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Dose Land Negotiation Policy Promote or Suppress Hidden Debts of Local Governments?

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Abstract: Using panel data from 275 prefecture-level cities in China spanning from 2003 to 2019, this paper employs the multiperiod difference-in-differences method to empirically analyze the policy effect of land negotiation policy on local governments' hidden debt. The paper also investigates the influence mechanisms of land finance, budget soft constraints, fiscal decentralization and government competition. The empirical results reveal that: (1) Land negotiations promote the expansion of local governments' hidden debt, which is counterproductive to the sustainable development of government finances. (2) The impact of land negotiation policy on local government's hidden debt is transmitted via its effects on land finance. (3) The greater the degree of soft budget constraint and the degree of government competition, the less the expansion effect of land negotiations on the hidden debt of the government. The greater the degree of fiscal decentralization, the greater the expansion effect of land negotiations on the government's hidden debt. (4) Land negotiation promotes the expansion of hidden debt in eastern China and inhibits it in central China, with no significant effect observed in western China. (5) Cities with larger urban scale and higher economic development levels experience stronger effects from land negotiation policies. Therefore, it is imperative to deepen the land negotiation system further, develop policy indicators and feedback mechanisms tailored to local conditions, and introduce a multiparty supervision system to enhance implementation of the land negotiation system.

Keywords: land negotiation policy; local government hidden debt; multiperiod difference-in-differences model

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1. Introduction

In 2004, the State Council issued *the Decision on Deepening Reform and Strict Land Management*, while in 2006, the General Office of the State Council issued *the Notice on Issues Related to the Establishment of the National Land Supervision System*. The legalization of the land inspection system has been continuously promoted since the implementation of the Regulations for the Implementation of the Land Administration Law of the People's Republic of China in 2011, 2014, and 2021, and land negotiations have been explicitly included as a method of supervision and inspection. As an integral component of the land inspection system, land negotiation curbs illegal land use by local governments through its flexible negotiation approach and rigid accountability policies. Additionally, it impacts the development of local government land finance to a certain extent [1] (p. 38), which in turn affects local government debt.

According to International Monetary Fund (IMF) estimates, the hidden debt of local governments in China reached 42.17 trillion yuan in 2019, twice the scale of explicit debt (21.31 trillion yuan). Due to its hidden and inflated characteristics, local government hidden debts cause problems in local finance, real estate, credit and other fields, forming major financial risks. The problem of hidden debt of local governments in China needs to be solved urgently.

Since the tax reform in 1994, the asymmetry between the right to use financial funds and the responsibilities of local governments has further intensified, exacerbating the financial pressure on local governments. In response, local governments have resorted to financing platforms for borrowing, leading to a rapid expansion of hidden debt. The new budget law of 2014 abolished the relevant functions of financing platforms, and began to issue local government bonds, carry out limit management and debt replacement, and alleviated the hidden debt risk of local governments to a certain extent. However, it also spawned new manifestations of local governments' hidden debt through private capital cooperation and other methods [2] (pp. 18–20). Especially in recent years, with the impact of the COVID-19 pandemic and global economic slowdown, local government's financial pressure has further grown, impacting their financial sustainability. According to the 2022 fiscal revenue and expenditure announced by the Ministry of Finance in January 2023, the local general public budget revenue at this level was 10.9 trillion yuan, down 2.1% from the previous year, and the local general public budget expenditure was 22.5 trillion yuan, an increase of 6.4% over the same period of the previous year (Data from Treasury Department, Ministry of Finance, PRC, http://gks.mof.gov.cn/tongjishuju/202301/t20230130_3864368.html (accessed on 8 March 2023)). Hidden debt of local governments has gradually formed the basic context of a fiscal decentralization system as the origin, a fiscal gap as the motivation, a financing platform company as the carrier, commercial bank funds as the blood, a promotion mechanism as the motivation, and land financial support [3] (p. 144).

So how does the land negotiation policy affect local governments' hidden debt? The establishment of the land negotiation system by local governments has a twofold effect. On the one hand, if the government only aims at short-term interview reputation, and aggressively regulates land behavior, it could lead to an increase in hidden debt, although it can temporarily regulate land financing behavior. However, in the long run, it leads to a continued rise in total hidden debt. On the other hand, if the government focuses on regulate land behavior for a long time and gradually release the policy effect, it will reduce the scale of hidden debt through "saving resources and opening the flow", achieving a "win-win" scenario between land behavior norms and hidden debt resolution. Therefore, whether local governments have short-term or long-term expectations, and whether land negotiation will passively expand or actively suppress the scale of hidden debts of local governments has become a topic worth discussing. Furthermore, the land negotiation policy will prompt local governments to reduce illegal operations, standardize land financing behavior, and affect the scale of land finance, which is an important support for hidden debt; therefore, land finance is likely to be the transmission channel for land negotiation policy to affect hidden debt. In addition, the greater the degree of soft budget constraints, the greater the intensity of central transfer payments. The greater the degree of fiscal decentralization, the greater the local fiscal pressure; the greater the degree of government competition, the greater the demand for local infrastructure. These three factors will affect the behavior choices of local governments under land regulation and then affect the effect of land negotiation policy on the scale of hidden debt. Therefore, this paper also analyzes the transmission channels and mechanisms of land negotiation on the topic of how hidden debt is affected. The conclusion of this paper can fill a theoretical gap in the domestic research on the land negotiation system and local government debt while using empirical methods to verify its policy impact on local government's hidden debt. In practice, it can assess the effect and impact of the land negotiation system that will assist the government in further improving the land inspection system and managing/regulating local government debt.

The possible marginal contribution of this paper is, firstly, the current literature primarily focuses on local government hidden debt and administrative negotiation, with little attention paid to land negotiations. Furthermore, there is scant research exploring the impact of China's land negotiation policy on hidden debt at the local government level, which fails to offer constructive theoretical guidance and practical experience for improving policies related to land inspections, managing local government debt effectively, and ensuring sustainable fiscal development. This study addresses this gap by leveraging

a quasi-natural experimental perspective provided by the implementation of the land negotiation policy and utilizing a multiperiod double-difference model for a comprehensive evaluation of its effectiveness. Secondly, in addition to examining the implementation effect of the land negotiation policy, this paper delves deeper into the transmission path, influence mechanism, robustness, and heterogeneity of hidden debt at the local government level. These findings provide valuable theoretical and practical guidance for enhancing the land negotiation policy and effectively curbing hidden debt at the local government level while also enriching relevant theoretical and empirical research in this area.

2. Theoretical and Policy Background

2.1. Policy Background

2.1.1. Land Policy Practices in Different Countries

Owing to variations in political organization and natural resources across different countries, there are inherent differences in land management, construction, and oversight. These disparities manifest in the distinct features of land policy design and implementation within each country.

Urban development and related land policies in most European countries are mainly decided at the municipal level and lack certain long-term goals and top-level design. Italy is a prime example of this phenomenon, despite having a multilevel planning system. Since the 1980s, this system has gradually lost its vitality and it left Municipal planning as the decisive protagonist of the spatial planning framework. It is essential to re-address Italy's unresolved inter-level spatial planning architecture, but so far no effective measures have been taken [4].

Furthermore, several European nations have implemented land policy reforms through legislation to establish orderly land development and construction plans. For instance, the German reforms began in 1965 and the relevant plan was signed in 1975 (*"General spatial planning program for the federal territory"-Raumordnungsprogrammme für die gross raumige Entwicklung des Bunclesgebiet*), which leads to unified planning of the overall land use [5]. In the United Kingdom, counties enjoy broad local autonomy under the 1971 Act, and districts can draft three types of plans mainly for development and land use, urban renewal, and sectoral development. County development plans and district plans work together to ensure consistency between overall planning and land behavior [6]. France takes a different approach. Between the 1970s and 2017, it set up intermunicipal associations to manage and control *Plan Local d'Urbanisme* (PLU) for *Schema de la Coherence Territoriale* (SCOT) [7] and reduced related land issues through legislative consolidation of local institutions. Similarly, the Netherlands, Denmark, and Sweden have established comprehensive institutional frameworks to achieve uniform land planning and use [8,9].

In compact cities, it is often necessary to cover the cost of municipal construction through state funding, municipal financing and developer co-financing. Unlike the above cases, Norway's land policy is based on national, counties and municipalities, with strategic planning at the national and regional levels and operational implementation at the municipal level. In terms of funding for construction, the Norwegian national government has introduced an *urban growth agreement* (UGA) to incentivize local authorities to embrace planning and redevelopment needs and thus invest in local transport. Nevertheless, transportation funds in the area do not fully cover all costs; hence, the municipality must also cover the cost of upgrading surrounding facilities through co-financing by developers [10].

