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Can River-Sea Connectivity Empower People-Oriented Development?

——The Influence Mechanism of the New Western Land-Sea Corridor on New-Type Urbanization

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ABSTRACT

Using the construction of the New Western Land-Sea Corridor as a quasi-natural experiment, this study examines its effects on new-type urbanization with provincial panel data for 2011–2023. A staggered difference-in-differences model, double machine learning, and the synthetic control method are employed. The results show that corridor construction significantly improves the quality of provincial new-type urbanization, and the finding remains robust to parallel-trends tests, placebo tests, and alternative estimators. Mechanism tests indicate that the policy not only has a direct enabling effect but also operates through three channels: improved market access, industrial upgrading, and a narrower urban-rural income gap. The effects are stronger in southwestern provinces and provinces with higher initial urbanization, while the marginal impact is greater where financial development is initially lower. These findings provide evidence for coordinating transport-corridor development with people-oriented urbanization and offer policy implications for improving corridor efficiency, strengthening industrial support, and advancing regional coordination.

KEYWORDS

New Western Land-Sea Corridor; New-type urbanization; Difference-in-differences; Double machine learning; Synthetic control method

1. INTRODUCTION

For a long time, the western region has been constrained by factors such as being far away from seaports, long transportation distances, high logistics costs, and insufficient opening channels to the outside world. It has faced relatively obvious location constraints in the process of regional economic development and urbanization. Compared with the eastern coastal areas, although the western region has rich resource endowments and broad development space, its industrial undertaking capacity, factor aggregation capacity and market radiation capacity have long been restricted by traffic conditions and openness level. How to break the "inland lock-up" pattern and promote the western region to better integrate into the domestic and international dual cycles has become an important issue in the coordinated regional development and western development strategy in the new era. In this context, the construction of the New Western Land-Sea Corridor has been endowed with important strategic significance.

The New Western Land-Sea Corridor originated from the construction of southbound open corridors promoted by Chongqing, Guangxi and other places. As the function of the channel continues to expand, it has gradually evolved from a local logistics channel to an important strategic channel serving the coordinated development of national regions and high-level opening up to the outside world. In 2019, the "Master Plan for the New Western Land-Sea Corridor" was officially issued,

marking that the construction of the corridor has entered the national strategic level. The New Western Land-Sea Corridor has Chongqing as its operational organization center and Guangxi Beibu Gulf Port as important sea outlets. It connects the Silk Road Economic Belt to the north and the 21st Century Maritime Silk Road to the south, and forms a synergistic linkage with the Yangtze River Economic Belt. Different from the traditional east-west open pattern, the New Western Land-Sea Corridor builds a new open channel for the western region facing ASEAN and connecting the ocean through the linkage of railways, highways, ports and logistics hubs. It also provides practical support for the western region to transform from an "inland hinterland" to an "open frontier".

At the same time, China's urbanization development has shifted from the stage of speed expansion to the stage of quality improvement. Traditional urbanization puts more emphasis on the increase in the proportion of urban population and the expansion of urban space, while new-type urbanization puts more emphasis on the people-oriented development orientation. The so-called new-type urbanization refers to the urbanization process that takes people's urbanization as the core, focuses on improving the quality of urbanization, and coordinates the advancement of population agglomeration, industrial support, public services, infrastructure, and ecological environment. It is not equivalent to the simple migration of people from rural to urban areas, nor is it urban construction that relies solely on land expansion and investment, but a comprehensive development that emphasizes the urbanization of agricultural transfer populations, industrial employment support, equalization of public services, and the improvement of urban livability. Therefore, the key to new-type urbanization is not just “people moving into cities”, but also enabling the population to have stable employment, enjoy public services and achieve long-term development.

Theoretically, there is an inherent connection between the construction of the New Western Land-Sea Corridor and new-type urbanization. On the one hand, channel construction can improve transportation and logistics conditions, reduce inter-regional transportation costs, expand the urban market hinterland, and strengthen the connection between the western region and domestic and foreign markets, thus providing basic conditions for industrial agglomeration and urban development. On the other hand, corridor construction can promote the cross-regional flow of factors such as capital, labor, goods, and information, promote the adjustment of industrial structure and increase the number of jobs, thereby enhancing the city's ability to absorb the population. As the level of economic development and local fiscal capabilities improve, the supply of public services such as education, medical care, transportation, and the ecological environment is also expected to improve, thereby promoting the transformation of urbanization from quantitative expansion to quality improvement.

However, whether the New Western Land-Sea Corridor can truly empower new people-oriented urbanization remains to be further tested. Many studies have focused on the impact of transportation infrastructure on economic growth, trade openness, business efficiency, and population mobility, and some literature discusses the influencing factors of new-type urbanization. However, there is still relatively insufficient research on combining the construction of the New Western Land-Sea Corridor, a major open channel, with the improvement of the quality of new-type urbanization. In particular, the New Western Land-Sea Corridor is not only a transportation line, but also an institutional arrangement that reshapes the regional opening pattern, industrial division of labor, and factor flow patterns. Its impact may not be limited to transportation improvement itself, but may work together through improved market access, upgrading of industrial structure, and convergence of urban-rural income gaps.

This article focuses on the core question of "Can connecting rivers and seas enable people-oriented development" to examine the impact and mechanism of the construction of the New Western Land-Sea Corridor on new-type urbanization. This article selects China's provincial panel data from 2011 to 2023 to construct a multi-period difference-in-differences model to systematically identify the policy effect of the construction of the New Western Land-Sea Corridor on the level of new-type urbanization in the province, and further examine its transmission mechanism from the aspects of market access, industrial upgrading, and urban-rural income gap. This study helps to enrich the

empirical evidence on the relationship between transportation corridor construction and new-type urbanization, and can also provide reference for improving the layout of the New Western Land-Sea Corridor, improving the quality of urbanization in the western region, and promoting coordinated regional development.

2. LITERATURE REVIEW AND THEORETICAL HYPOTHESES

As an important strategic artery connecting China's central and western inland areas with ASEAN and even the global market, the New Western Land-Sea Corridor is a key support for the country to deepen its opening to the west and build a new development pattern. Combing the existing literature, we found that there have been fruitful research results on this policy in recent years, mainly focusing on the following four dimensions: First, macroeconomics and regional coordination, exploring the spatial economic effects of channel construction on smoothing the "dual circulation", stimulating economic growth, and promoting the coordinated development of the east and west [1, 2]; second, international trade and supply chain resilience, focusing on analyzing the role of channels in calming macro supply chain risks [3] and improving micro-enterprise capacity utilization [4], and the key role in reshaping the China-ASEAN and China-Europe trade network pattern [5]; The third is spatial network and element agglomeration, studying how the improvement of corridor transportation accessibility reshapes the cargo network and urban network pattern [6], and drives the spatial agglomeration of the logistics industry, manufacturing industry, and population [7, 8]; The fourth is ecological environment response, paying attention to the health of the land ecosystem and resource and environmental pressure along the corridor [9, 10].

New urbanization is the core driving force to promote high-quality economic development in China and achieve deep urban-rural integration. In recent years, academic research on new-type urbanization has shifted from early "scale expansion" to "connotative high-quality development", and the research perspective has shown significant systematic characteristics. Recent literature mainly focuses on: first, the coupling coordination of multiple systems, examining the spatio-temporal interaction mechanism of new-type urbanization and pension resource allocation [11], agricultural green development, public services and tourism economy [12]; second, green and low-carbon transformation, in-depth quantitative assessment of the impact of new-type urbanization on carbon emission efficiency, urban The mechanism of the coordinated development of urban digitalization and greening [13-15]; the third is the spatial correlation network and emerging driving forces, using spatial models to reveal the spatial spillover effects of urbanization, and exploring the enabling and driving effects of core elements such as data element flow and labor flow [16, 17].

