Frontiers in Economics and Management Volume 6 Issue 6, 2025
ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

# Analysis on the Effect of National-level New Areas in Promoting the Integration of Industry and City Development

## -- Analysis based on Double Difference Method

Jingru Xu*

School of Economics, Jiaxing University, Jiaxing, 314001, China

*bananapprr@gmail.com

## Abstract

**As an important carrier of China's regional development policy, national-level new areas have attracted much attention for their role in promoting industrial development and urban construction. This paper employs the difference-in-differences (DID) method to empirically examine how newly established national-level zones influence industrial-urban integration, using data from periods before and after their establishment. The study found that the establishment of new national-level zones has facilitated the integrated development of industries and urban areas, but there is heterogeneity in policy effects across different regions and industrial sectors. The research conclusions have important reference value for the formulation of future national-level new area policies.**

## Keywords

**National-Level New District; Industry-City Integration; Double Difference Method; Policy Effect; Regional Development.**

## 1. Introduction

With the acceleration of urbanization in China, industrial-urban integration has become a key strategy to promote coordinated regional economic development and sustainable urban growth. However, the traditional urban development model often faces the disconnection between industry and urban functions, resulting in the asynchrony between industrial agglomeration and livability improvement, and inefficient resource allocation. As a national comprehensive reform pilot zone, the national new district shoulders the heavy task of promoting industrial upgrading, optimizing urban functions, and improving the quality of life of residents. How to give full play to its policy advantages to promote industrial-urban integration is still an important topic that needs to be studied urgently.

This paper focuses on how national new districts can promote the coordinated development of industry and city through policy support, resource allocation, and functional planning while addressing gaps in existing research. The establishment of national new districts contributes to strengthening regional economic competitiveness, optimizing urban spatial structures, and improving social service capacities, ultimately promoting the harmonious development of the economy, society, and ecology by aligning industrial clustering with urban functions.

From a policy design perspective, advancing national new districts requires scientific top-level design and dynamic adjustment of policy tools to ensure policy effectiveness and sustainability. The research results of this paper can provide decision-making support for the government, and help formulate more targeted policy measures by systematically analyzing the achievements and challenges of new districts in industrial-urban integration.

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

## 2. Literature Review

In recent years, as an important strategic platform for promoting regional development, national-level new areas have had a profound impact on industrial-urban integration and regional high-quality development. Research findings indicate that the creation of new zones has markedly contributed to regional economic expansion and facilitated industrial restructuring. Shi Mingcan and Zheng Weiwei et al. pointed out that national-level new areas have improved regional economic competitiveness through policy guidance, industrial agglomeration and institutional innovation, while optimizing urban spatial layout and achieving high-quality development [1,2]. At the same time, an efficient management system is crucial to promoting the coordinated economic development of new areas [3].

In terms of innovation capabilities, Xie Guo et al. found that national-level new areas have significantly improved regional innovation levels by relying on scientific and technological investment, talent attraction and intellectual property protection [4]. In addition, Yang Yaping and Xu Yuejing further revealed that industrial-urban integration not only optimized the industrial structure, but also had a positive impact on urban innovation capabilities [5].

Regarding the specific effects of industrial-urban integration, Wu Guihua et al. used the propensity score matching double difference method and found that the construction of national-level new areas significantly improved the level of industrial-urban integration in the main urban area, but the radiation effect on surrounding areas was relatively limited [6]. Wang Hao and Cao Yingyi found that the establishment of new districts, while improving the level of industrial-urban integration, may also have a certain siphon effect on surrounding cities [7].

Although prior studies have demonstrated the beneficial effects of state-level development zones on the integration between industries and urban areas, several research limitations remain evident. For example, there is a lack of in-depth empirical analysis on how the establishment of new districts affects the degree of industrial-urban integration in different regions and industrial types. In addition, with the advancement of new urbanization and regional coordinated development strategies, the functional positioning of national-level new districts is constantly adjusted, and their impact mechanism on industrial-urban integration may change accordingly, so further research and discussion is still needed.

