

Will Government-driven Urbanization Exacerbate Urbanization Imbalances?

-- Empirical Evidence from "Abolishing County and Establishing City-administered District"

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Abstract. As a major form of administrative division adjustment in China since the reform and opening up, abolishing county and establishing district policy has reshaped the regional administrative power structure, which in turn has had a profound impact on regional economic and social development. Based on data from population census and land survey, this paper uses the general OLS method to estimate the effect of abolishing county and establishing city-administered district reform on the imbalance of urbanization development in prefecture-level cities. The study finds that the reform of abolishing counties and setting up districts softens the constraint of construction land targets and creates favorable conditions for local governments to "seek development through land use", but the larger supply of construction land eventually exacerbates the imbalance between population urbanization and land urbanization, and this finding still holds for cities where the initial relationship between people and land is not tense. By region, the effect of urbanization imbalance exacerbated by abolishing county and establishing district policy is significant in the eastern region but not in the central and western regions; moreover, the effect of urbanization imbalance exacerbated by county revocation is weakened in cities with higher degree of financial deepening. The rapid urbanization with land as the core has supported China's rapid economic growth for a long time in the past, but the role of land as an economic engine is declining. Promoting a new type of people-oriented urbanization and making efforts to improve the quality of urbanization construction is the right way to transform China's economic development mode and promote high-quality development in the future.

Keywords: Abolishing County and Establishing City-administered District; Urbanization Imbalance; Population Urbanization; Land Urbanization; Seeking Development Through Land Use.

1. Introduction

"Land is the engine of China's economic growth" (Shouying Liu, 2012). Whenever the economy shows signs of recession due to external shocks, in addition to active fiscal and monetary policies, the central government always relaxes "land root" regulation and reduces restrictions on local land supply, giving local governments the green light to "seeking development through land use"; Whenever the economy is overheated, the central government will also moderately tighten the land supply, strengthen "land root control", and restrict local governments from "seeking development through land use", which plays a role in cooling down the economy. The fact that land supply is highly controlled by the government and the dependence of local governments on "land finance" in the GDP championship make land supply policy a special role in China's macroeconomic control - the former ensures that the central government's land regulation is not interfered with by other factors, while the latter ensures that local governments can carry out the central government's policy intentions without compromise.

Especially since the outbreak of the financial crisis in 2008, the "export-investment" model on which China's economic growth has long depended has become unsustainable due to sluggish external demand, and investment in domestic demand, especially government investment, has had to assume the historical responsibility of stabilizing growth. The revenue and expenditure gap brought by large-scale government investment made local governments rely on the "seeking development through land use" model to an unprecedented extent, and the subsequent impact was also very far-reaching. The "seeking development through land use" growth model in this period started with large-

scale land expropriation, which transformed expropriated agricultural land into construction land and accelerated land urbanization; on the other hand, the starvation supply of commercial and residential land caused a rapid rise in housing prices, and local governments often lacked incentives to provide comprehensive public services to the rural population.

In short, under the "seeking development through land use" model, the difference between the growth rate of land urbanization and population urbanization is significantly magnified, which means that the "urbanization imbalance" is aggravated. Although this imbalance in the urbanization of people and land can play a role in "stabilizing economic growth" in the short term, without the support of corresponding urbanization of population, it will undermine the sustainable development of urban economy in the long term, and the "urbanization of land without urbanization of people" will also cause potential social problems such as the expansion of the scale of landless farmers.

Abolishing county and establishing city-administered district, i.e., the reorganization of counties or county-level cities under prefecture-level cities (municipalities directly under the central government) into municipal districts through administrative means. Since the economic development tasks undertaken by counties or county-level cities are significantly different from those of municipal districts, the former two need to undertake a considerable amount of tasks to promote agricultural and rural development, while municipal districts can focus on the development of secondary and tertiary industries, and carry out larger-scale urbanization, abolishing county and establishing district policy has long been widely used as an administrative division with the nature of government-driven urbanization. It can be seen that abolishing county and establishing district reform is inextricably linked to the land supply of cities. So, is the use of this government-driven urbanization model related to our government's land regulation under exogenous shocks, what role does it play in the process of "seeking development through land use" by local governments, and does it ultimately aggravate the imbalance of regional urbanization?

The answers to the above questions are helpful to clarify the connection between the reform of abolishing county and establishing district and the land supply of prefecture-level cities, to gain a deeper understanding of the real role played by abolishing county and establishing district in the process of promoting regional economic development by local governments, and to provide a reference at the administrative division level for the future transformation of China's economic development mode and the promotion of a new type of people-oriented urbanization.

2. Literature Review

2.1 Imbalance in Urbanization

The existing literature has argued from various perspectives that China's unique land system and the local government's "generate wealth from land" development model have played a decisive role in the phenomenon of population urbanization lagging behind land urbanization. Zhang (2018) argues that land urbanization is faster than population urbanization because local governments selectively promote urban growth to meet their own competitive development needs: on the one hand, they expand the size of urban land and thus capture more land rent revenue, and on the other hand, they strictly control the size of the population enjoying urban public goods. Some studies focus on land-level explanations: Xie Dongshui (2016) shows that the government monopoly of land supply provides a means for local governments to implement spatially oriented urbanization through land management; Ji Yunyang (2019) finds that the expansion of land financing drives land urbanization faster than population urbanization. Other studies focus on the mechanisms at the population level: Zhao Limin (2018) analyzes the inhibiting effect of land finance on population urbanization; similarly, Zhang Songlin (2021) finds that the household registration system and rapidly rising housing prices limit the access of rural migrant populations to urban convenience, making the increasing urban convenience in the land urbanization process eventually exhibit a negative aggregate effect on population urbanization.

2.2 Abolishing County and Establishing City-administered District

Most of the existing literature regards abolishing county and establishing city-administered district as a phenomenon of regional market integration and then explores the positive effects of such market integration through administrative means on the regional economy. For example, Peng Yang (2019) finds that county revocation and district creation inhibits the zombification of firms in the jurisdiction, and Hao Wenhan (2021) shows that the level of vertical division of labor in the former county firms increases significantly after county revocation and district creation.

Another part of the literature, in recognition of the role of abolishing county and establishing district to break administrative barriers and integrate regional markets, argues that the realization of regional integration can bring about agglomeration effects, which in turn have a positive impact on the macroeconomy. A study by Tang, Wei, and Wang, Yuan (2015) pointed out that regional market integration and urban agglomeration economies after disincorporation can increase the growth rate of urban population in urban municipalities and promote population urbanization. ; Zhan, X. Y. (2021) found that the agglomeration effect brought about by abolishing county and establishing district improves the quality of economic development in the jurisdictions through urban expansion.

