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Fade into the Shadows: Adjustments in Administrative Divisions and Regional Disparities*

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Abstract

Institutional changes have a significant impact on government capabilities and hierarchical relationships, especially in developing countries that characterized by governmental intervention for regional development. Using data from China's districts and counties from 1993 to 2022, this paper examines how administrative division adjustments, exemplified by the re-designation of counties as city districts, redefine the power and capability dynamics among bureaucratic entities. We find evidence that such redesignations widen regional disparities between transformed counties and other areas in four dimensions, including economic output, financial resources, fiscal capacity, and public services. We further identify three key mechanisms: reduce autonomy for former county governments, local government competition that leads to short-term efficacy, and resource siphoning from former counties to other regions. The effectiveness of the policy depends on changes in central policies, particularly on the trade-off between scale and incentives.

Keywords: Regional disparity; Administrative division adjustment; Autonomy; Power structure

JEL Classification: H11; H77; R12

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1 Introduction

Regional disparities represent a pressing global challenge which affects developed and developing nations, drawing substantial academic interest [1; 2]. These disparities, characterized by income inequality and differing economic growth, arise from various factors. Neoclassical growth theory links investment and growth differences among nations to variations in per capita capital stock, suggesting that regional inequality may converge over time [3]. Despite of it, institutional factors, such as economic policies, governance, and infrastructure development, play an essential role in shaping the regional disparity [4; 5; 6]. Current research has investigated the boundary effect resulting from the administrative boundary setting [7; 8; 9]. However, the administrative system behind the administrative boundary remains to be further studied, and the role of administrative divisions in shaping regional disparities remains underexplored. Therefore, our paper attempts to examine how administrative division adjustments (henceforward, ADA) which serve as an institutional force, affects regional development structures and pathways.

Existing research recognizes the potential of ADA to improve infrastructure, stimulate economic growth and improve economic output [10; 11]. This is particularly evident in studies on local government mergers in Europe, America, eastern Europe and Japan after World War II, which focus on urban planning, environmental governance, social equity and sustainable development [12; 13; 14; 15]. These studies often take ADA as a tool to overcome administrative barriers and encourage transformative development [16]. However, the assumption that ADA effectively mitigates administrative barrier may be flawed, for the following reasons. Firstly, accurately measuring its impact is challenging, particularly in hierarchical systems. Centralization does not inherently enhance efficiency, because as Hayek stated, central planners may lack critical information, which makes them difficult to make perfect plans no matter how hard they try [17]. However, these studies assume that administrative power can transcend the boundary and achieve better outcomes by breaking down administrative barriers. Secondly, expanding jurisdiction does not guarantee improved efficiency, necessitating a balance between size and development incentives. The impact of ADA on regional growth remains ambiguous, particularly when adjacent areas advance independently. Lastly, larger merged jurisdictions often struggle to foster political trust, while smaller communities risk marginalization and fiscal policy free-riding [18; 19]. This trend highlights lost autonomy for smaller regions, efficiency prioritization by larger entities, and distorted resource allocation, which challenge the principles of spatial justice during administrative adjustments. Consequently, regional economies often lack resources proportionate to their needs, hindering economic development and leading to lagging performance compared to other regions. These outcomes have multifaceted implications for government-related economic activities, such as total economic volume, fiscal capacity, and public service supply.

From the above perspective, the socio-economic impacts of ADA differ significantly from previous studies, requiring a structural perspective beyond mere quantitative measures. Instead of viewing these adjustments as boundary eliminations, we understand them as fundamentally altering regional development patterns. Such an analysis reveals substantial changes in government hierarchy and functional structure, closely connected to policymakers' and planners' capabilities. In developing countries, these economic impacts are often more pronounced due to their dynamic economic and political landscapes, leading to ongoing adjustments that respond to development needs [20; 21]. China's administrative division adjustments and economic transformation illustrate this well, particularly since reform and opening up, which provides us a quasi-natural experimental setting for evaluating policy effects [16; 22; 23].

This paper investigates how Re-Designation of Counties as City Districts (henceforward, RD-

CCD), a China’s ADA policy, has an effect on regional disparities using county- and district-level data from 1993 to 2022 in China. We compile a detailed list of administrative changes, including name alterations, upgrades, mergers, and dissolutions. Our analysis incorporates data on nighttime light, financial institutions, high-growth enterprises, industrial enterprises, and land transfers, supplemented by statistical yearbook data. Utilizing difference-in-differences (DID) estimation, we evaluate the impact of RDCCD on redesignated counties compared to others. We find that the RDCCD policy has significantly widened the development gap between redesignated and non-redesignated areas concerning economic output, financial resources, fiscal capacity, and public services. While administrative mergers can sometimes reduce disparities, they often lead to unequal regional development. In addition, centralized resource allocation can promote growth, particularly in the western regions, but higher-level counties and cities are more affected, underscoring the importance of autonomous development pathways. Changes in these pathways result from three mechanisms: reduced fiscal autonomy of counties, prioritization of efficiency over equity in resource allocation, and misallocation of resources driven by short-term growth objectives.

This paper contributes to three strands of literature. Firstly, there have been studies concerning regional disparities caused by institutional factors. While prior studies highlight issues such as regional economic policies, marketization, globalization, and decentralization as exacerbating disparities [24; 25], few literatures have estimated the impact of administrative divisions on regional disparity, [26; 27; 28; 29]. Our paper fills this gap by exploring changes in bureaucratic power relations as sources of regional disparities, focusing on developing countries with significant government intervention such as China. In addition, we examine how ADA influences regional development paths and outcomes. Previous studies have noted positive impacts, such as increased local growth and urban development [30; 31], with some arguing that mergers create economies of scale [32; 33]. However, these effects may be conditional due to governance costs. Our paper posits that RDCCD exacerbates development disparities, discussing how institutional distortions, hierarchical government relations, and short-term prioritization contribute to these disparities, supported by empirical evidence reflecting Hayek’s theories. What’s more, this paper explores how changes in bureaucratic power structures and intergovernmental relations affect governance. While existing studies review power distribution among various government levels and departments [34; 35; 36], empirical research on their economic consequences is scarce. The RDCCD policy which centralizes local fiscal and planning authorities, serves as a lens for analyzing these changes. Using the quasi-natural experiment of ADA in China, we estimate the impact of these power adjustments on regional disparities, highlighting variations in effects.

The remainder of the paper is structured as follows. Section 2 reviews the background of RDCCD and the city-county/district relations in China. Section 3 details data collection and research methods. Section 4 presents empirical results. Section 5 discusses potential mechanisms, and Section 6 suggests further research. Finally, Sections 7 and 8 provide discussion and conclusion.

2 Institutional Background

2.1 Administrative division adjustment in China

Administrative divisions function as the fundamental units through which a country carries out spatial governance and administrative management. They constitute instruments for building political authority, managing governmental operations, and providing a foundational structure for the redistribution of national power. These divisions embody the spatial and territorial allocation of national

authority and serve as crucial channel for the distribution of resources and interests.

China’s administrative divisions have undergone significant evolution. In ancient China, the divisions primarily served to uphold imperial rule, with their boundaries frequently drawn without considering practical factors like geographical features, transportation infrastructure, and resource allocation. Consequently, due to rapid changes in political and economic circumstances, each dynasty frequently adjusted its administrative division system. Only after the reform and opening up did a more systematic approach to administrative divisions emerge, focusing on enhancing local governance and economic planning as political turmoil subsided.

Modern China prompts ADA to support urbanization [37]. China features a multi-level administrative system. Provinces, the highest-level units, are divided based on historical, geographical, political, and other factors, reflecting unique geographical characteristics and resource conditions of each region. Geographic differences, like the flat eastern regions versus the complex central and western terrains, have an influence on economic development and provincial directions. Below provinces, there are prefectures, counties/districts, and townships/towns. Initially, prefectures were provincial extensions and were not independent local governments. The 1983 city-administered counties reform upgraded cities to second-level divisions, with counties/districts and townships/towns as third and fourth levels, respectively, implementing prefecture and county goals. Both cities and counties maintain relatively independent fiscal powers and authority, although counties and districts differ significantly in terms of political powers, fiscal capacities, and other aspects.

After this administrative division system was established, with the changing demands of economic construction, adjustments were continuously made within the system to the levels of administrative units at various levels and their jurisdictional scopes. Post the city-administered counties reform, efforts shifted to leveraging cities’ driving role, emphasizing integration in administrative adjustments. Early measures included dividing regions to form cities, redesigning counties as cities, and merging prefectures with cities. These changes bolstered administrative power, resource integration, and fiscal capacity, accelerating China’s industrialization and urbanization. This led to a significant increase in the urbanization rate, from 13.26% in 1953 to 49.68% in 2010 [38].

2.2 Re-designation of counties as cities or city districts

A scientific, multi-layered administrative division system is vital for balancing unity and efficient governance. Counties, fundamental units in China’s governance, are crucial for national stability. Understanding China’s urbanization trajectory necessitates examining the evolution of city-county relations.

One notable administrative division adjustment is RDCCD, starting in 1983. Changing from “counties” to “cities” signifies urbanization achievements. After this transformation, the new county-level cities remained under prefecture-level jurisdiction, boosting prefecture-level governments’ urbanization capacity. The policy peaked shortly after its introduction but was soon tightly controlled due to initial unclear standards and operational disorder.

While reducing the policy of transforming counties into cities mitigated issues like “pseudo-urbanization” and excessive land use, it posed new challenges, such as an unreasonable urban system and migrant population concentration in large cities, making spatial expansion difficult [39]. Meanwhile, tax-sharing reform limited local government revenue, prompting the search for new growth. In this context, the redesign of counties as city districts emerged as an alternative. Municipal districts are more aligned with the finance and planning of cities, directly contributing to municipal finances and supporting land finance. Additionally, urbanization shifted to favor large-city economies of scale.

