The Political Cycle in China's Primary Land Market*

Xuan Li†

This version: September 2024

Abstract: Using parcel-level administrative data on the universe of land transactions from 2004 to 2015, I investigate the political cycle in China's primary land markets, where the local government is the exclusive supplier. I find that land sales decrease by 16% following the fifth year in office of the city party secretary, the most influential political figure in a city. This reduction aligns with the promotion incentive: the likelihood of promotion drops by 10.1 percentage points (or 21.1%) for city party secretaries whose term length exceeds five years, the legally established standard term length.

Keywords: Political cycles; land sales; promotion; China

JEL Codes: E32, D70, R52, P25

*This paper is a heavily revised version of my MPhil thesis submitted to Lingnan University in 2018. I am indebted to my advisors Simon Fan, Raymond Fisman, and Xiangdong Wei for their continuous guidance, advice, and support. I am grateful to Ziyang Chen, Matthieu Crozet, Bo Feng, Fuhai Hong, Jihao Hong, Jeffrey Lin, Pin Lin, Dilip Mookherjee, Daniele Paserman, Sandra Poncet, and Dong Zhang for insightful discussions and helpful comments. I owe special thanks to Shuang Ma and Zexin Ye for sharing the data. The author declares that he has no relevant or material financial interests related to the research described in this paper. All errors are my own.

†Department of Economics, Boston University, email: xuanli@bu.edu.

1 Introduction

The political cycle has long been a focus of research by economists and political scientists (Nordhaus, 1975; MacRae, 1977; Rogoff and Sibert, 1988; Rogoff, 1990). Although there is extensive theoretical and empirical research on political cycles in democratic regimes, the study of political cycles in authoritarian regimes and the incentives driving them is still relatively underexplored (Guo, 2009; Chen and Zhang, 2021; Cheremukhin et al., 2024). A key feature of authoritarian regimes is their centralized hierarchical structures, where political accountability primarily flows top-down, and incentives are largely tied to promotion. Therefore, states governed by officials without the pressure of re-election may be characterized by the absence of political cycles or by distinct cycles. This paper examines the political cycle on the revenue side in China by documenting the cycles in the primary land market and exploring the mechanisms behind them. Approximately 30% of the local government's income in China comes from the sale of land, with local governments being the exclusive suppliers in this market.

I compile city-month panel data on land sales from 1.5 million parcel-level land transaction records across 327 cities from 2004 to 2015, and combine it with data on the tenures of city party secretaries, the most powerful political figures in the cities. I document an interesting fact about political cycles in land sales: a city party secretary significantly decreases the area of land supplied by 16% after their fifth year in office, which corresponds with the legally established term length. This pattern is robust to a battery of robustness checks, including employing alternative measures of land sales and controlling for an exhaustive list of individual-level characteristics and city-level socioeconomic variables. I demonstrate that the main results are driven by the behavioral changes of city party secretaries, rather than by a different composition of officials over the term length or reduced demand due to political uncertainty in later years.

Furthermore, I examine the mechanisms behind the political cycle in the primary land market, specifically the potential role of promotion incentives, a key instrument for personnel control in China's bureaucratic system. I document that three-quarters of city party secretaries end their terms within five years, with a relatively high and

stable promotion rate of approximately 50%. However, the promotion rate starts to decrease for those whose terms exceed five years. On average, individuals with term lengths longer than five years have a promotion rate that is 10.1 percentage points lower, equivalent to a 21.1% decrease. The observation that the timing of the decline in promotion rates coincides with the legally established standard term length (i.e., 5 years), along with the simultaneous reduction in land sales, aligns with the explanation that promotion incentives play a significant role in the observed decrease in land sales after five years. Lastly, I consider the cost aspect of land sales. I find that city party secretaries only decrease the supply of land that requires substantial effort to provide but do not reduce the supply of land that involves minimal cost, such as land that has already been requisitioned at the time of selling.

This paper mainly contributes to a large body of literature on the political cycle (Nordhaus, 1975; MacRae, 1977; Rogoff and Sibert, 1988; Rogoff, 1990; Akhmedov and Zhuravskaya, 2004; Khemani, 2004; Brender and Drazen, 2005; Labonne, 2016; Klomp and de Haan, 2016). As voters generally favor politicians who demonstrate better economic performance, incumbent politicians, facing re-election pressure, often strategically implement popular policies right before elections or delay unpopular reforms until after the election. The existing literature primarily focuses on democratic countries and reveals political cycles both on the expenditure side (Alesina, Roubini and Cohen, 1997; Alt and Lassen, 2006; Shi and Svensson, 2006) and on the revenue side like taxation (Foremny and Riedel, 2014; Fuest et al., 2024). Throughout history, non-democratic regimes have been the oldest and most widespread form of political governance (Tullock, 2004). While incentives in non-democratic regimes differ significantly from the re-election pressures faced by politicians in democratic regimes, there is insufficient research documenting political cycles in these regimes and investigating the underlying mechanisms (Guo, 2009; Chen and Zhang, 2021; Cheremukhin et al., 2024). Political cycles can differ substantially across different regimes. For example, Foremny and Riedel (2014) find that local business tax rates in Germany are significantly reduced during the election year and the preceding year, while they significantly increase in the year following the election. In contrast, by analyzing Chinese firm-level data from 1995 to 2007, Chen and Zhang (2021) find that the first and last years of a mayor's tenure are the least likely periods for most firms to receive tax cuts. During the first year, mayors

are extremely busy and can only prioritize a few large firms. In the final year, mayors have little incentive to seek promotion and generally do not lower tax rates for nearly all firms.

My paper documents a novel political cycle in the local land market in China: a city party secretary sharply decreases the land sales after his fifth year in office. I also find that this timing coincides with a turning point in the promotion rate: city party secretaries whose term lengths exceed five years have a substantially lower likelihood of promotion. Three key differences distinguish my study from the contributions made by Guo (2009) and Chen and Zhang (2021), the closest research to my work. First, while Guo (2009) examines the expenditure side and Chen and Zhang (2021) focuses on a specific form of government revenue–business tax-break policy, I investigate the primary land market, which is not only a key source of local government revenue in China but also a crucial input for almost all economic activities. Second, by matching the dynamic pattern of political cycles with promotion rates over different term lengths, I document that the timing of the decrease in land sales coincides with the time at which promotion rates drop, thus presenting a clearer link between promotion incentives and political cycles. Lastly, while the literature typically documents political cycles driven by politicians' efforts to strategically increase their chances of re-election or promotion, this study highlights a political cycle driven by passive responses to a lower probability of promotion.