The land policy in the United States involves multiple governing bodies in a multitiered system for cooperation and coordination. The Federal Land Policy and Administration Act of 1976 established the *Bureau of Land Management* (BLM) to coordinate multiple agencies, administer land, and implement related land policies [11]. In 1997, the *Bureau of Land Management* created the *Collaboration and Alternative Dispute Resolution* (CADR) program and actively engaged other federal agencies, state agencies, citizens, nongovernmental organizations, and business entities in the resolution process.

Rural land policy is more important in emerging market countries than in developed countries, where land policy focuses on cities. Rwanda is currently in a renovating agrarian society; its land policy is based on the joint design of the state and the market economy. Along with the expansion of urban areas and the increase of non-farm activities, the Rwandan government hopes to reform the land policy to create self-employment opportunities [12], such as expropriation of land to develop real estate. Indonesia's land policy gradually transitioned from a centralized model in which officials and soldiers became commissioners of the state-owned cooperative (*Badan Usaha Milik Neg-ara/BUMN*) [13] to a peasant-focused land policy. The establishment of the *Konsorsium Pembaruan Agraria/KPA* in 1995 by Indonesian farmers led to the development of the *National Land Reform Program* (*Plan Pembaruan Agraria Nasional/PPAN*) for land distribution, agricultural technical assistance, productivity improvement, and farmers' welfare.

2.1.2. Land Negotiation Policy with Chinese Characteristics

China's land policies are characterized by centralized management at the national level and can be primarily divided into two tiers: the central government and local governments, which are responsible for land planning. The central government formulates relevant planning indicators and provides guiding opinions, while local governments (comprising provinces, cities, and counties) refine the plans and issue tasks in a hierarchical manner to realize the implementation of the overall plan. Due to China's tax-sharing reform, local governments have assumed extensive responsibilities in areas such as land construction and economic development. However, the right to use financial funds has been transferred to the central government, resulting in financial constraints for local governments. To address this shortfall, they rely on land transfers to generate revenue to meet their capital needs, creating a relatively high level of land fiscal revenue. China's land inspection system was launched in 2006 and was formally incorporated into the Land Administration Law in 2009. This system has led to improved monitoring of local governments' land practices and has reduced instances of poor land fiscal growth.

During the implementation of the land inspection system, the land negotiation system is widely utilized. This system primarily involves the central government supervising and inspecting the local government's land-related behavior from the previous year based on feedback from local agencies and other sources. Specifically, land behavior interviews are conducted for responsible persons within the local government who were involved in major land violations in the previous year. These persons are warned, and certain rectification suggestions are provided to help local governments correct their poor land behavior. The interviewed local government must rectify its jurisdiction's land use and sale behavior within a specified period and provide feedback on the results of this rectification to the central government. Those responsible for failing to rectify will face accountability and punishment. As an aspect of China's unique land inspection system, land negotiation belongs to the extended scope of administrative negotiation in the field of land resources due to its constraint logic. However, compared with environmental protection negotiation, food safety negotiation, audit negotiation, etc., land negotiation has its unique characteristics regarding implementation object, time, form, and feedback system, resulting in a distinctive "discovery-interview-rectification/accountability" mechanism.

Regarding the implementation's subject and target, the land negotiation system is implemented by government officials and usually draws up a list of relevant interviews based on the results of land inspections in the previous year, so it has the characteristics of ex post facto in time. In addition, since the land inspection system has set up nine local natural resources inspection bureaus in addition to the central government, land negotiation can also be divided into two main methods: collective negotiation and entrusted negotiation. During the negotiation process, the relevant negotiation list will often be published, and the corresponding rectification situation will be disclosed afterwards to ensure the authority and deterrence of the negotiation.

Regarding the form of implementation, each local inspection bureau is authorized by the central government to directly interview the responsible persons of local governments with relevant problems in accordance with standardized procedures within their respective jurisdictions, convey to them the relevant policy objectives of land management, point out existing problems, and propose rectification opinions and deadlines. If, within the prescribed time limit, the local government fails to complete rectification in accordance with the content of the interview or the rectification does not meet the standards, the local supervision bureau may carry out administrative accountability against the principal responsible person. At the same time, during the whole process of land negotiation, the inspectorate will also invite mainstream media to publicly report and disclose relevant interview information, so that local governments can further accept media and public supervision.

Regarding the characteristics of implementation, land negotiation has both flexible and rigid characteristics [14] (p. 36). Flexible restraint methods are mainly manifested in consultative dialogue and self-examination and self-correction, and in the process of interviewing, it is not with accountability as a single purpose, but more with consultative colors. In the process of consultation and exchange, we will explore the solution of problems and propose implementation measures, and the autonomy of the implementation target is also required in the rectification and problem solving after the interview. Rigid restraint measures are mainly reflected in the system design of time-limited rectification and later accountability, such as some regions stipulating that more than two interviews are required to open the accountability system. In addition to the constraints of the subject of the interview and the corresponding laws and regulations [15] (p. 120), the results of the interview and the subsequent rectification feedback system together constitute a rigid component of the land interview, which restricts the land management behavior of the interviewee.

During the implementation process, there are also certain differences in the specific implementation of land contract policies. The following illustrates a typical case during the implementation of the land contract policy:

Ningxia Hui Autonomous Region is located in the northwest of China, with a relatively low level of economic development. The economic level of Yongning County is at the middle level among all counties and cities in the province. After the implementation of the land negotiation policy, the head of Yongning County government was criticized for not meeting the rectification progress requirements in 2016, but was again interviewed in 2019 due to a slow rectification progress. Although the land negotiation policy can urge local governments to attach importance to illegal land issues, the actual rectification process still relies on local governments to complete independently, lacking some theoretical guidance and implementation suggestions.

The economic development level of Feng County, Anhui Province ranks high in the national ranking. However, during the process of urban expansion, it eradicated crops on farmland to make way for construction sites, with the intention of falsifying farmland as construction land. After discovering these issues, special meetings were held consecutively by Hefei City and Changfeng County to report the situation to the whole province and conduct land interviews with relevant responsible persons. As of 23 September 2019, the results of 105 county-level survey units in Anhui Province have all passed provincial verification and reported to the National Bureau of Surveying and Mapping. Sixty-four county-level results have passed national verification, and the warning effect of land negotiation policy has shown significant results.

Hancheng, Shaanxi Province ranked 28th among the top 100 counties and cities in the west in 2022, with a relatively advanced economic development level. In 2018, Hancheng was interviewed by the Ministry of Natural Resources on land issues, mainly for illegally occupying 244.9 hectares (3673.5 mu) of land for 22 projects promoted or implemented by the government for investment attraction or decision-making, including digging farmland to construct lakes and building two landscape lake projects, North Sea Park and Sima Lake. After being interviewed, Hancheng attached great importance to this issue and established a leadership group for rectification work, holding five special meetings to study and deploy

rectification work. As of October 2018, more than 60% of the rectification tasks have been completed through measures such as revoking documents and filing investigations. Three normative documents were formulated and issued, including *Opinions on Standardizing Land Acquisition Work in Hancheng*, to improve and upgrade the leading institution for land transfer pricing and strengthen the construction of long-term mechanisms for rigid constraints on land management.

2.2. Theoretical Analysis

Hidden debt refers to debts borrowed by the government directly or by promising to repay by fiscal funds and illegally providing guarantees outside the statutory government debt limit, such as debts borrowed by state-owned enterprises and institutions on behalf of the government, and the government provided guarantees or financial funds to repay. Under the implicit guarantee of local governments, the composition of hidden debts includes PPP projects [16], financing platform debts [17], urban investment bonds [18] and other forms. The continuous expansion of hidden debt can have detrimental effects on both long-term nominal interest rates [19] and hidden debt risks, ultimately impacting the stability of the financial system. Therefore, measuring the scale of hidden debt and warning of its potential risks have become the main directions of current research, such as building models to measure and predict the impact of hidden debt default claims under government guarantees [20] and using neural network technology to make early warning of local governments' hidden debt risks [21] to obtain ways to deal with financial risks caused by hidden debts. However, there is less emphasis on policy factors that influence hidden debt's root causes, particularly the impact of land negotiations on the government's hidden debt. As an extension of the administrative interview system in the land category, land interview has the characteristics of both rigidity and softness [14], which can guide the government to achieve the transformation from ambiguous negative trend to definite positive development [15] and will also form a market discipline effect [22], gently promoting the government to achieve the ultimate goal [23]. Land negotiations significantly inhibit the relative growth rate of land finance, which is a crucial support for the formation of hidden debts. Therefore, it is essential to analyze how land negotiation policies affect local hidden debts since this issue has not received sufficient attention.