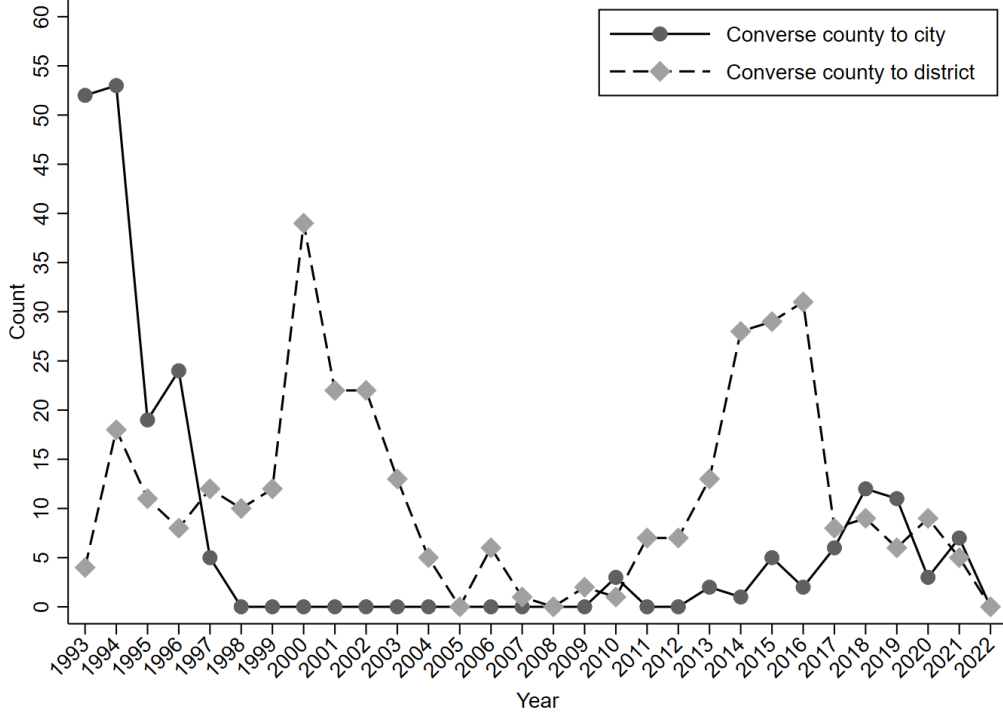


Figure 1: Time Distribution of the cases of re-designation of counties as city districts or cities

Driven by these factors, transforming counties into districts has become the preferred strategy for large city expansion.

Against this backdrop, redesignating counties as cities became a focal point in regional administrative adjustments due to its ability to provide cities with land [40]. Until 2002, RDCCD cases surged nationwide but enthusiasm waned as urban overexpansion issues became apparent, leading to stricter regulations. Trends emerged involving district-county mergers and boundary reorganizations, influenced by intergovernmental fiscal relation adjustments. The second RDCCD peak was more radical, driven by the reform of province-directly-administered counties. In 2009, the Ministry of Finance aimed to fully implement this reform by 2012, transitioning fiscal authority from municipal to provincial levels, enhancing county fiscal autonomy but reducing prefecture-level city resources. Prefecture-level cities rushed to convert counties to municipal districts before the reform.

2.3 The transformation of power and the development path

RDCCD has significantly influenced the development models of the former county areas. When a county is transformed into a district, the county area is integrated into the city’s direct jurisdiction, effectively expanding the central urban area [41]. At the industrial level, counties, previously agriculture-focused, shift to secondary and tertiary industries to align with urban economic needs. A crucial change involves adjusting intergovernmental relations, with significant differences in operational mechanisms and functional orientations despite the same administrative level.

As parts of prefecture-level cities, city districts have partial administrative authorities in economics, planning, etc., serving the city’s overall planning. In contrast, counties, bottom-up administrative units, tend to have more independent functions, especially fiscal autonomy. When counties were turned into city districts, district governments faced challenges in reshaping relations with prefecture governments, including economic indicators, fiscal independence, etc. These changes represent a shift

in power dynamics between prefecture and city district governments, outlined in Table 1.

Table 1: Comparison of functions between counties and city districts

Function	County	City district
Fiscal Independence	Independent	Not independent, subject to the arrangements of the prefecture-level city
Scope of Fiscal Expenditure	Independent; public services	Not independent; public services
Socio-economic Management	Independent; planning and construction	Not independent, subject to the arrangements of the municipal government
Departmental Decision-making	Relatively independent	Subject to the arrangements of the municipal bureau
Industrial Structure	Primarily agriculture	Primarily secondary and tertiary industries
Development Focus	Rural economy; urban-rural relations	Urban planning and construction

Note: In China’s administrative divisions, the “county (district)” level encompasses not only districts and counties but also “county-level cities.” County-level cities are a unique category; while they are smaller and less financially robust than prefecture-level cities, they are larger and more economically developed than ordinary counties. Nevertheless, county-level cities are categorized under the “county (district)” level, and their functions and responsibilities resemble those of counties rather than municipal districts.

The shift in local autonomy has resulted in significant changes in the allocation of local resources and development strategies. Specifically, the RDCCD has contributed to the widening gap in regional development through three main channels, as shown in Figure 2: Firstly, it alters local fiscal autonomy. Secondly, it reduces development incentives for the governments of redesignated regions, while increasing disorganized competition among prefecture-level governments. Lastly, it accelerates the loss of economic factors.

Altering local fiscal autonomy. Restructuring a county into a district shifts power to a top-down model, which limits local governance. Counties lose the ability to independently manage revenues such as local taxes and land transfer fees, and consequently the fiscal power reduces. County expenditures, including investments, subsidies, education, healthcare, and social security, depend on budgets and support from higher government levels. The fiscal sharing ratio declines significantly and administrative authority shifts to the district, often without a corresponding adjustment in fiscal responsibilities and resource allocation.

Change local competition incentives. Following RDCCD implementation, the responsibility for county-level economic development shifts to prefecture-level cities, reducing long-term incentives for counties. Consequently, RDCCD fails to promote equitable economic growth across counties. RDCCD reshapes power structures, intensifying local government competition and focusing on short-term efficiency in economic policy. As power concentrates in urban centers, county governments lose authority and face increased intervention. Municipal units prioritize economically advanced regions, leading to funding cuts for former counties and remote areas. Market forces tend to favor central cities, exacerbating regional disparities. The root cause lies in RDCCD’s expansion of municipal boundaries and its reliance on planned resource allocation rather than market forces.

Accelerating the loss of economic factors. RDCCD is generally viewed as a strategy for fostering local economic growth and enhancing efficiency, yet many regions experiencing these changes fall short of expected outcomes. The emphasis on short-term growth has resulted in imbalanced resource

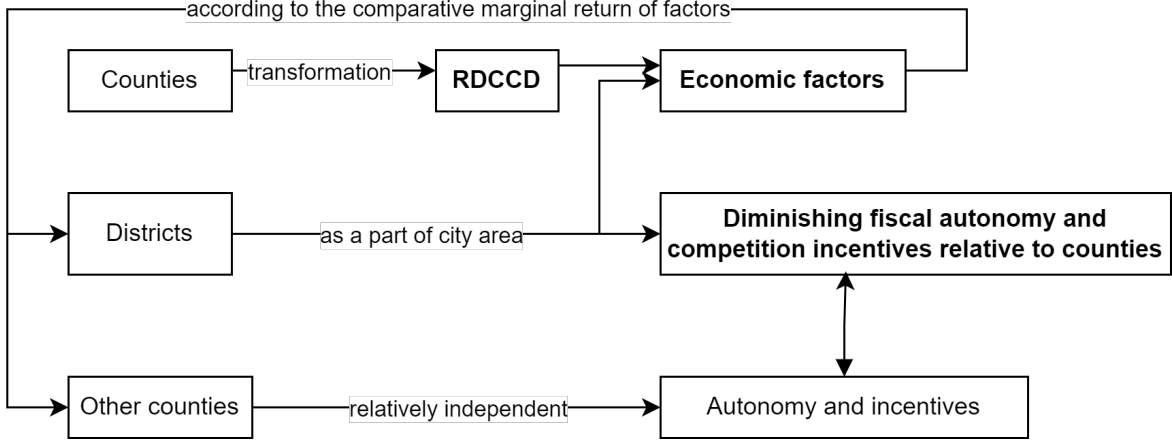


Figure 2: Theoretical framework

allocation. In their rush to stimulate growth, local governments tend to invest heavily in infrastructure and land development without a comprehensive industrial strategy, which leads to resource concentration in high-efficiency areas, neglecting regional balance and long-term competitiveness. Consequently, production factors like land and capital are underutilized, leading to diminished returns. Essential resources migrate to more developed areas, hindering the anticipated economic advancement and trapping regions in a cycle of short-term incentives.

3 Data and Methodology

3.1 Data

This paper examines the impact of RDCCD on regional disparities. Specifically, firstly, we will measure disparities in smaller counties with limited statistic data. Then we will capture economic performance through geographical, industry-specific, and socio-economic variables. In addition, we are going to identify the same entity across different policy timings and administrative name changes.

Our research covers 1993-2022, encompassing RDCCD’s main stages, thus it is crucial to have long-term and comprehensive economic performance data for regional comparisons. High data integrity and quality must be met. However, few county-level data in China are available. A consistent grid-based nighttime light dataset combines DMSP-OLS and NPP-VIIRS data and offers detailed information from 1992 to the present¹, which enables us to calculate the light density across various districts and counties in China, contributing to the assessment of regional economic development. Using ArcGIS, we delineate each grid according to China’s district and county boundaries and calculated the total and average light amounts within each unit. Consequently, we create a dataset of light density for China’s districts and counties spanning from 1993 to 2022.