It is also argued in the literature that as a regional integration policy, abolishing county and establishing district facilitates the free flow of factors and improves the efficiency of resource allocation (Ni, 2022). Deng Huihui (2020) found that abolishing county and establishing district can improve the efficiency of resource allocation among industries of different technology levels within cities, promote the development of high-tech industries and the elimination of low-tech industries, and realize the optimization of resource allocation; Chen Yihui (2022) found in a mechanism test that abolishing county and establishing district promoted the innovation activities of enterprises by enhancing the "agglomeration effect" of the economy in the region and Chen (2022) found that the abolition of counties and districts promoted the innovative activities of enterprises by enhancing the "agglomeration effect" of the economy in the region and the optimal allocation of resources.

However, the results of another part of the study suggest that there may be negative facts hidden behind the reform: (1) Shao Chaodui (2018) points out that the abolishing county and establishing district mainly attracts a large number of low-productivity enterprises to enter through the local government's operation of land, which in turn leads to the rapid accumulation of production factors such as capital and labor and thus short-term economic growth. In fact, this has led to a decline in production efficiency and an increase in resource mismatch. (2) There is also a part of the literature that establishes a link between replacing county with district and local government debt. Qiao (2021) finds that abolishing county and establishing district significantly increases the issuance size and probability of urban investment bonds, and further mechanism tests suggest that abolishing county and establishing district policy increases land resources at the disposal of prefecture-level municipal governments and raises their debt-servicing expectations, which in turn drives prefecture-level municipal governments to expand local government debt; Wang (2022) and Liu Pan (2022) find that the reform has a significant impact on local government debt measured by the indirect method, respectively. The latter also finds in a mechanism test that abolishing county and setting up district can support the debt expansion of financing platforms by enhancing the capital injection capacity of prefecture-level municipalities. (3) In addition, Li (2022) argues that there is an incentive for local governments to weaken the responsibility of food production by abolishing county and establishing district, and the empirical results show a significant positive relationship between the responsibility of food production in counties and abolishing county and establishing district policy enforced by local governments.

Other literatures have also studied the impact of abolishing county and establishing district policy in terms of urban basic public services (Liang Zhiyan, 2019; Xie Zhenfa, 2022), local fiscal revenue and expenditure (Ji Li, 2019; Qian Jinbao, 2019; Fan Ziyang, 2020; Yang Jiankun, 2022) and structure (Zhang Li, 2018), respectively.

As can be seen, there is little literature examining the relationship between the reform of replacing county with district and urbanization imbalance changes in prefecture-level cities, and the only

literature on the subject is that of Yang Tongbin (2020); however, there are obvious flaws in the statistical caliber of his study, leading to potentially serious biases in the conclusions drawn in the article. On the one hand, since it uses the total population of municipal districts to represent the urban population, it does not eliminate the estimation bias caused solely by the adjustment of administrative divisions. In addition, since municipal districts are only administrative concepts, the large rural population existing within the abolished counties is also classified as urban population under this statistical caliber, greatly overestimating the size of the urban population.

In summary, there is little literature on the impact of abolishing county and establishing district policy on the imbalance of regional urbanization from the perspective of local governments' land management, and the only literature that exists has problems with data and statistical caliber. In view of this, this paper uses census and land survey data to construct more reasonable indicators for measuring population urbanization and land urbanization respectively, avoiding the problem of estimation bias caused by administrative division adjustment, and on this basis, we examine the impact of abolishing county and establishing district policy on the change of urbanization imbalance in the sample prefecture-level cities during 2010-2020. Compared with the existing literature, the marginal contribution of this paper is the discovery of how abolishing county and establishing district policy, as government-driven urbanization, is linked to the "seeking development through land use" model of local governments and thus acts on urbanization imbalances. This finding provides a new perspective for understanding the land use behavior of local governments in the context of investment-driven "stabilizing growth" in post-financial crisis China, and also provides empirical evidence on administrative districts for future exploration of a people-centered urbanization path.

3. Theoretical Mechanisms and Research Hypotheses

Abolishing county and establishing city-administered district is not just a process of prefecture-level cities expanding the geographical area they can directly manage; the more important change is actually the elevation of counties (county-level cities) to municipal districts. In China, counties (county-level cities) are regional political district that focus on agriculture, while municipal districts are urban-based political districts that focus on secondary and tertiary industries (Li, Ning, 2023); the different nature and functions of counties (county-level cities) and municipal districts determine the differentiated policy provision they enjoy in China's administrative system, which is particularly evident in terms of land use policies. As shown in Table 1, municipal districts, as urban-type political districts, clearly have more construction land targets than counties or county-level cities, which are tasked with heavier agricultural production.

Table 1. The target of construction land in municipal districts is obviously higher than that of counties and county-level cities which bear the heavy responsibility of agricultural production

Policy Areas		County	County-level cities	Municipalities
Land Use	Independence	Independent, with autonomous responsibility for land acquisition, supply and approval	Independent, with autonomous responsibility for land acquisition, supply and approval	Not independent, all types of areas under municipal jurisdiction must be integrated into the unified management and supply of the city in which they are located
	Restricted Situation	Basic farmland protection, construction land index and housing expropriation plan index on state-owned land is restricted	Increase in construction land index	Land regulation space increased, construction land area expanded, arable land occupation balance indicators city coordination
	Authority	Less authority to approve construction land area	Construction land area approval authority is greater than the county	Approval from prefecture level municipal government is required

Source: Kuang, Zhensheng (2020)

The above-mentioned facts show that counties or county-level cities may obtain more construction land indicators due to the abolition of county and the establishment of city-administered district, which is obviously a good thing for local governments that rely on the "seeking development through land use" model, but this development model also brings a heavy price to regional economic development.

Xie Dongshui (2016) points out that the competition mechanism among local governments oriented to economic growth and increased fiscal revenue provides an inherent incentive for local governments to favor spatial urbanization over population urbanization, and the government monopoly supply of land provides a means for local governments to implement the behavior of favoring spatial urbanization through land management. When abolishing county and establishing district policy loosens the constraint of land use targets for prefecture-level municipalities, it is obvious that prefecture-level municipal governments in the midst of the harsh GDP tournament can hardly resist the temptation to expand the supply of new construction land and achieve a larger scale of "seeking development through land use". As mentioned above in the literature on urbanization imbalance (Zhang, 2018; Ji, 2019; Zhao, 2018), a larger scale of "seeking development through land use" will only bring about a more serious urbanization imbalance and overdraw the potential for future economic growth. The specific mechanism of action is shown in Fig. 1.

