indeed significantly larger—between 17.6% ($\exp(-0.62) - \exp(-0.62 - 0.396) = 0.176$) and 20.7% ($\exp(-0.545) - \exp(-0.545 - 0.442) = 0.207$)—for those connected to a member of the Politburo Standing Committee (columns (4)–(6)), which lends credence to the notion that political power and status indeed command a market price. We further test whether the discount may shrink if not vanish altogether once a patron retires, by interacting $PrincelingPurchase_{ikjt}$ with $Retired_{jpt}$, a dummy variable indicating whether a particular transaction $i$ took place after leader $p$—the patron to whom the transaction was connected—retired. The result in columns (7)–(9) shows that the discount for the princeling firms does not diminish after their patron's retirement.

How robust are our results? For instance, is the part of the data generated from the media regarding the connections of the princeling firms truly reliable? To ensure that our estimates are not driven by selection bias arising from selective or inaccurate reporting, we perform two robustness checks. First, to justify the arrest of Zhou Yongkang and his son, the central government has since revealed the connections they had established with various business entities. We make use of this small but accurate subsample to verify our main results. Second, we employ a sample of the publicly listed firms that are connected to the princelings and have purchased land in the primary land market as an additional check. Given that the publicly listed firms are compelled by law to reveal their transactions, information regarding these firms is more accurate. Reported in Table AII in the Online Appendix, the results show that firms connected to Zhou obtained price discounts comparable to those in the baseline estimates. The same is found for the princeling-connected listed firms, although with a smaller magnitude.[26] Both findings serve to allay concerns that our earlier results may be caused by selection bias associated with data quality.

26. The conservative estimates (of using the transformation) put the price discount obtained by the listed firms at 44–52%, and that obtained by firms connected to Zhou at 63–67%.

A natural question to ask at this point concerns whether princeling connections would lead not just to steeper price discounts but perhaps also a larger volume of discounted transactions. To answer this question, we regress the total annual quantity (area) of land purchased by the 441,306 firms (including nonprinceling firms) in the primary land market between 2004 and 2016 on whether a firm is connected to a princeling. Reported in column (1) of Table VI, the result suggests that the princeling-connected firms purchased 0.2% more land each year than their nonprinceling counterparts, with the quantity purchased being larger among those princeling firms connected to the more powerful Politburo Standing Committee members (3% in column (2)). Moreover, retirement does not have any significant effect on the quantity of princeling purchase (column (3)). These results corroborate those on price discounts.

## V. Effect of Business Favor on Promotion

Typically, a sustainable patron–client relationship requires an ongoing exchange of favors (Scott 1972; Kitschelt and Wilkinson 2007; Hicken 2011). To examine whether the princelings reciprocate the favors extended to them by the local officials, we employ political turnover as the indicator variable based on the following specification:

$$Turnover_{it} = \phi_0 + \phi_1 PrincelingPurchase_{it} + \phi_2 FactionalTies_{jt} + \phi_3 GDPGrowth_{it} + \kappa X_{it} + \omega W_j + \lambda_i + T_t + \varphi_j + \tau_{ijt}.$$

The key dependent variable is the political turnover of the provincial officials measured on a yearly basis and coded as follows: promotion = 3, lateral transfer or staying in office = 2, retirement = 1, termination for wrongdoing such as corruption or natural death = 0. As before, the key independent variable, $PrincelingPurchase_{it}$, is a dummy equal to 1 where a provincial official provides a discount to firms connected to the princelings and 0 otherwise.[27] As we are examining the political turnover of

27. We are patently aware of the concern that, as a predictor of promotion, whether an official has provided a favorable land deal is far from randomly distributed. Unfortunately, there is no quick technical fix to the issue of endogenous political connections, as has been noted in the pertinent literature (Khwaja and Mian 2005; Faccio 2006; Ferguson and Voth 2008; Cingano and Pinotti 2013).

the provincial officials, we use province-year panel data from 2004 to 2016 for analysis. Following Li and Zhou (2005), we use an ordered probit model to analyze these ordinal measures and check robustness by using a binary variable of promotion versus a combination of all other outcomes. To avoid other confounding effects, we control for economic performance using GDP or tax revenue growth rate as proxies (Li and Zhou 2005; Lü and Landry 2014), factional ties as defined by whether a provincial official has ties with his or her patron in the Politburo (Shih, Adolph, and Liu 2012; Jia, Kudamatsu, and Seim 2015), and the individual characteristics of the provincial officials such as age, age squared, and years of education. Table VII provides the summary statistics of all these variables.