In addition, relying solely on nighttime lighting data to measure total economic output is inadequate for assessing local development performance. To gain a more comprehensive understanding of regional disparities, it is necessary to assess from comprehensive indicators such as enterprise activities, the distribution of financial institutions, public service facilities, and land use. These factors offer insights into the specific layout and density of socioeconomic activities, providing a clear view of the differences in the performance of regional development. Therefore, we utilize the Annual Survey of

¹Source: Harvard Dataverse <http://dataverse.harvard.edu/dataset.xhtml?persistentID=doi:10.7910/DVN/GIYGJU>.

Industrial Enterprises from 2000 to 2007 and gathered data on high-growth enterprises from 2010 to 2022², the distribution of financial institutions from 1993 to 2022³, and detailed information on local land parcels transferred from 1993 to 2022⁴. All of these data were geocoded, allowing us to extract the geographical information and attributes of these entities. By calculating the density of these socioeconomic activities at the district and county levels, we were able to analyze regional disparities from various perspectives.

Using the obtained data, we explore the annual changes of administrative division. From 1993 to 2022, we collect, verify, and match the division lists from the Ministry of Civil Affairs of China’s website⁵. Based on this, we record district and county names, along with their original and current names and codes, ensuring consistency. We collect information on RDCCD and form the treatment group. Following the RDCCD definition, the original jurisdictional area must be preserved when a county-level administrative unit is re-designating as a district. We exclude divisions with merged or altered jurisdictional areas (less than 1% of samples). Thus, the treatment group includes re-designated city districts, while other units remain in the control group. The descriptive analysis is shown in Table 2.

Table 2: Descriptive analysis

Variable	N	Mean	SD	Min	Median	Max
Disparity	62619	-0.425	1.349	-7.791	-0.359	22.133
Post	66316	0.054	0.226	0	0	1
Nighttime light (Average)	62706	9.632	13.782	0	3.839	63
Nighttime light (Magnitude)	62706	6394.255	7472.038	0	4031.958	86253

Before conducting empirical research, we created a graph to illustrate the disparities among different groups. The result is shown in Figure 3. Our analysis reveals a significant difference in disparity between the treatment group and the control group. Specifically, the average of disparity in the treatment group shows a notable downward trend, while the control group’s disparity remains relatively stable. This observation suggests a potential impact of RDCCD on regional disparities. However, it’s important to note that the disparity in the treatment group is comparatively high relative to the control group, which may introduce a selection bias problem for our subsequent empirical research. We will address this issue in the following sections.

3.2 Model specification

Existing Studies have explored China’s RDCCD’s impact on regional economic growth. However, post-RDCCD, the treatment group faces major government capacity changes, stricter resource controls, and loss of independent authority. To consider the changes of regional development path, we use the DID specification as follows.

$$Disparity_{ct} = \alpha + \beta Post_{ct} + \mu_t + \delta_c + t \times \theta_p + \varepsilon_{ct} \quad (1)$$

In Model (1), $Disparity_{ct}$ represents the regional disparity between county c in city p in year t and its surrounding counties or city districts. We measure this disparity as the ratio of the average light intensity of county c to the average light intensity of other counties in the same city excluding itself.

²Source: Gazelle cloud <https://www.chinagazelle.cn/unicorn/index>

³Source: State Administration of Financial Supervision and Administration <https://xkz.cbirc.gov.cn/jr/>

⁴Source: China Land Market Website www.landchina.com

⁵Source: Ministry of Civil Affairs of the People’s Republic of China www.mca.gov.cn/article/sj/xzqh

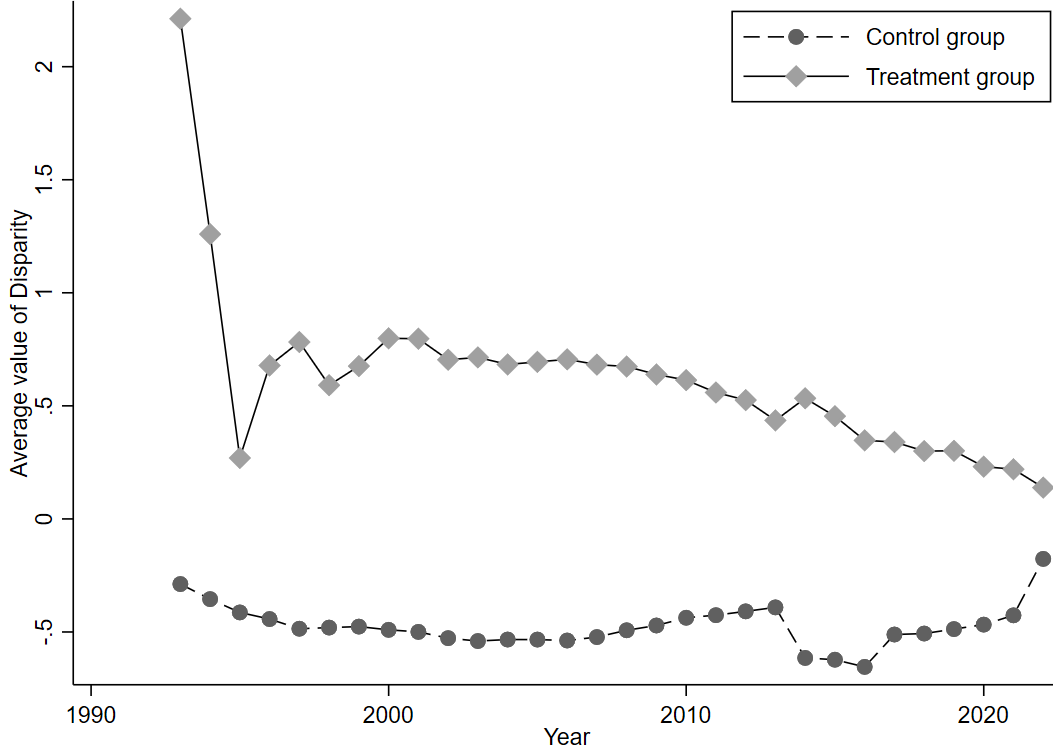


Figure 3: Difference in value of disparity between treatment group and control group

A higher value of $Disparity_{ct}$ indicates fewer disparity. Given varying policy timings, $Post_{ct}$ indicates RDCCD implementation for county c in year t , with 1 for the treatment group and 0 otherwise. To consider the influence of unobservable factors which are invariant to counties and time, we control for time fixed effects (μ_t) and county fixed effects (δ_c). We also include the interaction term between time trends and city fixed effects ($t \times \theta_p$) to control for unobservable economic growth and changes within counties. The coefficient β quantifies the impact of RDCCD on regional disparity ($Disparity_{ct}$) in the treatment group. A negative β indicates an increase in disparity, while a positive β suggests a decrease in disparity.

A fundamental assumption of DID is similar trending outcomes across groups. A major concern in estimating Model (1) is non-random selection of treated counties, which may be brought about estimation bias due to unobservable factors unrelated to RDCCD. In subsequent section, we will address this concern and investigate other potential threats to our identification's validity.

In addition to estimating individual treatment effects, we estimate all the lags and leads of the policy effects using an event study design.

$$Disparity_{ct} = \alpha + \sum_{k=-6}^6 \beta_k \times D_k + \mu_t + \delta_c + t \times \theta_p + \varepsilon_{ct} \quad (2)$$

The dummy variables D_k indicate counties treated k years around the RDCCD (range: -6 to 6), with $D_k=1$ for treated counties and 0 otherwise. The reference group is $k=-1$. The parameters of interest capture the effects of RDCCD k years before or after implementation, compared to the last pre-RDCCD period in the sample.

4 Empirical Research

4.1 Administrative division adjustment and the eclipsed regions

In this section, we employ the DID model to estimate the impact of RDCCD on regional disparity, measured by nighttime light intensity differences compared to surrounding areas.

4.1.1 Baseline results

Table 3 presents the baseline results, demonstrating the impact of RDCCD on the regional disparity between local and surrounding areas. The result indicates that RDCCD reduces nighttime light density of treatment group compared to control group by 39.1% relative to other districts and counties in the city. This implies that RDCCD has led to a decrease in light density of 0.066 standard deviations in these areas compared to other districts and counties⁶.

Figure 4 illustrates the result of parallel trend test. We find that before the implementation of the policy, there was no significant difference in light density between the two groups, and their trends can be considered parallel. However, post-policy, treated counties' light density decreased significantly compared to others.

Table 3: The impact of re-designation on regional disparity

Dependent variable: Disparity	(1)	(2)
Post	-1.269*** (0.414)	-0.391*** (0.014)
Observation	62619	60284
Time fixed effect	YES	YES
County fixed effect	YES	YES
Time trend×City fixed effect	NO	YES
Adj. R-square	0.832	0.907

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses are the robust standard errors clustered at the district or county level. The first Column shows the regression result without controlling the interactive fixed effect of time trend and city in the model specification, while the second Column controls it.

4.1.2 Robustness checks

The baseline results have shown the effect of RDCCD on the differences between local areas and their neighboring regions. While the conclusions drawn from this analysis are eligible for the parallel trends test, they might still depend on the specific model specifications and the data used. This section aims to have robustness checks by employing various aspects.