## 3. Research Hypothesis

### 3.1. National-level New Districts Significantly Promote the Integration of Industry and City in Their Cities

As a national comprehensive reform pilot zone, national-level new districts enjoy special support in terms of policies, finance, and industrial planning, which are conducive to industrial agglomeration, infrastructure improvement, and population mobility, thereby promoting industrial upgrading, optimizing urban spatial layout, and improving public service supply, and promoting industrial-city integration. In addition, by attracting investment, talents, and innovation resources, new districts further enhance regional economic vitality and make industrial and urban functions more coordinated. Accordingly, the implementation of national-level new districts is expected to have a considerable positive effect on area-level industry-city integration.

### 3.2. The Policy Effects of National-level New Districts Vary Significantly among Cities at Different Administrative Levels

Due to different resource endowments, policy support, and market environments, the policy effects of national-level new districts vary among cities at different administrative levels. Cities at or above the provincial capital have complete infrastructure, strong talent attraction, and

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

superior business environment. The policy dividends of new districts are released faster, and the effect of promoting the integration between industries and urban areas is more pronounced. In non-provincial capital cities, although new districts can promote economic growth and improve urban functions, they are constrained by weak industrial foundations and limited resources, and the policy effects may be limited. Consequently, we posit that the influence of nationally designated new districts is more substantial in municipalities with elevated administrative status, while relatively less impactful in lower-ranking urban centers.

# 4. Empirical Analysis

## 4.1. Measurement of the Degree of Coordination between Industry and City Integration

In order to measure the degree of industry-city integration in each city, this paper builds the following indicator system with reference to previous studies [8,9]:

**Table 1.** Industry-city integration indicator system

| First level indicator | Secondary indicators | definition |
|---|---|---|
| Industry Development | Industrial agglomeration | Total industrial output value above designated size/urban GDP |
| | Industrial structure optimization | Output value of the tertiary industry/output value of the secondary industry |
| | Industry Potential | Science and technology expenditure in public budget/city GDP |
| Urban functions | Social service level | Number of doctors per 10,000 people |
| | Financial service level | Financial institution loan balance/city GDP |
| | Infrastructure level | Highway mileage |
| | Ecological environment level | Green space per capita |
| human Resources | Employment structure | Proportion of employees in the tertiary industry |
| | Education level | Number of full-time teachers in regular colleges and universities |
| | Consumption Level | Total retail sales of consumer goods/urban GDP |

The specific calculation method is as follows: the first step is to use the entropy method to standardize the data and determine the weight of each level indicator; the second step is to calculate the contribution of the three secondary indicators to the entire industrial-city integration, which is called the coordination degree. The formula is $T = \alpha_1 U_1 + \alpha_2 U_2 + \alpha_3 U_3$, where α i is calculated by the entropy method in the first step; the third step is to calculate the coupling degree of industrial-city integration. The calculation formula is:

$$C = \left[ \frac{\prod_{i=1}^{n} U_i}{\left( \frac{1}{n} \sum_{i=1}^{n} U_i \right)^n} \right]^{\frac{1}{n}} \quad (1)$$

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

The fourth step is to calculate the coupling coordination degree, and the formula is $D = \sqrt{C \times T}$: The higher the coupling coordination degree, the higher the level of industrial-city integration in the city.

Taking into account the availability of data, the study excluded cities with more missing data between 2008 and 2022, and the final sample included 265 cities at prefecture level and above. The following table is the descriptive statistics of each secondary indicator, showing the sample size, mean, median, standard deviation, minimum and maximum value of each indicator.

**Table 2.** Descriptive statistical results of each sub-indicator of industrial-city integration

| Dimensions | Variable | N | Mean | p50 | SD | Min | Max |
|---|---|---|---|---|---|---|---|
| Industry Development | Industrial agglomeration | 3975 | 1.462 | 1.385 | 0.757 | 0.0003 | 17.65 |
| | Industrial structure optimization | 3975 | 0.997 | 0.875 | 0.549 | 0.0943 | 5.419 |
| | Industry Potential | 3975 | 0.00270 | 0.00190 | 0.00270 | 0.0001 | 0.0631 |
| Urban functions | Social service level | 3975 | 10558 | 7464 | 10583 | 618 | 118541 |
| | Financial service level | 3975 | 1.444 | 1.300 | 0.715 | 0.407 | 20.10 |
| | Infrastructure level | 3975 | 14834 | 13245 | 12543 | 702 | 186137 |
| | Ecological environment level | 3975 | 4.442 | 2.704 | 6.843 | 0.0366 | 102.9 |
| human Resources | Employment structure | 3975 | 54.10 | 54.15 | 13.31 | 15.39 | 99.42 |
| | Education level | 3975 | 5540 | 2000 | 10533 | 6 | 80015 |
| | Consumption Level | 3975 | 0.376 | 0.368 | 0.108 | 0.0264 | 1.013 |