2.2.1. Land Negotiation and Local Government Hidden Debt

The role of land negotiations in suppressing local governments' hidden liabilities can be either passive or active, depending on the expectations local governments adopt for the system. If they prioritize short-term reputation and adopt short-sighted behaviors to aggressively restrict land management, then land negotiations may play a passive role. However, if they aim to standardize land behavior for the long term and serve the interests of the whole society as their goal, then land negotiations can guide the government towards a virtuous circle gradually.

On the one hand, if local governments adopt a short-term perspective on the construction of the land negotiation policy, that is, under the pressure of interviews, they will only take the government's reputation in the short term as the main goal, and they will choose to adopt short-sighted behavior. In order to avoid being interviewed or required to rectify within a time limit as much as possible, local governments may implement radical and draconian measures to control land violations in a short period of time, resulting in a decrease in the availability of funds through land mortgage borrowing, and a reduction in land transfer revenue, which is one of the important sources of resolving hidden debt. As a result, in terms of the stock of hidden debt, the source of funds for debt reduction has been reduced, and the effect of debt conversion is not satisfactory. In terms of the increase of hidden debt, the local government's land financing function is weakened, but the fiscal pressure that cannot be released in the short-term forces it to meet its capital needs through other means, and the hidden debt "reservoir" only increases. In addition, land negotiations are not administrative coercive means and do not have a long-term sustainable normative

effect [1] (p. 38). After the deterrent effect of land negotiation declines, local governments are very likely to "delay in disguise", resulting in frequent land violations and further expansion of hidden debt, which for the local government is tantamount to drinking the "poisonous wine" of land regulation to temporarily alleviate the financial management dilemma, causing the hidden debt danger to become more serious [24].

On the one hand, if local governments adopt a long-term perspective on the establishment of land negotiation policies, they will prioritize regulating land behavior and serving the public interest. They will actively respond to feedback from inspectorates and implement measures to gradually alleviate the effects of land management policies. From a long-term perspective, local governments will not only focus on short-term reputation concerns regarding interviews but also take advantage of the establishment of land inspection systems to pay closer attention to their internal land compliance issues. They will regulate land financing channels and effectively control illegal land transfers, thereby gradually realizing the policy effects of land management. Furthermore, as dependence on land financing gradually decreases, local governments' motivation to intervene in the reserve price and quantity of land bidding will weaken. This will lead to a reduction in the speculative nature of the real estate market and partially alleviate construction demand and financial pressures on local governments. Therefore, when local governments adopt a long-term development perspective towards the land negotiation system and are not constrained by short-term reputation effects, policies with a slow-release effect can have a "saving resources and opening up flow" effect on the hidden debt "reservoir". Through land financing regulations and the release of fiscal pressure, hidden debt has been incrementally reduced. The continuous generation of compliant land transfer revenues has resolved the stock of hidden debt, resulting in a reduction in overall hidden debt levels. As a result, local governments have achieved their own behavioral norms, becoming practical governments that are characterized by openness, transparency, and a commitment to getting things done.

Therefore, depending on the different long-term and short-term perspectives of local governments on the land negotiation system, the impact of land negotiation on local governments' hidden debt may promote or inhibit two directions, so the following theoretical hypotheses are proposed:

Hypothesis 1 (H1). *Local governments take the reputation of the government in the short term as the main goal, and land negotiation increases the scale of local governments' hidden debt*.

Hypothesis 2 (H2). *Local governments take the regulation of land behavior in the long term and the service for the public interest as the main goal, and land negotiation reduces the scale of local governments' hidden debt*.

2.2.2. The Transmission of Land Negotiation to Local Governments' Hidden Debt

Due to the shortcomings of the "GDP-only" system for the promotion of officials, local governments often play the role of developers in order to achieve assessment goals, and land finance dependence is relatively high. The land negotiation policy forces the government to comply with relevant land management regulations through accountability and supervision of typical areas, increasing the cost of local government violations [1] (p. 36). Whether local governments prioritize short-term reputation effects or adopt a long-term perspective to guide the development of land resources towards a virtuous cycle, they must take effective measures to avoid violations of laws and regulations in the field of land resources that may affect the scale of land finance.

Finance serves as a crucial pillar for local hidden debt. On the one hand, local governments depend on income from the transfer of state-owned land-use rights and related tax revenues to make up for the significant funding gap resulting from their expanded responsibilities after the tax-sharing system reform. Additionally, they employ it as a vital source of funds to address the accumulated hidden debt stock [25] (p. 58). On the other hand, local governments utilize land as credit resources for various purposes like

mortgage guarantees, obtaining necessary funds through hidden liabilities to meet financial demands. The continuous expansion of the scale and growing dependence on land finance have amplified the incentive for local governments to intervene in land prices, fueling the speculative trend in the real estate market. This has resulted in a two-way interaction from "generating wealth with land" to "raising land with finance", forming a Matthew effect between land finance and the scale of local hidden debt. Consequently, the price of land resources continued to surge, and the scale of local government's hidden debt grew unabated.

Therefore, based on the above analysis, it is proposed that:

Hypothesis 3 (H3). *Land negotiation policy takes land finance as the transmission channel to affect the scale of local governments' hidden debt*.

2.2.3. The Impact Mechanism of Land Negotiation on Local Governments' Hidden Debt

The soft budget constraint is mainly based on the support of the central government to local governments, such as transfer payments and expected dependence, which stimulates local governments to increase public investment and increases the possibility of local governments borrowing implicitly [26] (p. 144). In the context of land negotiation, the central government's regulation of local land behavior will also restrict local governments' blind infrastructure investment under the "bottom-up thinking" to a certain extent, reducing their motivation for debt. Therefore, under the premise that land negotiations weaken the implicit motivation of local "bottom-up thinking" to borrow, the central transfer payment is relatively large in cities with a large degree of soft budget constraints. If local governments have short-term expectations, more central funds can alleviate their short-term fiscal pressure, reduce increments, and at the same time help them achieve the goal of debt reduction, reduce stock, and then the scale of hidden debt expansion is relatively small. If local governments have long-term expectations, when central transfer payments are large, local governments will be more comfortable in resolving debts and regulating land behavior, and the scale of hidden debt will be reduced even more. Therefore, it is proposed:

Hypothesis 4 (H4). *The greater the degree of soft budget constraints, if the land negotiation policy increases the hidden debt of local governments, the smaller the policy effect. If the land negotiation policy reduces the hidden debt of local governments, the greater the policy effect*.

Under fiscal decentralization, the central and local finances have formed a situation in which financial right is collected and responsibility is transferred down [3] (p. 144), resulting in local governments in the dilemma of "responsibility without money", and the serious imbalance between responsibility and financial right forces local governments to fill their capital needs through hidden financing means [27] (p. 55). On the one hand, local governments have convenient conditions for using financial resources through the control, appointment and supervision of local financial institutions (such as city commercial banks). On the other hand, local governments have greater autonomy over infrastructure construction and use financing platforms to build hidden financing channels, resulting in a surge in the scale of hidden debt. The greater the degree of fiscal decentralization, the higher the degree of mismatch between financial right and administrative responsibility, and the greater the local fiscal pressure. If local governments have short-term expectations for land negotiation, their radical land management measures in the short term will reduce the sources of funds for debt reduction, and at the same time, greater fiscal pressure will force cities to choose other hidden ways to borrow more actively, and land chaos will be more likely to break out after the deterrent effect of land negotiations is reduced, so the scale of hidden debt will expand greater. If local governments have long-term expectations, greater fiscal pressure will make it more difficult for the government to standardize rectification, dilute the long-term positive effects of policies, and reduce the scale of hidden debt relatively little. Therefore, it is proposed:

Hypothesis 5 (H5). *The greater the degree of fiscal decentralization, if the land negotiation policy increases the hidden debt of local governments, the greater the policy effect. If the land negotiation policy will reduce the hidden debt of local governments, the less effective the policy will be.*

Government competition is the catalyst for the formation of hidden debt. On the one hand, the fiercer government competition, adding with the shortcomings of the official evaluation system, the stronger the motivation for local infrastructure construction, the higher the demand for funds, and the higher possibility of hidden debt. On the other hand, government competition will make the comparison and demonstration effect of the government more significant and promote the occurrence of a virtuous or vicious circle. Therefore, in circumstances where government competition is high, local governments tend to have short-term expectations for land negotiations and aim to minimize the number of times they are interviewed or required to rectify within a specific timeframe. Therefore, in the later stage of land negotiation, after the deterrent effect is weakened, compared with the insensitive cities, under the premise of greater investment in the original infrastructure and higher dependence on land finance, the implementation of land management measures will still be paid more attention to prevent the recurrence of land chaos, and then avoid the further expansion of the scale of hidden debt. When local governments have long-term expectations for land negotiations, greater government competition could intensify their motivation to invest in infrastructure and lead to wider funding gaps. This, coupled with challenges related to overall rectification and slower policy release effects, could result in a smaller reduction in the scale of hidden debt. Therefore, it is proposed:

Hypothesis 6 (H6). *The greater the degree of government competition, if the land negotiation policy increases the hidden debt of local governments, the less effective the policy will be. If the land negotiation policy will reduce the hidden debt of local governments, the less effective the policy will be.*

3. Empirical Analysis

3.1. Methodology

3.1.1. Model Construction

This paper mainly studies and discusses the policy effect of land interview policy based on the difference-in-difference (DID) model. DID models estimate the causal effect by treating the implementation of a certain policy as a "quasi-natural experiment". It divides all samples into two groups in individual dimension; one is the experimental group (affected by the policy) and the other is the control group (not affected by the policy). It also divides all samples into two groups with the policy implementation as the node in time dimension; one group is before the policy implementation, and the other group is after the policy implementation. Then, the difference of the explained variable was calculated in the individual dimension and the time dimension, respectively (twice in total), to exclude other influences in the individual dimension and the time dimension; finally, the net effect of the policy could be obtained. In the land negotiation policy, the cities that have been interviewed are the experimental group, and the cities that have not been interviewed are the control group. Since the specific time of interview is different for each city, this paper refers to the method of Liu and Peng [1] (p. 36) and uses the multiperiod DID model to study the impact of the land negotiation policy on the government's implicit debt.

$$debt_{it} = \beta_0 + \beta_1 talk_{it} + \beta X_{it} + year_t + city_i + \varepsilon_{it} \quad (1)$$

In Model (1), $debt_{it}$ is the explained variable, representing the implicit debt new scale of the ith city in the tth year; $talk_{it}$ is a land negotiation policy dummy variable, reflecting whether a city i was interviewed in year t; X_{it} are other control variables; $year_t$ and $city_i$ are time fixed effect and individual fixed effect of each city, respectively; ε_{it} is the sum of the residual terms; coefficient β_0 is a constant term; β_1 represents the net policy effect

of land negotiation on the hidden debt of local government. If land negotiation makes the scale of the hidden debt of local government increase, then β_1 should be significantly positive; otherwise, β_1 should be significantly negative. β is the regression coefficient of control variable.

Based on the practices of Spieth Patrick and Lerch Martin [28], this paper sets the following model to explore the indirect influence of land finance:

$$Tdc_{it} = \alpha_0 + \alpha_1 talk_{it} + \alpha X_{it} + year_t + city_i + \varepsilon_{it} \quad (2)$$

$$debt_{it} = \delta_0 + \delta_1 talk_{it} + \delta_2 Tdc_{it} + \delta X_{it} + year_t + city_i + \varepsilon_{it} \quad (3)$$

Among them, the coefficient α_1 of Model (2) represents the influence effect of land negotiation policy (*talk*) on land finance (*Tdc*), and the coefficient δ_1 of Model (3) is the direct effect of land negotiation policy on the implicit debt (*debt*) of local governments after controlling the influence of land finance (*Tdc*). Coefficient δ_2 represents the influence of land finance (*Tdc*) on the hidden debt of local governments after controlling the influence of land negotiation policy. Other variables and coefficients have the same meaning as Model (1). It can be seen that $\alpha_1\delta_2$ represents the role of land finance in the conduction path, and the total effect β_1 is the sum of direct effect δ_1 and indirect effect $\alpha_1\delta_2$, which is $\beta_1 = \delta_1 + \alpha_1\delta_2$.

Furthermore, this paper introduces the mechanism variables of budget soft constraint, fiscal decentralization and government competition and further discusses the influence mechanism of land negotiation policy:

$$debt_{it} = \gamma_0 + \gamma_1 talk_{it} + \gamma_2 tran_{it} \times talk_{it} + \gamma_3 tran_{it} + \gamma X_{it} + year_t + city_i + \varepsilon_{it} \quad (4)$$

$$debt_{it} = \theta_0 + \theta_1 talk_{it} + \theta_2 dec_{it} \times talk_{it} + \theta_3 dec_{it} + \theta X_{it} + year_t + city_i + \varepsilon_{it} \quad (5)$$

$$debt_{it} = \omega_0 + \omega_1 talk_{it} + \omega_2 compe_{it} \times talk_{it} + \omega_3 race_{it} + \omega X_{it} + year_t + city_i + \varepsilon_{it} \quad (6)$$

Among them, Models (4)–(6) mainly focus on the coefficients γ_2, θ_2 and ω_2 of the interaction terms of budget soft constraint (*tran*), fiscal decentralization (*dec*) and government competition (*compe*) with land negotiation (*talk*),which are the moderating effects of budget soft constraint (*tran*), fiscal decentralization (*dec*) and government competition (*compe*) on the effect of land negotiation policy. *i* and *t* indicate the *i*th city of the *t*th year respectively. Other variables and coefficients have the same meaning as Model (1).

In addition, this paper conducts a parallel trend test, counterfactual test, placebo test and propensity-score-matching test to test the robustness of the results of this paper, excluding the bias caused by other non-observed factors such as policies and environment. Finally, this paper will further discuss the heterogeneous role played by the land negotiation policy in regions with different geographical location, city size and economic development level.

3.1.2. Measure of Variables

1. Explained variable: hidden debt of local government(debt). Presently, there are two methods used to calculate the scale of such hidden debt: direct and indirect. The direct method primarily utilizes the total sum of local financing platform debts as a representation of the hidden debt of local governments [2] (p. 19). While the indirect method calculates from the perspective of investment direction, taking advantage of the feature that the hidden debt is mainly used for municipal construction. By measuring the amount of new investment in urban infrastructure construction of local governments in each year, and deducting the funds invested in the government budget and the funds obtained from public bond issuance, the new amount of implicit debt of local governments can be obtained. Since there are some differences in the definition of local financing platforms at the national level, in documents of various caliber such as the Ministry of Finance, the (former) CBRC, the National Audit Office,

the wind database and the China Bond Standard [29] (p. 40) and the relevant functions of financing platform companies have been stripped after 2014.This paper mainly refers to the method of Guan Zhihua and Fan Yuxiang [26] (p. 148) and uses the indirect method to measure the scale of local government's implicit debt. The specific formula is as follows: scale of hidden debt of local governments = investment in urban construction fixed assets completed this year—investment in urban construction fixed assets state budget funds—bonds for urban construction fixed assets investment.

2. Explanatory variable: land negotiation policy(talk). We set the dummy variable of land negotiation policy, and the value is 1 during and after the city is interviewed, otherwise the value is 0.
3. Mechanism variables: land finance (Tdc), budget soft constraint (tran), fiscal decentralization (dec) and government competition(compe).

Land finance pertains to the financial funds acquired by local governments through state-owned land use rights transfers. This paper refers to the practice of existing scholars [1,30] and measures the absolute scale of land finance with the scale of land transfer fee.

Budget soft constraint denotes the extent to which local governments rely on central government funding. According to the measurement method of Hu Hongshu et al. [31], we use the logarithm of transfer payment of each city to represent the corresponding soft budget constraint, and transfer payment mainly includes general transfer payment, special transfer payment and tax return.

Fiscal decentralization indicates the degree of fiscal right allocation between the central government and local governments. The greater the degree of fiscal decentralization, the more fiscal right the local governments have. The measurement of fiscal decentralization mainly draws on the practice of He Weiwei and Hou Junjun [32] and calculates the degree of fiscal decentralization with different levels of fiscal expenditure. The specific formula is: fiscal decentralization (dec) = 3× urban fiscal expenditure/(urban fiscal expenditure + provincial administrative fiscal expenditure + national fiscal expenditure). The greater the value, the higher the degree of fiscal decentralization of the city; vice versa indicates a lower degree of fiscal decentralization.

Government competition refers to the competition among local government officials for promotion. The greater the gap in promotion indicators (usually economic development level, such as GDP), the more intense the competition environment of the local government. The measure of the government competition is the product of the ratio of the highest per capita GDP of the city in the same province to the per capita GDP of the city and the ratio of the highest per capita GDP of the country to the per capita GDP of the city. The higher the value, the higher the degree of competition, the more likely government officials are to blindly borrow money to stimulate production and infrastructure construction [33].

4. Control variables: Considering the influence of other factors on the scale of local government hidden debt, this paper selects the following five control variables to ensure the robustness of the results by referring to existing studies: (1) Fixed asset investment ratio (invest), expressed as the ratio of completed investment in urban construction fixed assets to GDP this year, reflects the role of fixed assets investment in promoting the scale of hidden debt; (2) Urbanization rate (urban) is expressed by the proportion of urban population in the permanent resident population of a region at the end of the year. The process of urbanization requires the investment of local government funds and material resources and, thus, becomes a major incentive for the expansion of local implicit debt [26] (p. 148); (3) Openness, measured by the amount of foreign investment actually used in the year; (4) Population(pop), total population at the end of the year; (5) Economic development level (GDP), measured by regional gross domestic product. To pursue a certain economic growth, local governments will carry out certain debt investment and financing behaviors, thus promoting the increase of the scale of implicit debt [32].