WTO accession. Post-WTO, counties faced changes in market openness, industrial transformation, and resource allocation. Market openness boosted competition, diversity, modernization, and industrial upgrading. Thus, considering the influence of WTO is crucial when analyzing county economic transformation [44]. Following Topalova (2010) and Bianchi et al. (2022), we craft pre-WTO prefecture-level import tariffs in 2001 by using enterprise data due to scale variations and data constraints. Based on the 2001 Annual Survey of Industrial Enterprises, we compute tariffs per enterprise and aggregate them at the county/district level. We include it as an additional control in our baseline

⁶Among them, the sample mean of $Post_{ct}$ is 0.054 with a standard deviation of 0.226, and the sample mean of $Disparity_{ct}$ is -0.425 with a standard deviation of 1.349.

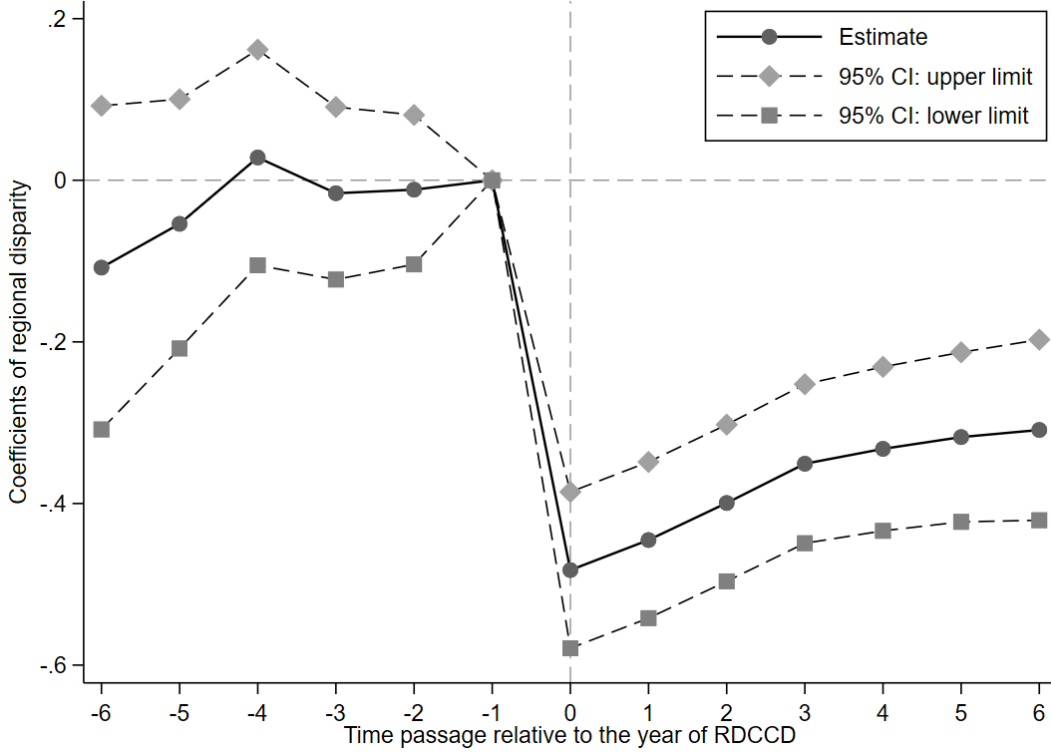


Figure 4: Graphing the parallel trend test results

model. Despite incorporating complex specifications to address WTO’s potential effects, our results remain consistent, as shown in Table 4.

Regional economic policies. From 1993 to 2022, China underwent a significant economic transformation to a market economy, implementing policies to balance development, efficiency, and equity [45]. Major regional strategies, like the Western Development Strategy (2000), Northeast Revitalization Strategy (2003), and Rise of Central China Strategy (2004), received substantial funding and deeply impacted China’s regional economy. Later, the Yangtze River Economic Belt (2016) and Guangdong-Hong Kong-Macao Greater Bay Area (2019) strategies were launched to harness the success of developed regions. These strategies altered urban industrial structures and economic divisions, influencing regional development and growth. To assess their impacts, we include policy implementation years and regions as dummy variables in our baseline regression, controlling for provincial differences and other national policies like WTO accession. Our results, shown in Table 4, remain robust after controlling for significant factors.

Other ADA policies. ADA policies significantly widen regional economies, suggesting that RDCCD may not be the sole notable ADA policies. From 1993 to 2022, many such policies occurred excluding RDCCD, potentially leading to our overestimated results; for example, redesignating counties as cities, direct provincial governance of counties, renaming suburbs, altering district boundaries, and establishing new cities (Figure 5). To address it, we identify these key ADA policies during this period and include them as dummy variables in our model. Our findings, shown in Column 4 of Table 4, indicate similar results even after controlling for these major ADA policies.

Counterfactual implementation of ADA. We address concerns about chanciness using two strategies. First, we adjust the policy implementation time window by shifting it forward by one year. Second, we randomly assign policy implementation status to samples using a uniform distribution

Table 4: Robustness checks

Panel A: Robustness checks - Part 1	(1)	(2)	(3)	(4)	(5)
Post	-0.384*** (0.014)	-0.374*** (0.013)	-0.368*** (0.014)	-0.391*** (0.014)	
CounterfactualPost					0.022 (0.071)
Other regional policies	NO	YES	YES	NO	NO
Other ADA policies	NO	NO	NO	YES	NO
Observation	51151	60284	51151	60284	57602
Time fixed effect	YES	YES	YES	YES	YES
Provincial fixed effect	NO	YES	YES	NO	NO
County fixed effect	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES
County×Tariff	YES	NO	YES	NO	NO
Adj. R-square	0.901	0.907	0.901	0.907	0.913
Panel A: Robustness checks - Part 2	(6)	(7)	(8)	(9)	(10)
Post	-3.219*** (0.108)	-0.333*** (0.011)	-0.391*** (0.014)	-0.391*** (0.033)	-0.385*** (0.019)
Controls	NO	NO	NO	NO	YES
Observation	27412	49489	60284	60284	45660
Time fixed effect	YES	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES
Adj. R-square	0.576	0.929	0.907	0.907	0.910

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable in regression is $Disparity_{ct}$. The values in parentheses represent the robust standard errors clustered at the district or county level, except for those in Columns (8) and (9). Column (1) examines the impact of WTO accession. Column (2) accounts for the influence of regional economic strategies. Column (3) further controls for provincial fixed effects. Column (4) considers the impact of other ADA policies. Column (5) includes a one-year lag of policy implementation. Columns (6) and (7) substitute the dependent variable with regional disparities in industrial output and population, respectively. Columns (8) and (9) cluster the robust standard errors at the city and province levels, respectively. Column (10) incorporates additional control variables based on the benchmark regression.

(0-1), rounded to create a binary variable *CounterfactualPost_{ct}*. We repeat this counterfactual estimate for 1,000 times, extracting coefficient estimates, standard deviations, and t-values each time. Across these iterations, the average coefficient for *CounterfactualPost_{ct}* is 0.0002, with an average standard deviation of 0.0035 and t-value of 0.0516. These results indicate no significant impact from the counterfactual policy, confirming the robustness of our results.

Replacing the independent variable. Regional disparities appear in various forms. In this paper, we utilize the intensity of nighttime light to assess economic disparities between regions. Despite data gaps and limited indicators, in this section, we calculate disparities using industry, agriculture, and the permanent resident population, consistent with nighttime light methods. We then regress these figures on *Post_{ct}*. Although these estimates may be inaccurate due to the significant amount of missing data, the results still suggest a degree of robustness in our baseline model, as illustrated in Columns (6) and (7) of Table 4. In addition, Section 4.2 below also uses different variables to measure regional disparities and reached similar conclusions.

Clustering the robust standard error at higher-level. In the baseline model, we cluster robust standard errors at the county level. However, to fully capture city-specific policy effects on districts and counties, we estimate with errors clustered at the city level. The results remain consistent. We further estimate with errors clustered at the province level to account for provincial policy differences, confirming robustness. The findings are shown in Table 4, Columns (8) and (9).

More controls. The baseline model has controls for fixed effects to minimize omitted variable bias. Despite potential sample loss due to missing data, we include the following four key variables: local fiscal revenue, local fiscal expenditure, industry and agriculture output, and permanent resident population. Data interpolation is used for variables with significant missing data, including total output value of industry, agriculture, and permanent resident population. Log transformations are applied to these control variables. We find that adding these variables does not change the results, confirming that RDCCD contributes to wider regional disparities, as shown in Column (10), Table 4.

4.1.3 Dealing with potential selection bias

Our statistics illustrated in Figure 6 reveal that, of the RDCCD cases reported between 1993 and 2022, 38.2% occurred in eastern China. During the peak years of 2000 and 2013, eastern China also recorded the highest number of cases, followed by western China. Before 2000, central China had the highest number of RDCCD cases, while Northeast China had significantly fewer. This suggests that the implementation of the RDCCD was largely non-random, with counties selected being either relatively developed or underdeveloped. Consequently, the estimates obtained from the baseline results may be biased due to these sample selection issues.