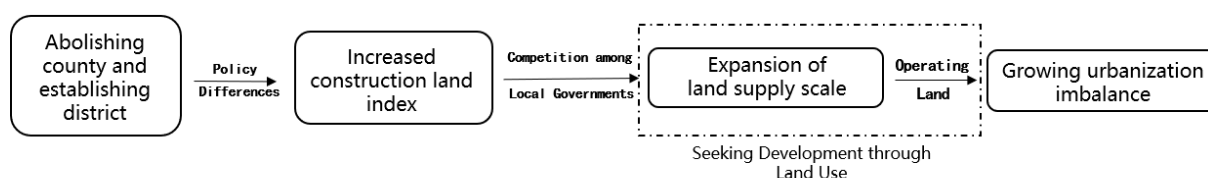


Fig 1. Mechanism of the effect of abolishing county and establishing city-administered district on urbanization imbalance

Accordingly, the following hypothesis is proposed in this paper.

H1: Abolishing county and establishing district policy aggravates the urbanization imbalance of prefecture-level cities by triggering rapid land urbanization that is not matched by corresponding population urbanization.

H2: Abolishing county and establishing district policy will increase the amount of land monopoly supply by local governments, eventually leading to an increased imbalance of urbanization in prefecture-level cities.

Of course, the effect of abolishing county and establishing district policy to exacerbate urbanization imbalances may also vary depending on the characteristics of cities. On the one hand, China has a land supply policy that favors the central and western regions (Chang Chen, 2017), and land supply in the eastern region is more strictly controlled, which may make the effect of the policy pushing up land supply significant in the eastern region, while the land supply of prefecture-level cities in the central and western regions is not sensitive to the reform, ultimately leading to different effects of abolishing county and establishing district policy on urbanization imbalance in cities in different regions; On the other hand, a sound financial system can provide financial support for entrepreneurs of different types, sizes, and natures and ease financing constraints (Bai, 2022); therefore, cities with a higher degree of financial deepening are conducive to the expansion of existing enterprises or the growth of start-ups in the region, which in turn improves the degree of matching the growth of new construction land caused by abolishing county and establishing district policy with regional economic fundamentals and makes urbanization imbalance less likely to occur. This paper proposes the following hypothesis. Based on this, this paper proposes the following hypothesis.

H3: The effect of abolishing county and establishing district policy from cities in the eastern region on their urbanization imbalance is greater, while the effect of abolishing counties from cities in the central and western regions on their urbanization imbalance is weak.

H4: Abolishing county and establishing district policy in prefectures with higher financial deepening rate has less effect on aggravating urbanization imbalances than in prefectures with lower financial deepening rate.

4. Econometric Model, Variable Selection and Data Description

4.1 Econometric Model

To test the effect of abolishing county and establishing district policy on the change of urbanization imbalance, we construct the following econometric model:

$$\Delta Unbalance = \alpha + \beta \times Merger_i + \phi X_i + \varepsilon_i \quad (1)$$

where *Unbalance* denotes urbanization imbalance, and *i* represents the prefecture-level cities, and $\Delta Unbalance$ denotes the change in urbanization imbalance of prefecture-level cities between 2010 and 2020, and its value is determined by $Unbalance_{i,2020}/Unbalance_{i,2010}$. $Merger_i$ is the core explanatory variable, denoting prefecture-level cities *i* whether to enforce abolishing county and establishing district policy. X_i is a set of control variables, and α is a constant term, and β is the parameter to be estimated in the empirical analysis, and measures the effect of abolishing county and establishing district policy of prefecture-level cities on the change of urbanization imbalance. ϕ is the coefficient matrix of control variables, and ε_i is the random error term.

However, the above model cannot explain how abolishing county and establishing district policy specifically affects the urbanization imbalance, i.e., it does not capture the impact of the policy on land urbanization and population urbanization, respectively. Therefore, drawing on Yang, Tongbin (2020), the following econometric model continues to be set up:

$$\Delta Land = \alpha + \theta \times Merger_i + \phi X_i + \varepsilon_i \quad (2)$$

$$\Delta Population = \alpha + \lambda \times Merger_i + \phi X_i + \varepsilon_i \quad (3)$$

of which *Land* and *Population* represent the urbanization rate of land and the urbanization rate of population, respectively. $\Delta Land$ and $\Delta Population$ represent the changes in the urbanization rates of land and population of prefecture-level cities during 2010-2020, respectively, and the values of both are expressed by $Land_{i,2020}/Land_{i,2010}$ and $Population_{i,2020}/Population_{i,2010}$. θ and λ denote the effect of abolishing county and establishing district policy on the change of urbanization rate of land and population over 10 years for abolishing counties and districts, respectively, and other symbols have the same meaning as in equation (1).

4.2 Variable Selection

4.2.1 Explanatory Variables

Referring to Yang Tongbin (2020), this paper uses the urbanization rate of land (*Land*) to the population urbanization rate (*Population*) ratio to measure the urbanization imbalance (*Unbalance*), which in turn indicates the change of urbanization imbalance $\Delta Unbalance$ for the land urbanization rate and the population urbanization rate, the following equations are used to express them respectively, drawing on Tang, Yudi (2020):

$$\text{Land urbanization rate} = \text{urban construction land/urban and rural construction land} \quad (4)$$

$$\text{Population urbanization rate} = \text{urban resident population/urban and rural resident population} \quad (5)$$

4.2.2. Core Explanatory Variables

Referring to Tang, Wei, and Wang, Yuan (2015), based on the observation of the intensity of abolishing county and establishing district reforms occurring in each year (see Fig. 2), this paper chooses to focus on the reforms that occurred from 2010 to 2016. When the reforms occurred in prefecture-level cities from 2010-2016, the dummy variable $Merger_i$ (whether the county was abolished and set up as a district) is taken as 1, and when it did not occur, the dummy variable $Merger_i$ takes 0.