This research is also closely related to recent work that identifies how promotion incentives distort politicians' behavior in authoritarian regimes (Wang, Zhang and Zhou, 2020; Zeng and Zhou, 2024). While it is clear that promotion incentives are a key instrument for personnel control in authoritarian regimes (Li and Zhou, 2005), finding plausibly exogenous variation in the chance of promotion to cleanly identify how these incentives affect politicians' behavior remains challenging. Zeng and Zhou (2024) leverages a unique feature of the cadre evaluation system–age restriction–to measure promotion incentives for local officials in China. Specifically, mayors who are 58 years of age or older are ineligible for promotion. They find that mayors' promotion incentives significantly increase the reported GDP growth rate by 3.4 percentage points. However, this effect is primarily driven by GDP manipulation rather than actual economic growth. Wang, Zhang and Zhou (2020) finds that a one standard deviation

increase in the leader's career-incentive measure (estimated by their starting age and political hierarchy level) results in a 23% increase in urban outward expansion relative to the average. My paper shows that another institutional feature – the legally established standard term length – is also correlated with the likelihood of promotion: city party secretaries whose term length exceeds five years have a substantially lower probability of being promoted. Moreover, I complement Wang, Zhang and Zhou (2020)'s work by demonstrating that promotion incentives can generate political cycles in the primary land market.

2 Institutional Background

2.1 Primary Land Market

The local government is the sole supplier in the primary land market. Land can be supplied by the local government through allocation, granting, and leasing in the primary land market. The land is supplied through the first two ways in most cases. The land supplied by allocation is at a low price or even free for public uses such as public parks. Since 1998, land can be supplied through granting (i.e., leasehold sales). The term of usage rights is dependent on the land usage type: 40 years for commercial and service uses, 70 years for residential uses, and 50 years for industrial and other uses. Those who obtain a usage right through granting can resell the right before expiration in the secondary market. Therefore, the land market in China consists of two parts: the primary market, for which the local government is the sole supplier, and the secondary market.

The land supplied in the primary market mainly comes from two sources: newly added construction land and existing construction land. Under China's Two-Tier Land Tenure System, urban land is owned by the state, and rural land is owned by local collective communes. The collective-owned land is not available for commercial, industrial, or residential uses. However, local government can take the farmland owned by farmer collectives back for the public interest and convert collective-owned land to state-owned land through land requisition, with meager compensation based on agricultural productivity. After the ownership conversion, the newly added construction

land can be supplied in the primary land market.[1] The supply of existing construction land involves taking back the land that is sold to households and firms, with substantial compensation based on the value of the land.[2]

2.2 Administrative Structure

Due to its vast area and large population, China has developed a complex and sophisticated political system structure. The administrative divisions of China are organized into four levels of subnational government: province, city, county, and township.[3]

In China, each city is governed by both the local party committee and the local government. The city party secretary, who leads the local communist party, holds the most powerful position in the city. The mayor, who heads the local government, is responsible for routine administrative tasks such as managing the economy, public health, and education.[4] I primarily focus on city party secretaries because, within the power hierarchy in China, they outrank mayors. Moreover, Chen and Kung (2019) find that party secretaries play a more prominent role in the primary land market, which highlights their significant influence on land policies and outcomes.

3 Data

I compile a city-level monthly panel dataset of 327 Chinese cities between 2004 and 2015, which combines information on land sales aggregated from 1.5 million parcel-level land transaction records, information on city party secretaries collected from their resumes, as well as a comprehensive list of city-level socioeconomic variables.

[1] To protect food security, there is a strict limit on the area of newly added construction land that can be supplied. Please refer to Ni (2020) for a detailed institutional background regarding the land quota system in China.

[2] Strictly speaking, urban land is owned by the state in China, so households and firms only have the land use rights.

[3] The term "province" includes provinces, autonomous regions, municipalities, and special administrative regions, while "city" covers prefecture-level cities, prefectures, autonomous prefectures, and leagues.

[4] The city party secretary is also known as Secretary of the Municipal Committee of the Communist Party of China.

3.1 Data on Land Transaction

Data on land transactions are collected from the website of the Land Transaction Monitoring System (http://www.landchina.com/). The Land Transaction Monitoring System is an official databank maintained by the Ministry of Land and Resources, and it includes all land supplied by the local government in the primary land market. To reduce corruption, the central government decided to make the primary land market transparent. The monitoring system was set up in 2003 by the Ministry of Land and Resources, which requires local governments to report detailed information on each land transaction promptly on the official website of the Land Transaction Monitoring System.[5] In 2004, the Ministry of Land and Resources again required the local government to post all the transaction records to the Land Transaction Monitoring System accurately, truthfully, and timely.[6] This monitoring system is the primary source that the Ministry of Land and Resource relies on to monitor the land market and formulate land policies. Data collected from this system is widely used by scholars to study land sales in China (Chen and Kung, 2016; Li, Lu and Wang, 2016).

Data extraction was conducted at the end of 2016. The dataset covers all prefecture-level cities in China and contains information on around 1.5 million land transaction records across 327 cities during the 2004-2015 period.[7]

For each land parcel, the dataset contains detailed information regarding its location, land-use type, area, price, land supply methods, the source of land, date of the contract, etc.[8] The richness of the information provides a unique advantage, allowing me to aggregate monthly panel data in a flexible manner. This flexibility is crucial for understanding the heterogeneity involved, and the underlying channels. Moreover, as suggested by Labonne (2016), the analysis of political cycles should use quarterly or

[5] See *Notice of the Ministry of Land and Resources on Setting Up Land Transaction Monitoring System* in http : //f.mlr.gov.cn/201702/t20170206_1437280.html.

[6] See *Notice of the Ministry of Land and Resources on Continuing Enforcement Inspection of the Transfer of Land-use Rights by Bidding, Auction and Listing* in http : //f.mlr.gov.cn/201702/t20170206_1436131.html.

[7] Some land parcels are supplied by agencies not under the supervision of the local government. For example, the General Bureau of Agriculture and the General Bureau of Forest Industry in Heilongjiang Province, or the Xinjiang Production and Construction Corps in the Xinjiang Uygur Autonomous Region. In this case, I do not include these land transactions since they are not under the control of local governments.

[8] See Figure A1 for illustration.

even monthly data since yearly data may obscure the facts.[9] Aggregating the parcel-level land transaction data into a city-month panel helps alleviate measurement error, which could potentially be significant when using yearly data, given that the average length of a term is less than four years.