Although the academic community has accumulated rich research results on the economic and trade effects of the New Western Land-Sea Corridor and the driving mechanism of new-type urbanization, empirical research that puts the two under the same causal analysis framework is still extremely scarce. Existing research mostly focuses on the "smooth flow of goods" of corridors, but relatively ignores the profound impact of corridor construction on the evolution of "people-oriented" urbanization; in particular, there is almost no research on the direct driving effect of national large-scale transportation infrastructure strategies on the high-quality development of regional new-type urbanization. Based on this, this article attempts to fill this gap in the literature and systematically evaluate the policy effects and internal mechanisms of the construction of the New Western Land-Sea Corridor on the level of new-type urbanization.

As an important infrastructure project for the country to promote the high-level opening up of the western region, the construction of the New Western Land-Sea Corridor has not only improved regional transportation conditions, but also has a profound impact on the development of new-type urbanization by optimizing resource allocation and strengthening regional economic ties. By reducing transportation costs and spatial transaction costs, the new corridor will enhance the economic connections between the western region and domestic and foreign markets, promote the adjustment

of regional economic spatial structure, and further promote the improvement of multi-dimensional urbanization quality such as population, industry, public services, and ecological governance.

From the perspective of population urbanization, the construction of the New Western Land-Sea Corridor has improved the transportation accessibility and industrial agglomeration level of areas along the route, and enhanced the city's ability to absorb labor factors. According to the new economic geography theory, improved transportation conditions can promote the flow of labor to areas with higher production efficiency. With the development of logistics, commerce and modern service industries, non-agricultural jobs continue to increase in areas along the route, promoting the transfer of rural surplus labor to cities and secondary and tertiary industries. This not only increases the urbanization rate of the permanent population, but also enhances employment stability, reduces the risk of urban unemployment, and promotes the stable agglomeration of the population in urban space. From the perspective of economic urbanization, the construction of new corridors has improved the western region's ability to integrate into the national unified market and the global industrial chain by reducing the transportation costs for the region to participate in the domestic and international market division of labor. Relying on the advantages of transportation hubs and open platforms, capital, technology and industrial elements continue to gather in areas along the route, promoting the coordinated development of modern logistics, advanced manufacturing and producer services, and promoting the optimization and upgrading of industrial structure. In this process, the regional economic growth level, residents' income level and local fiscal capacity have all been improved, providing continuous support for urban infrastructure construction and economic development, and promoting the transformation of economic urbanization from factor expansion to quality improvement. From the perspective of social urbanization, the industrial development and economic growth effects brought about by the construction of new corridors will help enhance the public service supply capacity of local governments. As population and economic activities are concentrated in cities and towns, the demand for education, medical care, public transportation and cultural services continues to expand. Local governments have further increased investment in public resources and promoted the continuous improvement of educational resources, medical and health resources and public cultural facilities. Improving the level of public service supply will help alleviate the contradiction between population agglomeration and resource supply, improve the ability of agricultural migrant populations to integrate into urban society, and promote the equal development of basic public services. From the perspective of ecological urbanization, the construction of new corridors has a positive impact on improving the level of regional ecological governance by promoting the optimization of the comprehensive transportation system and upgrading of the industrial structure. On the one hand, the multimodal transport model can improve logistics transportation efficiency and reduce resource consumption and pollution emissions; on the other hand, industrial agglomeration and economic development have enhanced local financial strength, providing financial guarantee for sewage treatment, harmless garbage disposal, urban greening and ecological restoration and other fields. The improvement of ecological governance capabilities will help improve the urban living environment, enhance the sustainability of urban development, and promote the steady improvement of ecological urbanization levels.

Therefore, the construction of the New Western Land-Sea Corridor improves the level of population agglomeration, industrial development capabilities, public service supply levels and ecological governance capabilities by optimizing the regional economic spatial structure, thereby promoting the coordinated development of population urbanization, economic urbanization, social urbanization and ecological urbanization, and ultimately promoting the overall improvement of the quality of new-type urbanization in the province. Accordingly, this article proposes the following research hypothesis:

Hypothesis H1: Construction of the New Western Land-Sea Corridor significantly promotes regional new-type urbanization.

As a strategic support for reshaping the open pattern of the inland, the New Western Land-Sea Corridor's enabling effect on new-type urbanization mainly works through three parallel paths: space cost reduction, industrial power conversion and income distribution optimization.

According to the new economic geography theory, the core function of transportation infrastructure construction is to reduce inter-regional trade costs. The New Western Land-Sea Corridor has directly improved the market access of provinces along the route through the construction of a multimodal transport system. Improved market access not only shortens the time and space distance for inland areas to enter the global market, but also enhances the cross-regional mobility of production factors by reducing logistics transportation and information search costs. This increase in mobility directly triggers an improvement in the efficiency of resource allocation: on the one hand, it strengthens the centripetal force of cities and towns, inducing the spatial agglomeration of capital and skilled labor in transportation hubs, providing a material foundation for urbanization; on the other hand, it enables cities and towns to better exert economies of scale by expanding the effective market scale. Therefore, the improvement of market access constitutes the basic spatial mechanism for channel construction to empower new-type urbanization by optimizing the factor agglomeration environment.

Industrial development is the core power source of new-type urbanization. The construction of the New Western Land-Sea Corridor will drive the western region to achieve a leap from resource dependence to an industrial upgrading such as trade processing, modern logistics and advanced manufacturing by connecting to the global value chain. According to the theory of structural change, the improvement of transportation conditions promotes the flow of production factors from low-efficiency traditional sectors to high-value-added modern sectors. This industrial upgrading process directly led to the transformation of the employment structure: the agglomeration of high value-added industries created a large number of stable and high-quality non-agricultural jobs, effectively absorbing rural surplus labor into cities and towns. Different from the temporary absorption of low-end industries, the improvement in employment quality brought about by industrial upgrading has significantly enhanced the long-term absorption and carrying capacity of cities and towns, thus consolidating the dynamic mechanism of "promoting cities through industry and integrating industry and cities".

The improvement of the quality of new-type urbanization is highly dependent on the inclusiveness of urban and rural development. According to the theory of dual economic structure, the urban-rural income gap is the core economic threshold for the urbanization of the agricultural migrant population. The New Western Land-Sea Corridor has produced significant distribution effects by clearing factors circulation barriers between urban and rural areas. Channel construction increases the added value of agricultural products through the "export effect" and drives the development of rural non-agricultural industries through the radiation effect of the hub economy, significantly improving the comprehensive income level of rural residents. The dynamic convergence of the urban-rural income gap has fundamentally reduced the relative opportunity cost of labor migration to cities. When the income gap between urban and rural areas narrows, the survival and integration costs of agricultural migrant workers in cities and towns can be reduced, thereby weakening the exclusion of the urban-rural dual system and promoting an inclusive urbanization mechanism that achieves equal opportunities and results sharing. Based on the above analysis, the research hypothesis is put forward:

Hypothesis H2: The New Western Land-Sea Corridor promotes new-type urbanization by improving market access, advancing industrial upgrading, and narrowing the urban-rural income gap.

3. RESEARCH DESIGN

3.1. Model Specification

Taking into account the objective fact that the construction of the New Western Land-Sea Corridor is being promoted in batches and gradually in different cities, this paper constructs a multi-period

two-way fixed effect difference-in-differences model to evaluate its policy effect on new-type urbanization. The model settings are as follows:

$$NU\_it = alpha\_0 + alpha\_1\ DID\_it + gamma\ X\_it + mu\_i + delta\_t + epsilon\_it \quad (1)$$

In the formula, represents the province and represents the year.it

The explained variable: the new-type urbanization comprehensive index of the province in the year. $NU_{it}it$

Core explanatory variable: provincial policy dummy variable. If the province officially launches or includes the channel construction plan in the year, the value of the province in that year and subsequent years will be 1, otherwise it will be 0. Measuring the average intervention effect of a policy. $DID_{it}it\alpha_1$

Control variables: a series of provincial characteristic variables that change over time. X_{it}

Fixed effect: It is a province fixed effect, used to control differences in provincial conditions that do not change with time; it is a year fixed effect. $\mu_i\delta_t$

Error term: It is a random disturbance term, and the standard error category is to the provincial level. ε_{it}

3.2. Variable Selection

3.2.1. Dependent Variable

New urbanization level (NU). In view of the rich connotation of new-type urbanization, it is difficult for a single indicator to fully describe its development quality. Therefore, this article refers to the research results of Wu Jianhui et al. (2024) [18], Wang Yin (2024) [19] and Zhang Yao et al. (2024) [20] to construct a new-type urbanization comprehensive evaluation index system including the four dimensions of population, economy, society and ecology.