The following table shows the descriptive statistical results of the coupling degree and coordination index of each city's industrial development calculated based on the original data, as well as the coupling coordination degree of the explained variables in this article.

**Table 3.** Calculation results of industry-city integration indicators

| Variable | N | Mean | p50 | SD | Min | Max |
|---|---|---|---|---|---|---|
| Coupling | 3975 | 0.944 | 0.966 | 0.0634 | 0.465 | 1 |
| Coordination | 3975 | 0.0823 | 0.0650 | 0.0585 | 0.0242 | 0.560 |
| Coupling coordination | 3975 | 0.266 | 0.249 | 0.0679 | 0.152 | 0.714 |

## 4.2. Descriptive Statistics of Variables and Model Construction

In order to test the impact of national-level new areas on the integration of urban industry and city, this paper uses a multi-period double difference model with two-way fixed effects. The model is as follows:

$$Y_{i,t} = \alpha_0 + \alpha_1 DID_{i,t} + \sum_j \beta_j X_j + Y_t + \lambda_i + \delta_{i,t} \quad (2)$$

The variable DID is the core explanatory variable of this paper. If city i establishes a national-level new district in year t or later, the value is 1, otherwise it is 0. X includes a series of control variables: Infra, representing infrastructure quality as per capita road area; FDI, indicating external openness through the ratio of actual foreign direct investment to GDP; Labor, reflecting human capital stock via college student numbers per 10,000 residents; and Infor, denoting information technology penetration by year-end mobile phone users. λ captures city-specific effects, and γ controls for time-specific effects.

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

The sample of the study is an unbalanced panel consisting of 265 cities from 2008 to 2022. Among them, FDI is missing a lot of data because some cities have not announced their actual foreign investment amount in that year after 2020, and this indicator is affected by many factors and cannot be supplemented by common interpolation methods such as linear interpolation. The descriptive statistical results of each variable are shown in the following table.

**Table 4.** Descriptive statistical results of main variables

| Variable | N | Mean | p50 | SD | Min | Max |
|---|---|---|---|---|---|---|
| Coupling coordination | 3975 | 0.266 | 0.249 | 0.0679 | 0.152 | 0.714 |
| DID | 3975 | 0.0503 | 0 | 0.219 | 0 | 1 |
| Infra | 3945 | 17.74 | 16.18 | 7.643 | 1,370 | 60.07 |
| FDI | 3807 | 0.0193 | 0.0114 | 0.0440 | 0 | 1.107 |
| Labor | 3975 | 195.2 | 99.58 | 255.4 | 0.295 | 2956 |
| Infor | 3975 | 1.028 | 0.870 | 0.783 | 0.0441 | 10.51 |

## 4.3. Benchmark Regression Results

The table below shows the benchmark regression results. Columns (1) to (5) control for time and city fixed effects, and gradually add control variables. From the results in the table, we can find that the coefficient of the DID item is always significant at the 1% level, and its coefficient fluctuates only within a small range in the process of continuously adding control variables, which shows that our benchmark regression results have good robustness. Judging from the results in column (5) after adding all control variables, the establishment of a national-level new area can increase the city's industry-city integration index by about 0.0159, indicating that the national-level new area can effectively promote the city's industry-city integration level.