To examine more systematically the link between price discount and quantity of land sold and promotion, we regress the political turnover of provincial officials on three different measures of princeling connections and report the results in Table VIII. Columns (1)–(5) and (6)–(10) contain results for the party secretaries and the governors, respectively. In columns (1) and (6), we include only princeling purchase without adding any controls (except for province and year fixed effects). The results confirm that the business favor provided by the provincial party secretaries has a significantly positive effect on their promotion, but the same effect does not apply to the governors. We then control for factional ties and GDP growth in columns (2) and (7); the main effect of princeling purchase on the party secretary's promotion remains highly significant and with an even larger magnitude of 23.4% (calculated based on the coefficient in the ordered probit model), but it is still insignificant for the governor's promotion.[28] In columns (3) and (8) we replace the ordinal measures of political turnover with a binary measure that simply compares promotion with no promotion and further confirms that the main effect of princeling purchase remains similarly significant for the party secretary but insignificant for the governor.

One may be concerned that provinces provide land at a discount to attract more investments and hopefully achieve higher growth rates. If that is the case, provincial officials are promoted not because they provide favors but because they are able to

28. We are not ruling out the possibility that the party secretary, who is rewarded by his patron with promotion, may in turn provide benefits of some kind to the governor, but we are unable to observe that.

TABLE VII

SUMMARY STATISTICS OF POLITICAL TURNOVER

| | Number of obs. | Mean | Std. dev. | Number of obs. | Mean | Std. dev. |
|---|---|---|---|---|---|---|
| | Provincial party secretaries | | | Provincial governors | | |
| Political turnover | 403 | 100% | | 403 | 100% | |
| Promotion | 35 | 8.68% | | 42 | 10.42% | |
| Lateral transfer or staying in office | 328 | 81.39% | | 324 | 80.40% | |
| Retirement | 35 | 8.68% | | 33 | 8.19% | |
| Termination | 5 | 1.24% | | 4 | 0.99% | |
| Princeling purchase | 399 | 0.596 | 0.491 | 399 | 0.654 | 0.476 |
| Princeling discounts | 403 | 0.685 | 0.686 | 403 | 0.617 | 0.576 |
| Area of land purchased | 401 | 0.904 | 1.286 | 401 | 0.895 | 1.285 |
| Factional ties | 395 | 0.686 | 0.465 | 403 | 0.591 | 0.492 |
| GDP growth | 403 | 0.137 | 0.064 | 403 | 0.137 | 0.064 |
| Log of GDP per capita | 403 | 7.936 | 0.664 | 403 | 7.936 | 0.664 |
| Log of population | 403 | 8.085 | 0.857 | 403 | 8.085 | 0.857 |
| Tax revenue growth | 390 | 0.172 | 0.102 | 390 | 0.175 | 0.103 |
| Age | 403 | 59.859 | 4.258 | 403 | 58.134 | 3.864 |
| Age squared | 403 | 3,601.129 | 495.371 | 403 | 3,394.457 | 439.508 |
| Years of schooling | 403 | 17.938 | 1.918 | 403 | 18.007 | 1.818 |
| | Municipal party secretaries | | | Municipal governors | | |
| Political turnover | 3,237 | 100% | | 3,048 | 100% | |
| Promotion | 209 | 6.46% | | 204 | 6.69% | |
| Lateral transfer or staying in office | 2,836 | 87.61% | | 2,655 | 87.11% | |
| Retirement | 177 | 5.47% | | 166 | 5.45% | |
| Termination | 15 | 0.46% | | 23 | 0.75% | |
| Princeling purchase | 3,663 | 0.497 | 0.500 | 3,663 | 0.480 | 0.500 |
| Princeling discounts | 3,597 | 3.232 | 5.322 | 3,605 | 3.224 | 5.318 |
| Area of land purchased | 3,657 | 1.704 | 1.468 | 3,661 | 1.579 | 1.287 |
| Factional ties | 3,663 | 0.616 | 0.486 | 3,663 | 0.616 | 0.486 |
| GDP growth | 3,511 | 0.151 | 0.076 | 3,511 | 0.151 | 0.076 |
| Log of GDP per capita | 3,556 | 9.968 | 0.840 | 3,556 | 9.968 | 0.840 |
| Log of population | 3,656 | 5.641 | 0.850 | 3,656 | 5.641 | 0.850 |
| Tax revenue growth | 3,090 | 0.150 | 0.105 | 3,090 | 0.150 | 0.105 |
| Age | 3,564 | 53.049 | 3.621 | 3,577 | 51.098 | 3.939 |
| Age squared | 3,564 | 2,827.256 | 381.029 | 3,577 | 2,626.469 | 400.419 |
| Years of schooling | 3,582 | 17.555 | 2.156 | 3,603 | 17.279 | 2.107 |

generate faster growth. To examine this alternative hypothesis, we control for a number of proxies pertaining to investment growth, such as size (level) and growth rates of fixed asset investments and real estate investments. We find that princeling purchase remains significant, and with similar magnitudes (Tables AIII and AIV in the Online Appendix). Moreover, GDP growth