4.2.3. Control Variables

In this paper, the following variables representing the initial economic and social development of prefecture-level cities, which may simultaneously influence the change of urbanization imbalance and prompt the enforcement of abolishing county and establishing district policy in prefecture-level cities, are selected as control variables: 1)Economic structure: expressed as the ratio of tertiary industry output to GDP in 2010 in prefecture-level cities. 2) Land use intensity: expressed as the ratio of the built-up area of prefecture-level cities to the total area of jurisdiction in 2010. 3)Administrative level dummy variable: The administrative level dummy variable is assigned to 1 for sub-provincial cities and provincial capitals, and 0 for other prefecture-level cities. 4)Fiscal expenditures: Expressed as per capita fiscal expenditures of prefecture-level cities in 2010 based on resident population (unit: 10,000 yuan/person). 5) Public service level: expressed as the number of doctors per 100 people in prefecture-level cities calculated based on the resident population in 2010. (6) Investment in science and education: The proportion of the expenditure on science and education to the total fiscal expenditure of prefecture-level cities in 2010 is used to measure the strength of investment in science and education by prefecture-level cities. (7) Concentration of financial resources: The proportion of general public budget revenue of municipal districts to general public budget revenue of prefecture-level cities is used as an indicator to measure the concentration of financial resources of prefecture-level cities.

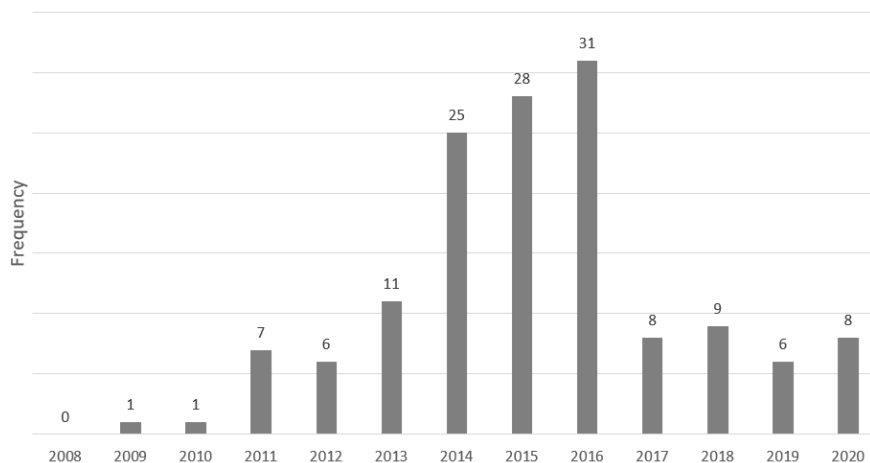


Fig 2. The frequency of abolishing county and establishing district occurred in each year (Source: Ministry of Civil Affairs official website)

4.3 Data Description

The data on urban and village land use used in this paper come from the data of the second and third land survey in the shared application service platform of land survey results; the data on urban and rural permanent population come from the data of the sixth and seventh population census; the data on economic characteristics and financial deepening rate of prefecture-level cities involved in the control variables come from the China Urban Statistical Yearbook; the data on the area of new construction land supply in prefecture-level cities from 2010 to 2020 come from China Land Market Network; data on abolishing county and establishing district policy and cities established through the separation of urban areas from counties are obtained through the national administrative division information query platform provided by the Ministry of Civil Affairs and the Chinese government website, respectively. In the absence of land use data broken down into districts and counties in 2010, and considering that the imbalance in urbanization caused by abolishing county and establishing district policy must be reflected in the citywide caliber data, the citywide caliber data are used for all the prefecture-level cities in this paper, following Liu Pan (2022).

Based on the national city lists in 2010 and 2020, this paper continues to treat the sample as follows after removing the prefecture-level cities that were newly established or abolished during 2010-2020, drawing on the existing literature: (1) excluding the four municipalities directly under the central

government and the sample of prefecture-level cities located in Xinjiang Uygur Autonomous Region, Tibet Autonomous Region, and Ningxia Hui Autonomous Region due to the specificity of administrative divisions; (2) excluding Dongguan, Zhongshan, Sansha, Jiayuguan, and Sanya, which were not established as counties at the beginning of the sample period; (3) excluding the sample of prefecture-level cities that abolishing county and establishing district policy was implemented in 2007-2009 and 2017-2020, because the length of time covered by their abolition effects was significantly different from that of cities that the policy was implemented in 2010-2016; (4) excluding Shenzhen, because it is entirely an urban-type political region, without the existence of established towns and villages, and it is not possible to explore its urbanization imbalance. In addition, based on observing the histogram of the sample distribution of the dependent variable, a 0.5% truncation of the right-hand side of the dependent variable is applied to eliminate outliers. The descriptive statistics of the main variables are shown in Table 2.

Table 2. Descriptive statistics of main variables

Variable Name	Variable Meaning	Sample Size	Average Value	Standard Deviation	Minimum Value	Maximum Value
<i>ΔUnbalance</i>	Changes in urbanization imbalance	242	0.87	0.16	0.4887784	1.768361
<i>Merger</i>	Whether the reform occurs	242	0.26	0.44	0	1
<i>Ind3</i>	Share of tertiary sector in GDP	242	0.35	0.08	0.1448	0.6958
<i>LandIntens</i>	Share of built-up area	242	0.01	0.02	0.0001105	0.1462174
<i>AdminLevel</i>	Whether it is a high - level city	242	0.09	0.28	0	1
<i>Exp</i>	Per capita financial expenditure	242	0.45	0.31	0.1609066	4.293328
<i>Doctor</i>	Number of doctors per 100 resident population	242	0.18	0.07	0.0692622	0.6426165
<i>SciEdu</i>	Proportion of science and education expenditure	242	0.19	0.04	0.0199156	0.3678764
<i>RevProp</i>	Share of municipal revenue	242	0.51	0.25	0.0489953	1

5. Empirical Results and Analysis

5.1 Baseline Regression

First, we test the effect of abolishing county and establishing district policy on the change of urbanization imbalance in prefecture-level cities according to model (1). As shown in columns (1) and (2) of Table 3, the effect of abolishing county and establishing district policy on the change of urbanization imbalance in prefecture-level cities is significantly positive at the 1% level with or without the inclusion of control variables. The results in column (2) show that the change in urbanization imbalance in prefecture-level cities with the implementation of abolishing county and establishing district policy increases by 6.9% compared to prefecture-level cities without the implementation of the policy, indicating that abolishing county and establishing district policy exacerbates the urbanization imbalance.