Specifically, as shown in Table 1, the system covers a total of 17 three-level indicators: the population dimension mainly reflects the concentration of population in cities and the development level of non-agricultural employment structure. Indicators such as the proportion of employment in secondary and tertiary industries and population density are selected to measure the transfer of labor to non-agricultural industries and the spatial agglomeration of the population. The economic dimension mainly reflects the level of urban economic development and the degree of industrial structure optimization. It reflects the quality of economic growth and the level of industrial structure upgrading through per capita economic output and the development of the tertiary industry. The social dimension focuses on examining the level of public service supply, and selects relevant indicators such as education, medical care, and transportation to measure the allocation of urban public resources and the ability to guarantee basic public services. The ecological dimension mainly reflects the level of urban green development and environmental governance, and measures the urban ecological environment improvement and sustainable development capabilities through indicators such as green coverage, sewage treatment, and harmless garbage disposal. Overall, this indicator system takes into account multiple aspects such as economic development, public services, and ecological governance, and can more comprehensively reflect the development level of new-type urbanization, and to a certain extent, reduce the possible bias caused by single indicator measurement. In the calculation process, this paper first standardizes each subdivision index based on positive and negative attributes, then uses the entropy method to objectively weight it, and finally synthesizes the new-type urbanization comprehensive evaluation index of each province, which is used as the explained variable of the model.

Table 1. Indicator System for New-Type Urbanization

First level indicator	Secondary indicators	Level three indicators	Specific definition of indicators	property
new-type urbanization level	population urbanization	Proportion of employees in secondary and tertiary industries	Personnel employed in secondary and tertiary industries/Total employed persons	+
new-type urbanization level	population urbanization	Urbanization rate of permanent population	Urban population/end-of-year resident population	+
new-type urbanization level	population urbanization	Registered urban unemployment rate	direct data	-
new-type urbanization level	population urbanization	urban population density	direct data	+
new-type urbanization level	economic urbanization	economic level	GDP per capita	+
new-type urbanization level	economic urbanization	Per capita disposable income of urban residents	direct data	+
new-type urbanization level	economic urbanization	The proportion of added value of the tertiary industry	Added value of tertiary industry/GDP	+
new-type urbanization level	economic urbanization	Per capita local fiscal general budget revenue	Local fiscal general budget expenditure/year-end resident population	+
new-type urbanization level	economic urbanization	Total retail sales of consumer goods per capita	Total retail sales of consumer goods/year-end resident population	+
new-type urbanization level	social urbanization	Education investment	Education expenditure/local fiscal general budget expenditure	+
new-type urbanization level	social urbanization	Education scale	Average number of students enrolled in higher education institutions per 100,000 population	+
new-type urbanization level	social urbanization	Medical and health level	Number of beds in medical and health institutions	+
new-type urbanization level	social urbanization	Total number of books in public libraries per capita	direct data	+
new-type urbanization level	social urbanization	Public transportation development level	Public transportation vehicles per 10,000 people	+
new-type urbanization level	ecological urbanization	Park green space level	Park green space per capita	+
new-type urbanization level	ecological urbanization	Daily treatment capacity of urban sewage	direct data	+
new-type urbanization level	ecological urbanization	Waste disposal level	Harmless treatment rate of domestic waste	+
new-type urbanization level	ecological urbanization	Forest coverage	direct data	+

3.2.2. Core Explanatory Variable

Core explanatory variables (DID). Considering that the construction of the New International Land-Sea Trade Corridor in the West has gone through a dynamic evolution process from the "Southbound Corridor" to the "New International Land-Sea Trade Corridor" and then to the full rollout of the national strategy, this paper assigns the policy impact time in batches based on the specific time nodes when each province signs a cooperation framework agreement or joins the construction of the corridor. The time nodes for each province (except Tibet) to participate in the construction are shown in Table 2. Based on the construction participation time node, if city i belongs to the above-mentioned participating provinces, and year t is in or after the year it joins the channel construction, then the city is considered to be affected by the policy, and the core explanatory variable is assigned a value of 1; otherwise, it is assigned a value of $0.\mathrm{DID}_{it}\mathrm{DID}_{it}$

Table 2. Timing of Provincial Participation in the New Western Land-Sea Corridor (Excluding Tibet)

Construction time	Participating areas (except Tibet Autonomous Region)
2017	Chongqing City, Guangxi Zhuang Autonomous Region, Guizhou Province, Gansu Province
2018	Qinghai Province, Xinjiang Uygur Autonomous Region
2019	Sichuan Province, Hainan Province, Yunnan Province, Shaanxi Province, Inner Mongolia Autonomous Region, Ningxia Hui Autonomous Region

3.2.3. Control Variables

In order to absorb the interference of omitted variables on the estimation results to the greatest extent, this paper selects the following four dimensions of urban characteristics as control variables: First, the level of economic development, measured by the logarithm of GDP per capita, directly determines the city's urbanization carrying and construction capacity; second, the industrial structure, expressed by the proportion of the added value of the tertiary industry in GDP, with industrial upgrading and agglomeration being the driving force. The third is the level of financial development, measured by the balance of deposits and loans of financial institutions as a proportion of GDP, reflecting the ability to fund infrastructure construction in the urbanization process; the fourth is the degree of government intervention, expressed as the proportion of local fiscal expenditures in GDP, aiming to depict the impact of local government macro-control and resource allocation on urban development.

3.3. Data Sources

The research sample of this article is China’s provincial panel data from 2011 to 2023. Relevant economic and social statistical indicators mainly come from the "China Statistical Yearbook", provincial statistical yearbooks and the National Bureau of Statistics database. Data related to control variables are mainly extracted from the CSMAR database and the China Research Data Service Platform (CNRDS). For a very small number of missing values, the linear interpolation method was used to complete them, and finally a balanced panel data covering all provinces in the country (excluding Hong Kong, Macao and Taiwan) was constructed. The descriptive statistical results of the variables are shown in Table 3.

Table 3. Descriptive Statistics

Variable type	variable name	Observations	mean	standard deviation	minimum value	maximum value
explained variable	new-type urbanization level	403	0.3182	0.1049	0.0958	0.6175
explanatory variables	policy dummy variable	403	0.3052	0.4611	0.0000	1.0000
control variables	Degree of openness to the outside world	403	0.2646	0.2752	0.0076	1.4638
control variables	financial development level	403	3.5379	1.1412	1.6879	8.1641
control variables	Scientific and technological innovation level	403	0.0216	0.0156	0.0030	0.0676
control variables	Informatization level	403	0.0553	0.0511	0.0149	0.2820
mechanism variable	Traffic network density	403	0.9797	0.5490	0.0517	2.3093
mechanism variable	Advanced industrial structure	403	1.4392	0.7575	0.5271	5.6898
mechanism variable	Urban-rural income gap	403	2.5383	0.3841	1.7943	3.6716

3.4. Stylized Facts

Comparing the 3D core density evolution diagram of the entire national sample and the cities along the corridor, it can be seen that the new-type urbanization level of the cities along the Western Land-Sea Corridor shows a significant "low level and high agglomeration" feature (peak value 0.07, higher than the national level of 0.06), with a short tail on the right, lacking the leadership of high-level urbanization cities. This confirms from the side that cities in central and western regions still face the bottleneck constraint of "inland lock-up" in the process of urbanization. Therefore, relying on the macro-strategy of the New Western Land-Sea Corridor to break spatial barriers and stimulate endogenous power is of great practical urgency to promote the new-type urbanization in the region to a high level (right side).