**Table 5.** Benchmark regression results

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Coupling coordination | Coupling coordination | Coupling coordination | Coupling coordination | Coupling coordination |
| DID | 0.0178*** | 0.0171*** | 0.0169*** | 0.0163*** | 0.0159*** |
| | (0.0045) | (0.0044) | (0.0045) | (0.0047) | (0.0046) |
| Infra | | -0.0003*** | -0.0003*** | -0.0003*** | -0.0003*** |
| | | (0.0001) | (0.0001) | (0.0001) | (0.0001) |
| FDI | | | -0.0022 | -0.0021 | -0.0030 |
| | | | (0.0079) | (0.0079) | (0.0073) |
| Labor | | | | 0.0000 | 0.0000 |
| | | | | (0.0000) | (0.0000) |
| Infor | | | | | 0.0054*** |
| | | | | | (0.0020) |
| _cons | 0.2652*** | 0.2711*** | 0.2724*** | 0.2713*** | 0.2665*** |
| | (0.0002) | (0.0019) | (0.0020) | (0.0027) | (0.0031) |
| City fixed effects | control | control | control | control | control |
| Time fixed effects | control | control | control | control | control |
| *N* | 3975 | 3945 | 3779 | 3779 | 3779 |
| adj. $R^2$ | 0.9641 | 0.9647 | 0.9673 | 0.9674 | 0.9677 |

Note: The data in brackets are robust standard errors clustered at the city level. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Same as the table below.

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

## 4.4. Parallel Trend Test

One of the validity premises of the double difference result estimation is that the treatment and control groups have no obvious trend deviation beforehand, that is, they have parallel trends. In order to test whether the national new district pilot cities and non-pilot cities have common trends before the start of the pilot, this paper establishes the following test model:

$$Y_{i,t} = \alpha_0 + \sum_{s=-6, s\neq -1}^{6} \mu_s \times DID_{i,t}^{s} + \sum_j \beta_j X_j + Y_t + \lambda_i + \delta_{i,t} \quad (3)$$

Among them, DID s is a series of dummy variables of relative time. For example, s=1 is a dummy variable formed by pushing the pilot year back by one year. The meanings of the remaining variables are the same as those of the baseline regression equation.

The test results are shown in the figure below. It can be seen that there is no significant trend before the event, but there is a significant upward trend afterwards, and it has been significantly greater than 0 since the second period afterwards. The parallel trend test is passed, indicating that before the start of the national-level new district pilot, there was no significant difference in the level of industry-city integration between between cities selected for the pilot program and those not included. Our conclusion in the benchmark regression that the national-level new district pilot can promote urban industry-city integration is relatively robust. In addition, the fact that it has been significantly greater than 0 since the second period after the event suggests that the influence of state-level development zones on urban-industrial convergence will continue to increase over time, and will not only have an impact in the current period, but will continue to have an impact.

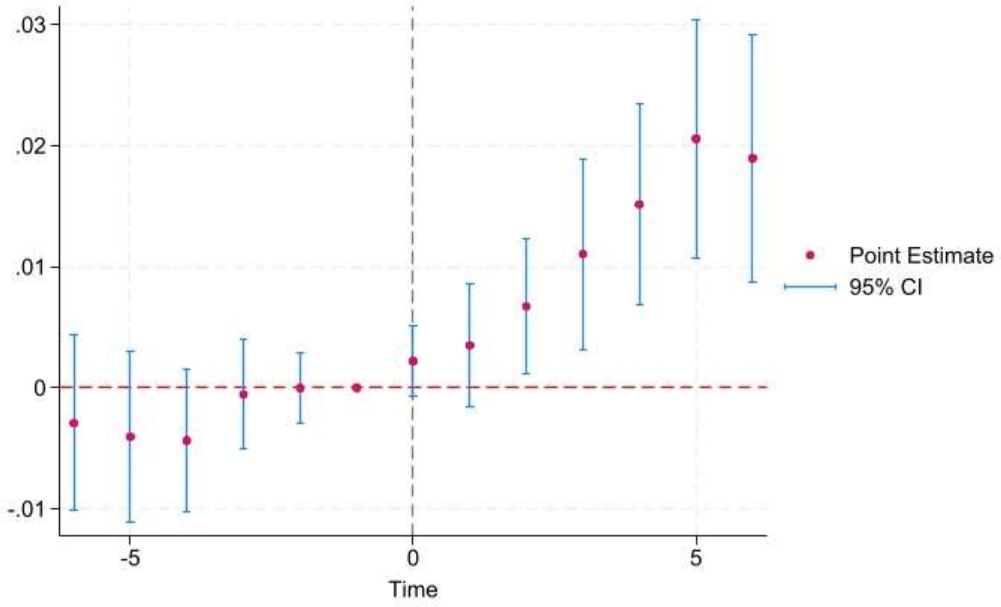



**Figure 1.** Parallel trend test results

## 4.5. Placebo Test

In order to avoid the influence of possible confounding factors on the regression results, this paper conducts 500 spatial placebo tests, and the test results are shown in the figure. It can be seen that most of the pseudo-regression coefficients are concentrated around 0, and the pseudo-regression coefficients of the 500 tests are all on the left side of the true coefficient