TABLE VIII

PRINCELING PURCHASE AND PROVINCIAL LEADERS' PROMOTION, 2004–2016

| | Political turnover of: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Provincial party secretaries | | | | | Provincial governors | | | | |
| | Ordered probit | | Binary | Ordered probit | | Ordered probit | | Binary | Ordered probit | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Princeling purchase (= 1) | 0.652*** | 0.742*** | 0.114*** | | | 0.018 | −0.016 | 0.070 | | |
| | (0.229) | (0.262) | (0.040) | | | (0.288) | (0.314) | (0.067) | | |
| Princeling discounts | | | | 0.814*** | | | | | 0.181 | |
| | | | | (0.175) | | | | | (0.175) | |
| Area of land purchased | | | | | 0.324*** | | | | | −0.068 |
| | | | | | (0.084) | | | | | (0.065) |
| Factional ties | | 0.232 | 0.011 | 0.118 | 0.302 | | −0.034 | −0.003 | −0.031 | −0.052 |
| | | (0.209) | (0.033) | (0.212) | (0.213) | | (0.208) | (0.045) | (0.205) | (0.206) |
| GDP growth | | −1.438 | −0.195 | −0.444 | −0.032 | | 6.188*** | 1.250*** | 6.374*** | 6.061*** |
| | | (2.484) | (0.381) | (2.554) | (2.530) | | (1.977) | (0.443) | (1.981) | (1.983) |
| Tax revenue growth | | 1.954 | 0.029 | 1.561 | 2.403* | | 0.262 | 0.031 | 0.207 | 0.232 |
| | | (1.230) | (0.195) | (1.241) | (1.262) | | (1.070) | (0.229) | (1.058) | (1.059) |
| Control variables | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Province fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 399 | 380 | 380 | 382 | 382 | 399 | 388 | 388 | 390 | 390 |
| Adjusted $R$-squared | | | 0.272 | | | | | 0.100 | | |

*Notes.* The ordinal measure of political turnover consists of four categories: termination = 0, retirement = 1, lateral transfer or staying in office = 2, and promotion = 3. The binary measure is a dummy variable that equals 1 if the official was promoted at year $t$, and otherwise equals 0. Control variables include tax revenue growth, log of GDP per capita, log of population size, years of education, age, and age squared. Robust standard errors are reported in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

remains insignificant in accounting for the party secretaries' promotion, a finding that rejects the alternative hypothesis of growth inducing promotion.

One may also be concerned that the dummy variable of $PrincelingPurchase_{pt}$ is too crude a measure, as it lacks information on the steepness of the discount provided by the regional official. To improve accuracy, we construct a finer measure by taking the difference between the price of a princeling transaction and that of a comparable nonprinceling transaction within the 500-meter radius, and then aggregate the differences of all the matched transactions in a given year up to the province level (denoted, respectively, by $p$ and $t$ in the variable $PrincelingDiscounts_{pt}$).[29] This way we are able to generate a measure that incorporates aggregate differences in the magnitude of discounts received by the princeling firms and their nonprinceling counterparts in the same province and for the same year. Reporting the results in columns (4) and (9), we confirm that the magnitude of price discounts significantly increases the likelihood of promotion for the provincial party secretary, but it still does not have any significant effect for the governor.

Finally, in light of an earlier result that princeling firms have bought more land, we examine the effect of the quantity of land sold to the princeling firms on officials' promotion, similarly by aggregating the total area of land sold to the princeling firms by province and year. To deal with the observations of 0, we add 1 to the variable before taking the log. Reported in columns (5) and (10), we find that the quantity of land sold to the princeling firms similarly has a significant effect on the party secretary's promotion (column (5)). Still unaffected by land sales (column (10)), the governor has to rely on himself for promotion, specifically by improving economic performance or GDP growth in his jurisdiction (columns (7)–(10)). In short, only the provincial party secretaries are being rewarded for their wheeling and dealing.

We turn now to the municipal officials, who are not the princelings' direct clients but are the custodians of land in the primary market, and thus whose cooperation is required for the provincial party secretaries to sell land cheap to their patrons.

29. For the few cases where the princeling firms paid a higher price than the nonprinceling firms, we replace the negative value of the price difference with zero. Likewise, price discount is similarly coded as zero for those province-year observations with no princeling transaction.

This renders the municipal officials part of the same patron–client network who are also expected to be rewarded. To verify this, we regress the political turnover of municipal party secretaries and mayors during the 2004–2014 period on princeling purchase using the same specification as in Table VIII. The only difference is that $PrincelingPurchase_{it}$ is now defined as being equal to 1 if the municipal official sold at least one parcel of land in their jurisdiction (municipality) $i$ to a princeling firm in year $t$. Accordingly, both $PrincelingDiscounts_{it}$ and $AreaofLandPurchased_{it}$ are constructed at the municipal level.