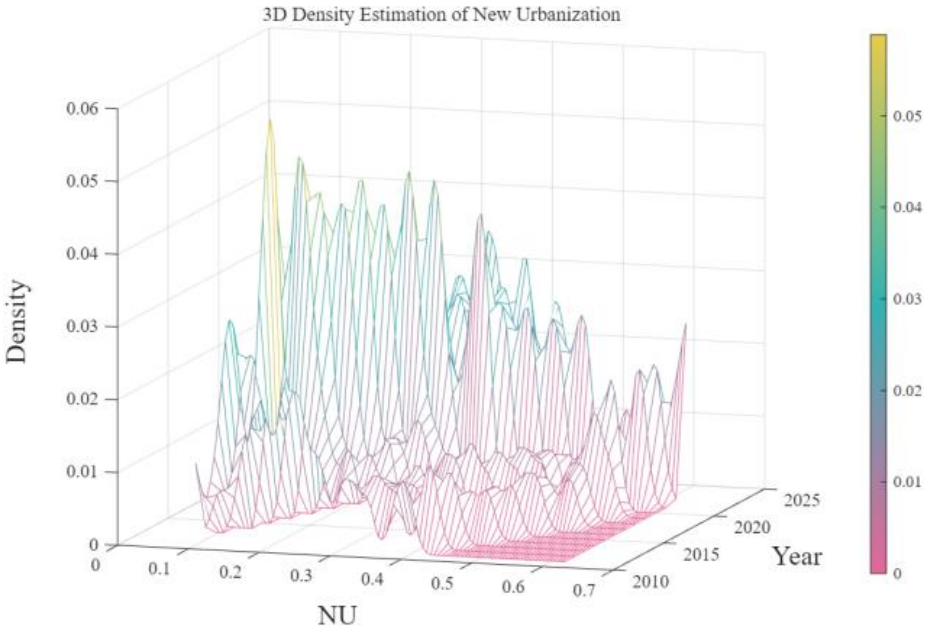


Figure 1. 3D Kernel-Density Curves of New-Type Urbanization across 31 Provinces

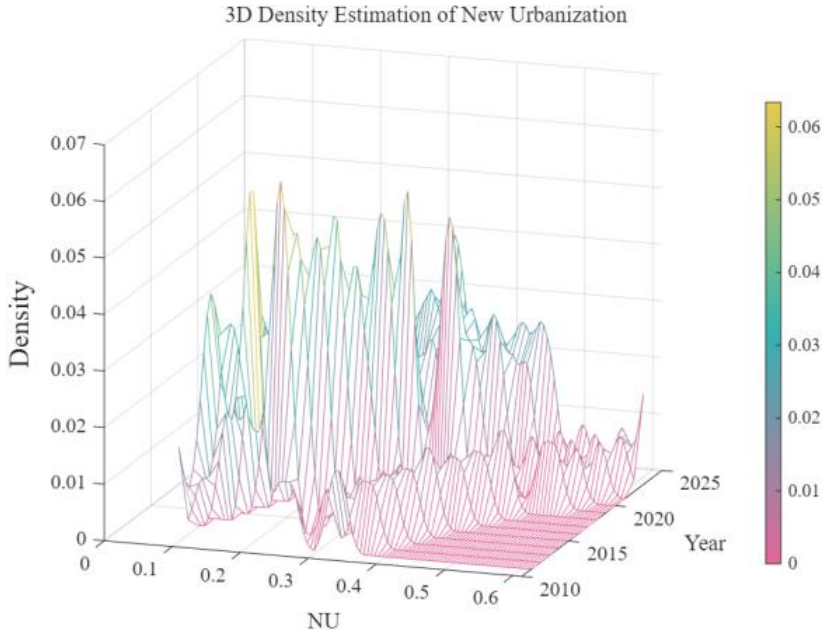


Figure 2. 3D Kernel-Density Curves of New-Type Urbanization in Participating Provinces

4. EMPIRICAL RESULTS

4.1. Baseline Regression Results

The benchmark regression results in Table 4 systematically verify the enabling effect of the New Western Land-Sea Corridor on the development of new-type urbanization. From the perspective of the evolution process from model (1) to model (5), regardless of whether control variables are added or two-way fixed effects of province and year are introduced, the estimated coefficient of the core explanatory variable DID continues to be positive at the 1% significance level, which strongly proves the authenticity and robustness of the policy effect. As the model constraints are tightened, it is observed that the regression coefficient gradually converges from 0.1009 in model (1) and stabilizes at 0.0372 in model (5). This changing trend reflects that the two-way fixed effect effectively absorbs

the interference of provincial inherent endowment differences and macro time trends on the urbanization process, making the estimation results more consistent. The results of the final model (5) show that, on the premise of controlling other macroeconomic factors, the construction of the New Western Land-Sea Corridor has significantly driven the improvement of new-type urbanization levels in the provinces along the route, providing solid empirical support for research hypothesis H1.

Table 4. Baseline Regression Results

variable	Double-difference model Double-difference model	Double-difference model Double-difference model	Double-difference model Double-difference model	Double-difference model Double-difference model	Double-difference model Double-difference model
variable	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
DID	0.1009*** (0.0117)	0.0303*** (0.0064)	0.0375*** (0.0063)	0.0312*** (0.0078)	0.0372*** (0.0072)
Observed quantity	403	403	403	403	403
control variables	NO	NO	YES	NO	YES
Province fixed effects	NO	YES	YES	YES	YES
year fixed effects	NO	NO	NO	YES	YES
R2	0.5461	0.9774	0.9788	0.9783	0.9799

Note: Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The same applies to the tables below unless otherwise stated.

4.2. Robustness Checks

4.2.1. Parallel-Trends Test

The premise that the difference-in-differences model is valid is that the treatment group and the control group have parallel development trends before the policy is implemented. This article uses the event study method to conduct parallel trend testing, taking the previous period as the base period, and the dynamic effects are shown in Figure 3. The results show that before the implementation of the policy, the estimated coefficients in each period fluctuated around 0, and their 95% confidence intervals all included 0, indicating that before the construction of the New Western Land-Sea Corridor, there was no significant difference in the development trends of new-type urbanization in the provinces in the treatment group and the control group, strictly meeting the parallel trend assumption. In the year when the policy was implemented (Phase 0) and in subsequent periods, the estimated coefficient jumped significantly and was significantly positive, which shows that the positive driving effect of corridor construction on new-type urbanization quickly appeared after the policy was implemented, and that the policy effect had good sustainability during the investigation period.

4.2.2. Placebo Test

In order to eliminate the interference of omitted variables and random factors on the estimation results, this paper conducted 1,000 random sampling simulations by randomly selecting provinces in the treatment group and randomly setting the policy implementation time. Figure 4 shows the probability density distribution of 1000 pseudo-estimated coefficients generated by the simulation and the corresponding p-values. The results show that the pseudo estimated coefficients are distributed near 0 and show typical normal distribution characteristics, and the vast majority of p values are greater than 0.1, failing to pass the significance test. In contrast, the true estimated coefficient obtained from the baseline regression (the dotted line position in the figure) is clearly in the extreme long tail area of the placebo test distribution, which is a small probability event. This fully confirms that the

improvement in the quality of new-type urbanization observed in this article is indeed caused by the construction of the New Western Land-Sea Corridor, rather than driven by other unobservable random factors.