To address this concern, we employ the Heckman two-step estimation method. This model divides the problem into two distinct parts: the selection equation, which elucidates the process of sample selection, and the outcome equation, which focuses on the regression equation of interest. In selecting the treatment group for RDCCD, it is crucial to estimate the factors influencing its implementation. Therefore, we incorporated various regional economic strategy dummy variables and control variables, processed using interpolation methods for robustness checks. These variables, while not directly related to regional disparities, are anticipated to influence them through *Post_{ct}*. Firstly, we regressed *Disparity_{ct}* using the benchmark regression model with these variables, as shown in Column (1) of Table 5. In this regression, the coefficients of *River*, *Control3*, and *Control4* are insignificant. However, when we perform a Probit regression of *Post_{ct}* on these three variables, their coefficients are significant (as shown in Column (2) of Table 5), meeting the criteria for selection variables. We then calculated

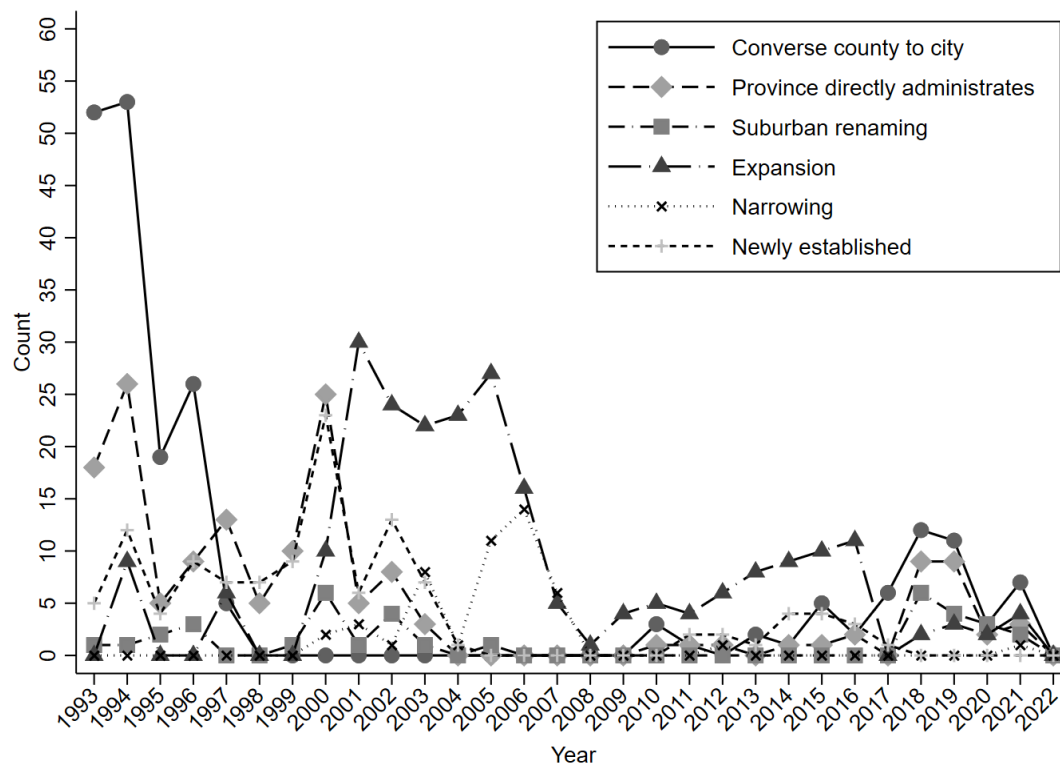


Figure 5: Time distribution of other ADA policies, 1993-2022

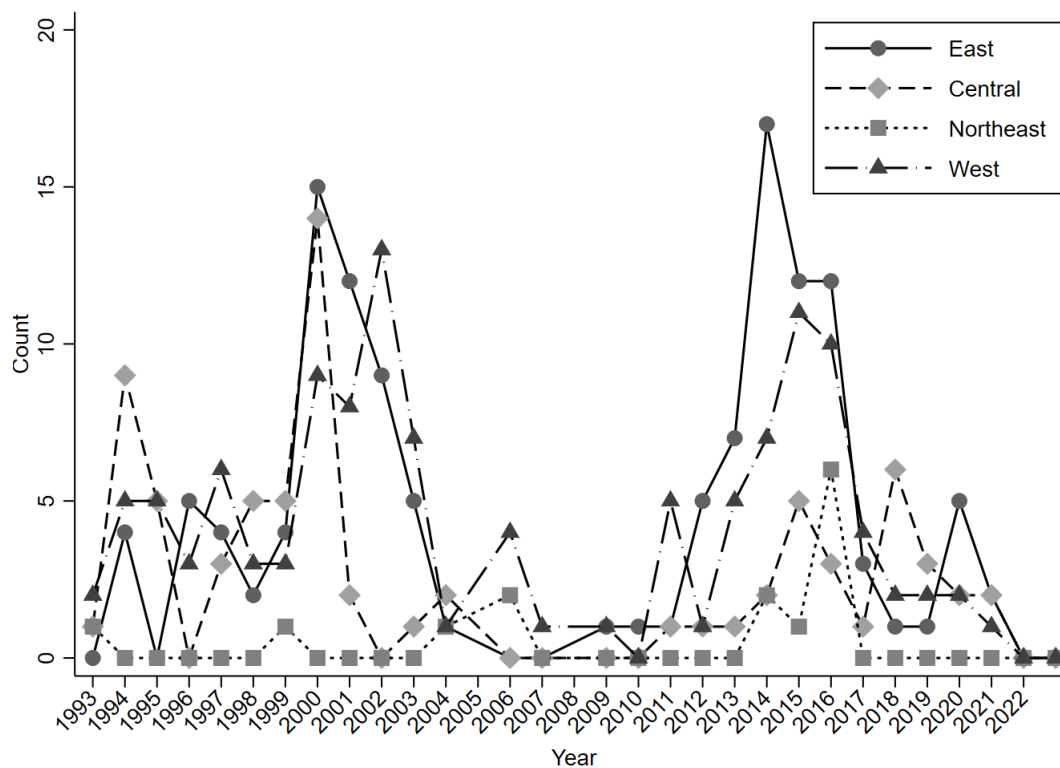


Figure 6: Regional distribution of RDCCD cases, 1993 to 2022

the inverse Mills ratio and added it, along with $Post_{ct}$, $River$, $Control3$, and $Control4$, to the regression. The results in Column (3) of Table 5 indicate that the coefficient of $Post_{ct}$ remains significantly negative, albeit with a lesser statistical significance compared to the baseline model. Nevertheless, this result reinforces the robustness of our findings.

Table 5: Endogenous issue

Dependent variable:	(1) Disparity	(2) Post	(3) Post	(4) Disparity
Post	-1.385*** (0.211)			-1.295*** (0.445)
Western Development	-0.014 (0.057)	0.431*** (0.021)	0.426*** (0.020)	0.098*** (0.021)
Northeast Revitalization	0.100 (0.061)	0.049 (0.041)		0.120*** (0.022)
Rise of Central China	0.080** (0.039)			
Yangtze River Economic Belt	-0.041 (0.044)	0.387*** (0.030)	0.385*** (0.030)	0.009 (0.021)
Greater Bay Area	0.229* (0.135)			
Control1	0.281*** (0.028)			
Control2	-0.095** (0.046)			
Control3	0.008 (0.021)	0.013*** (0.002)	0.013*** (0.002)	0.004 (0.004)
Control4	0.009 (0.069)	0.106*** (0.008)	0.105*** (0.008)	0.061*** (0.019)
Inverse Mills Ratio				0.407*** (0.155)
Observation	45777	53805	53805	49352
Time fixed effect	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES
Adj. R-square	0.672	-	-	0.907

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. This section applies the Heckman two-step method. We incorporate existing regional economic strategies and interpolated control variables as selection variables. In Column (1), we conduct an exclusion test on these control variables to identify those that do not directly impact the dependent variable. In Column (2), we use Probit regression to confirm that these variables strongly correlate with $Post_{ct}$. However, the variable representing the Northeast Revitalization is not significant. We then retain only the significant variables (as demonstrated in the results in Column (3)). Finally, using the estimation results from the third Column, we calculate the Inverse Mills Ratio (IMR) and include it in the regression analysis, with the results shown in Column (4).

4.2 The insight of the regional disparity resulted

Our baseline results show that, contrary to previous literature emphasizing positive effects, RD-CCD reveals potential negative consequences. This section examines the policy’s impacts on financial resources, fiscal capacity, and public facilities and services.

4.2.1 The leaving financial institutions

Financial resources are crucial for assessing a region’s development potential. They facilitate investments in infrastructure and operations, particularly for startups and high-risk sectors such as technology, healthcare, and green energy. Access to financing also affects government fiscal health and the quality of public services. The concentration of financial resources is influenced by various factors, including economic scale, policy support, infrastructure, location, financial innovation, and competition.

County economies serve as a bridge between urban and rural areas and depend on an efficient allocation of financial resources for high-quality development. However, their small size and structural imbalances make county-level credit demand less appealing, which in turn hinders effective resource allocation. Counties may find it challenging to attract financial resources due to limitations in economic scale, market demand, infrastructure, human resources, location, and overall business environment.

Government policies can help counties by creating a favorable environment, enhancing security, and boosting investor interest. By providing tax incentives and establishing innovation funds through subsidies, governments can reduce operational costs and expand investment opportunities. Removing barriers to financial markets can stimulate competition. Investments in infrastructure and public services raise productivity, lower costs, and improve resource utilization, thereby increasing investor confidence. However, restructuring counties into districts may reduce their appeal to financial resources. To evaluate the impact of this policy on regional disparities, we analyzed the number of regional financial institutions from 1993 to 2022 using the $Disparity_{ct}$ method. The regression result shown in Column (1) of Table 6 indicates that the RDCCD reduced the number of financial institutions in the treatment group by 1.85% compared to neighboring regions.

Table 6: Various impact on regional disparity

Dependent variable:	(1) Disparity_Finance	(2) Disparity_Fininc	(3) Disparity_Finexp	(4) Disparity_Publand
Post	-0.019*** (0.004)	-0.050*** (0.016)	0.066*** (0.010)	-0.280*** (0.012)
Observation	60068	47861	47709	62128
Time fixed effect	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES
Adj. R-square	0.879	0.834	0.834	0.246

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. This table illustrates the specific effects of RDCCD on regional disparities. The dependent variables Columns (1)-(4) are as follows: the disparity in the number of financial institutions, the disparity in fiscal revenue, the disparity in fiscal expenditure, and the disparity in land transfers for public facilities or services.