3.2 Data on Local Officials

Much research (Li and Zhou, 2005; Chen and Kung, 2016) studying political economics in China has constructed datasets on local officials; I followed their procedures to collect information on city party secretaries. First, I compiled a list of party secretaries for each city between 2004 and 2015. For the historical record, the name list is available from the *Provincial Yearbook* (*Sheng Nianjian*). After completing the name list, I searched for their biographies using Chinese Wikipedia — *Baidu Encyclopedia*.

In total, I have 1,397 city party secretaries during the sample period. The dataset contains detailed personal information such as name, age, gender, position, tenure, hometown, ethnicity, work experience, and educational background. Approximately 96% of the city party secretaries are male, and the median age of being appointed as city party secretary is 51 years old.

3.3 Data on Socioeconomic Variables

I also use data from CEInet Statistics Database, maintained by the State Information Center, to complement the research. I collect a set of city-level socioeconomic variables, including GDP, GDP growth rate, GDP per capita, population, population growth rate, average wage, general public revenue, general public expenditure, foreign direct investment (FDI), and investment in fixed assets.

3.4 Descriptive Statistics

City party secretaries are selected and appointed by the provincial party committee. Legally, each local official's term of office is stipulated to be five years, as outlined in Article 3 of *The Interim Provisions on the Term of Office of the Party and Government*

[9] Akhmedov and Zhuravskaya (2004) show that in some cases, even quarterly frequency is insufficient to measure the effect precisely. In their research, the use of quarterly data as opposed to monthly data would lead to estimates that are approximately one-third of the actual deviations from the trend near the election.

Leaders (for Trial Implementation). However, in practice, the actual term length may vary and often spans less than five years, with the median length being 44 months.

Panel A of Figure 2 presents the distribution of term lengths for city party secretaries. Very few city party secretaries transition to other positions within their first year in office. Around 15% of city party secretaries transition to other positions during their second year in office. The proportions of city party secretaries who leave office in their third and fourth years are 17.5% and 23.7%, respectively. More than three-quarters of city party secretaries complete their terms within five years, which is the standard term length established by law. However, approximately one-quarter of city party secretaries have a term length that exceeds the standard duration.

To obtain a preliminary understanding of the relationship between the number of years in office and land sales, I estimate a regression of the land area on dummy variables representing different years in office.

$$Log(Land\ Area_{ct}) = \alpha_c + \sum_{j=2}^{7} \theta_j \mathbb{1}(YearsInOffice_{ct} = j) + \pi_t + \varepsilon_{ct}$$

where $Log(Land\ Area_{ct})$ is the log of one plus the area of land supplied in city c at time t; $\mathbb{1}(\cdot)$ is an indicator function; and $YearsInOffice_{ct}$ counts the number of years in office since a city party secretary assumed office for each city c at time t. I set the first year of a new city party secretary as the baseline year for comparison (i.e., $j = 1$). The θ_j parameters capture the relationship between the number of years in office and land sales. I control for city fixed effects (α_c) and time fixed effects (π_t).

As we can see from Figure 2, the land sales generally remain stable for the first five years. They then begin to decrease after five years in office, with the difference in land sales between the fifth and sixth years being statistically significant. This dynamic pattern of land sales over the years in office motivates me to focus on the more-than-five-years effect in the subsequent analysis.

4 Results

4.1 Empirical Strategy

This section sets out an econometric approach to formally estimate the effect of the number of years in office on land sales. I use the following log-linear specification:

$$Log(Land\ Area_{ct}) = \alpha_c + \theta Aft5Years_{ct} + \pi_t + \varepsilon_{ct}$$

where $Log(Land\ Area_{ct})$ is the log of one plus the area of land supplied in city c at time t. Land area is used to capture the flow of land transacted by the local government in a month. $Aft5Years_{ct}$ is a dummy variable indicating whether the number of years in office for city party secretary of city c at time t exceeds five years. I control for city fixed effects α_c and time fixed effects π_t (i.e., year-month fixed effects). Standard errors are clustered at the city level.

4.2 Main Results

I start the data analysis by simply regressing land sales on the more-than-five-years dummy (i.e., $Aft5Years$) for city party secretaries after controlling for city fixed effects and year-month fixed effects. Results are reported in Column (1) of Table 1. I find a negative relationship between the number of years in office for city party secretaries and land sales in their cities. This relationship is significant both statistically and economically. Specifically, after five years in office, a city party secretary will decrease the area of land supplied by approximately 16.0%.

In order to alleviate the concern that the number of years in office and land sales might be jointly affected by other factors, I control for individual characteristics and an exhaustive list of city-level socioeconomic variables. Individual characteristics include gender, age, and political connection.[10] City-level socioeconomic variables include GDP, GDP growth rate, GDP per capita, population, population growth rate, average wage, foreign direct investment, pressure on budget revenue, deficit level, and

[10]Political connection is measured by whether the city party secretary was promoted by the current provincial leaders. Ni (2020) find that city leaders promoted by the current provincial leaders tend to sell more land.

the proportion of investment in fixed assets.[11] To avoid a strong correlation between concurrent macroeconomic variables, I use all city-level variables with a one-year lag. Results are reported in Columns (2) and (3) of Table 1. Due to missing data for some variables, the sample sizes are reduced in these two specifications. Nevertheless, the results remain robust when controlling for individual characteristics and city-level socioeconomic variables, indicating that a city party secretary significantly reduces land sales after their fifth year in office.

4.3 Robustness Checks

Mayor's Term. It is common that a mayor's turnover happens around the city party secretary's turnover due to political cycles in China. Thus, city party secretaries' turnover may be correlated with mayors' turnover. I therefore include the mayor's number of years in office in Column (1) of Table A1. The land sales decrease with the city party secretary's number of years in office but are not affected by the mayor's number of years in office. The results echo findings by Chen and Kung (2019), who indicate that price discounts on land purchases received by princelings aid the promotion of city party secretaries but do not influence governors' promotions. Taken together, these findings suggest that party secretaries play a more prominent role in the primary land market than government leaders, and that the political cycle in the primary land market is primarily driven by city party secretaries.

The Annual Plan of Land Sales. Usually, each city will draw up an annual land development plan at the beginning of each year, and then make public the annual plan of land sales. The publication occurs at different times by different governments, but usually in the first quarter After the announcement, they will follow the plan to supply the land. While a new leader who arrives later in the year may have the power to adjust the plan and make their own decisions, there remains a concern that they cannot freely change the plan made before they arrived. More than 60% of the political turnover of party secretaries took place in the Q2, Q3, or Q4. If I wrongly assign those land sales decisions to those newcomers who do not make such decisions, it would

[11] Pressure on budget revenue is measured by $\frac{GeneralPublicBudgetRevenue}{GeneralPublicBudgetExpenditure}$. Deficit level is measured by $\frac{GeneralPublicBudgetRevenue-GeneralPublicBudgetExpenditure}{GDP}$. The proportion of investment in fixed assets is measured by $\frac{InvestmentinFixedAssets}{GDP}$.

bias the estimation downwards. As a robustness check, for the first twelve months, we exclude those observations where the turnover takes place in Q2, Q3 or Q4. As shown in Column (2) of Table A1, after correcting this source of downward bias, the magnitude becomes slightly larger compared with baseline estimation in Column (1) of Table 1.