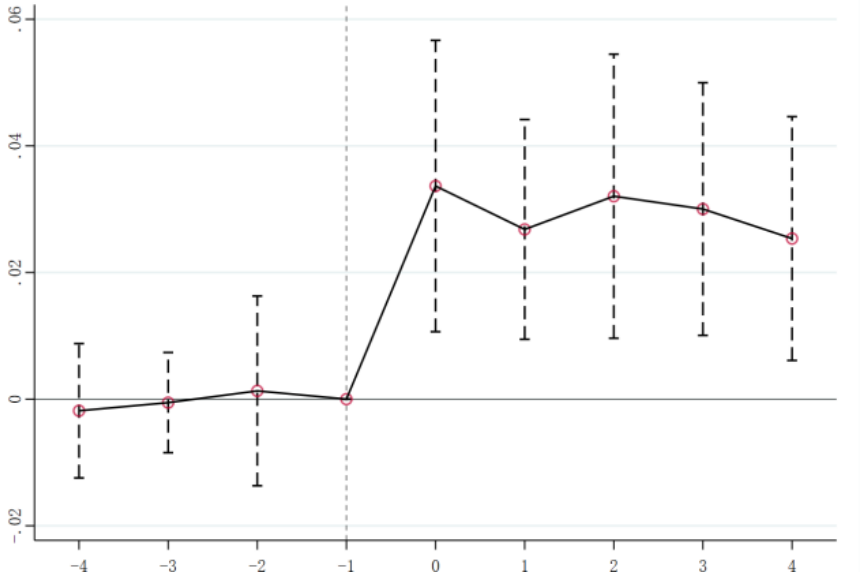


Figure 3. Parallel-Trends Test

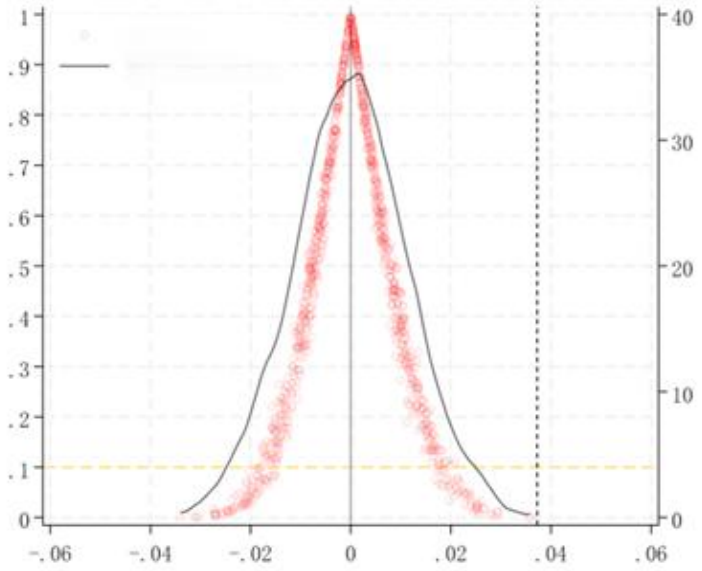


Figure 4. Placebo Test

4.3. Robustness Check Based on Dual Machine Learning (DML)

In order to relax the strict linear assumption of the traditional two-way fixed effects model and avoid the bias caused by the nonlinear characteristics of omitted variables, this paper introduces dual machine learning (DML) for robustness testing. It is set as a partial linear model, and the underlying algorithm uses gradient boosting tree (Gradient Boosting), and uses 3-fold cross-fitting to eliminate over-fitting bias, while controlling the two-way fixed effects of city and year. The results show (as shown in Table 5) that the average treatment effect (ATE) of the construction of the New Western Land-Sea Corridor is 0.3784, which is significantly positive at the 1% level. This shows that after eliminating high-dimensional nonlinear confounding factors, the promotional effect of policies is still significant and the causal identification results are highly robust.

Table 5. Robustness check based on dual machine learning (DML)

Variables/parameters	Estimated results
ATE (DID)	0.3784*** (0.0671)
Z statistic	5.6380
95% confidence interval	[0.2469, 0.5100]
fixed effects	City FE + Year FE
Machine learning sub-model	Gradient Boosting
cross fit fold	30% off
Sample size(N)	403

4.4. Robustness Test Based on Synthetic Control Method

In order to describe the impact of the construction of the New Western Land-Sea Corridor on core nodes in different locations in a multi-dimensional and detailed manner, this paper uses the synthetic control method proposed by Abadie et al. (2015) [21] for case analysis.

The core idea of the synthetic control method is based on a data-driven approach, by weighting the "control group" cities (that is, cities not affected by the policy) to construct a "synthetic city" with characteristics that are highly similar to the "treatment group" cities before the policy is implemented. By comparing the difference in export resilience between real cities and synthetic cities after the policy is implemented, the treatment effect of the policy is identified.

Suppose there is a city, of which the first city is the treatment group city affected by the New Western Land-Sea Corridor policy, and the remaining J cities are the control group cities not affected by the policy. Let T0 be the policy implementation node (2017). For the treatment group city i=1, we need to find a set of weight vectors$J+1W=\left(w_2,\ldots,w_{J+1}\right)'$, such that $\sum_{j=2}^{J+1} w_j = 1$ and $w_j \geq 0$.

$$\min\_W \|X\_1 - X\_0\ W\|\_V = [(X\_1 - X\_0\ W)'\ V\ (X\_1 - X\_0\ W)]\text{^}(1/2) \quad (2)$$

The goal of weight selection is to make the export resilience of the synthetic city before policy implementation (t < T0) and its predictor variables (control variables) as close as possible to the real city. The optimal weight W* is obtained by minimizing the following objective function:

Among them, X1 is the characteristic vector of the treatment group cities before the policy, X0 is the characteristic matrix of the control group cities, and V is the diagonal matrix that measures the relative importance of each characteristic variable.

$$tau\_1t = Y\_1t - sum(j=2\ to\ J+1)\ w\_j^*\ Y\_jt \quad (3)$$

Through the above model, we can get the treatment effect after the policy is implemented (t > T0):τ_{1t}

If it is significantly positive, that is, the real export resilience curve is located above the synthetic export resilience curve, it indicates that the policy has had a positive promoting effect.τ_{1t}

This article selects Chongqing, which represents the southwest inland hub, Guangxi, which represents the southern coastal gateway, and Shaanxi, which represents the important node in the northwest, as three typical treatment groups, and uses the synthetic control method for case evaluation. The premise that this method is effective is that the "synthetic treatment group" constructed through weight distribution can highly fit the characteristic trajectory of the real area before the policy is implemented.

Table 6 reports the matching between the real values and synthetic values of the control variables in the three core node provinces and cities before the implementation of the policy. The results show

that regardless of the degree of openness to the outside world, the level of financial development, or the level of technological innovation and informatization, the composite values of Chongqing, Guangxi and Shaanxi are very close to their true values. In addition, the root mean square prediction error (RMSPE), a measure of fitting error, is at extremely low levels. This shows that the synthetic control group based on data-driven construction can perfectly reproduce the evolution trajectories of these three node areas before the implementation of the policy, and meets the applicable conditions of the synthetic control method.