Table IX reports the results. As predicted, princeling purchase is significantly positive for the promotion of the municipal party secretaries, but not so for the promotion of the mayors (compare columns (1)–(3) with (6)–(8)). According to the estimates from the ordered probit, the municipal party secretaries who sold land to the princeling firms enjoy a higher probability of promotion estimated at 14.2%, and this is significant at the 0.1% level (column (2)).[30] Consistent with the provincial results, the probability of promotion for the municipal party secretary increases significantly with the size of the price discount (column (4)) and the quantity of land sold (column (5)).

## VI. Effect of Xi's Anticorruption Campaign

### *VI.A. Land Prices*

To examine the effect of Xi's anticorruption campaign, which began in earnest on December 4, 2012, we construct three separate measures. The first measure, a dummy variable labeled "transactions after 2012," is constructed to indicate whether a land transaction took place after Xi came into office. Our second measure is "central inspection," a dummy with an assigned value of 1 if a central inspection took place in the particular province at the time of sale. This variable is constructed based on the CCDI's report of its inspection activities. Between mid-2013 and early 2017, 11 waves of inspections took place. Each wave targeted 4 to 10 randomly selected provinces and lasted for approximately two months.[31] As of January 2017, all 31 provinces and directly

30. The substantially smaller effect at the municipal level supports the idea that the magnitude of the reward should be larger for the main client (the provincial party secretary) than for the client's client (the municipal party secretary).

31. Note that the fifth through to the eighth waves were targeted specifically at the state-owned enterprises.

TABLE IX

PRINCELING PURCHASES AND MUNICIPAL LEADERS' PROMOTION, 2004–2016

| | Political turnover of: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Municipal party secretaries | | | | | Municipal mayors | | | | |
| | Ordered probit | | Binary | Ordered probit | | Ordered probit | | Binary | Ordered probit | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Princeling purchase (= 1) | 0.469*** | 0.432*** | 0.088*** | | | 0.079 | 0.093 | −0.008 | | |
| | (0.070) | (0.077) | (0.012) | | | (0.094) | (0.108) | (0.011) | | |
| Princeling discounts | | | | 0.100*** | | | | | 0.012 | |
| | | | | (0.006) | | | | | (0.008) | |
| Area of land purchased | | | | | 0.927*** | | | | | 0.000 |
| | | | | | (0.066) | | | | | (0.047) |
| Factional ties | | 0.169** | 0.012 | 0.191** | 0.129 | | −0.027 | −0.014 | −0.021 | −0.026 |
| | | (0.073) | (0.011) | (0.080) | (0.082) | | (0.101) | (0.010) | (0.101) | (0.101) |
| GDP growth | | −0.316 | −0.099 | −0.699 | −0.686 | | 2.798*** | 0.365*** | 2.726*** | 2.771*** |
| | | (0.559) | (0.087) | (0.616) | (0.650) | | (0.761) | (0.076) | (0.761) | (0.770) |
| Tax revenue growth | | −0.455 | 0.003 | −0.588 | −0.298 | | 1.097** | 0.064 | 1.087** | 1.074** |
| | | (0.398) | (0.061) | (0.429) | (0.444) | | (0.523) | (0.052) | (0.523) | (0.524) |
| Control variables | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Province fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 3,237 | 2,756 | 2,756 | 2,755 | 2,756 | 3,048 | 2,569 | 2,569 | 2,568 | 2,568 |
| Adjusted $R$-squared | | | 0.049 | | | | | 0.374 | | |

*Notes.* The ordinal measure of political turnover consists of four categories: termination = 0, retirement = 1, lateral transfer or staying in office = 2, and promotion = 3. The binary measure is a dummy variable that equals 1 if the official was promoted at year $t$, and otherwise equals 0. Control variables include tax revenue growth, log of GDP per capita, log of population size, years of education, age, and age squared. Robust standard errors are reported in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

controlled municipalities (whose administrative status is equivalent to that of a province) have been inspected, 16 of them twice. Table AV in the Online Appendix provides the inspection details.

Our third measure, "Xi-appointed officials," is also a dummy variable constructed to indicate whether a particular land transaction took place in a province where the party secretary was newly appointed by Xi after 2012. Perhaps with the intention of strengthening the effectiveness of his campaign, Xi replaced a total of 14 provincial party secretaries between 2013 and 2016.[32] To the extent that these newly appointed officials are extremely loyal to Xi and thus more likely to enforce his anticorruption campaign with greater rigor than all other provincial party secretaries, price discounts would become smaller and reciprocal promotions less frequent after 2012.