Specific definitions of variables are shown in Table 1.

Table 1. Variable specification.

Classification	Name	Specification
explained variable	debt	investment in urban construction fixed assets completed this year—investment in urban construction fixed assets state budget funds—bonds for urban construction fixed assets investment.
explanatory variable	talk	0 before the interview, 1 during the year and after the interview
mechanism variables	Tdc	amount of land transfer fee
	tran	ln(general transfer payment income + special transfer payment income + restitution tax)
	dec	3× urban fiscal expenditure/(urban fiscal expenditure + provincial administrative fiscal expenditure + national fiscal expenditure)
	compe	highest per capita GDP of cities in the same province/per capita GDP of cities× highest per capita GDP of the country/per capita GDP of cities/100
control variables	fixinvest	investment in urban construction fixed assets completed this year investment/GDP
	urban	urban population/area permanent population at the end of the year
	openness	amount of foreign capital actually used in that year
	pop	total population at the end of the year
	GDP	Regional gross domestic product

3.1.3. Data Source

The sample observation period was set to be from 2003 to 2019. The list of cities for interview was obtained from the Announcement of Land Supervision, the website of the Chinese government and the websites of provincial people's governments. Other data were obtained from the Statistical Yearbook of China's Urban and Rural Construction, the Statistical Yearbook of China's Urban and Rural Construction, the Yearbook of Land and Resources, China Land Market network, EPS database and wind database. Since most land interviews are conducted by prefecture-level governments, this paper chooses prefecture-level cities as the research object. Since the Yearbook of Land and Resources is only publicly issued until 2017, the land finance data from 2003 to 2017 in this paper are from the Land and Resources Yearbook, and the land finance data from 2018 to 2019 are from the open data information collation of China Land Market Network. China Land Market website is a state-owned land information release platform established by the Ministry of Natural Resources of China. It contains all state-owned land transfer information, which can ensure the authenticity and completeness of data and is recognized by most scholars who take land finance as the research topic [34]. Due to the lack of data in some cities and the continuous changes in the regional division of ethnic minorities in China during the observation period, the data of these cities were excluded in this paper. The size of these cities is relatively small and their proportion in the overall sample is not large, so they will not have a great impact on the completeness and robustness of the empirical research. Such data processing method has also been recognized by other scholars [35]. After data cleaning and processing, we finally obtained a data set containing a total of 4331 samples from 275 cities in China. Descriptive statistics of major variables are shown in the table below (Table 2).

Table 2. Descriptive statistics.

Variables	Observations	Mean	Std	Min	Max
debt	4331	25.37	69.04	−176.52	1106.01
talk	4331	0.12	0.32	0.00	1.00
Tdc	4331	1.83	32.05	0.00	1620.18
tran	4331	−0.65	1.40	−7.10	3.10
dec	4331	30.78	53.76	0.32	1122.44
compe	4331	0.03	1.83	0.00	120.40
fixinvest	4331	0.04	0.04	0.00	0.49
urban	4331	0.68	0.32	0.05	1.00
openness	4331	5.96	12.13	0.00	140.05
pop	4331	130.82	116.21	5.10	954.00
GDP	4331	915.77	1848.31	12.22	26,927.00

3.2. Analysis of Empirical Results

3.2.1. Parallel Trend Test

Prior to conducting the DID analysis, it is imperative to confirm the parallel trend hypothesis both pre- and post-policy implementation. This is to demonstrate that there is no substantial divergence in the local government's implicit debt prior to the introduction of the land negotiation policy and that any influence of the land interview on the local government's implicit debt only manifests subsequent to its implementation. The model of parallel trend test is set as follows:

$$debt_{it} = \beta_0 + \sum_{j=-M}^{N} \mu_j treat_i \times year_j + \alpha X_{it} + year_t + city_i + \varepsilon_{it} \quad (7)$$

As shown above, M and N represent the number of periods of policy difference; $treat_i$ represents whether the ith city is the experimental group, which is 1 for the experimental group and 0 for the non-experimental group, $year_j$ represents the year dummy variable of the j period; the coefficient of $treat_i \times year_j$ interaction term μ_j mainly measures the difference between the cities with and without land interviews in phase j. Other variables and coefficients have the same meaning as Model (1).

Figure 1 below displays the outcomes of the parallel trend test, presenting regression results within a 95% confidence interval while considering control variables. As depicted in the graph, significance level tests were not met from 1–6 years prior to policy implementation, indicating that no significant differences existed between the experimental and control groups before urban land interviews, thus passing the parallel trend test.

3.2.2. The Overall Impact of Land Negotiations on the Government Implicit Debt

Table 3 primarily presents the effects of land interviews on local implicit debt, as evaluated by a multiperiod DID model. Column (1) is the influence of land negotiation on the absolute scale of hidden debt of local government without considering other factors; Column (2) considers the influence of control variables, time fixed effect and individual fixed effect, and the results are more universal and robust. According to Column (1), the implementation of land negotiation policy should have a significantly positive impact on the scale of local government hidden debt. Considering more influencing factors, the impact of land negotiation policy on the implicit debt is significantly positive at the significance level of 5%. The scale of the implicit debt of the cities that have been interviewed significantly increased by 1.153 billion yuan compared with that of the cities that have not been interviewed. This indicates that, overall, land negotiation policies stimulate the expansion of local government's hidden debt scale. Local governments adopt a perspective

of short expectations for land interview. The land negotiation policy indeed has a certain deterrent effect on the land behavior of local governments and reduces their reliance on land finance. However, the reduction of fiscal revenue brought by land negotiation and the weakening of land financing function urge local governments to increase hidden debt through other ways to meet the needs of development and investment and financing, thus promoting the growth of hidden debt scale. Hypothesis 1 is verified.

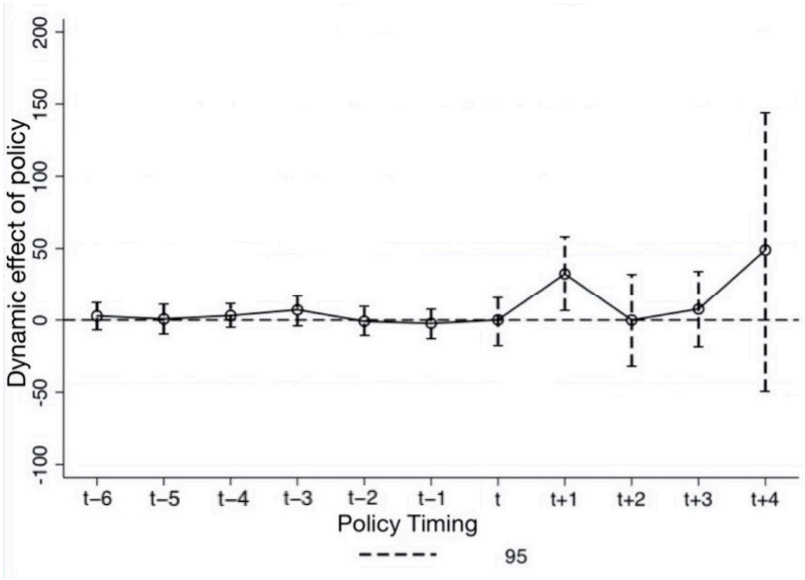

Figure 1. Parallel trend test.

Table 3. Reference regression.

VARIABLES	(1) Debt	(2) Debt
talk	36.870 *** (2.68)	11.536 ** (5.70)
fixinvest		388.775 *** (50.63)
urban		14.60 ** (6.55)
openness		1.518 ** (0.74)
pop		0.057 (0.15)
GDP		0.020 *** (0.01)
Constant	20.190 *** (3.02)	−35.226 *** (16.75)
time fix effect	no control	control
individual fix effect	no control	control
Observations	4331	4331
R-squared	0.055	0.456
Number of id	275	275

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$.