Table 6. Comparison of synthetic values and real valuesof control variables

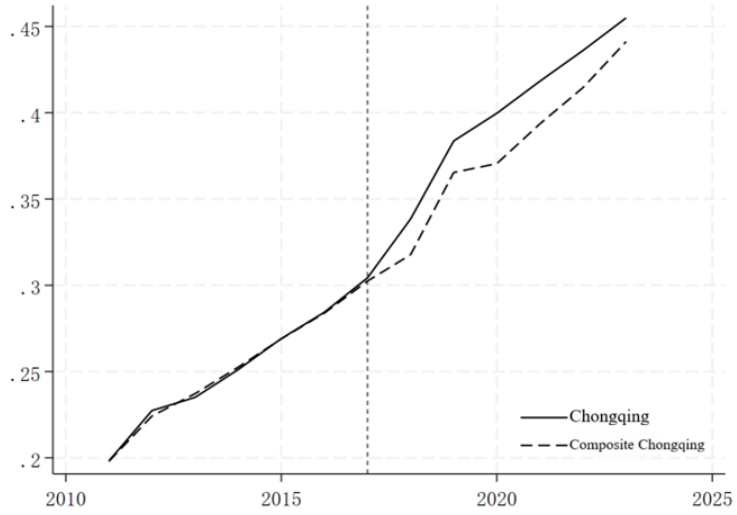
variable	Chongqing	Chongqing	Guangxi	Guangxi	Shaanxi	Shaanxi
variable	true value	composite value	true value	composite value	true value	composite value
Degree of openness to the outside world	0.2693	0.1549	0.2061	0.1635	0.1162	0.1605
financial development level	3.2164	2.7473	2.8671	2.8690	3.0365	3.0397
Scientific and technological innovation level	0.0158	0.0151	0.0272	0.0270	0.0205	0.0205
Informatization level	0.0448	0.0416	0.0646	0.0560	0.0531	0.0507
RMSPE	0.0017	0.0017	0.0025	0.0025	0.0092	0.0092

Table 7 further shows the optimal control groups (non-corridor provinces) that constitute each “synthetic province and city” and their weight distribution. Through the weighted combination of these specific provinces, this paper successfully constructed the "counterfactual" status of Chongqing, Guangxi and Shaanxi if the New Western Land-Sea Corridor policy had not been implemented, laying a solid foundation for subsequent accurate divestiture and assessment of the net intervention effect of the policy.

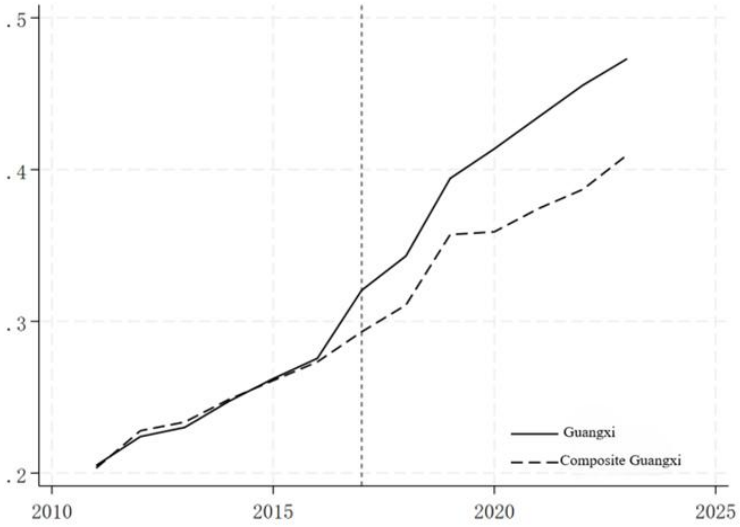
Table 7. Provinces and weights of the synthetic control group

province	Chongqing	Guangxi	Shaanxi
Tianjin	0.073		
Anhui	0.478		
hubei	0.449		
Henan		0.511	
Hainan		0.328	
Sichuan		0.161	
Hebei			0.004
Heilongjiang			0.396
Jiangxi			0.601

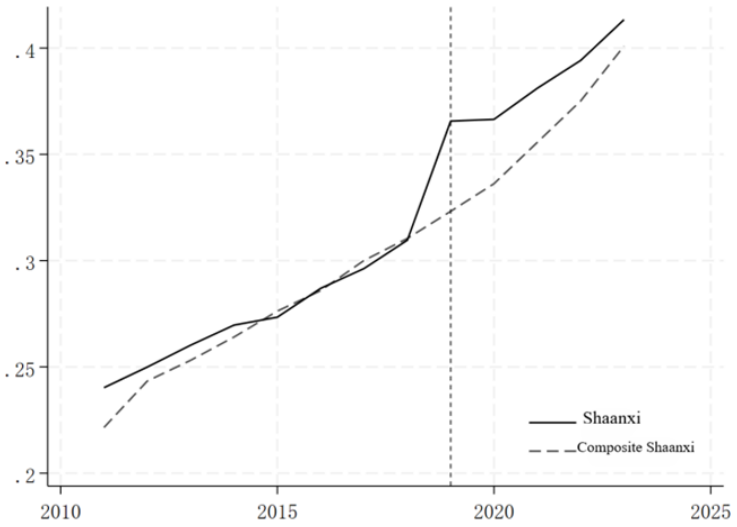
Figure 5 shows the evolution trajectory of the real new-type urbanization level (solid line) and the "synthetic" level (dashed line) of the three places. Before the policy was implemented, the real and synthetic curves of the three places were highly fitted, verifying the validity of the counterfactual construction. After the implementation of the policy, the real trajectories of the three places quickly broke through upward, forming a significant positive "scissors difference" with the synthetic trajectories. This intuitively proves that the construction of the New Western Land-Sea Corridor has a significant stimulating effect on the development of new-type urbanization in core node areas, and confirms the robustness of the benchmark conclusion.



a. Chongqing



b. Guangxi



c. Shaanxi

Figure 5. Time trend chart of real new-type urbanization level and synthetic new-type urbanization level

4.5. Other Robustness Checks

In order to further verify the reliability of the benchmark regression conclusion and eliminate estimation errors caused by sample selection bias, extreme value interference or external shocks, this article performed the following robustness test (see Table 8):

Propensity score matching difference-in-differences method (PSM-DID). Considering that there may be heterogeneity between the treatment group and the control group in antecedent conditions such as resource endowment and economic level, this paper uses the proximity matching method to find the control group sample with the closest characteristics for the provinces in the treatment group and re-estimate it. The results of model (1) show that the coefficient of DID is significantly positive at the 1% level, which shows that after alleviating the sample selection bias, the policy effect still exists significantly.

Adjust the policy occurrence time. Considering that there may be a time lag in the implementation of the New Western Land-Sea Corridor strategy, this article lags the policy time points by 1 and 2 years respectively for testing. The results of model (2) and model (3) show that the coefficients of the lag term have passed the 1% significance test, and the coefficient values show a steady growth trend, which reflects that the enabling effect of channel construction on new-type urbanization has long-term and dynamic enhancement characteristics.

Eliminate external interference. In order to eliminate the abnormal interference of uncontrollable external factors such as the COVID-19 epidemic on the urbanization process, model (4) was estimated by truncating the time series during the epidemic period. The results show that the coefficient is still robust, excluding the conclusion driven by special events in a specific time period.

Transform estimation methods and sample processing. Model (5) uses the two-period difference-in-difference method for regression to alleviate the heteroskedasticity or autocorrelation problems that may exist in multi-period DID; Model (6) performs a 1% upper and lower winnowing process on all continuous variables to eliminate the influence of outliers. The results show that no matter what treatment method is adopted, the DID coefficient remains at a significant level of around 0.0372, and the direction is highly consistent with the baseline regression.

Based on the above multiple test results, this article believes that the positive promotion effect of the construction of the New Western Land-Sea Corridor on the development of new-type urbanization is highly robust, and the research conclusions will not change substantially with changes in measurement methods, policy time points, or sample ranges.

Table 8. Other robustness test results

variable	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
variable	PSM-DID	policy time 1 year lag	policy time 2 years lag	Cut off epidemic time	two-period difference-in-difference method	Winsorization
DID	0.0348*** (0.0107)	0.0377*** (0.0098)	0.0401*** (0.0096)	0.0343*** (0.0075)	0.0648*** (0.0047)	0.0372*** (0.0072)
R2	0.9766	0.9783	0.9788	0.9793	0.9509	0.9799
control variables	YES	YES	YES	YES	YES	YES
Observations	234	403	403	341	403	403
Province fixed effects	YES	YES	YES	YES	YES	YES
year fixed effects	YES	YES	YES	YES	YES	YES

4.6. Analysis of Impact Mechanism

In order to verify the research hypothesis H2 proposed above, this paper further tests the mechanism of the new western land-sea corridor affecting new-type urbanization. In terms of variable measurement, the traffic network density (the ratio of the total mileage of highways and railways to the provincial area) is used to measure market access, the ratio of the added value of the tertiary industry to the added value of the secondary industry is used to measure the level of industrial upgrading, and the urban-rural income gap is measured by the ratio of per capita disposable income of urban and rural residents (urban/rural). The results of the mechanism test are shown in Table 9.