IHS Transformation. To reduce the influence of extreme values, I work with a log dependent variable (a special case of Box-Cox transformation, which requires variables to be always positive). However, since the area of land can sometimes be zero (in 13% of the observations), I added a constant of one to ensure that each observation is positive. In Column (3) of Table A1, as a robustness check, I adopt another transformation: an inverse hyperbolic sine (IHS), proposed by Johnson (1949) and recommended by Burbidge, Magee and Robb (1988). The IHS transformation takes the following form: $\text{IHS}(x) = \ln(x + \sqrt{x^2 + 1})$.

Other Measures of Land Sales. In addition to analyzing the area of land supplied, I also employ two other indicators to reflect land sales: the number of plots offered through the primary market and the land revenue generated. These measures provide a comprehensive view of the dynamics in land sales and are crucial for understanding the broader economic impact. Results are reported in Columns (4) and (5) of Table A1. I find that the effect of years in office has a more pronounced impact on land revenue. Specifically, after being in office for more than five years, the land revenue decreases by approximately 23.6%.

4.4 A Different Composition of Officials over the Length of Term?

A key concern is that the primary results may stem not from behavioral changes in local officials but rather from a changing composition of officials over the course of their terms. In other words, the term length might be reversely affected by land sales. These city party secretaries who supply less land might stay longer, leading to a different composition of city party secretaries over the length of the term.

To address this issue, I directly investigate whether city party secretaries with varying term lengths exhibit different patterns of land sales at the early stages of their terms. I first check whether city party secretaries whose term lengths are longer than

five years and those whose term lengths are less than five years supply land in a systematically different way during the first five years. I generate a dummy variable $\mathbb{1}(Term\ Length_{ic} > 5\ Years)$ indicating whether the term length of a city party secretary at the time of leaving office is more than five years, and I restrict the sample to the first five years of in office (i.e., $YearsInOffice_{ct} \leq 5$). In Column (1) of Table 2, I do not find those city party secretaries who have different lengths of term supply land in a systematically different way during the first five years. I also repeat the same exercise using different cutoffs: four years and three years in Columns (2) and (3) of Table 2, respectively. Again, I do not find city party secretaries with different lengths of term supply land differently during the first several years in office.

Furthermore, I control for term length fixed effects to make the comparison within groups of city party secretaries with similar term lengths. The minimum length of the term is less than one year, and the maximum is around eleven years. As a result, I add ten dummy variables. As can be seen from Column (4) of Table 2, the main finding remains similar. Lastly, I include city party secretary fixed effects in the last column of Table 2 to enable comparisons within the same individual. Notably, I observe an even larger decrease in land sales after the first five years in office. In sum, the main finding is unlikely to be driven by a different composition of city party secretaries over the length of the term.

5 Mechanisms

5.1 Lower Incentives

Why do city party secretaries supply less land after their fifth year in office? A natural explanation is that they have lower incentives to supply land as their tenure progresses due to a decreasing likelihood of promotion. In China, promotion serves as a key tool in personnel control to induce desirable economic outcomes and promote local economic growth (Li and Zhou, 2005). Using a regression discontinuity design that accounts for age restrictions in promotion decisions for mayors (i.e., 57 years old), Zeng and Zhou (2024) find that mayors' promotion incentives can distort their behavior, leading them to engage in activities such as GDP manipulation.

Land revenue is a major source of government revenue. Unlike taxes such as the

value-added tax and income tax, land revenue directly belongs to the local government, , which they do not need to share it with higher levels of government. The "land-transferring fees" collected by local governments have become an increasingly important revenue source during the sample period. As shown in Figure A2, land revenue accounted for a negligible share of total revenue in 1998. However, by 2017, it had reached RMB 5.2 trillion (approximately $0.8 trillion), accounting for more than one-third of total local government revenue.

To determine whether the effect observed after five years can be linked to promotion incentives, I examine the relationship between term length and the likelihood of promotion. I start by following the refined definition of promotion as outlined by Li et al. (2022) to define the promotion of city party secretaries. Essentially, the turnover of city party secretaries is defined as a promotion if they either move to a higher-ranked position or transition to a same-ranked but more prominent position. For example, a transition from the position of city party secretary to the director of the Provincial Development and Reform Commission is recognized as a promotion to a more prominent position, even though both positions are of the same rank.[12]

Panel B of Figure 1 illustrates the relationship between term length and the probability of promotion. 15.1% of city party secretaries transitioned to other positions during their second year in office, and they have a relatively high likelihood of being promoted, with a rate of 55.7%. These officials can be promoted so quickly because some of them hold their current position while waiting for a vacancy to become available for promotion. The likelihood of promotion decreases to 48.6% for those who end their term in the third year and drops further to 46.6% for those who end their term in the fourth year. The likelihood of promotion increases to 50.2% for those who complete their term in the fifth year, which is the regular term length established by law. More than three-quarters of city party secretaries complete their terms within five years. The likelihood of being promoted becomes substantially lower for those with a term length of more than five years. For those who end their term in the sixth year, the promotion rate is 42.4%, and for those who end their term in the seventh year, the rate is only 38.0%.

[12] A detailed definition of promotion is outlined in Tables 6-8 of Li et al. (2022).

To quantify the relationship between serving for more than five years and the promotion rate, I regress the dummy variable promotion on a dummy variable indicating whether the term length of a city party secretary at the time of leaving office exceeds five years. Column (1) of Table A2 reports the results. The findings suggest that those who serve in a position for more than five years have a 9.6 percentage point lower likelihood of being promoted, which is approximately equivalent to a 20 percent decrease. To rule out idiosyncratic characteristics that may affect promotion, I further control for gender and age in Column (2). Moreover, I include city fixed effects and year fixed effects in the specification. The magnitude is very close to the magnitude found without any controls.

Overall, the finding that the timing of the decrease in the promotion rate coincides with the timing of the decrease in land sales is consistent with the explanation that promotion incentives contribute to the observed decline in land sales after five years.