In order to explore the intrinsic causes of urbanization imbalance exacerbated by the policy, models (2) and (3) are continued to be tested below. Column (3) of Table 3 shows that abolishing county and establishing district policy has a significant positive effect on the change in land

urbanization rate of prefecture-level cities, however, the regression results in column (4) indicate that the effect of abolishing county and establishing district policy on the change in population urbanization is not significant. This indicates that the land urbanization rate of prefectural cities with the implementation of the policy grows faster relative to prefectural cities without such reforms, yet there is no significant difference between the former and the latter in terms of the performance of population urbanization.

The findings in Table 3 support hypothesis H1 that abolishing county and establishing district policy leads to an increase in urbanization imbalance by causing a land-biased increase in the urbanization rate of prefecture-level cities.

Table 3. Baseline regression results

Explanatory Variable	$\Delta Unbalance$		$\Delta Land$	$\Delta Population$
	(1)	(2)	(3)	(4)
<i>Merger</i>	0.066*** (2.60)	0.069*** (2.87)	0.072*** (2.79)	-0.015 (-0.78)
<i>Ind3</i>		0.003 (0.02)	-0.127 (-0.69)	-0.102 (-0.64)
<i>LandIntens</i>		2.286*** (3.27)	0.753 (1.03)	-2.134*** (-4.01)
<i>AdminLevel</i>		-0.049 (-1.22)	-0.006 (-0.12)	0.067** (2.15)
<i>Exp</i>		0.021 (0.71)	-0.016 (-0.22)	-0.052 (-1.15)
<i>Doctor</i>		0.046 (0.40)	-0.381** (-2.53)	-0.649*** (-4.25)
<i>SciEdu</i>		0.911*** (3.64)	1.034*** (3.41)	-0.115 (-0.47)
<i>RevProp</i>		0.123** (2.54)	-0.033 (-0.60)	-0.246*** (-5.62)
CONSTANT	0.850*** (78.11)	0.574*** (8.00)	1.032*** (11.00)	1.646*** (23.74)
Observations	242	242	242	242
R ²	0.034	0.214	0.139	0.376

5.2 Robustness Test

5.2.1 Omission of Variable Bias

The omission of certain important explanatory variables may introduce serious endogeneity problems and lead to biased estimated coefficients, which is the reason why this paper collects as many control variables as possible. However, if certain unobservables are still present in addition to those that have been included in the model for control in this paper, is the conclusion of this article still valid after considering these unobservable omitted variables? Drawing on Ma Shuang (2018), the following paper uses the method proposed by Oster (2019) for robustness testing.

Table 4. Bias test for omitted variables

Inspection Method	Judgment Criteria	Actual Calculation results	Does it Pass
(1)	$\beta * (R_{max}, \delta) \in [0.0216, 0.1163]$	$\beta * (R_{max}, \delta) = 0.06787$	Yes
(2)	$\delta > 1$	$\delta = 30.12$	Yes

In the same way as Ma Shuang (2018), this paper takes the following two approaches to test the empirical results: (1) δ taking -1, R_{max} taking 1.3 times the current goodness-of-fit, if $\beta^* = \beta^*(R_{max}, \delta)$ falls within the 95% confidence interval of the estimated parameters, the test is passed; (2) R_{max} takes the same value as (1) and calculates the value that makes $\beta = 0$ for δ and if the value of δ is greater than 1, the test is passed.

The results of the robustness tests are shown in Table 4. It can be found that regardless of using method (1) or method (2), the results of this paper passed the test, indicating that the omitted variable bias has been well controlled.

5.2.2 Exclude the Cities Established through the Separation of Urban Area from County

Creating a city by separating urban area from county, which refers to the creation of a city from a part of the administrative area of a county with developed secondary and tertiary industries and the division of the original county into two separate administrative areas, is the main model of city creation in China from the early 20th century to the early reform and opening up (Zhao Yicai, 2019), and it can be said that the first 70 years of China's municipal system basically adopted separating urban area from county model (Jin Ergang, 1996). The cities established by the model often have a small urban area surrounded by counties, and the expansion of the city is easily constrained by the space of the surrounding cities and counties, while abolishing county and establishing district can alleviate this urban space constraint caused by the use of historical administrative divisions (Liu Junde, Fan Jinzhao, 2015). Therefore, even if prefecture level cities with the problem of separating urban area from county at the beginning of the sample period experienced faster land urbanization than population urbanization after abolishing county and establishing district, the result may be an alleviation of the contradiction between people and land, and a balance between land urbanization and population urbanization.

Table 5. Exclusion of cities with urban area separating from county problem

	$\Delta Unbalance$
<i>Merger</i>	0.067** (2.08)
<i>Ind3</i>	0.102 (0.78)
<i>LandIntens</i>	2.177*** (3.10)
<i>AdminLevel</i>	-0.070 (-1.39)
<i>Exp</i>	0.011 (0.33)
<i>Doctor</i>	0.096 (0.75)
<i>SciEdu</i>	0.708*** (2.93)
<i>RevProp</i>	0.110** (2.14)
CONSTANT	0.582*** (7.49)
Observations	207
R ²	0.201

Based on the above discussion, excluding the sample of prefectural-level cities that abolished counties and established districts in 2010 with the problem of separating urban area from county(The method to determine whether prefecture-level cities have the problem of urban area separating from county is to add the cities that underwent separating urban area from county reform 1978 to 2010 to the list of cities in 1978, and finally delete the sample that underwent abolishing county and establishing district or merger of district and county after separating urban area from county reform to 2010 to get the list of prefecture-level cities that have separating urban area from county problem.), the regression can make the conclusion that the urbanization imbalance is aggravated by abolishing county and establishing district policy more robust. The regression results are reported in Table 5, which shows that the effect of abolishing county and establishing district policy on the change of urbanization imbalance is still significantly positive, and the estimated coefficient decreases from

0.069 in the baseline regression to 0.067, indicating that the conclusion that the policy exacerbates urbanization imbalance still holds after taking into account the effect of prefecture-level municipalities' separating urban area from county problem.

5.2.3 Replace the Urbanization Imbalance Measure

Urban construction land area per capita is an indicator that can measure the relationship between population urbanization and spatial urbanization in a more direct way (Cai, J. 2013). Therefore, in this paper, the urban land area per capita for construction (The calculation formula is: urban construction land area per capita = prefecture-level urban land area / prefecture-level urban resident population.) is used as a proxy for urbanization imbalance in the regression to observe the effect of abolishing county and establishing district on the change of urban land area per capita ($\Delta UrbanLandper$) in prefecture-level cities from 2010 to 2020. The results are shown in Table 6. Obviously, the reform of abolishing county and establishing district promotes the growth of urban land area per capita in prefecture-level cities, indicating that the conclusion that the policy leads to faster land urbanization than population urbanization in prefecture-level cities is robust.