4.2.2 The diminishing fiscal capacity

Policies and support are vital for regional development. When a county becomes a district, the government no longer independently undertakes the designation of public policies and the management

of public affairs, such as fiscal autonomy, land transfer approval, and urban planning.

This section presents empirical research that examines this mechanism. We apply the fiscal revenue and expenditure data and calculate the disparity. The results in Columns (2) and (3) reveal that RDCCD significantly widens the fiscal revenue disparity between the treatment group and surrounding regions. In contrast, the treatment group incurs significantly higher fiscal expenditures compared to nearby areas. The treatment group is burdened with more expenditure items while experiencing substantially lower fiscal revenue than other regions. This mismatch between responsibilities and available resources is poised to further impede development in these areas, thereby setting the stage for subsequent analyses to explore potential mechanisms.

4.2.3 The outdated public services

Public services—such as education, healthcare, and social security—play a crucial role in shaping residents’ life quality. These services help close development gaps, particularly in remote and impoverished areas. However, the distribution of public facilities and services often aligns with population density and economic activities, leading to unequal access across different regions.

Disparities between urban and rural areas are evident in county-level public facilities and services, which lag in various sectors. RDCCD can promote urbanization, but may decrease the autonomy of county governments, exacerbating public service disparities. After RDCCD, the traditional county service systems may not be sustained, disproportionately impacting rural or remote residents. The redistribution of financial resources can lead to a decline in rural infrastructure, social security, healthcare, and education, ultimately reducing resident satisfaction and hindering the equalization of public services.

In this section, we analyze geocoded land transfer parcel data to identify parcels designated for public facilities and services, calculating the number of such parcels annually for each district or county. This analysis measures how authorities are likely to allocate these facilities and services regionally. We excluded parcel areas since they represent approved sizes rather than actual ones. We calculated the disparity in public facilities and services land transfers, which is denoted as *Disparity_{ct}*, and regress it against *Post_{ct}* to estimate the impact of RDCCD on disparities. The results in Column (4) of Table 6 reveal a significantly negative coefficient for *Post_{ct}* (-0.280), indicating that RDCCD has resulted in a decrease in land transfers for public facilities and services in converted counties compared to nearby areas. This suggests a potential future disparity in the availability of these services.

5 Possible Mechanism

5.1 Adjustment of power structure and governance efficiency

Inappropriate adjustments can disrupt established development models. Ignoring the interests of county-level units during mergers can undermine their autonomy, resulting in policies that lack local characteristics and flexibility, which contradicts the goal of coordinated regional development. While previous approaches may not have been ideal, they contributed to growth. A loss of flexible autonomy could hinder economic progress, limit policy support and investment, and increase regional disparities.

Although RDCCD aims to promote urbanization and improve city influence, it has resulted in greater regional disparities due to reduced policy support for less developed areas. Without a balanced redistribution of resources and transfer of fiscal and administrative powers, poorer counties may face increased developmental pressures, exacerbating disparities through weakened fiscal autonomy and

uneven resource allocation.

This section examines how reduced autonomy intensifies the regional disparities caused by the RDCCD. We use the fiscal revenue-to-expenditure ratio ($Autonomy_{ct}$) to measure fiscal autonomy at the district and county levels, analyzing how $Post_{ct}$ interacts with $Autonomy_{ct}$. Column (1) of Table 7 shows a significantly positive coefficient, indicating that increased autonomy in the RDCCD treatment group improves development compared to surrounding areas. Consequently, decreased autonomy leads to a wider development gap.

5.2 Regional competition and efficiency-driven allocation

The governance system in China is characterized by a typical hierarchical structure that influences the promotion of local government officials through top-down leadership. This results in competition among local governments for resources to stimulate local economic development. The drive to develop the economy comes from the authority to manage local resources, which is typically found in more autonomous counties. However, after RDCCD, the original counties were integrated into prefecture-level cities. This shift reoriented the desire for promotion, aligning it with the promotion of officials at the prefecture level. Resources are prioritized for developed regions that demonstrate higher return rates and quicker return cycles by a rational government. Consequently, this resource allocation strategy leads to the marginalization of the original county areas. This section examines how competition between local governments influences regional development disparities through efficiency-driven resource allocation.

We analyze local government competition by using the timing of party congresses. Local leaders often make conservative decisions before party congresses to avoid controversy, deferring major changes until after these events when the risk decreases. Our analysis examines the radicalism of government actions during the political cycle, utilizing dummy variables around congress periods. The findings in Table 7 indicate that local government behavior aligns with conclusions primarily in the year following congresses, demonstrating the political cycle’s impact on RDCCD.

Prefecture-level cities under RDCCD restrict county governments’ autonomy in urban planning, favoring economically advantageous former municipal districts. This leads to extensive land exploitation in remote suburbs, contributing to urban “hollowing out” and “ghost towns”. Our result shows that RDCCD significantly widened the gap in land transfer parcels between treatment groups and surrounding areas, indicating disorganized urban expansion without improving economic performance (Column (6), Table 7).

5.3 Distorted factor allocation and capital outflow

This section examines how factor mobility exacerbates regional disparities caused by RDCCD, focusing on the period from 1993 to 2022. Data constraints limit the analysis of labor and capital mobility. Labor mobility data is generally discontinuous, and its response to the policy may be limited due to high costs. In contrast, capital mobility is more responsive to variations in factor returns across regions. By analyzing capital returns, we can better understand its mobility without precise capital flow data.

We calculate the marginal revenue product of capital (MRPK) for enterprises across various districts and counties, following Wu (2018) [46]. We aggregate these values to find district-county averages. Assuming each enterprise i uses capital K_i and labor L_i with heterogeneous investment opportunities represented by Z_i , we define the revenue equation $R_i = Z_i^{\eta_i} (K_i^{\alpha_i} L_i^{1-\alpha_i})^{1-\eta_i}$ and profit

Table 7: Analysis of potential mechanism

Dependent variable:	(1) Disparity	(2) Disparity	(3) Disparity	(4) Disparity	(5) Disparity	(6) Disparity_Land	(7) Disparity
Post	-0.476*** (0.044)	0.307*** (0.068)	-0.053 (0.042)	-0.937 (0.819)	-0.101** (0.042)	-1.208*** (0.018)	1.125*** (0.177)
Post×Autonomy	0.010** (0.048)						
Post×lnMRPK							-0.303** (0.145)
Autonomy	0.005 (0.007)						
lnMRPK							0.061* (0.032)
Observation	47459	12344	12649	13029	11522	62128	15763
Time fixed effect	YES	YES	YES	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES	YES	YES
Adj. R-square	0.913	0.855	0.893	0.839	0.809	0.379	0.599

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. Column (1) of this table presents the results from Section 5.1, while Columns (2)-(6) corresponds to Section 5.2, and Column (7) displays the results from Section 5.3. In Column (1), we include the interaction term between $Post_{ct}$ and $Autonomy_{ct}$, where $Autonomy_{ct}$ refers to the ratio of local fiscal revenue to expenditure. Columns (2)-(5) show the results of grouping regressions, indicating the estimates of the $Post_{ct}$ coefficient for the two years prior, the year before, the current year, and the year following the Party Congress, respectively. In Column (6), the dependent variable is regional disparity in land transfer. Column (7) includes the interaction term between $Post_{ct}$ and the cost of capital, which is calculated according to Wu (2018).

equation $\pi_i = \max_{L_i} R_i - w_i L_i$. Here, η_i is the inverse demand elasticity, α_i is the capital input elasticity, and w_i is the wage rate. Solving the profit maximization problem gives us the first-order condition $\pi_i/R_i = \eta_i + \alpha_i(1 - \eta_i)$. We take the logarithm and performed a Taylor expansion around this condition to derive $\log(MRPK_i)$. This allows us to compute MRPK, reflecting capital costs. After aggregating the values to the district-county level, we control for regional price factors through city-fixed effects. By interacting $Post_{ct}$ with $\ln MRPK_{ct}$ and regressing it against $Disparity_{ct}$, our results in Column (7) of Table 7 show a significantly negative interaction term, indicating that higher capital costs exacerbate regional disparities linked to RDCCD.

6 The Impact of Administrative Division Adjustment Varies

Our setting and data enable us to measure the impact of re-designating counties as cities/districts and study the heterogeneous effect on regional disparity, considering various treatment phases and county geographic conditions.

6.1 Policy rectification: how disparity turns back?

Our baseline results indicate that the RDCCD has widened regional disparities between treated counties and their surrounding areas over the past 30 years. The policy has experienced periods of both attention and neglect, influenced by central government support and regulations. We can categorize its implementation from 1983 to 2022 into four stages: sporadic, explosive growth, decline, and resurgence.

Stage 1: Sporadic Implementation (1983-1996). During this phase, the RDCCD was introduced alongside county-to-city re-designations, but it gained limited traction, with fewer than two cases annually.

Stage 2: Explosive Growth (1997-2002). In 1997, the county-to-city re-designation policy

was halted. The local governments which are facing tightened budgets from tax-sharing reforms, looked for urbanization solutions. The RDCCD became the dominant policy, leading to a surge in counties transformed into districts until 2002.

Stage 3: Decline (2003-2009). The RDCCD’s popularity waned as concerns about excessive urban expansion emerged. Consequently, policies were tightened and the merging of counties and districts became common, cooling enthusiasm for the RDCCD.