5.2 Less Demand Due to Higher Political Uncertainty?

The observed land transactions result from the interplay between demand and supply. It is reasonable to consider that the decline in land transactions, as the tenure of the city party secretary extends, might be driven by the demand side. Julio and Yook (2012) find that corporate investment responds to political uncertainty associated with possible changes in policy or government leadership: firms reduce investment expenditures by 4.8% during election years relative to non-election years. In my setting, the increase in political uncertainty during the latter part of an official's term could lead to a decrease in investment.

I discuss two pieces of evidence inconsistent with the "political uncertainty" explanation. First, since over 76% of city party secretaries end their terms within five years, we would expect firms to demand less land well before the five-year mark if the results were primarily driven by reduced demand due to higher political uncertainty. However, as shown in Figure 2, the transaction of land remains relatively stable for at least the first four years and experiences only a moderate decrease in the fifth year, suggesting that the main results are unlikely to be explained by reduced demand.

Second, political uncertainty should be of less concern to some investors, like real

estate investors. Unlike manufacturing firms which rely heavily on the local government during their daily production and business operations (e.g., tax-break policies (Chen and Zhang, 2021)), real estate investors rely less on the local government after they obtain the land. Additionally, the boom of the real estate sector during the sample period should make the impact of political uncertainty more negligible. 40.5% of the land was allocated for the housing market, 24.6% for industrial use, and 14.2% for commercial centers. The remaining land was designated for public facilities like police stations, parks, and transportation. Table 3 presents the results of the impact of tenure in office on land sales by usage type. The findings reveal a decreasing trend in land transactions for both industrial and residential markets, which are two major uses of land in China. While the decline in industrial land transactions can potentially be explained by political uncertainty during the later years of local officials' tenures, the decrease in the residential market is less likely to be attributed to increased political uncertainty.

5.3 The Cost of Land Sales

To comprehend why local officials reduce land sales during the latter period of their terms, it is essential to explore the cost side. One would expect that, despite potential decreases in expected benefits over time, the net benefit of land sales would remain positive if the costs associated with supplying land are negligible or very low. Consequently, there should not be a decreasing trend in land sales. To further investigate the cost-side trade-offs, I analyze the variations in the costs associated with land sales from various sources.

There are two primary sources of land: newly added construction land and existing construction land. The former primarily comprises farmland owned by farmer collectives, which is requisitioned by the state for public interest purposes, with reasonable compensation provided to the farmers. In practice, the land requisition process can be chaotic because the compensation offered is often not based on market values. Moreover, farmers, who depend on their land for livelihood, often demand the highest possible compensation. If the local government fails to meet their demands and forcibly requisitions their farmland, the farmers may appeal to higher authorities or engage in collective actions (Sha, 2023; Xiao, 2024). Such responses from the farmers

can significantly impede the career progression of local officials, taking a considerable toll on their prospects for promotion. However, a small portion of the newly added construction land has already been requisitioned at the time of selling. These lands are included in the Urban Land Banking System, thereby not requiring additional effort in the land requisition process. Given the costs involved, we expect that local officials are more likely to reduce the supply of newly added construction land that is not sourced from the Urban Land Banking System. Conversely, there is less likelihood of a reduced supply for newly added construction land that is sourced from the Urban Land Banking System, where additional requisition efforts are not required. During our sample period, 44.73% of land is sourced from newly added construction land (not from the Urban Land Banking System) and 8.43% is from newly added construction land (from the Urban Land Banking System).

The results regarding the impact of the number of years in office on land sales by supply source are presented in Table A3. Consistent with the relative costs, local officials tend to decrease the supply of newly added construction land that is not sourced from the Urban Land Banking System, while not reducing the supply of newly added construction land from the Urban Land Banking System.

For leasing existing construction land, it would also involve substantial effort, as it usually requires demolishing and relocating housing or factories. For the same area, housing demolition usually involves many more households than farmland requisition does. Factory demolition usually involves entrepreneurs who have more bargaining power than farmers. Results are reported in Column (3) of Table A3. I find that local officials tend to decrease the supply of existing construction land after five years in office; however, this change is not statistically significant. The high costs involved may have led local officials to decrease the supply of existing construction land at an earlier stage, thereby diluting the current estimation towards zero.

6 Conclusions

In this paper, I document a novel political cycle in China's primary land market: city party secretaries supply 16% less land after their fifth year in office. The main finding aligns most consistently with the "promotion incentive" interpretation. The

likelihood of promotion sharply decreases for city party secretaries with a term length longer than five years. This paper contributes to our more general understanding of a fundamental question in economics – the political roots of economic fluctuations in authoritarian regimes.

References

Akhmedov, Akhmed, and Ekaterina Zhuravskaya. 2004. "Opportunistic Political Cycles: Test in a Young Democracy Setting." Quarterly Journal of Economics, 119(4): 1301–1338.

Alesina, Alberto, Nouriel Roubini, and Gerald D Cohen. 1997. Political cycles and the macroeconomy. MIT press.

Alt, James E., and David Dreyer Lassen. 2006. "Transparency, Political Polarization, and Political Budget Cycles in OECD Countries." American Journal of Political Science, 50(3): 530–550.

Brender, Adi, and Allan Drazen. 2005. "Political Budget Cycles in New versus Established Democracies." Journal of Monetary Economics, 52(7): 1271–1295.

Burbidge, John B, Lonnie Magee, and A Leslie Robb. 1988. "Alternative Transformations to Handle Extreme Values of the Dependent Variable." Journal of the American Statistical Association, 83(401): 123–127.

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

Chen, Ting, and James Kai-sing Kung. 2019. "Busting the "Princelings": The campaign against corruption in China's primary land market." The Quarterly Journal of Economics, 134(1): 185–226.

Chen, Ting, and JK-S Kung. 2016. "Do Land Revenue Windfalls Create a Political Resource Curse? Evidence from China." Journal of Development Economics, 123: 86–106.

Cheremukhin, Anton, Mikhail Golosov, Sergei Guriev, and Aleh Tsyvinski. 2024. "The Political Development Cycle: The Right and the Left in People's Republic of China from 1953." American Economic Review, 114(4): 1107–39.

Foremny, Dirk, and Nadine Riedel. 2014. "Business taxes and the electoral cycle." Journal of Public Economics, 115: 48–61.

Fuest, Clemens, Klaus Gründler, Niklas Potrafke, and Fabian Ruthardt. 2024. "Read my lips? Taxes and elections." Journal of Public Economics, 236: 105149.

Guo, Gang. 2009. "China's Local Political Budget Cycles." American Journal of Political Science, 53(3): 621–632.

Johnson, Norman L. 1949. "Systems of Frequency Curves Generated by Methods of Translation." Biometrika, 36(1/2): 149–176.