Table 6. Replacement of urbanization imbalance measure

	$\Delta UrbanLandper$
<i>Merger</i>	0.066* (1.84)
<i>Ind3</i>	-0.112 (-0.58)
<i>LandIntens</i>	0.508 (0.62)
<i>AdminLevel</i>	-0.177*** (-3.16)
<i>Exp</i>	-0.048 (-0.74)
<i>Doctor</i>	-0.073 (-0.40)
<i>SciEdu</i>	0.378 (1.09)
<i>RevProp</i>	0.061 (0.96)
CONSTANT	1.038*** (10.79)
Observations	242
R ²	0.080

5.3 Mechanism Test

Through the regression of model (1), this paper tests the effect of abolishing county and establishing district policy on the imbalance of urbanization; based on this, and referring to Xie Tingting (2022), this paper continues to construct model (6) and model (7), the former is used to test the effect of abolishing county and establishing district policy on the supply of new construction land in prefecture-level cities, and the latter can test the effect of abolishing county and establishing district policy and construction land supply on the imbalance of urbanization at the same time.

$$\Delta LandSupply = \alpha + \gamma \times Merger_i + \phi X_i + \varepsilon_i \quad (6)$$

$$\Delta Unbalance = \alpha + \eta \times Merger_i + \rho \times \Delta LandSupply + \phi X_i + \varepsilon_i \quad (7)$$

In this paper, the total area of new construction land in prefecture-level cities from 2010-2020 is chosen as the logarithm of government land monopoly supply ($\Delta LandSupply$), and then substituted into model (6) and model (7) for regression respectively. Firstly, we need to verify whether abolishing county and establishing district policy is beneficial for prefecture level cities to expand land

monopoly supply. As shown in Table 7, the effect of the policy to expand new construction land in prefecture-level cities is significant at the 1% level, indicating that abolishing county and establishing district does relax the constraint of construction land supply in prefecture-level cities and creates convenient conditions for prefecture-level cities to seek development through land use.

Table 7. Mechanism test 1

	$\Delta LandSupply$
<i>Merger</i>	0.325*** (3.88)
<i>Ind3</i>	0.255 (0.41)
<i>LandIntens</i>	0.971 (0.41)
<i>AdminLevel</i>	0.806*** (4.99)
<i>Exp</i>	0.067 (0.63)
<i>Doctor</i>	-0.182 (-0.40)
<i>SciEdu</i>	1.553 (1.62)
<i>RevProp</i>	-0.701*** (-3.46)
CONSTANT	9.414*** (29.07)
Observations	242
R ²	0.261

Table 8. Mechanism test 2

	$\Delta Unbalance$
<i>Merger</i>	0.057** (2.10)
$\Delta LandSupply$	0.037** (1.97)
<i>Ind3</i>	-0.007 (-0.05)
<i>LandIntens</i>	2.250*** (3.38)
<i>AdminLevel</i>	-0.079* (-1.77)
<i>Exp</i>	0.019 (0.63)
<i>Doctor</i>	0.053 (0.44)
<i>SciEdu</i>	0.854*** (3.29)
<i>RevProp</i>	0.149*** (2.91)
CONSTANT	0.224 (1.15)
Observations	242
R ²	0.229

The regression results based on model (5) are shown in Table 8. it can be seen that the expansion of construction land supply has a positive effect on urbanization imbalance, and the coefficient of the effect of abolishing county and establishing district on urbanization imbalance decreases after adding

the construction land supply variable compared with the results in column (2) of Table 3, which indicates that abolishing county and establishing district policy has an effect on the change of urbanization imbalance by changing the supply of construction land. The regression results in Tables 7 and 8 support hypothesis H2 and prove that abolishing county and establishing district policy does exacerbate the urbanization imbalance through the wide supply of construction land.

5.4 Heterogeneity Analysis

5.4.1 Regional Heterogeneity

As mentioned in the theoretical mechanism and research hypothesis, in order to reduce regional development differences, construction land supply in eastern cities in China is more strictly controlled compared to central and western cities, therefore, dividing the sample into eastern, central, western and mid-western and then conducting linear regressions, we can observe whether regional differences in construction land supply policies affect the influence of abolishing county and establishing district on urbanization imbalance. The estimation results in Table 9 show that the effect of abolishing county and establishing district exacerbating urbanization imbalance is only significant in the eastern region, while the reform in central and western cities does not have a significant effect on the change of urbanization imbalance. Since the central and western cities enjoy a more relaxed land supply policy for construction, abolishing county and establishing district policy may not have a direct effect on the imbalance of urbanization because it does not alleviate the constraint of construction land indexes; the land indexes of the eastern cities are under the more stringent control of the higher government, so the effect of softening the constraint of construction land indexes brought by abolishing county and establishing district policy is certainly more obvious. Therefore, the effect of the policy on the change of urbanization imbalance is also more significant. The above results validate hypothesis H3 and suggest that there are indeed regional differences in the effect of abolishing county and establishing district policy on urbanization imbalance.

Table 9. Regional heterogeneity

	Explained Variable = $\Delta Unbalance$			
	East	Middle	West	Midwest
<i>Merger</i>	0.093*** (2.72)	-0.016 (-0.52)	-0.006 (-0.21)	-0.020 (-0.85)
<i>Ind3</i>	-0.536 (-1.58)	-0.147 (-1.07)	-0.146 (-0.60)	-0.121 (-0.88)
<i>LandIntens</i>	2.512*** (3.17)	0.688 (0.45)	7.107 (1.15)	2.083 (1.37)
<i>AdminLevel</i>	-0.101 (-1.55)	0.098 (1.58)	0.070 (0.43)	0.091 (1.61)
<i>Exp</i>	0.040* (1.71)	-0.165*** (-2.65)	0.128 (1.05)	-0.159** (-2.46)
<i>Doctor</i>	-0.286 (-0.88)	-0.041 (-0.37)	0.450 (1.09)	0.182 (1.39)
<i>SciEdu</i>	0.977** (2.38)	-0.214 (-0.71)	1.181** (2.22)	-0.076 (-0.24)
<i>RevProp</i>	0.207 (1.61)	0.071 (1.42)	-0.058 (-0.56)	0.042 (0.92)
CONSTANT	0.783*** (6.24)	0.969*** (10.28)	0.443** (2.27)	0.866*** (9.66)
Observations	97	99	46	145
R2	0.247	0.197	0.281	0.191