3.2.3. Conduction Pathway

Table 4 shows the Sobel test results of Models (1)–(3) with land finance as the transmission path. Based on Column (3), it is evident that the land negotiation policy has a considerably positive effect on local government's implicit debt at a 1% significance level. This suggests that the land negotiation policy substantially fuels the growth of local government's implicit debt at this stage, and the total effect is significantly positive at a 1% level, with a value of 20.839. As can be seen from Column (4), the impact of land interview on land finance is significantly positive at the level of 1%, which may be explained by the fact that the correction of land interview on government land behavior is mainly reflected in the restraint of local illegal land behavior, while land finance in line with relevant provisions will still achieve good growth. The government investment and financing formed by this increase of such land finance as a springboard contains certain hidden debt risks, thus promoting the expansion of local governments' hidden debt. It can be seen from Column (5) that after land finance is introduced, both land negotiation policy and land finance are significantly positive at the significance level of 1%. This finding highlights the undeniable influence of land finance on the scale of local governments' implicit debt, which is further supported by its role in promoting its expansion. Notably, when examining its indirect impact, we observe that the combined effect of land finance and soft fiscal constraints accounts for 3.53% (0.736/20.839) of the total effect, with a significant positive impact at a 1% significance level. Therefore, we can confirm that Hypothesis 3 has been validated.

Table 4. Sobel test results of conduction pathway.

Path	**Talk→Debt**	**Tdc→Debt**	**Talk→Tdc→Debt**
VARIABLES	(3) debt	(4) Tdc	(5) debt
talk	20.839 *** (2.13)	3.934 *** (1.42)	20.103 *** (2.26)
Tdc			0.187 *** (0.02)
Indirect effect		0.736 *** (0.28)	
controls	control	control	control

Robust standard errors in parentheses. *** $p < 0.01$.

3.2.4. Influence Mechanism

Table 5, respectively, shows the regression results of Model (5), which includes the interaction terms of soft constraint of budget, fiscal decentralization, and government competition with land negotiation policy. Among them, Column (6) is the regression result of soft constraint of budget. Column (7) is the regression result of fiscal decentralization. Column (8) is the regression result of government competition.

1. Soft constraint of budget

According to Column (6), after adding the soft budget constraint and its interaction term, land negotiation is still significantly positive at the significance level of 5%, while the interaction term is significantly negative at the significance level of 5%, indicating that the expansion of implicit debt brought by land negotiation will be inhibited when the soft budget constraint is larger. One possible explanation for this finding is that local governments may receive financial support from higher levels of government or central government, which reduces their reliance on debt financing through "bottom-the-bottom thinking" and allows them to allocate more resources towards addressing hidden debt and alleviating financial pressure. As a result, this helps to mitigate the expansion of hidden debt, thereby supporting Hypothesis 4.

2. Fiscal decentralization

According to Column (7), after the addition of fiscal decentralization and its interaction term, the significance of land negotiation is still significantly positive at the significance level of 5%. However, the interaction term is found to have a significantly positive effect at the same level, suggesting that cities with higher degrees of fiscal decentralization experience greater mismatches between financial rights and administrative rights, leading to higher financial pressure. Consequently, local governments may resort to implicit debt financing to meet their funding needs, exacerbating the risk of implicit debt inflation in the short run. This finding provides support for Hypothesis 5.

3. Government competition

According to Column (8), after adding government competition and its interaction term, the significance of land negotiation policy is still significantly positive at the significance level of 5%, while the intersection term is significantly negative at the significance level of 1%. It indicates that local governments with more intense competition tend to be cautious in their decisions related to land finance as they prioritize political interests and achievements. Moreover, they are more concerned about their public image as a "good government" rather than the number of land transactions. In the short run, this leads to continuous attention towards land management policies to avoid the recurrence of land chaos after the deterrence of land interviews is weakened. Hence, this restrains the substantial increase in hidden debt of local governments, thereby supporting Hypothesis 6.

Table 5. Influence mechanism results.

VARIABLES	(6) Debt	(7) Debt	(8) Debt
talk	19.970 ** (9.24)	8.489 ** (4.21)	11.500 ** (5.71)
c_tran × talk	−10.490 ** (5.33)		
c_dec × talk		5242.000 ** (2250.00)	
c_*compe* × talk			−0.947 *** (0.26)
tran	−2.984 (3.13)		
dec		28.010 (455.90)	
Constant	−39.030 *** (14.32)	−34.390 ** (15.24)	−35.210 ** (16.75)
controls	control	control	control
time fix effect	control	control	control
individual fix effect	control	control	control
Observations	4331	4331	4331
R-squared	0.459	0.490	0.456
Number of id	275	275	275

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$.

3.3. Robustness Test

3.3.1. Counterfactual Test

In this paper, it is assumed that the time of urban interview is uniformly advanced by 2 years and 4 years. If the impact of land negotiation policy on the hidden debt of local government is significantly positive during this time, it indicates that the influence above

may be caused by other factors or randomness, rather than the effect of land negotiation policy. Otherwise, it verifies that the increase of the hidden debt of local governments comes from the implementation of the land negotiation policy. Columns (9) and (10) in Table 6 respectively indicate that if the implementation time of land interview is uniformly advanced by 2 and 4 years, the regression is not significant, indicating that the increase of the hidden debt of local governments has nothing to do with other reasons. The policy effect of the implementation of land negotiation policy has been confirmed.

Table 6. Counterfactual test results.

VARIABLES	(9) Debt	(10) Debt
talkpre2	5.487 (3.87)	
talkpre4		3.207 (2.97)
Constant	−35.020 ** (17.00)	−35.020 ** (16.92)
controls	control	control
time fix effect	control	control
individual fix effect	control	control
Observations	4331	4331
R-squared	0.453	0.454
Number of id	275	275

Robust standard errors in parentheses. ** $p < 0.05$.

3.3.2. Placebo Test

The placebo test was mainly completed in the way of randomly generating an experimental group. To ensure the robustness of the placebo test, the process of randomly selecting the interviewed cities was repeated 500 times and 1000 times, respectively, in this paper. The test results were shown in Figure 2a,b. It can be seen from Figure 2a,b that the random sampling coefficient takes zero as the mean and is normally distributed. In 500 random processes, the value of the benchmark regression coefficient is not exceeded, and in 1000 random processes, the sampling coefficient is located at the right side of 11.536 only once. These placebo tests indicate that the experimental group generated randomly did not have any policy effect. Thus, it can be inferred that the land negotiation policy in place has a positive impact on increasing the scale of local government's hidden debt.

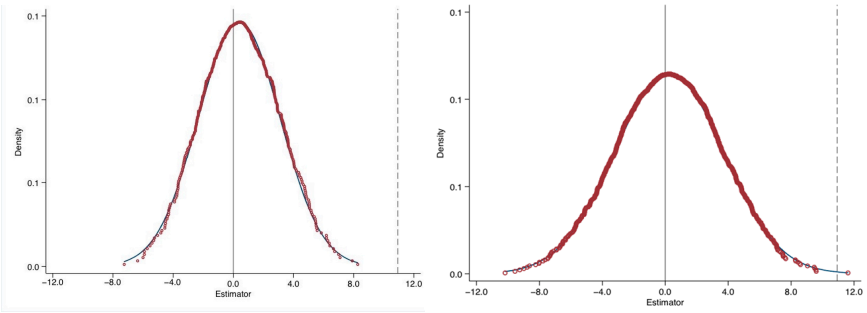

Figure 2. (**a**) 500 placebo tests; (**b**) 1000 placebo tests.

3.3.3. Propensity Matching Score Method

Propensity score matching (PSM) can eliminate the factors affecting the location of policy determination and implementation to solve some problems of endogeneity, sample selectivity, and differences in original conditions between the experimental group and the control group. It can be seen from Figure 3a,b that there is no significant difference in observable variables between the interviewed cities and the non-interviewed cities after propensity score matching. After matching, 90 observed values did not meet the common value interval. After elimination and matching, the absolute values of standardized deviations of covariates of interviewed and uninterviewed cities were all less than 10%, and P values were all greater than 0.1, which met the premise of using PSM-DID. Tables 7 and 8 report the regression results of the baseline regression after PSM matching and the regression results of the relevant mechanism effects. The absence of significant differences between the baseline regression results and the mechanism research models following propensity matching verifies all five hypotheses mentioned earlier, signifying that the conclusions drawn in this paper are robust.