Julio, Brandon, and Youngsuk Yook. 2012. "Political Uncertainty and Corporate Investment Cycles." The Journal of Finance, 67(1): 45–83.

Khemani, Stuti. 2004. "Political Cycles in a Developing Economy: Effect of Elections in the Indian States." Journal of Development Economics, 73(1): 125–154.

Klomp, Jeroen, and Jakob de Haan. 2016. "Election Cycles in Natural Resource Rents: Empirical Evidence." Journal of Development Economics, 121: 79–93.

Labonne, Julien. 2016. "Local Political Business Cycles: Evidence from Philippine Municipalities." Journal of Development Economics, 121: 56–62.

Li, Ding, Han Xiao, Junsong Ding, and Shuang Ma. 2022. "Impact of performance contest on local transformation and development in China: Empirical study of the National Civilized City program." Growth and Change, 53(2): 559–592.

Li, Hongbin, and Li-An Zhou. 2005. "Political Turnover and Economic Performance: The Incentive Role of Personnel Control in China." Journal of Public Economics, 89(9-10): 1743–1762.

Li, Pei, Yi Lu, and Jin Wang. 2016. "Does Flattening Government Improve Economic Performance? Evidence from China." Journal of Development Economics, 123: 18–37.

MacRae, C Duncan. 1977. "A Political Model of the Business Cycle." Journal of Political Economy, 85(2): 239–263.

Ni, Shengqi. 2020. "Political Connections and Distributive Favoritism: The Land Quota System in China."

Nordhaus, William D. 1975. "The Political Business Cycle." Review of Economic Studies, 42(2): 169–190.

Rogoff, Kenneth, and Anne Sibert. 1988. "Elections and Macroeconomic Policy Cycles." Review of Economic Studies, 55(1): 1–16.

Rogoff, Kenneth S. 1990. "Equilibrium Political Budget Cycles." American Economic Review, 80: 21–36.

Sha, Wenbiao. 2023. "The political impacts of land expropriation in China." Journal of Development Economics, 160: 102985.

Shi, Min, and Jakob Svensson. 2006. "Political Budget Cycles: Do They Differ across Countries and Why?" Journal of Public Economics, 90(8-9): 1367–1389.

Tullock, Gordon. 2004. "Autocracy." The Encyclopedia of Public Choice, , ed. Charles K. Rowley and Friedrich Schneider, 356–358. Boston, MA:Springer US.

Wang, Zhi, Qinghua Zhang, and Li-An Zhou. 2020. "Career Incentives of City Leaders and Urban Spatial Expansion in China." The Review of Economics and Statistics, 102(5): 897–911.

Xiao, Shukang. 2024. "Compensation and Public Discontent." Job Market Paper, University of Calgary.

Zeng, Jiangnan, and Qiyao Zhou. 2024. "Mayors' promotion incentives and subnational-level GDP manipulation." Journal of Urban Economics, 143: 103679.

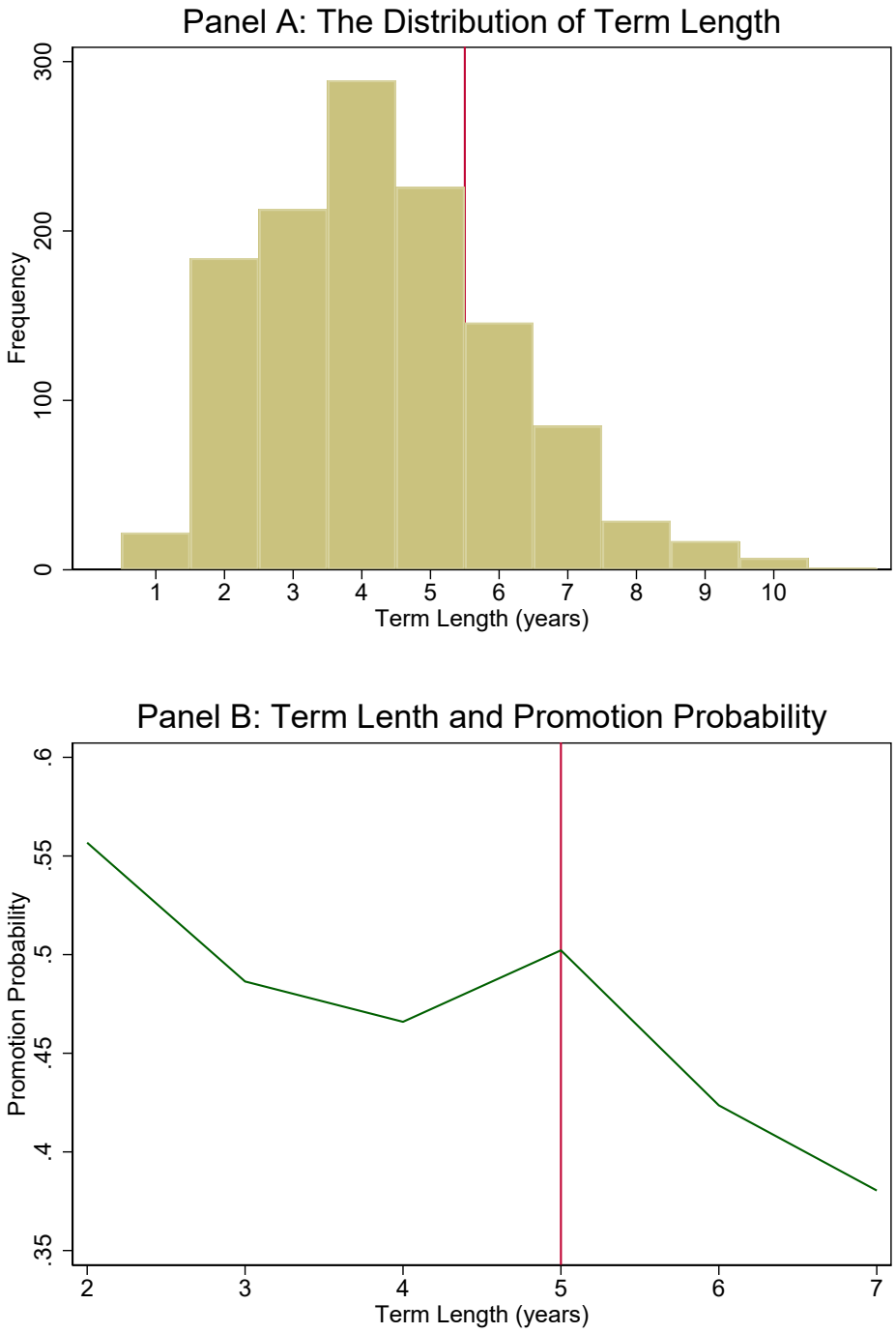

Figure 1: The Distribution of Term Length and Promotion

Notes: Panel A shows the distribution of term lengths for city party secretaries who have completed their terms within the sample. Panel B illustrates the relationship between promotion probability and term length.