5.4.2 Differences in the Degree of Financial Deepening

The degree of financial deepening in cities characterizes the ability of the financial system to support the real economy. A well-developed financial system and strong support capacity of cities for the real economy can provide favorable conditions for the development of local enterprises and improve the matching degree of land urbanization and population urbanization. Therefore, this paper

uses the ratio of loan balance of financial institutions to GDP (*FinDeepen*) in prefecture-level cities to indicate the degree of financial deepening in cities, and then constructs the interaction term between the variables of abolishing county and establishing district policy and financial deepening rate ($Merger \times FinDeepen$), and substitutes it into model (1) for regression, and the results are reported in Table 10. It can be seen that the effect of the interaction term on the change of urbanization imbalance is significantly negative at the 1% level, indicating that the effect of abolishing county and establishing district to aggravate urbanization imbalance is weakened in prefecture-level cities with a high degree of financial deepening, which verifies hypothesis H4.

Table 10. Differences in the degree of financial deepening

	$\Delta Unbalance$
<i>Merger</i>	0.260*** (3.66)
$Merger \times FinDeepen$	-0.292*** (-2.91)
<i>Ind3</i>	0.083 (0.67)
<i>LandIntens</i>	2.282*** (3.30)
<i>AdminLevel</i>	-0.041 (-1.06)
<i>Exp</i>	-0.007 (-0.20)
<i>Doctor</i>	0.079 (0.65)
<i>SciEdu</i>	0.801*** (3.19)
<i>RevProp</i>	0.121** (2.53)
CONSTANT	0.573*** (8.05)
Observations	242
R2	0.243

6. Conclusion and Insight

The existing literature related to abolishing county and establishing district policy mostly regards it as a phenomenon of regional market integration, without considering its role as an initiative of local governments under specific historical conditions, which naturally makes it easy to make positive judgments about the socio-economic impact of abolishing county and establishing district policy. This paper establishes the relationship between abolishing county and establishing district and local governments' dependence on land resources to stabilize growth in the context of local governments' increasing reliance on the land-based development model to promote economic growth in their jurisdictions since the financial crisis, and then discovers the mechanism of the effect of abolishing county and establishing district on the imbalance of urbanization in prefecture-level cities.

Based on the 2010 and 2020 census and land survey data, this paper examines the above mechanism of action using the general OLS method. The results show that abolishing county and establishing district aggravates the imbalance of urbanization by softening the constraint of construction land indexes and increasing the scale of construction land supply in prefecture-level cities; the conclusion that abolishing county and establishing district aggravates the imbalance of urbanization is still valid after excluding the sample with separating urban area from county problem. The regression results by region show that the effect of abolishing county and establishing district on the change of urbanization imbalance in eastern cities is very significant, while the effect of the policy on the change of urbanization imbalance in central and western cities is not significant due to the biased land supply policy. In addition, for prefecture level cities with high levels of financial

deepening, the effect of abolishing county and establishing district to exacerbate urbanization imbalance will be weakened.

Since the financial crisis, the uncertainty of relying on external demand to drive economic growth has determined that China's economy has to face a difficult transition from being driven by both domestic and external demand to being driven mainly by domestic demand. This transformation is definitely not overnight and requires long-term exploration, so the government in the process of this transition is bound to take up the important task of stabilizing growth and avoiding a hard landing of the economy, and it is inevitable that "seeking development through land use". "Seeking development through land use" as a stopgap measure can exist for a short time, but if long-term over-reliance on this development model will not only hinder economic transformation and upgrading, but also have an irreversible negative impact on the sustainable development of the economy. Therefore, strictly controlling the implementation of abolishing county and establishing district policy in prefecture-level cities, preventing the disorderly expansion of large cities, and speeding up the construction of a coordinated development pattern of large, medium and small cities are the right way to get rid of the shackles of "seeking development through land use" and promote the construction of a new type of urbanization centered on people, which is also the inevitable requirement for China to realize economic transformation and upgrading.

References

- [1] Liu Shouying. The risks and reforms of the development model based on geography. *International Economic Review*. Vol. 02 (2012), p. 92-109+7.
- [2] Zhang Yaoyu. Exploring the Path of Population Urbanization Promotion from the Perspective of Land Rent Distribution Regulation. Nanjing University Press, 2018, p. 85-96.
- [3] Xie Dongshui. The imbalance between local government competition, land monopoly supply, and urbanization development. *Financial research*. Vol. 42 (2016) No. 04, p. 102-111.
- [4] Ji Yunyang, Fu Wenlin, Yang Yuhan. Land financing, urbanization imbalance, and local debt risks. *Statistical research*. Vol. 36 (2019) No. 07, p. 91-103.
- [5] Zhao Limin. Research on the inhibitory effect of land finance on population urbanization. *Modern economic information*. Vol. 07 (2018) No. 12.
- [6] Zhang Songlin, Fan Shide, Zheng Haoqing. The Mystery of the Imbalance between Land Urbanization and Population Urbanization in China: An Analysis from the Perspective of Urban Convenience. *Finance and Trade Research*. Vol. 32 (2021) No. 11, p. 16-26.
- [7] Peng Yang, Xu Ming, Lu Juan. The Impact of Regional Integration on Zombie Enterprises: Taking the Demolition of Counties and the Establishment of Districts as an Example. *Economic Science*. Vol. 06 (2019), p. 80-91.
- [8] Hao Wenhan, Yuan Chun, and Geng Chunxiao. Can regional integration policies promote vertical division of labor among enterprises --Evidence from the withdrawal of counties and establishment of districts. *Economic management*. Vol. 43 (2021) No.06, p. 22-37.
- [9] Tang Wei, Wang Yuan. Administrative Division Adjustment and Population Urbanization: Empirical Evidence from the Demolition of Counties and the Establishment of Districts. *Economic research*. Vol. 50 (2015) No. 09, p. 72-85.
- [10] Zhan Xinyu, Zeng Fuwen. Has the adjustment of administrative divisions improved the quality of economic development --Empirical evidence from the "removal of counties and establishment of districts". *Finance and Trade Research*. Vol. 32 (2021) No. 04, p. 70-82.
- [11] Ni Tingting, Wang Yuetang. Regional administrative integration, factor marketization, and efficiency of enterprise resource allocation. *Research on Quantitative Economy, Technical Economy*. Vol. 39 (2022) No. 11, p. 136-156.
- [12] Deng Huihui, Pan Xueting. How to Drive Industrial Upgrading with the "Big Country and Big City" - Evidence from the Demolition of Counties and the Establishment of Districts. *World Economic Forum*. Vol. 06 (2020), p. 88-103.