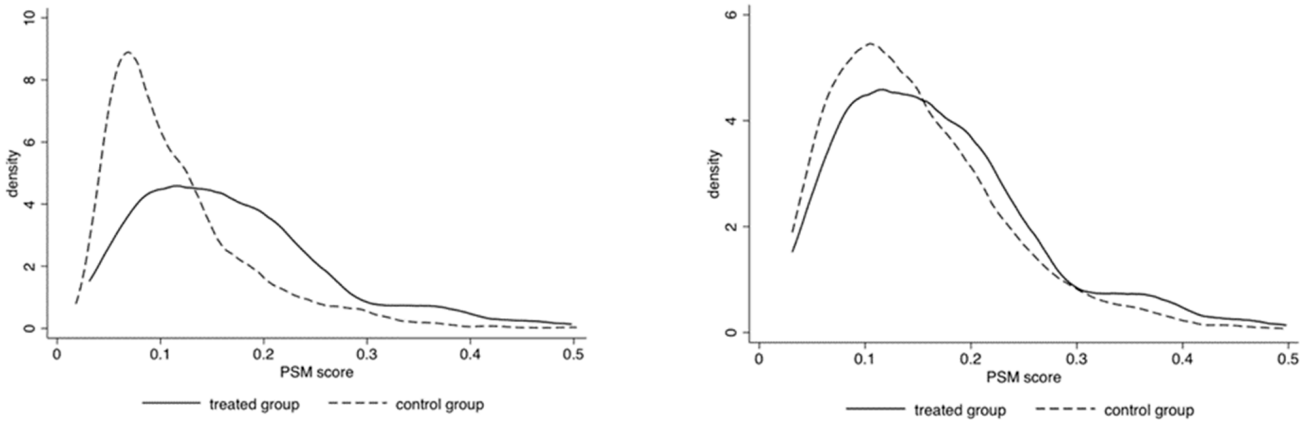

Figure 3. (**a**) Before; (**b**) After.

Table 7. PSM regression results (1).

	Reference Regression		**Conduction Pathway**		
VARIABLES	**(11) Debt**	**(12) Debt**	**(13) Debt**	**(14) Tdc**	**(15) Debt**
talk	35.82 *** (2.788)	11.15 ** (5.461)	20.617 *** (2.20)	4.031 *** (1.47)	19.866 *** (2.18)
Tdc					0.186 *** (0.02)
Constant	20.91 *** (3.134)	−35.93 * (18.58)	−36.211 *** (2.32)	−1.061 (1.55)	−36.013 *** (2.31)
controls	control	control	control	control	control
time fix effect	no control	control	control	control	control
individual fix effect	no control	control	control	control	control
Observations	4062	4062	4062	4062	4062
R-squared	0.054	0.448	0.614	0.028	0.621
Number of id	275	275	275	275	275

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8. PSM regression results (2).

	Influence Mechanism		
VARIABLES	**(16) Debt**	**(17) Debt**	**(18) Debt**
talk	18.930 ** (8.92)	8.362 ** (4.16)	11.120 ** (5.47)
c_tranxtalk1	−9.672 * (5.20)		
c_decxtalk1		5034.000 ** (2170.00)	
c_compextalk1			−0.736 *** (0.26)
Constant	−39.080 ** (15.95)	−35.350 ** (16.87)	−35.910 * (18.59)
controls	control	control	control
time fix effect	control	control	control
individual fix effect	control	control	control
Observations	4062	4062	4062
R-squared	0.451	0.480	0.448
Number of id	275	275	275

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

3.4. Heterogeneity Analysis

3.4.1. Regional Heterogeneity

Due to the great differences in financial environment and investment environment in the eastern, central and western regions, local implicit debt also presents significant regional differences. Therefore, according to the classification standard of National Bureau of Statistics, this paper divides samples into eastern, central and western groups according to geographical location to research the heterogeneity. Columns (19)–(21) of Table 9 show the effects of land negotiation policy in different geographical locations. For the western region, the effect of land negotiation policy is not significant. In the central region, it has a significant inhibition effect on the expansion of hidden debt, and in the eastern region, it has a significant promotion effect on the expansion of hidden debt. This may be attributed to the more developed financial environment and greater investment opportunities present in the eastern region. Under constrained land behavior, borrowing methods and approaches can be quickly identified in a short time frame, which may offer more advantages for realizing implicit debt inflation. Furthermore, investment opportunities in the eastern region are relatively abundant. When fiscal revenue for local governments is limited, they are more motivated to engage in other debt investment and financing behaviors to foster local economic growth. In contrast, for the central region, it is more crucial to actively achieve the political objectives outlined by the land negotiation policy than to sustain growth in local economic development levels. However, due to a relatively underdeveloped financial environment and limited investment and financing opportunities, so it is more difficult to realize the path conversion of "land finance—debt investment".

Table 9. Heterogeneity analysis results.

	Region			Urban Size		Economic Development Level	
VARIABLES	**(19) East**	**(20) Center**	**(21) West**	**(22) Small**	**(23) Large**	**(24) Low**	**(25) High**
talk	9.732 **	−6.780 **	1.138	1.198	26.225 ***	0.945	34.496 ***
	(4.35)	(3.13)	(3.27)	(0.98)	(6.00)	(0.78)	(7.74)
Constant	−58.075 ***	29.860 ***	−29.773 ***	−4.687 ***	−88.256 ***	−13.461 ***	−135.392 ***
	(8.95)	(6.21)	(7.47)	(1.05)	(14.29)	(1.62)	(17.83)
time fix effect	control	control	control	control	control	control	control
individual fix effect	control	control	control	control	control	control	control
Observations	1559	1617	1155	2924	1407	3301	1030
R-squared	0.615	0.562	0.828	0.504	0.615	0.477	0.659
Number of id	95	98	82	189	86	212	63

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$.

3.4.2. Urban Size Heterogeneity

In this paper, according to the average size of cities over the years, the samples were divided into two groups, large and small, in order to explore the differences in the impact of different sizes of urban land negotiation system. Columns (22) and (23) of Table 9 show the effects of land negotiation system in cities of different sizes. The effect of land interview on areas with small urban scale is not significant. In areas with large urban scale, the effect is significant at the level of 1%. Compared with the overall sample regression results, the significance degree is improved, and the coefficient of land interview is also relatively improved. The larger the urban scale, the more illegal land behaviors exist in the region, so the land negotiation policy will be more restrictive to such behaviors, but the financial demand brought by the restriction will still increase the scale of the hidden debt of local governments.

3.4.3. Economic Development Level Heterogeneity

In this paper, GDP of each city is used to represent the degree of economic development. After ranking by GDP value, cities whose GDP value is higher than the average value are defined as the group of high economic development level, and the rest as the group of low economic development level. According to columns (24) and (25) of Table 9, it can be seen that land negotiation policy has more significant promoting effect in areas with higher economic development level, while the policy effect on the hidden debt of local government is less obvious in areas with lower economic development level. Cities with a higher level of economic development will have a greater incentive for urban expansion and infrastructure construction. After land negotiation, it becomes challenging to obtain revenue from land transfer. To ensure the smooth functioning of infrastructure projects, alternative financing methods are used to supplement capital liquidity. Furthermore, the solvency of implicit debt is inextricably linked to diversified economic development dynamics [36] (p. 113), developed regions have strong debt repayment ability. Therefore, to meet the capital demand within the repayment ability, the government of developed regions is more likely to borrow implicit debt.

4. Conclusions and Policy Suggestions

Using panel data of 275 prefecture-level cities in China, this paper examines the mechanism of land negotiation policy on the scale of local government hidden debt through multiperiod differential method and verifies the empirical results by robustness test and heterogeneity analysis. The results show that: (1) Land negotiation has a significant positive effect on local hidden debt, which makes the scale of local government hidden

debt continue to expand, and which is not conducive to the sustainable development of government finance. (2) The land negotiation policy is transmitted to the hidden debt of local government by affecting land finance; (3) The greater the degree of soft budget constraint and the degree of government competition, the smaller the policy effect of land negotiation on the hidden debt of local government, and the greater the degree of fiscal decentralization, the greater the policy effect of land negotiation on the hidden debt of local government. (4) Land negotiation promoted the expansion of implicit debt in the eastern region and inhibited the expansion of implicit debt in the central region but was not significant in the western region. (5) The effect of urban land negotiation policy on the hidden debt of local government is significantly positive in large cities but not significant in small cities. (6) In cities with higher economic development levels, land negotiation has a more significant promoting effect on the hidden debt of local governments.