Table X reports the results of the effectiveness of Xi's anticorruption campaign on the price discount received by the princeling firms.[33] In columns (1) and (2) we interact $PrincelingPurchase_{it}$ with "transactions after 2012" in both the full sample and the matched 500-meter-radius sample, and find that the results are significantly positive and large in magnitude. For instance, if the princeling firms were previously obtaining a price discount of 60.1%, it has been significantly reduced by 11.7% ($\exp(-0.92) - \exp(-0.92 + 0.257) = -0.117$) after Xi's campaign was introduced (column (2)). We do the same with "central inspection" in columns (3) and (4) and find an even stronger result. Using column (4) as an example, "central inspection" has the effect of raising the land price by a hefty 42.6% ($\exp(-0.858 + 0.695) - \exp(-0.858) = 0.426$). Not surprisingly, the price discount on land in provinces where Xi replaced the party secretaries is also reduced by more than 31.5% ($\exp(-0.896 + 0.572) - \exp(-0.896) = 0.315$) (columns (5) and (6)). To find out which of these measures are more effective, we perform a horse race and find that both "central inspection"

32. Of these 14 appointees, 6 were his previous subordinates in the provinces of Fujian and Zhejiang when Xi served as governor and provincial party secretary, respectively. Although the other eight newly appointed party secretaries were not his former subordinates, they must be sufficiently trusted by Xi to have been chosen.

33. In addition to the control variables, we control for the interaction terms between the three measures of the anticorruption campaign and the control variables in the regressions to ensure the campaign's effect is not confounded with factors other than princeling purchase. We thank an anonymous reviewer for this suggestion.

TABLE X

PRINCELING PURCHASES AND LAND PRICES AFTER XI TOOK OFFICE

| | Log of land price | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | ≤ 500 meters | All | ≤ 500 meters | All | ≤ 500 meters | All | ≤ 500 meters | All | ≤ 500 meters |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Princeling firms | −0.907*** | −0.920*** | −0.825*** | −0.858*** | −0.870*** | −0.896*** | −0.907*** | −0.920*** | −0.818*** | −0.847*** |
| | (0.029) | (0.040) | (0.024) | (0.032) | (0.028) | (0.035) | (0.029) | (0.040) | (0.023) | (0.028) |
| Princeling firm *Transaction after 2012 | 0.318*** | 0.257*** | | | | | 0.140* | 0.093 | | |
| | (0.047) | (0.058) | | | | | (0.052) | (0.054) | | |
| Princeling firm *Central inspection | | | 0.819*** | 0.695*** | | | 0.504*** | 0.420*** | | |
| | | | (0.124) | (0.139) | | | (0.079) | (0.096) | | |
| Princeling firm *Xi-appointed officials | | | | | 0.614*** | 0.572*** | 0.449*** | 0.447*** | | |
| | | | | | (0.055) | (0.051) | (0.064) | (0.059) | | |
| Princeling firms *Pre-2012 inspection | | | | | | | | | 0.109 | 0.037 |
| | | | | | | | | | (0.074) | (0.070) |
| Control variables | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Two-way clustering by firm and province | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| City-year-usage FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Month fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of observations | 1,144,507 | 191,896 | 1,144,507 | 191,896 | 1,144,507 | 191,896 | 1,144,507 | 191,896 | 1,144,507 | 191,896 |
| Adjusted $R$-squared | 0.692 | 0.755 | 0.692 | 0.755 | 0.692 | 0.755 | 0.692 | 0.756 | 0.692 | 0.755 |

*Notes.* Control variables include: land quality, land area, sales method dummies, firm size (classified as large, medium-sized, small, or micro if its revenue in *yuan* is greater than or equal to 0.3 billion, greater than or equal to 30 million but less than 0.3 billion, greater than or equal to 3 million but less than 30 million, and less than 3 million, respectively), and ownership type and its interaction with transactions after 2012, central inspection, Xi-appointed officials, and pre-2012 inspection; robust standard errors in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

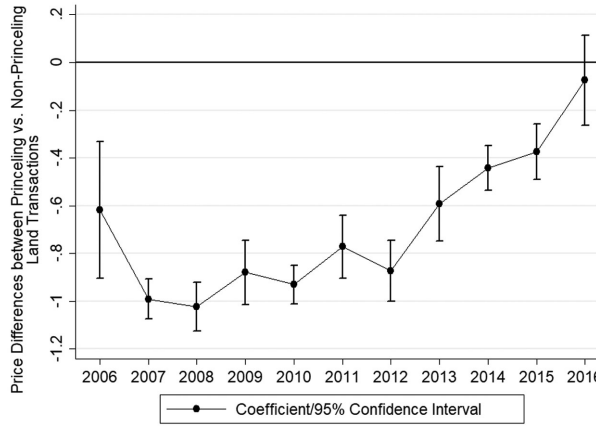


FIGURE V

Average Size of Princeling Discounts over Time

and "Xi-appointed officials" significantly reduce the discount on price previously received by the princeling firms, but "transactions after 2012" becomes insignificant (columns (7) and (8)). This finding echoes earlier studies that corruption can be effectively curtailed by closer monitoring, replacing key figures, and so forth (Klitgaard 1988).