Stage 4: Resurgence (2010-2022). Changes in intergovernmental fiscal relations led to a renewed focus on the RDCCD, spurred by provincial management reforms. With a 2009 reform plan aimed at full implementation by 2012, local governments expedited the transition of counties into districts, resulting in 85 instances between 2010 and 2015.

Analyzing the RDCCD’s evolution sheds light on the government’s policy rationale, which has fluctuated due to central government hesitations and local government opportunism. Initially, the policy sought to alleviate urbanization challenges, with prefectural governments aiming to increase urban populations and resources, leaving counties with little influence.

To discuss the central government’s shifting attitudes and economic changes over time, it is crucial to segment the policy timeline. Our study focuses on 1993 to 2022 and proposes three timeline segmentation methods. First, we note that 2007 to 2009 marked the policy’s lowest point, with no new instances. Following this decline, the policy recovered, enhancing counties’ financial autonomy. Thus, our first strategy divides the timeline into two stages, using 2009 as a pivot to analyze the policy’s regional impact from 1993 to 2009. Second, we can use 2003 as a turning point to create two additional periods. Lastly, by outlining the policy’s four stages, we can better understand how the central government’s shifting attitudes have influenced regional disparities stemming from the RDCCD.

Table 8 summarizes our regression analysis results across various time windows. Columns (1) and (2) present findings for the first two strategies, while the following columns focus on the third division strategy. Our analysis reveals that during the initial peak of the policy, the RDCCD exacerbated regional disparities compared to the post-rectification period. Conversely, the second peak after rectification showed a reduction in disparities relative to the first peak. The third division strategy reinforces this, indicating that stages three and four post-rectification experienced decreased regional disparities due to RDCCD, unlike stages one and two. Overall, our research suggests that local governments may have hastily implemented changes without properly considering development needs or long-term planning, leading to increased regional disparities.

6.2 Scale-incentive trade-off: the practical demand of adjustment

The RDCCD reflects a shift in local vertical power, particularly between municipal and county/district governments, resulting in a realignment of responsibilities and changes in resource allocation, regional development outcomes, and strategies. Understanding RDCCD’s effects requires clarifying the tension between “scale” and “incentive/competition.”

RDCCD leverages economies of scale, allowing central cities to expand in population and area. This transformation enhances access to development opportunities through new resources, such as land and investment. By consolidating economic forces and optimizing infrastructure, central cities improve coordination in resource allocation, boosting regional competitiveness.

Conversely, regional development relies on competition. The economic growth of counties is influenced by their proximity to central cities, leading to similar industrial structures and resource availability. This proximity fosters intense competition for resources but can lead to issues such as

industrial homogenization. Restructuring counties into districts reduces their competitive edge against municipalities, limiting their resource attraction capabilities.

Table 8: Phasic characteristic of the effect

Dependent variable: Disparity Reference group:	(1) None	(2) None	(3) 1993-1996	(4) 1997-2003	(5) 2004-2009	(6) 2010-2022
Post	-0.358*** (0.016)	-0.113*** (0.009)	-0.397*** (0.042)	-0.363*** (0.015)	-0.266*** (0.028)	-0.171*** (0.044)
Post×Period	0.083*** (0.023)					
Post×Period2		0.051*** (0.015)				
Post×Period3_1			0.034 (0.043)	-0.034 (0.043)	-0.131*** (0.050)	-0.226*** (0.060)
Post×Period3_2			0.131*** (0.050)	0.097*** (0.021)	-0.097*** (0.021)	-0.192*** (0.036)
Post×Period3_3			0.226*** (0.060)	0.192*** (0.036)	0.095*** (0.023)	-0.095*** (0.023)
Observation	60284	30481	60284	60284	60284	60284
Time fixed effect	YES	YES	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES	YES
Adj. R-square	0.907	0.909	0.907	0.907	0.907	0.907

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. In Table 7, Column (1) divides the sample years into two distinct periods, with 2009 as the dividing line. The timeframe from 1993 to 2009 is the benchmark for estimation. Column (2) presents the results from estimating the sub-set from 1993 to 2009, which is further divided into two periods, using 2003 as the delimiter. In this case, 1993-2003 serves as the benchmark. Columns (3)-(6) provide estimates that utilize different benchmark periods, allowing for a comparison of the phased characteristics of the policy initiative designed to transform counties into districts. Notably, Period3_1, Period3_2, and Period3_3 differ across each Column: in Column (1), they correspond to the second, third, and fourth periods, respectively; in Column (2), they align with the first, third, and fourth periods; in Column (3), they represent the first, second, and fourth periods; and in Column (4), they indicate the first, second, and third periods.

RDCCD presents a trade-off between scale and competition. We categorize districts and counties into four regions—eastern, central, northeastern, and western—for analysis. The western region, characterized by vast, sparsely populated areas with small administrative units, is examined for factors like initial development levels and population indicators. Additionally, we assess factors such as the city’s status (e.g., provincial capital or municipality), per capita output value, and population size to determine the balance between scale and incentives.

Table 9 displays the outcomes of the regional heterogeneity analysis, which compares the regional disparity impacts of RDCCD across various regions using different regions as the baseline groups. Our results show that, compared to other regions, RDCCD in the western region notably diminishes the regional disparity between the treatment group and their neighboring areas. However, there is a minor difference in the regional disparity effects among the other regions.

Table 10 demonstrates the impact of administrative attributes. The results in Column (1) indicate that districts and counties with higher levels of development experience increase regional disparity following RDCCD, compared to those with mid-to-low development. Column (2) shows that RDCCD narrows regional disparity in smaller and shrinking cities. Columns (3) to (5) reveal that county-to-district reform raises regional disparity in areas with higher total output value, though regions with high industrial output do not follow this trend; instead, increased disparity is linked to high agricultural output in the treatment group post-reform. Consistent findings in Columns (6) to (8) demonstrate

Table 9: Heterogeneous effect of regions

Dependent variable: Disparity	(1)	(2)	(3)	(4)
Reference group:	East	Northeast	Central	West
Post	0.487** (0.201)	1.068 (0.906)	1.144*** (0.386)	1.774*** (0.311)
District_1	-0.505*** (0.127)	0.505*** (0.127)	0.299*** (0.094)	0.538*** (0.112)
District_2	-0.299*** (0.094)	0.206 (0.130)	-0.206 (0.130)	0.033 (0.144)
District_3	-0.538*** (0.112)	-0.033 (0.144)	-0.239** (0.114)	0.239** (0.114)
Post×District_1	0.582 (0.927)	-0.582 (0.927)	-0.658 (0.435)	-1.288*** (0.368)
Post×District_2	0.658 (0.435)	0.076 (0.984)	-0.076 (0.984)	-0.706 (0.957)
Post×District_3	1.288*** (0.368)	0.706 (0.957)	0.630 (0.496)	-0.630 (0.496)
Observation	60346	60346	60346	60346
Time fixed effect	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES
Adj. R-square	0.605	0.605	0.605	0.605

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. Columns (1)-(4) provide estimates based on different geographical regions of China, serving as the benchmark for comparing the regional characteristics of the policy implementation that converts counties into districts. In Column (1), District_1, District_2, and District_3 represent the Northeast, Central, and Western regions, respectively. In Column (2), they correspond to the Eastern, Central, and Western regions. In Column (3), the districts are Eastern, Northeast, and Western regions, while in Column (4), they are Eastern, Northeast, and Central regions.

that lower-level, low-output, and shrinking cities see a decrease in regional disparity after RDCCD. These results suggest that the scale motive outweighs incentives, underscoring the importance of scale in regions during RDCCD implementation.

Table 10: Impacts of jurisdiction characteristics

Dependent variable: Disparity	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.412*** (0.029)	3.161*** (0.921)	2.850*** (0.378)	-0.381*** (0.049)	2.187*** (0.147)	1.698*** (0.135)	-0.410*** (0.017)	-0.554*** (0.050)
Post×Group	-0.141*** (0.028)							
Post×lnPOP		-0.445** (0.227)						
Post×TotalValue			-0.000** (0.000)					
Post×IndValue				-0.000 (0.000)				
Post×AgrValue					-0.000** (0.000)			
Post×List						-2.777*** (0.269)		
Post×City_TotalValue							-0.000*** (0.000)	
Post×City_POP								0.000*** (0.000)
Other terms	YES	YES	YES	YES	YES	YES	YES	YES
Observation	60284	49247	16440	27022	16435	60346	59297	60284
Time fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-square	0.909	0.669	0.877	0.913	0.877	0.603	0.913	0.907

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. In Table 9, we include interaction terms between $Post_{ct}$ and various attributes of administrative regions. We classify the development level of districts or counties into two groups based on the average intensity of nighttime lighting, referred to as *Group*. Column (1) benchmark is $Group=0$, representing districts and counties with mid-to-low development levels. In Column (2), $lnPOP$ indicates the logarithm of the population size of the district or county. Column (3), $TotalValue$, displays each district or county's total industrial and agricultural output value. We further break down $TotalValue$ into two components in Column (4): $IndValue$, which represents the industrial output value, and $AgrValue$, which signifies the agricultural output value. Columns (6)-(8) provide information about the city where the district or county is located. Among these, $List=1$ identifies whether the city is a provincial capital, a municipality directly under the central government, or a city designated in the state plan. $City_TotalValue$ and $City_POP$ represent the city's total industrial and agricultural output value and population size, respectively.

6.3 Local development path: why is decentralization important?

Highly developed cities often deviate from their original development paths by prioritizing incentives over scale, leading to regional disparities under RDCCD. Local governments, in their eagerness for immediate results during the ADA transition, misapply RDCCD to pursue economic growth and urbanization, aiming to enhance officials' political achievements. This results in unchecked expansion, neglect of essential development strategies, and disregard for resident well-being, undermining sustainable development principles. Consequently, reckless land development ensues, diverting resources from the original goal of easing administrative barriers for economically strong counties.