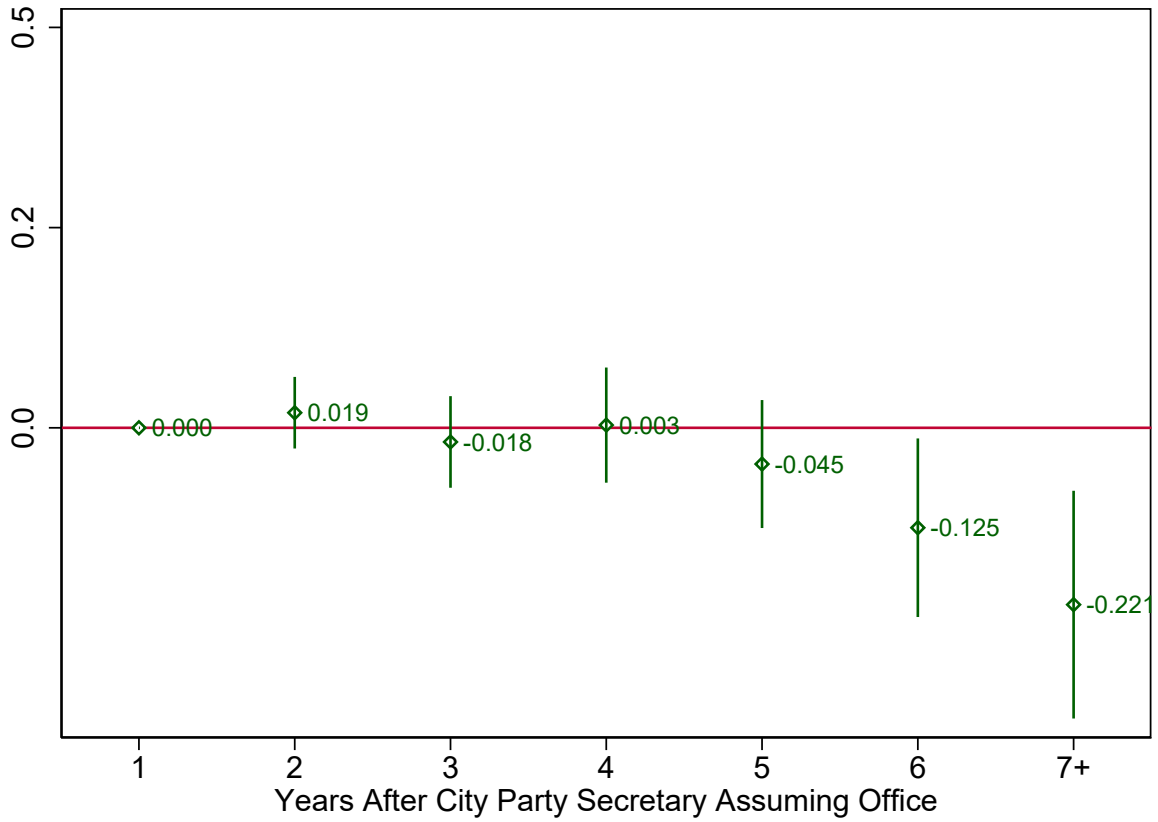

Figure 2: Dynamic Pattern of Land Sales

Notes: Each circle corresponds to a coefficient from a regression of log land area on seven years-in-office dummies in addition to city fixed effects and year-month fixed effects. The baseline year is the first year the new official's assumption of office. The graph illustrates 95 percent confidence intervals, with standard errors clustered at the city level.

Table 1: The Effect of the Number of Years in Office on Land Supply: Baseline

	(1)	(2)	(3)
VARIABLES	$Log(Land\ Area)$		
Aft5Years$_{ct}$	-0.160***	-0.187***	-0.162***
	(0.0499)	(0.0539)	(0.0578)
Observations	46,714	46,244	37,061
R-squared	0.653	0.651	0.651
Individual-Level Controls	.	X	X
City-Level Controls	.	.	X
City FEs	X	X	X
Year-Month FEs	X	X	X

Notes: This table reports the effect of number of years in office on land supply. $Log(Land\ Area)$ is the log of one plus the area of land supplied in city c at time t. $Aft5Years$ is a dummy variable indicating whether the city party secretary of city c has been in office for more than five years at time t. Standard errors are clustered at city level. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: A Similar Composition of Officials over the Term Length

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Log(Land Area)				
$\mathbb{1}(Term\ Length_{ic} > 5\ Years)$	-0.0572				
	(0.0607)				
$\mathbb{1}(Term\ Length_{ic} > 4\ Years)$		-0.00841			
		(0.0514)			
$\mathbb{1}(Term\ Length_{ic} > 3\ Years)$			-0.0318		
			(0.0516)		
Aft5Years				-0.126**	-0.279***
				(0.0555)	(0.0635)
Observations	41,168	37,000	30,191	44,793	46,707
R-squared	0.653	0.653	0.657	0.657	0.697
City FEs	X	X	X	X	.
Year-Month FEs	X	X	X	X	X
Term-Length FEs	.	.	.	X	.
Official FEs	.	.	.	.	X
Sample	First five years	First four years	First three years	Full	Full

Notes: This table reports that the composition of officials over the length of term is similar. $Log(Land\ Area)$ is the log of one plus the area of land supplied in city c at time t. $Aft5Years$ is a dummy variable indicating whether the city party secretary of city c has been in office for more than five years at time t. $\mathbb{1}(\cdot)$ is an indicator function; and $Term\ Length_{ic}$ counts the the term length of city party secretary i of city c at the time of leaving office. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: The Effect of the Number of Years in Office on Land Supply: By Usage

	(1)	(2)	(3)	(4)
			$Log(Land\ Area)$	
Land Usage	Industrial Land	Housing	Commercial Center	Public Facilities
Aft5Years	-0.107**	-0.0846**	-0.0179	-0.0658
	(0.0517)	(0.0416)	(0.0351)	(0.0459)
Observations	46,714	46,714	46,714	46,714
R-squared	0.542	0.560	0.430	0.442
City FEs	X	X	X	X
Year-Month FEs	X	X	X	X

Notes: This table reports the effect of number of years in office on land supply. $Log(Land\ Area)$ is the log of one plus the area of land supplied in city c at time t. $Aft5Years$ is a dummy variable indicating whether the city party secretary of city c has been in office for more than five years at time t. Standard errors are clustered at city level. *** p<0.01, ** p<0.05, * p<0.1.