To further ascertain the effectiveness of Xi's anticorruption campaign we examine the outcomes of previous similar campaigns. An example is the one launched by his predecessor, Hu Jintao (2002–2012). To this end we construct a dummy variable and assign the value of 1 to anticorruption inspections conducted prior to 2012 and interact it with $Princeling Purchase_{it}$. Reported in columns (9) and (10) of Table X, these earlier campaigns have no significant effect in reducing the price discount offered by local officials.

To put the effect of the campaign in a broader perspective, we use the coefficients estimated on princeling purchase in Table X, interact them with a series of year dummies, and plot them in Figure V within the 95% confidence interval. This provides an overview of the average size of the discounts obtained by the princeling firms over time (between 2006 and 2016, against the benchmark year of 2005). What Figure V clearly shows is that before Xi's anticorruption campaign the estimated price discount hovered between 50% and 70%, with a growing trend over time

TABLE XI
QUANTITY OF LAND PURCHASED BY PRINCELING FIRMS AFTER XI TOOK OFFICE

| | Area of land purchased | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Princeling firms | 0.078*** | 0.073*** | 0.075*** | 0.078*** |
| | (0.008) | (0.007) | (0.007) | (0.008) |
| PP * Transactions after 2012 | −0.022** | | | −0.015 |
| | (0.006) | | | (0.007) |
| Central inspection | | 0.038*** | | 0.025*** |
| | | (0.002) | | (0.004) |
| PP * Central inspection | | −0.053*** | | −0.025*** |
| | | (0.007) | | (0.007) |
| Xi-appointed officials | | | 0.036*** | 0.028*** |
| | | | (0.002) | (0.002) |
| PP * Xi-appointed officials | | | −0.056*** | −0.036*** |
| | | | (0.006) | (0.006) |
| Control variables | Yes | Yes | Yes | Yes |
| Two-way clustering by firm and province | Yes | Yes | Yes | Yes |
| Province fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Number of observations | 11,516,622 | 11,516,622 | 11,516,622 | 11,516,622 |
| Adjusted $R$-squared | 0.032 | 0.047 | 0.052 | 0.057 |

*Notes.* Control variables include: firm size (classified as large, medium-sized, small, or micro if its revenue in *yuan* is greater than or equal to 0.3 billion, greater than or equal to 30 million but less than 0.3 billion, greater than or equal to 3 million but less than 30 million, or less than 3 million, respectively), and ownership type; robust standard errors in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; constant terms are not reported.

(especially after 2007). Since the campaign, however, the discount had shrunk noticeably, initially back to the level of 2007 (e.g., in 2014) but had almost vanished by 2016. Although the price per square meter paid by the princeling firms was still 7.5% lower than that paid by the nonprinceling firms, the effect is no longer significant; in any case, the discount, even if it still existed, had vastly diminished.

### *VI.B. Quantity of Land Sold to the Princeling Firms*

To examine whether Xi's anticorruption campaign has generated downward pressure on the number of transactions and quantity of land sold to the princeling firms, we construct a firm–province panel data by aggregating the area of land purchased by each princeling firm annually in each province. Column (1) of Table XI regresses the log of the land area purchased on the princeling firms interacted with a dummy indicator for "transactions after 2012." The positive and significant coefficient of "princeling firm" suggests that before the anticorruption

campaign commenced, these firms did purchase more land than their nonprinceling counterparts by a modest 8.1%. But this trend discontinued after 2012; since then their land purchases dropped by more than 2.3% (or a 29% $[1 - \frac{\exp(0.078 - 0.022) - 1}{\exp(0.078) - 1} = 0.29]$ fall in their purchase quantity premium, relative to nonprincelings). Land sold to the princeling firms was significantly reduced by 1.6% (or a 21% $[1 - \frac{\exp(0.073 + 0.038 - 0.053) - 1}{\exp(0.073) - 1} = 0.21]$ fall in their purchase quantity premium, relative to nonprincelings) in the provinces inspected by the CCDI (column (2)) and by an even larger 2.1% (or a 27% $[1 - \frac{\exp(0.075 + 0.036 - 0.056) - 1}{\exp(0.075) - 1} = 0.27]$ fall in their purchase quantity premium, relative to nonprincelings) in the provinces whose party secretary was replaced by one appointed by Xi (column (3)). To find out which measure had the strongest effect on curbing the quantity of land sold, once again we conduct a horse race among the three measures and find that "transactions after 2012" becomes insignificant in the presence of "central inspection" and "Xi-appointed officials" (column (4)). Moreover, given that the sum of the coefficients in column (4) is not significantly different from zero, these two measures together effectively eliminate the advantage of the princeling firms in purchasing a larger quantity of land. These results are consistent with those on the price discounts.

Once again, to put the effect of the campaign in a broader perspective, we repeat what we did in Figure V but extract the coefficients from the quantity of land purchased by the princeling firms vis-à-vis the nonprinceling firms over time. What Figure VI clearly shows is that, before Xi's anticorruption campaign the estimated difference in quantity between the two types of firms is substantial, with a growing trend over time. Since the campaign, however, the quantity difference has shrunk noticeably. Although the princeling firms continued to purchase (slightly) more land, the effect is not significant in 2013 and only marginally significant in 2016.