The results of model (1) show that the regression coefficient of DID on market access is 0.0613, and is significant at the 1% statistical level, indicating that the construction of the New Western Land-Sea Corridor has significantly improved the transportation accessibility level and regional market connection in the areas along the route. Through a multimodal transport system linking railways, highways and ports, the New Western Land-Sea Corridor reduces inter-regional transportation costs and transaction costs, alleviates the long-term geographical location constraints faced by the western region, and improves the region's ability to integrate into domestic and foreign market division of labor systems. Existing research has pointed out that improving transportation infrastructure can enhance inter-regional economic connections, improve resource allocation efficiency, and promote the concentration of production factors such as capital and labor in central cities and transportation hubs [22]. As the level of market access improves, the industrial agglomeration capacity and population absorption capacity of areas along the line continue to increase, providing basic conditions for urban spatial expansion, industrial development, and public resource aggregation, thus promoting the level of new-type urbanization.

The results of model (2) show that the regression coefficient of DID on the upgrading of industrial structure is 0.0677, and is significant at the 5% statistical level, indicating that the construction of the New Western Land-Sea Corridor has effectively promoted the optimization and upgrading of regional industrial structure. Improved transportation conditions and increased openness to the outside world have strengthened the industrial connections between the western region and domestic and foreign markets, promoted the accelerated development of industries such as modern logistics, business services, advanced manufacturing and producer services, and driven the continued increase in the proportion of the tertiary industry. The upgrade of industrial structure not only improves labor productivity and the quality of economic growth, but also creates more stable non-agricultural jobs. Zhu Gaoli et al. (2020) [23] believe that the optimization of industrial structure is an important source of power to promote the improvement of urbanization quality. As the industrial system gradually transforms from traditional resource-dependent industries to modern service industries and high value-added industries, the employment stability and income levels of agricultural migrant workers in cities and towns have been improved, and the cities' continued ability to absorb the population has been further enhanced, thereby promoting the urbanization of the population and the improvement of the quality of urbanization.

The results of model (3) show that the regression coefficient of DID on the urban-rural income gap is -0.0395, and is significant at the 1% statistical level, indicating that the construction of the New Western Land-Sea Corridor has narrowed the income gap between urban and rural residents to a certain extent. With the improvement of transportation network and improvement of logistics efficiency, the circulation conditions of agricultural products have been improved, the connection between rural areas and external markets has become closer, and the sales channels of agricultural products have been further expanded. At the same time, the construction of the corridor has promoted the development of trade logistics, agricultural product processing and related supporting industries in areas along the route, provided more non-agricultural employment opportunities for rural laborers, and increased the wage income and operating income levels of rural residents. Existing research has shown that the narrowing of the urban-rural income gap will help reduce the economic constraints on

rural population migration to cities, improve the ability of labor to move across regions, and promote the more stable integration of agricultural migrant populations into urban society [24]. The improvement of urban and rural income structure and the weakening of barriers to factor flow have further enhanced the inclusiveness and coordination of new-type urbanization development.

Overall, the New Western Land-Sea Corridor has promoted the optimal allocation of population, industry and resources in regional space through mechanisms such as improving market access, promoting the optimization and upgrading of industrial structure, and narrowing the urban-rural income gap, thereby promoting the improvement of new-type urbanization levels. Research hypothesis H2 has been verified.

Table 9. Mechanism Analysis Results

variable	Model (1) market access	Model (2) Advanced industrial structure	Model (3) Urban-rural income gap
DID	0.0613*** (4.12)	0.0677** (2.50)	-0.0395*** (-3.29)
control variables	YES	YES	YES
Province fixed effects	YES	YES	YES
year fixed effects	YES	YES	YES
Observed quantity	403	403	403
R2	0.9767	0.9664	0.9795

5. HETEROGENEITY ANALYSIS

The benchmark regression results show that the construction of the New Western Land-Sea Corridor can significantly improve the level of new-type urbanization. However, the policy effects of channel construction are not evenly released across different regions. On the one hand, the New Western Land-Sea Corridor has obvious spatial directionality. The distance of a region from the main land-sea intermodal transport channel and the sea outlet may affect its ability to receive the dividends of the channel; on the other hand, new-type urbanization cannot be achieved simply by improving traffic conditions. It is also affected by the existing urbanization foundation and factor allocation capabilities of the region. Therefore, this article further examines heterogeneity from three aspects: spatial location, urbanization foundation and financial development conditions. In terms of variable measurement: the location distribution divides the sample into southwest and northwest regions; the initial urbanization level and initial financial development level are based on the average of each province in 2016 and before, and are divided into high and low level groups using the median method.

Table 10. Classification of Northwestern and Southwestern Regions

Location distribution	province
northwest territories	Shaanxi Province, Gansu Province, Ningxia Hui Autonomous Region, Qinghai Province, Xinjiang Uygur Autonomous Region, Inner Mongolia Autonomous Region
southwest region	Chongqing City, Sichuan Province, Guizhou Province, Yunnan Province, Guangxi Zhuang Autonomous Region, Hainan Province

This article uses the interaction term model for estimation, and the model settings are as follows:

$$Y\_it = alpha + beta\_1\ DID\_it + beta\_2\ (DID\_it \times Group\_i) + gamma\ X\_it + mu\_i + lambda\_t + epsilon\_it \quad (4)$$

Among them, represents the level of new-type urbanization, represents the policy variable of the New International Land-Sea Corridor in the West, and is the regional grouping variable, which respectively represents the southwest region, regions with high initial urbanization level and regions with high initial financial development level. Since the grouping variable itself does not change with time and is absorbed after controlling for province fixed effects, this article mainly focuses on the estimated coefficients of and. The regression results are shown in Table 11. Y_{it} DID_{it} $Group_i$ DID_{it} $DID_{it} \times Group_i$

Table 11. Heterogeneity Analysis Results

variable	Model (1) locational distribution heterogeneity	Model (2) Heterogeneity in urbanization levels	Model (3) Heterogeneity in financial development levels
DID	0.0089 (0.0123)	0.0258*** (0.0083)	0.0472*** (0.0087)
DID × Southwest	0.0263** (0.0085)		
DID × High Initial Urbanization		0.0251** (0.0095)	
DID × High Financial Development			-0.0172* (0.0091)
control variables	YES	YES	YES
Province fixed effects	YES	YES	YES
year fixed effects	YES	YES	YES
Observed quantity	156	403	403
R^2	0.9776	0.9817	0.9809

Note: The total effect for each group is the sum of the DID coefficient and the corresponding interaction coefficient.

From the perspective of location distribution heterogeneity, the DID coefficient in column (1) is 0.0074, which fails the significance test; the interaction term coefficient between DID and the southwest region dummy variable is 0.0324, and is significant at the 1% level. Further calculation shows that the total effect in Southwest China is 0.0398 and is significant at the 1% level. This result shows that the new western land-sea corridor promotes new-type urbanization in the southwest region is significantly stronger than that in the northwest region. Combined with the spatial layout of the channel, the southwest region is closer to the Beibu Gulf Port and the main land-sea transport channel facing ASEAN, and can more directly undertake the improvement of logistics efficiency, expansion of market radius and enhancement of industrial connections brought about by channel construction. In contrast, the northwest region is relatively far from the sea, and its direct connection with the main land-sea linkage channel is weak. The role of channel construction in promoting new-type urbanization has not yet been fully demonstrated. This shows that the policy effects of the New Western Land-Sea Corridor have strong spatial location characteristics, and the convenience of regional access to the land-sea combined transport system will affect the release of policy dividends.