In prefecture-level cities which have undergone RDCCD, district autonomy in urban planning has diminished, with resources concentrated in economically strong municipal districts. This fosters development in outer suburbs, often resulting in urban "hollowing out" and "ghost towns", which marginalizes less developed counties.

High-return regions attract economic resources, inhibiting less developed areas from catching

up, despite potential spillover effects. Post-RDCCD reforms, originally developed districts gained more population and resources, while new districts lost autonomy and economic strength. Improved transportation further consolidated resources in developed areas, creating fewer incentives for the new districts.

Additionally, this section explores the consequences of RDCCD: intraregional disparities and enterprise dynamics post-transition. We analyze intraregional inequality using Gini, Theil, and Atkinson indices based on nighttime light data, and assess enterprise entry and exit by focusing on high-growth enterprises in China, primarily located in development zones and high-tech sectors. Although our definition of high-growth enterprises may overlook other enterprises, this study sheds light on RDCCD's impact on potential enterprises.

Table 11: The impact of ADA on intra-regional disparity

Dependent variable:	(1) Gini	(2) Theil	(3) Atkinson	(4) Disparity_SEZFirm	(5) Disparity_HTFirm
Post	0.076*** (0.002)	0.028*** (0.002)	0.0298*** (0.002)	0.513*** (0.013)	-0.011*** (0.004)
Observation	60284	60284	60284	43941	47645
Time fixed effect	YES	YES	YES	YES	YES
County fixed effect	YES	YES	YES	YES	YES
Time trend×City fixed effect	YES	YES	YES	YES	YES
Adj. R-square	0.951	0.768	0.959	0.766	0.645

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The values in parentheses represent the robust standard errors clustered at the district or county level. In Table 10, the first three columns present the calculated Gini index, Theil index, and Atkinson index of nighttime lighting within districts and counties as the explained variables. Column (4) shows the regional disparity in the number of enterprises located in the development zones of these districts and counties. Column (5) represents the regional disparity in the number of high-tech enterprises within the districts and counties.

Table 11 summarizes our findings. The first three columns display the Gini, Theil, and Atkinson indices. Column (4) examines interregional disparities in the number of enterprises in development zones, while Column (5) focuses on disparities among high-tech, high-growth enterprises. Our findings indicate that RDCCD has significantly increased intraregional disparity within the treatment group compared to the control group. Additionally, it has increased the number of enterprises in development zones, suggesting a municipal focus on these areas for investment. However, the disparity in high-tech enterprises between these regions and their surroundings has also grown significantly.

7 Discussion

7.1 Institutional factors behind regional disparities

Regional disparities are a global issue, especially in less developed countries. A major cause is the lack of attractiveness for key factors such as labor and capital. In government-dominated resource allocation systems, this attractiveness depends on local governments' efforts to attract factor inflows, which hinges on their capacity, particularly autonomy in financial and administrative powers. Greater autonomy enables governments to focus on key tasks, enhancing economic strength and regional competitiveness, promoting administrative mergers, and expanding jurisdictions. However, this may have severe consequences for non-central regions, stripping them of autonomy and further marginalizing them. This reflects Hayek's concerns about central governments' limited local information access and the passive acceptance of efficiency-oriented arrangements by autonomous regions, which existing research has overlooked.

This paper examines the implications of administrative division changes, exemplified by RDCCD, on power-capability relations, highlighting potential negative effects beyond economic disparities, affecting financial resources, fiscal capacity, public services and industrial development. A key concern is the loss of local fiscal autonomy, hindering the government’s ability to attract economic activities. This leads to resource outflows and favors regions with better economic performance in resource allocation competitions. Local governments may manipulate resource allocation for short-term growth, reducing local returns and accelerating resource migration. However, regional disparities are not inevitable; corrected and standardized policies can optimize resource allocation. Balancing scale and incentives is key. Autonomy is crucial for the county-to-district transition.

The findings uncover the institutional causes of regional disparities often overlooked in major economies. Rational administrative division adjustments should balance scale and incentives, wisely allocate local autonomy, and leverage local governance and information efficiency. However, this challenges local governments’ capabilities. In developing countries, irrational adjustments may persist, requiring continuous optimization of resource allocation models.

7.2 How should regional disparity be treated?

Regional disparities are not always detrimental and should be addressed with care. Resource allocation often favors areas that promise higher returns and efficiency, allowing for optimal deployment and greater benefits. However, fairness must be considered. Disproportionate resource concentration undermines market principles, and ignoring local development paths can dismantle established models. Loss of development autonomy stifles growth and hinders social progress by limiting policy support and resources, potentially worsening disparities in economic growth, business distribution, financial resources, fiscal strength, public services, and industrial development.

For counties combining urban and rural areas, the depletion of development resources hinders economic synchronization with urbanization and delays public services, potentially causing population exodus. This paper emphasizes decentralization, warning that excessive power concentration exacerbates regional disparities. We need more cities to alleviate resource overconcentration and establish systems to prevent inefficient power exercise, respecting market dynamics and regional development rights.

7.3 Administrative division adjustment should be better used

Government functions and institutional designs vary across countries and regions, shaping governmental frameworks. Administrative divisions, reflecting political power and dictating resource allocation, are crucial in defining government functions. Governments use administrative divisions as tools affecting economic operations and resource distribution. Adjustments impact economic and production activities, realigning jurisdictional authorities and power-function relationships between government levels. They also redefine the boundaries between financial and administrative authorities, changing regional developmental pathways. Balancing scale and incentives is essential to maximize benefits from administrative division adjustments.

Rational adjustments should allocate local autonomy and use local insights for efficient resource regulation, aligning policies with area characteristics and industrial structures. Poorly conceived adjustments, like China’s RCCD, can lead to negative consequences. Localities often misuse this policy for economic growth and urbanization, prioritizing officials’ careers over sustainable development and populace needs. This results in inefficient resource use, chaotic urban sprawl, excessive resource

concentration, and uneven regional development, contradicting the intended outcome of removing administrative barriers for economically vibrant counties.

The RDCCD process remains a relatively stable method for changing administrative divisions, yet an effective alternative policy has not been found. Low regional development efficiency requires reflecting on municipal governments' imprudent actions and harmonizing intergovernmental power-function relations with regional development. Modifying the RDCCD to "strictly controlled" could encourage deliberation, prevent haphazard land planning, and promote new reform paths for county-level units. This could foster standardization, scientific management, and high-quality development suited to their unique circumstances.

7.4 What kind of development model does China need locally

China's administrative divisions have evolved to meet governance, urbanization, and economic needs. Since 1978, the system has undergone refined policies, including city creation, county-to-city redesignation, and prefecture merging. RDCCD stands out, effectively merging city-level units and expanding city sizes, but canceling counties for districts faces controls. The approval of these adjustments has declined. Understanding how these policies align with economic development is crucial for China's future path.

China's RDCCD process shows that third- and fourth-tier cities' main urban areas have weak influence and are consolidating strengths. These cities pull resources but fail to achieve economies of scale, creating a siphoning effect by attracting high-value industries and leaving low-end, polluting ones behind. This contradicts existing research and widens regional disparities. Administrative division adjustments influence resource allocation, and RDCCD strips regions of fiscal and administrative authority, disrupting their natural development progression. Neglecting counties' developmental interests contradicts the process's aim. In China's decentralized reforms, regions need to pursue unique development paths.

This paper highlights spatial variability in RDCCD's regional disparity effect, suggesting its necessity in certain regions. In western China or less developed areas, consolidating administrative divisions aids in bridging the gap between cities and counties, fostering balanced urbanization. In eastern and central regions, economic strength is crucial for attracting resources. Thus, timely administrative division adjustments must be coupled with balanced resource allocation policies to enhance their driving force in regional economic development.

8 Conclusion

This paper examines the effects of China's administrative division adjustment policies, specifically focusing on the RDCCD. This policy converts counties under municipal jurisdiction into urban districts. Such adjustments in intergovernmental power dynamics significantly impact resource allocation, regional development, and development pathways.

This paper utilizes county-level data spanning from 1993-2022 to investigate the policy's effects on regional disparities. Our findings indicate that RDCCD widens the development gap between transitioned urban districts and other counties, evident in economic aggregates, financial resources, fiscal capacity, public facilities, and services. Consequently, administrative mergers contribute to unequal regional development. We identify three mechanisms for this. First, the adjustment diminishes the original counties' autonomy in resource allocation. Second, local government competition often prioritizes efficiency over long-term planning. Third, more developed urban areas drain resources

from original counties, limiting their growth. Importantly, the increase in regional disparities is not universally applicable over time or location, as it depends on changes in the central government's stance on the policy. Further analysis reveals that the policy's effects on regional disparity exhibit phased characteristics, suggesting that through adjustments and upgrades, it may eventually narrow disparities. Additionally, the "scale-incentive" tradeoff plays a significant role, with scale economy favoring the concentration of resources in specific areas, thus enhancing regional development.

The negative consequences of RDCCD warrant serious consideration, providing insight into administrative adjustments amid reform. These repercussions arise from an imbalance in public power allocation among governments and illustrate the need for coherence in the urbanization process to improve the quality of urban development. The National Development and Reform Commission has emphasized careful control over RDCCD, underscoring the importance of stringent procedures and deliberations.

The RDCCD policy requires addressing the challenges of inefficient regional development. It is crucial to learn from previous missteps made by municipalities and harmonize intergovernmental relationships to improve regional development.

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