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

0.0159, which excludes the possibility that the positive effect of state-level development zones on urban-industrial convergence obtained by our baseline regression is caused by unexpected time-varying factors.

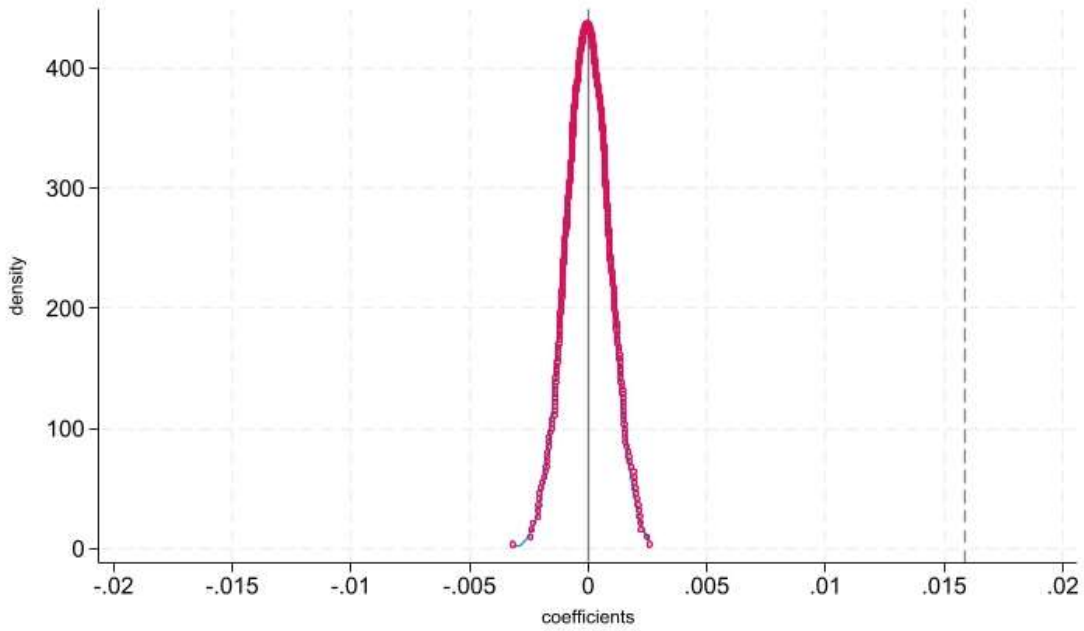



**Figure 2.** Placebo test results

## 4.6. Heterogeneity based on Urban Location

**Table 6.** Results of heterogeneity analysis

| | (1) | (2) |
|---|---|---|
| | east | Midwest |
| did | 0.0132 * | 0.0184 *** |
| | (0.0074) | (0.0058) |
| Infra | -0.0005 *** | -0.0002 |
| | (0.0002) | (0.0002) |
| FDI | 0.0164 | -0.0155 *** |
| | (0.0122) | (0.0045) |
| Labor | 0.0000 | 0.0000 |
| | (0.0000) | (0.0000) |
| Infor | 0.0039 * | 0.0102 *** |
| | (0.0020) | (0.0037) |
| _cons | 0.2831 *** | 0.2519 *** |
| | (0.0046) | (0.0042) |
| City fixed effects | control | control |
| Year fixed effects | control | control |
| *N* | 1688 | 2076 |
| adj. $R^2$ | 0.9752 | 0.9574 |

The influence of state-level development zones on urban industry-urban coordination may differ according to the city's geographical position: when these zones are established in cities with superior locational advantages, their marginal contribution to industry-city integration might be less pronounced due to the city's inherently higher level of industrial-urban