### *VI.C. Political Turnover*

In addition to having a significant effect on the price discounts, we would expect Xi's anticorruption efforts to affect the promotional prospects of local officials. We examine this hypothesis by interacting $Princeling Purchase_{it}$ first with "transactions after 2012" and then with "central inspection" in the turnover regression and report the results in Table XII. Columns (1)–(4) contain results for the provincial party secretaries and the

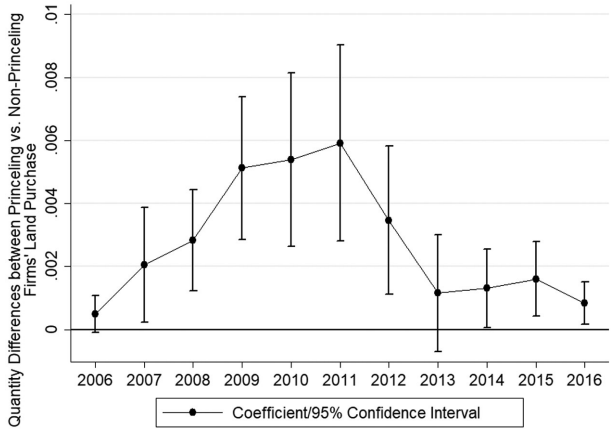


FIGURE VI

Quantity Difference of Land Purchase over Time

municipal party secretaries. In line with our expectations, the effect of princeling purchase on the promotion of party secretaries at both levels was significantly reduced after 2012, and in provinces audited by the central inspection team. We replace $PrincelingPurchase_{it}$ with $PrincelingDiscounts_{it}$ (for measuring the magnitude of price discounts) and $AreaofLandPurchased_{it}$ (for measuring the quantity of land purchased), and obtain similar results. In any case, these results provide evidence that Xi's campaign to crack down on corruption has also reduced the promotional prospects of local officials who rely on supplying a discount to get ahead.

### *VI.D. An Event Study of Zhou Yongkang*

To further confirm the effectiveness of Xi's anticorruption campaign, we make use of the high-profile arrest of Zhou Yongkang and his son to motivate the hypothesis that to avoid arrest, the local officials would likely have stopped providing favors to the princeling firms to whom they are connected on the news of Zhou's arrest. We test this hypothesis by comparing the price and quantity of land transactions conducted by princeling and nonprinceling firms in the primary land market after December 1, 2013, one day after news broke about Zhou being investigated for corruption charges.

TABLE XII

PRINCELING PURCHASES AND PROMOTION AFTER XI TOOK OFFICE

| | Political turnover of: | | | |
|---|---|---|---|---|
| | Provincial party secretaries | | Municipal party secretaries | |
| | Ordered probit estimates | | | |
| | (1) | (2) | (3) | (4) |
| Princeling purchase (PP = 1) | 1.085*** | 1.084*** | 0.503*** | 0.457*** |
| | (0.313) | (0.300) | (0.080) | (0.078) |
| PP * Transactions after 2012 | −1.165** | | −0.802*** | |
| | (0.560) | | (0.257) | |
| PP * Central inspection | | −2.769*** | | −0.701* |
| | | (0.767) | | (0.406) |
| Number of observations | 380 | 380 | 2,756 | 2,756 |
| | (5) | (6) | (7) | (8) |
| Princeling discounts (PD) | 1.246*** | 1.202*** | 0.102*** | 0.101*** |
| | (0.224) | (0.212) | (0.006) | (0.006) |
| PD * Transactions after 2012 | −1.556*** | | −0.131*** | |
| | (0.394) | | (0.042) | |
| PD * Central inspection | | −2.344*** | | −0.101 |
| | | (0.530) | | (0.075) |
| Number of observations | 382 | 382 | 2,755 | 2,755 |
| | (9) | (10) | (11) | (12) |
| Area of land purchased (ALP) | 0.406*** | 0.372*** | 1.014*** | 0.928*** |
| | (0.091) | (0.088) | (0.069) | (0.066) |
| ALP * Transactions after 2012 | −0.772*** | | −0.880*** | |
| | (0.255) | | (0.155) | |
| ALP * Central inspection | | −1.822*** | | 0.044 |
| | | (0.619) | | (0.095) |
| Number of observations | 382 | 382 | 2,756 | 2,756 |
| Control variables | Yes | Yes | Yes | Yes |
| Province fixed effects | Yes | Yes | No | No |
| Municipality fixed effects | No | No | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |

*Notes.* The ordinal measure of political turnover consists of four categories: termination = 0, retirement = 1, lateral transfer or staying in office = 2, and promotion = 3. Control variables include tax revenue growth, log of GDP per capita, log of population size, years of education, age, and age squared. Robust standard errors are reported in parentheses; ***, **, and * indicate significance at the 0.1%, 1% and 5% levels; Constant terms are not reported.