From the perspective of initial urbanization level heterogeneity, the DID coefficient in column (2) is 0.0258, and is significant at the 1% level; the interaction term coefficient between DID and high initial urbanization level variables is 0.0251, and is significant at the 5% level. The total effect of areas with high initial urbanization level is 0.0509 and is significant at the 1% level. The results show that the New Western Land-Sea Corridor has a promoting effect on areas with different urbanization bases, but it is more obvious in areas with higher initial urbanization levels. This shows that the impact of corridor construction on new-type urbanization is not simply a traffic improvement effect, but its role also depends on the original development foundation of the region. Areas with higher initial

urbanization levels usually have better industrial undertaking capabilities, infrastructure conditions and public service supply capabilities, and can more effectively transform logistics convenience, market expansion and factor flow into urbanization development momentum. Therefore, corridor construction in areas with a good urbanization foundation is more likely to form a linkage effect of "transportation improvement-industrial agglomeration-population carrying-public service improvement".

Looking at the heterogeneity of the initial level of financial development, the DID coefficient in column (3) is 0.0472, and is significant at the 1% level; the coefficient of the interaction term between DID and the high financial development level variable is -0.0172, and is significant at the 10% level. Further calculation shows that the total effect of areas with high financial development level is 0.0300, which is significant at the 1% level. This result shows that the New Western Land-Sea Corridor has a significant promoting effect on both high and low financial development levels, but the promoting effect is stronger on areas with lower financial development levels. The possible reason is that areas with higher levels of financial development originally have relatively mature market systems and resource allocation capabilities, and the marginal improvements brought about by channel construction are relatively limited; while areas with lower levels of financial development often face problems such as insufficient market connections, strong financing constraints, and poor flow of factors before the implementation of policies. Channel construction provides new support for their industrial development and urban function improvement by improving logistics accessibility and reducing transaction costs, thus producing more obvious marginal effects.

Overall, the heterogeneity test further reveals the differentiated characteristics of the New Western Land-Sea Corridor affecting new-type urbanization. First, the channel effect has obvious spatial location attributes. Since the southwest region is closer to the main land-sea transport channel and the outlet, the policy effect is significantly stronger than that of the northwest region. Second, the channel effect is affected by the existing urbanization foundation of the region. Areas with higher initial urbanization levels are more likely to transform channel advantages into new-type urbanization development momentum. Third, channel construction has a stronger marginal promotion effect on areas with lower levels of financial development, indicating that it can, to a certain extent, make up for the development constraints caused by insufficient factor allocation and market connectivity. It can be seen that the impact of the New Western Land-Sea Corridor on new-type urbanization is not uniformly released, but is jointly affected by spatial location, urbanization carrying foundation and financial development conditions. The construction of the corridor improves the external connection conditions of the region through "connecting the river to the sea" and further promotes industrial development, population agglomeration and urban function improvement, thus providing support for new people-oriented urbanization.

6. CONCLUSIONS AND POLICY IMPLICATIONS

6.1. Conclusions

This paper takes the construction of the New Western Land-Sea Corridor as a quasi-natural experiment and builds a multi-period difference-in-differences model based on China's provincial panel data from 2011 to 2023 to systematically examine the impact and mechanism of the construction of the New Western Land-Sea Corridor on the level of new-type urbanization. The study found that the construction of the New Western Land-Sea Corridor has significantly promoted the development of new-type urbanization in the province. After controlling for province fixed effects, year fixed effects and related control variables, the estimated coefficient of the core explanatory variable DID is still significantly positive at the 1% level, indicating that channel construction has a stable positive effect on new-type urbanization. After further passing the robustness tests such as parallel trend test, placebo test, dual machine learning, synthetic control method and replacement

estimation method, the baseline conclusion still holds, indicating that the identification results of this article are highly robust.

Mechanism testing shows that the New Western Land-Sea Corridor does not directly affect urbanization only through improvements in transportation infrastructure, but works together through multiple paths. Specifically, channel construction has significantly improved regional market access, promoted the upgrading of the industrial structure, and effectively promoted the convergence of the urban-rural income gap. The improvement of the transportation network has reduced inter-regional transportation costs and expanded the hinterland of the urban market; the upgrading of the industrial structure has enhanced the ability to absorb urban employment and industry support; and the narrowing of the urban-rural income gap will help promote a smoother flow of urban and rural populations and factors. It can be seen that the New Western Land-Sea Corridor provides important support for the development of new-type urbanization through the transmission chain of "transportation improvement-factor flow-industrial upgrading-income coordination".

Heterogeneity analysis further found that the policy effects of the New Western Land-Sea Corridor are not released uniformly, but are jointly affected by spatial location, urbanization foundation and financial development conditions. First, the policy effect in the southwest region is significantly stronger than that in the northwest region, indicating that the closer it is to the main land-sea transport channel and the sea outlet, the easier it is to undertake the logistics convenience and market expansion effects brought about by channel construction. Second, the policy effect is stronger in areas with higher initial urbanization levels, indicating that the release of corridor dividends depends on the region's existing industrial foundation, public service levels, and population carrying capacity. Third, the marginal improvement effect is more obvious in areas with lower levels of financial development, indicating that the New Western Land-Sea Corridor can alleviate the problems of insufficient factor allocation and poor market connectivity in underdeveloped areas to a certain extent.

Overall, the construction of the New Western Land-Sea Corridor provides an important impetus for the western region to break the inland location constraints, improve the level of openness, and promote the high-quality development of urbanization. Its role is not only to improve transportation conditions, but more importantly, to promote the transformation of urbanization from scale expansion to quality improvement by reshaping regional market connections, optimizing the industrial division of labor, and promoting the flow of urban and rural factors. This also shows that "connecting the river to the sea" can empower "people-oriented" to a certain extent, but the full release of its policy effect still needs to be coordinated with policies such as industrial development, public services, financial support, and population citizenization.

6.2. Policy Implications

First, improve the comprehensive transportation and logistics system of the New Western Land-Sea Corridor and improve the operating efficiency of the corridor. The connection between railways, highways, ports, logistics parks and multimodal transport hubs should be further strengthened, and the transformation of channels from "point-line connection" to "network collaboration" should be promoted. By reducing logistics costs and institutional transaction costs, the western region's ability to connect with domestic and foreign markets will be enhanced, so that channel advantages can be better transformed into development advantages.

Second, promote the coordinated linkage between channel construction, industrial development, and urban construction. We should rely on logistics hubs, open platforms and industrial parks along the corridor to develop industries such as modern logistics, business services, port processing, advanced manufacturing and cross-border e-commerce, and enhance urban employment absorption and industrial support capabilities. At the same time, it is necessary to combine the trend of population inflow and industrial agglomeration to improve the supply of public services such as education,

medical care, housing, and transportation, and promote the transformation of channel dividends into improvements in the quality of urbanization.

Third, release the differentiated effects of channel construction according to local conditions. The southwest region should continue to take advantage of its location facing ASEAN and connecting Beibu Gulf ports to improve its land-sea transport organization capabilities; the northwest region should strengthen its connection with China-Europe freight trains, large domestic markets and the new western land-sea corridor to enhance its radiation and driving capabilities. For areas with low financial development levels and weak urbanization foundations, financial, fiscal and public service support should be increased to improve their industrial undertaking capabilities and population citizenization capabilities.

The construction of the New Western Land-Sea Corridor is an important starting point to promote the opening up of the western region and promote new-type urbanization. In the future, on the basis of improving the transportation and logistics network, more attention should be paid to the coordinated linkage between channel construction and industrial upgrading, public services, financial support and regional coordination policies, so as to promote the western region to shift from "channel passing" to "channel empowerment", and from "transportation connectivity" to "development integration", so as to better realize the organic unity of rivers and seas and new people-oriented urbanization.

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