Based on the above conclusions, this paper provides the following insights: Firstly, in addition to soft negotiation tactics, rigid corrective constraints must be tightened, and a clear accountability and punishment mechanism should be introduced for cases that involve multiple interviews or inadequate rectification. Currently, most land negotiation policies are still in the stage of "interview–rectification", with no clear unified regulation or system for holding accountable the outcomes of these negotiations. Given China's administrative system of delegating responsibility layer by layer, the actual impact of land negotiation can vary significantly. The current policy regarding land negotiations primarily serves as a warning mechanism that emphasizes "focusing on typical cases". In certain regions, the government conducts interviews layer by layer in a systematic manner and performs repeated interviews in areas with significant problems. As a result, the deterrence of these interviews is mainly concentrated in areas where land violations are severe, while their impact on other regions remains uncertain. The land negotiation policy itself possesses political advantages that combine firmness and flexibility. Therefore, it is crucial to fully utilize these two advantages in the policy implementation process. This involves providing rectification suggestions during negotiations and clarifying the consequences of violating regulations to create a clearer, more flexible and effective land behavior restraint system. Secondly, as the land negotiation policy is implemented, it is imperative to consider the influence of land finance, fiscal constraints, decentralization of fiscal right, and government competition. The land negotiation policy should be integrated into the current administrative system to enhance its effectiveness while also accounting for these factors. In setting the feedback indicators for land negotiations, it is essential to consider other indicators in different regions to create policy synergy and avoid one-sided policy implementation. This approach will enable regions with issues to better complete their economic and financial mode transformation. Thirdly, the land negotiation policy should be established based on a thorough understanding of the sustainable financial development and resource endowment of each local government. The original purpose of this policy is to restrain local government's land behavior. However, it is also crucial to reasonably address issues such as the fiscal gap that arise in a short time after the restriction has been implemented. To ensure a smooth transition to a special stage and prevent financial shortages from causing hidden debt inflation, it is imperative to formulate relevant rectification indicators that are tailored to the local characteristics [37]. Fourth, more supervisory bodies should be integrated into the regulatory system while enhancing transparency in the relevant information disclosure system. By fostering cooperation among the public, experts, and the government, we can enhance problem detection mechanisms, rectification feedback mechanisms, and accountability reward and punishment mechanisms. This approach will enable the land negotiation policy to shift from being limited to supervising and inspecting government circulation to monitoring government behavior with greater involvement of the public in practical ways.

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References

1. Liu, J.; Peng, J. Does land interview inhibit local government land finance?—An empirical analysis based on double difference method. *China Land Sci.* **2022**, *7*, 34–42.
2. Shen, K.; Shi, Y. Manifestation, scale measurement and risk assessment of local government hidden debt. *Econ. Dyn.* **2022**, *7*, 16–30.
3. Li, L.; Liu, J. The formation mechanism and governance mechanism of local government hidden debt–Based on the perspective of fiscal decentralization and land finance. *Soc. Sci.* **2019**, *5*, 59–71.
4. Romano, B.; Zullo, F.; Fiorini, L.; Montaldi, C. Micromunicipality (MM) and Inner Areas in Italy: A Challenge for National Land Policy. *Sustainability* **2022**, *14*, 15169. [CrossRef]
5. Wiegandt, C. Urban development in Germany: Perspectives for the future. *Geo J.* **2000**, *50*, 5–15.
6. Zaborowski, T. It's All about Details. Why the Polish Land Policy Framework Fails to Manage Designation of Developable Land. *Land* **2021**, *10*, 890. [CrossRef]
7. Weber, C. Interaction model application for urban planning. *Landsc. Urban Plan.* **2003**, *63*, 49–60. [CrossRef]
8. Andersen, H.T.; van Kempen, R. New trends in urban policies in Europe: Evidence from the Netherlands and Denmark. *Cities* **2003**, *20*, 77–86. [CrossRef]
9. Smedby, N.; Neij, L. Experiences in urban governance for sustainability: The Constructive Dialogue in Swedish municipalities. *J. Clean. Prod.* **2013**, *50*, 148–158. [CrossRef]
10. Halleux, J.-M.; Nordahl, B.I.; Havel, M.B. Spatial Efficiency and Socioeconomic Efficiency in Urban Land Policy and Value Capturing: Two Sides of the Same Coin? *Sustainability* **2022**, *14*, 13987. [CrossRef]
11. Burkardt, N.; Thomas, R.E.W. Navigating the Space between Policy and Practice: Toward a Typology of Collaborators in a Federal Land Management Agency. *Soc. Nat. Resour.* **2022**, *35*, 1333–1351. [CrossRef]
12. Mizero, M.; Maniriho, A.; Bashangwa Mpozi, B.; Karangwa, A.; Burny, P.; Lebailly, P. Rwanda's Land Policy Reform: Self-Employment Perspectives from a Case Study of Kimonyi Sector. *Land* **2021**, *10*, 117. [CrossRef]
13. Hardiyanto, B. Politics of land policies in Indonesia in the era of President Susilo Bambang Yudhoyono. *Land Use Policy* **2021**, *110*, 105134. [CrossRef]
14. Han, Z.; Liu, Y. The governance tool of rigidity and flexibility and its governance advantages—A case study of administrative interview. *J. Gansu Inst. Adm.* **2021**, *1*, 32–41. [CrossRef]
15. Cai, S. The governance function, role logic and legal norms of administrative interview. *Leadersh. Sci.* **2022**, *8*, 119–122.
16. Lizhen, L.; Xiumei, A. Local Government Implicit Debt Under China's Public Private Partnerships: Scope, Formation and Governance. *J. Invest. Manag.* **2018**, *5*, 133.
17. Pang, C. The Development of Implicit Debt of Local Government and the Countermeasures of Financial Institutions. In Proceedings of the 2020 4th International Conference on Economics, Toronto, ON, Canada, 3–5 June 2020.
18. Thomas, W.; Xueying, Z.; Aoran, Z.; Yulin, W. Fact or fiction: Implicit government guarantees in China's corporate bond market. *J. Int. Money Financ.* **2021**, *116*, 102414.
19. Zijun, W.; Rettenmaier, A.J. Deficits, Explicit Debt, Implicit Debt, and Interest Rates: Some Empirical Evidence. *South. Econ. J.* **2008**, *1*, 208–222.
20. Zdenek, D.; Schneider, O. Size of the Public Sector, Contingent Liabilities, and Structural and Cyclical Deficits in the Czech Republic. *Post-Sov. Geogr. Econ.* **2000**, *5*, 311–340.
21. Zhao, Y.; Li, Y.; Feng, C.; Gong, C.; Tan, H. Early Warning of Systemic Financial Risk of Local Government Implicit Debt Based on BP Neural Network Model. *Systems* **2022**, *6*, 207. [CrossRef]
22. Wang, J.; Lei, P. A new tool for environmental regulation? The connection between environmental administrative talk policy and the market disciplinary effect. *J. Clean. Prod.* **2020**, *275*, 124–162. [CrossRef]

23. Ya, C.; Yankun, Z. Analysis of the Effectiveness of the Administrative Talk to Environmental Supervision in China. *Open J. Bus. Manag.* **2016**, *4*, 716–730.
24. Shapiro, S.P. Agency theory. *Annu. Rev. Sociol.* **2005**, *31*, 263–284. [CrossRef]
25. Pan, J.N.; Huang, J.T.; Chiang, T.F. Empirical study of the local government deficit, land finance and real estate markets in China. *China Econ. Rev.* **2015**, *32*, 57–67. [CrossRef]
26. Guan, Z.; Fan, Y. Soft budget constraints, economic growth and the scale of local government hidden debt. *J. Anhui Univ. (Philos. Soc. Sci.)* **2020**, *3*, 143–156.
27. Xu, J.; Zhang, X. China's sovereign debt: A balance-sheet perspective. *China Econ. Rev.* **2014**, *31*, 55–73. [CrossRef]
28. Spieth, P.; Lerch, M. Augmenting innovation project portfolio management performance: The mediating effect of management perception and satisfaction. *RD Manag.* **2014**, *5*, 498–515. [CrossRef]
29. Xu, J.; Mao, J.; Guan, X. Re-understanding of Local Government Hidden Debt—Based on the Precise Definition of Financing Platform Companies and the Perspective of Financial Potential Energy. *Manag. World* **2020**, *9*, 37–59.
30. Erik, L.; Chengri, D. Local officials as land developers: Urban spatial expansion in China. *J. Urban Econ.* **2009**, *1*, 57–64.
31. Hu, H.; Li, J. Fiscal competition, soft budget constraints and corporate tax burden. *Econ. Manag.* **2022**, *6*, 153–171.
32. He, W.; Hou, J. Fiscal decentralization, public service supply and inclusive growth. *Financ. Econ.* **2023**, *1*, 61–69.
33. Wu, M.; Zhou, L. Promotion Incentives and Urban Construction: From the Perspective of Public Goods Visibility. *Econ. Res. J.* **2018**, *12*, 97–111.
34. Wang, J.; Feng, Y.; Wu, Q. Does the "Three Land" Reform Affect Local Government Land Financial Revenue. *Rural Econ.* **2022**, *2*, 25–36.
35. Wang, J.; Skimore, M.; Wu, Q.; Wang, S. The impact of a tax cut reform on land finance revenue: Constrained by the binding target of construction land. *J. Urban Aff.* **2022**, *44*, 1311–1340. [CrossRef]
36. Hildreth, W.B.; Miller, G.J. Debt and the Local Economy: Problems in Benchmarking Local Government Debt Affordability. *Public Budg. Financ.* **2002**, *4*, 99–113. [CrossRef]
37. Gao, Y. Local Government Implicit Guarantees in China' s Farmland Financial System. *Academia* **2015**, *5*, 6.