In Figure VII, Panel A, we plot the average land prices paid by the princeling firms (the darker line) and the nonprinceling firms (the lighter gray line) who bought land parcels within the 500-meter radius, and the price gaps between the two (the shaded

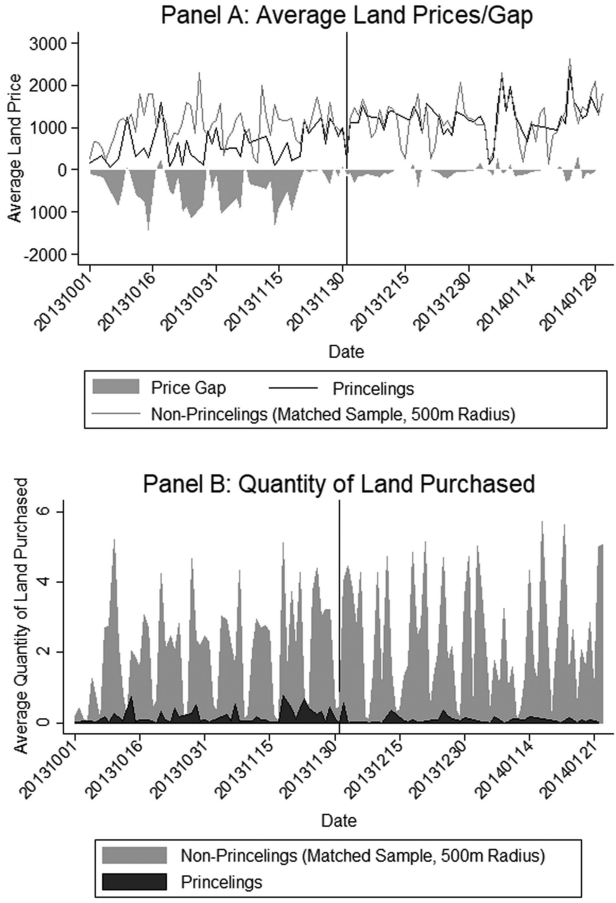


FIGURE VII

Event Study of Zhou Yongkang

gray area), a few months before and after the news (the *x*-axis measures time on a daily basis, whereas the *y*-axis measures the price per square meter of land in *yuan*). In line with previous findings, prices paid by the princeling firms increased noticeably after the news, as shown by the increasingly steep dark solid line to the right of the (red; color version online) reference line marking the date of November 30, 2013. This trend is reflected in the reduced price gap between the types of firms, which can be seen from the greatly diminished shaded area after that date. Similarly, the quantity of land transacted by the princeling firms fell after that

date, suggesting a cautious response on the part of the local officials (and arguably also the princeling firms), although it was not as dramatic as the response in price (Panel B). Nevertheless, compared to the reduction in the quantity of land sold to the princeling firms, land parcels sold at the market price (presumably to the nonprinceling firms) were undeterred by Zhou's expulsion.

## VII. Conclusion

We set out to quantify corruption among China's top political elites, to investigate the mechanisms by which cronyism occurs, and to estimate the effectiveness of the anticorruption campaign that has been implemented in China since 2012. Given that a major target of this campaign is the primary land market, whose peculiarities render it a setting highly conducive to corruption, we choose to examine the extent to which price discrimination was practiced in this particular setting. By merging the data on land transactions with those on firms linked to members of the Politburo—the princeling firms—we find that provincial officials provided discounts to these firms. In the matched samples in particular, the princeling firms pay less than half of the price paid by their unconnected counterparts to obtain land of comparable quality. Moreover, corruption is further substantiated by the evidence that the more powerful the Politburo member (member of the Standing Committee versus member of the Politburo), the larger the discount obtained. We also find that perhaps because of the price discounts provided to them, the princeling firms also purchased more land. The local officials did not provide favors to the princeling firms for nothing, however. Evidence is just as strong in substantiating the hypothesis that local officials involved in cheap land deals stood a better chance of promotion.

All of these findings provide an informed background to and help make sense of the rigor of the anticorruption campaign launched by Xi. Specifically, by strengthening the CCDI and appointing his own trusted subordinates to govern in as many as 14 provinces, China's leader has halved the rents up for grabs in China's primary land market. Although the anticorruption campaign has thus far produced positive results, whether corruption can be fundamentally weeded out without overhauling the existing institutional arrangements causing them remains an issue of fundamental importance, one that deserves investigation in the near future.

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## SUPPLEMENTARY MATERIAL

An Online Appendix for this article can be found at *The Quarterly Journal of Economics* online. Data and code replicating tables and figures in this article can be found in Chen and Kung (2018), in the Harvard Dataverse, doi:10.7910/DVN/XW6OJT.

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