- [13] Chen Yihui, Cai Qingfeng, Lin Haihan. Will government driven urbanization enhance the innovation activities of enterprises within the region --Empirical findings and policy considerations based on the "removal of counties and establishment of districts". *Economics (Quarterly)*. Vol. 22 (2022) No. 02, p. 465-484.
- [14] Shao Chaodui, Su Danni, Bao Qun. Performance evaluation of the growth of counties and districts under Chinese style decentralization. *World economy*. Vol. 41 (2018) No. 10, p. 101-125.
- [15] Qiao Junfeng, Huang Zhichen. Why Local Government Debt Continues to Expand: A Quasi Natural Experimental Analysis Based on the Demolition of Counties and the Establishment of Districts Nankai. *Economic Research*. Vol. 06 (2021), p. 127-143.
- [16] Wang Zhifeng, Ge Xuening. Does the Adjustment of Administrative Divisions Affect Local Government Debt: An Empirical Study Based on the Demolition of 254 Cities into Counties and Districts. *Macroeconomic research*. Vol. 06 (2022), p. 161-175.
- [17] Liu Pan, Qi Yu, Zhang Zhaoqiang. Administrative Leading Urbanization and Local Financing Platform Debt: From the Perspective of Removing Counties and Establishing Districts. *Financial research*. Vol. 07 (2022), p. 113-128.
- [18] Li Ning, Zhou Qiyu. Will the responsibility for grain production encourage local governments to remove counties and set up districts? -- Analysis of panel data from 1855 counties nationwide from 2000 to 2019. *Journal of Shanxi University of Finance and Economics*. Vol. 44 (2022) No.12, p. 18-33.
- [19] Liang Zhiyan, Zhao Yong. Has the removal of counties and establishment of districts improved the level of urban public services-- Evaluation based on the dual difference propensity score matching method. *Urban and Environmental Research*. Vol. 01 (2019), p. 49-59.
- [20] Xie Zhenfa, et al. Demolition of counties and districts, expansion of urban scale, and allocation of basic public services. *Finance and Trade Research*. Vol. 33 (2022) No. 11, p. 39-54.
- [21] Jili, Zou Yunchang. Has the local financial resources increased after the county was abolished and divided into districts. *Financial research*. Vol. 12 (2019), p. 61-74+86.
- [22] Qian Jinbao, Qiu Xueqing. How does the removal of counties and establishment of districts affect fiscal revenue and expenditure-- Further research based on the perspective of motivation. *Southern economy*. Vol. 08 (2019), p. 72-84.
- [23] Fan Ziyang, Zhao Renjie. Financial authority, taxation efforts, and corporate tax burden. *Economic research*. Vol. 55 (2020) No. 04, p. 101-117.
- [24] Yang Jiankun. Can the adjustment of administrative divisions restrain the expansion of local government administrative management expenditures-- Evidence from the withdrawal of counties and establishment of districts. *Public Management Review*. Vol. 04 (2022) No. 01, p. 50-77.
- [25] Zhang Li, Pi Jiayong, Song Guangxiang. Local Government Competition and Productive Expenditure Bias: A Political and Economic Analysis of Removing Counties and Establishing Districts. *Finance and Trade Economy*. Vol. 39 (2018) No. 03, p. 65-78.
- [26] Yang Tongbin, Zhu Yingming, Zhou Bo. The Impact of Administrative Division Adjustment on the Imbalance of Urbanization Development: A Quasi Natural Experiment Based on the Demolition of Counties and the Establishment of Districts. *Modern Finance and Economics (Journal of Tianjin University of Finance and Economics)*. Vol. 40 (2020) No. 08, p. 88-99.
- [27] Li Ning, Zhou Qiyu. Exploring the Embedded Mechanism: Transforming the Main Responsibility of Food Security in the Process of Removing Counties and Establishing Districts. *Agricultural economic issues*. Vol. 03 (2023), p. 72-87.
- [28] Kuang Zhensheng. What is the logic of administrative division adjustment in China in recent years-- Empirical analysis based on the EHA Logistic model. *Public Administration Review*. Vol. 13 (2020) No. 04, p. 22-40+205.
- [29] Chang Chen, Lu Ming. New City: Why the City Building Movement Lead to Debt Burden. *Academic Monthly*. Vol. 49 (2017) No. 10, p. 55-65.
- [30] Bai Junhong, Zhang Yixuan, Bian Yuanchao. Does innovation driven policies enhance urban entrepreneurial activity? Empirical evidence from national innovative city pilot policies. *China's industrial economy*. Vol. 06 (2022), p. 61-78.

- [31] Tang Yudi, et al. A Study on the Coordinated Development of Population and Land Urbanization from the Perspective of Human Land Linkage: A Case Study of the Upper Reaches of the Yangtze River Economic Belt. *Resources and Environment of the Yangtze River Basin*. Vol. 09 (2020) No. 02, p. 287-295.
- [32] Ma Shuang, Zhao Wenbo. Dialect Diversity and Income of Floating Population: An Empirical Study Based on CHFS. *Economics (Quarterly)*. Vol. 18 (2019) No. 01, p. 393-414.
- [33] Oster, Emily. Unobservable Selection and Coefficient Stability: Theory and Evidence. *Journal of Business & Economic Statistics*. Vol. 37 (2019) No. 02, p. 187-204.
- [34] Zhao Yicai. The Historical Enlightenment and Reform Optimization of the Spatial Membership Relationship of Chinese Cities and Counties. *Geographic research*. Vol. 38 (2019) No. 08, p. 2058-2067.
- [35] Jin Ergang, Zhang Wenfan. Administrative division and place name management. China Social Publishing House, 1996, p. 104.
- [36] Liu Junde, Fan Jinchao. The Historical Evolution and Contemporary Reform of China's Municipal System, Southeast University Press, 2015, p. 341.
- [37] Cai Jiming, Xiong Chai, Gao Hong. The non coordinated development and causes of population urbanization and spatial urbanization in China. *Economic dynamics*. Vol. 06 (2013), p. 15-22.
- [38] Xie Tingting, Wang Yong. Environmental quality and the ups and downs of urban development in China: an explanation from the perspective of human capital. *World economy*. Vol. 45 (2022) No. 01, p. 133-157.