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

coordination. Consequently, this study hypothesizes that the effect of nationally designated new districts on urban-industrial convergence would be less substantial in eastern regions compared to central and western areas. To examine this hypothesis, the research stratifies the complete sample into eastern versus central-western regional subgroups according to geographical distribution and conducts separate regression analyses. The empirical findings, presented in the subsequent table, reveal that the establishment of state-level development zones in eastern regions positively affects the industry-city integration index by 0.0132, significant at the 10% level, whereas in central and western regions, the impact is 0.0196, significant at the 1% level. These results demonstrate that the contribution of nationally designated new districts to industrial-urban coordination is more substantial in central and western regions compared to eastern areas, thereby confirming our initial hypothesis.

## 5. Conclusion and Policy Recommendations

### 5.1. Research Conclusion

This paper uses the DID method to empirically analyze the impact of the establishment of national-level new areas on the level of industrial-urban integration. The main research conclusions are as follows:

(1) National-level new areas significantly improve the level of local industrial-urban integration (coefficient 0.0159***), indicating that the new area policy effectively promotes the coordinated development of industry and urban functions.

(2) There is administrative level heterogeneity in policy effects. The policy effect of provincial capitals and above is more significant, while the improvement of ordinary prefecture-level cities is smaller.

(3) There are significant regional differences, and the central and western regions benefit more. The establishment of new areas has a stronger role in promoting industrial-urban integration in the central and western regions, while the eastern region is relatively weak.

### 5.2. Policy Recommendations

Drawing from the aforementioned findings, this study proposes the following policy implications: First, enhance the spatial distribution of development zones, focus on supporting the central and western regions, guide industries and resources to tilt towards the new areas in the central and western regions, and enhance their economic carrying capacity and industrial attractiveness; second, strengthen the coordinated development of industrial transfer and new areas, formulate supporting policies for industrial transfer in the central and western new areas, guide the implementation of high value-added industries, and avoid dependence on a single industry; third, provide differentiated support for cities of different levels. For new areas in provincial capitals and above, focus on optimizing the layout of scientific and technological innovation and high-end services, and for new areas in prefecture-level cities, focus on improving infrastructure and agglomerating manufacturing industries; finally, establish a regular evaluation mechanism, and adjust support policies in a timely manner according to the development progress of new areas to ensure policy effectiveness and sustainability.

## References

[1] Shi, M. (2023). The establishment of national-level new areas and high-quality development of regional economy: Internal mechanisms and empirical evidence. Regional Economic Review, (02), 55-60.

[2] Zheng, W., Liu, Y., & Lu, H. (2021). The driving effect of national-level new areas on high-quality development of regional economy: Theoretical mechanism and empirical identification. Urban Development Research, 28(09), 116-124.

ISSN: 2692-7608 DOI: 10.6981/FEM.202506_6(6).0005

[3] Qiu, J., & Luo, J. (2023). Practical effects and suggestions on the planning management system and mechanism of national new districts. Planner, 39(11), 69-73.

[4] Xie, G., Li, K., & Ye, L. (2021). The establishment of national-level new districts and regional innovation capabilities: An empirical study based on panel data from 70 large and medium-sized cities. East China Economic Management, 35(10), 48-58.

[5] Yang, Y., & Xu, Y. (2023). Economic and Technological Development Zone Upgrading, Industry-City Integration and Urban Innovation Level. Science and Technology Management Research, 43(14), 241-250.

[6] Wu, G., Zhang, X., & Li, Y. (2020). The impact and mechanism of national-level new district construction on industrial-city integration: A test based on the double difference model. Resource Development and Market, 36(02), 113-118.

[7] Wang, H., & Cao, Y. (2024). The effect of national-level new areas on the integration of industry and city: Evidence from a multi-point double difference model. Research on Technological Economics and Management, (05), 97-102.

[8] Liu, R., & Zhao, R. (2015). Do national high-tech zones promote regional economic development? - A verification based on the double difference method. Management World, (08), 30-38.

[9] Zou, D., & Cong, H. (2019). The spatiotemporal pattern of industrial-city integration in China and its influencing factors. Economic Geography, 39(06), 66-74.