Appendix A: Tables and Figures

Figure A1: Screenshot of results announcement on transaction of one land parcel from The Land Transaction Monitoring System

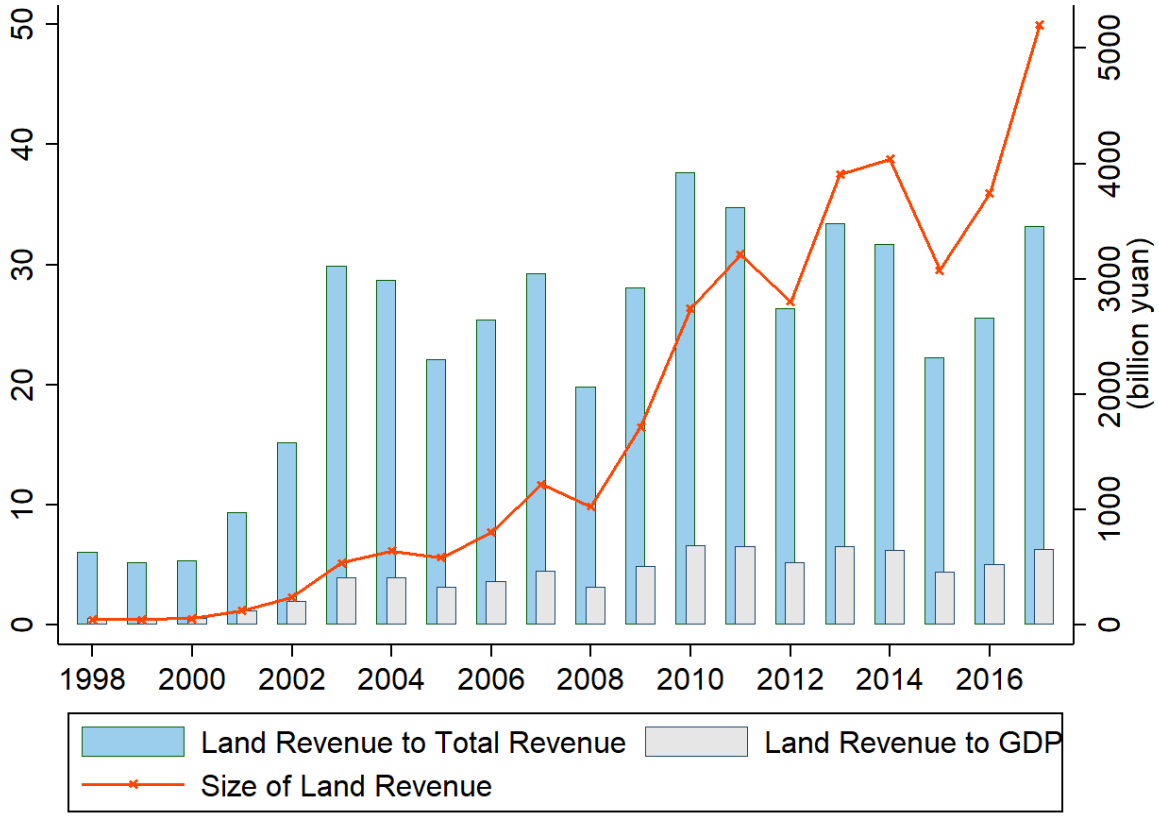

Figure A2: Land Revenue of Local Governments, 1998-2017

Table A1: The Effect of the Number of Years in Office on Land Supply: Robustness Checks

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Log(Land Area)		IHS(Land Area)	Log(Land Revenue)	Log(# of Plots)
Aft5Years	-0.157***	-0.170***	-0.184***	-0.236**	-0.0840*
	(0.0517)	(0.0502)	(0.0561)	(0.0971)	(0.0461)
Aft5Years(Mayor)	0.0131				
	(0.0723)				
Observations	46,089	44,109	46,714	46,714	46,714
R-squared	0.652	0.652	0.658	0.732	0.696
City FEs	X	X	X	X	X
Year-Month FEs	X	X	X	X	X

Notes: This table reports robustness checks. $Log(Land\ Area)$ is the log of one plus the area of land supplied in city c at time t. $IHS(Land\ Area)$ is the inverse hyperbolic sine transformation of the area of land supplied in city c at time t. $Log(Land\ Revenue)$ is the log of one plus the land revenue (unit: 10,000 yuan) in city c at time t. $Log(Land\ Revenue)$ is the log of one plus the number of land plots supplied in city c at time t. $Aft5Years$ is a dummy variable indicating whether the city party secretary of city c has been in office for more than five years at time t. $Aft5Years(mayor)$ is a dummy variable indicating whether the mayor of city c has been in office for more than five years at time t. Standard errors are clustered at city level. *** p<0.01, ** p<0.05, * p<0.1.

Table A2: Term Length and Promotion

VARIABLES	(1) Promotion	(2) Promotion
$\mathbb{1}(Term\ Length_{ic} > 5\ Years)$	-0.096***	-0.101***
	(0.0317)	(0.0377)
Observations	1,274	1,179
R-squared	0.007	0.442
Individual-level Controls	.	X
City FEs	.	X
Year FEs	.	X

Notes: This table reports the relationship between term length and promotion. $Promotion$ is a dummy variable indicating whether the city party secretary i of city c is promoted after leaving office. $\mathbb{1}(Term\ Length_{ic} > 5\ Years)$ is a dummy variable indicating whether the total term length of city party secretary i of city c at the time of leaving office exceeds five years. Standard errors are clustered at city level. *** p<0.01, ** p<0.05, * p<0.1.

Table A3: The Effect of the Number of Years in Office on Land Supply: By Source

VARIABLES	(1)	(2)	(3)
	$Log(Land\ Area)$		
	Newly Added Construction Land		Existing Construction Land
	(Not from the Urban Land Banking System)	(From the Urban Land Banking System)	
Aft5Years	-0.123**	-0.0474	-0.0758
	(0.0515)	(0.0465)	(0.0482)
Observations	46,714	46,714	46,714
R-squared	0.592	0.435	0.526
City FEs	X	X	X
Year-Month FEs	X	X	X

Notes: This table reports the effect of number of years in office on land supply. $Log(Land\ Area)$ is the log of one plus the area of land supplied in city c at time t. $Aft5Years$ is a dummy variable indicating whether the city party secretary of city c has been in office for more than five years at time t. Standard errors are clustered at city level. *** p<0.01, ** p<0.05, * p<0.1.