A Study on the Impact of New Urbanization on the Upgrading of Industrial Structure

Yuanqin Xu[1,*,a]

[1]College of Economics, Sichuan Agricultural University, Chengdu 611130, China.

[a]xuyuanqin52@163.com,

*Corresponding author Email

Keywords: new urbanization, Industrial structure upgrade, principal component analysis (PCA).

Abstract: First, using the 2006-2016 national provincial panel data, the principal component analysis method is used to construct the new urbanization indicator system based on the three dimensions of population new urbanization, industrial new urbanization and spatial new urbanization. Then the impact of new urbanization on the upgrading of industrial structure is empirically examined using a double fixed effects model. Empirical results show that new urbanization has a significant upgrading effect on the industrial structure.

1. Introduction

Over the past five years, China's urbanization rate has increased by an average of 1.2% per year, and by the end of 2018, the urbanization rate of China's resident population had reached 59.58%, marking China's entry into the stage of rapid urbanization development. In order to further enhance the effectiveness of urbanization construction, the 18th National Congress clearly proposed the concept of new urbanization, replacing the traditional urbanization construction model in the past. The construction of new urbanization needs to be supported by industrial upgrading, especially the development of manufacturing and productive services is a powerful driver of new urbanization. So, can new urbanization promote industrial structure upgrading and lead the industrial structure to rationalize and heighten? Most scholars' research on urbanization and industrial upgrading is based on the traditional urbanization perspective, which leads to the formation of two representative views. The first view is that urbanization can be a powerful driver of industrial upgrading. The world urbanization process has facilitated the division and reorganization of global industry, increasing the level of technological sophistication and innovation, which in turn has created a strong incentive for industrial upgrading [1]. However, some scholars have also found that when developing countries reach a certain level of urbanization, the industrial division of labor enters an advanced stage, while developing countries are at the bottom of the global industrial division of labor chain, and industrialization is promoted in the form of brutal economic growth, which is not conducive to the optimal transformation of industrial structure [2].

In contrast to traditional urbanization, new urbanization focuses on improving the quality of urbanization construction. First, new urbanization can promote a new type of industrialization, promote industrial development to intensive cycle, innovation-driven direction, and thus promote the upgrading of traditional manufacturing [3]. Second, new urbanization can promote economic structural transformation, and in the process, promote the growth of productive services, high-tech industries and green industries, thus laying a solid foundation for industrial upgrading [4].

Looking at the existing literature, there is room for improvement in at least two aspects: first, the majority of scholars are still concerned with the impact of traditional urbanization on industrial upgrading, while the development model of new urbanization is already different from that of traditional urbanization, and studies that directly focus on the relationship between new urbanization and industrial upgrading are more meaningful for China's sustainable economic development. Second,

in measuring urbanization indicators, scholars mostly use the urbanization rate to reflect the level of urbanization development, while ignoring the fact that new urbanization is a multifaceted system involving economic, social, environmental, etc. In view of this, this paper uses national provincial panel data from 2006-2016 to study the impact of new urbanization on industrial structure upgrading using double fixed effect empirical evidence, with a view to drawing scientifically credible conclusions.

2. Text Measurement of new urbanization indicators

Although the early urbanization development is relatively fast, but the focus of development is on economic growth, the new urbanization is to change from the past one-sided pursuit of urban spatial expansion to the promotion of urban public cultural services and other connotations, focusing on the improvement of the quality of urbanization construction. The development of new urbanization focuses on the coordinated development of urban and rural areas, the rationalization of industrial layout and spatial distribution, with special emphasis on the concept of sustainable development. Therefore, this paper follows the characteristics of new urbanization involving population urbanization, industrial urbanization and spatial urbanization, with reference to the literature, and selects the following indicators to construct a system reflecting the construction of new urbanization in China[5,6], with specific indicators and their meanings as follows (see Table 1).

Table 1 New urbanization indicator system

Dimensional	Indicator
New urbanization of the population	Percentage of urban population
	Urban employment rate
New industrial urbanization	Value added of the tertiary sector/GDP
	Average wage of employed persons in urban areas
New urbanization of space	Road miles per capita
	Urban green space per capita

Stata15.0 was used to measure the level of novel urbanization using global principal component analysis [5], and the results showed that the variance contribution of the first principal component was 0.845. Given that the first principal component has the strongest ability to synthesize information, the first principal component is used to determine indicator weights.

3. Empirical study

3.1 Data description and Model setting

In order to fully reflect the content of industrial restructuring, this paper includes all primary, secondary and tertiary industries and constructs the industrial restructuring index [7]:

$$upgrade = \sum_{i=1}^{3} x_i \times i, 1 \leq upgrade \leq 3 \qquad (1)$$

Where, x_i represents the share of output value of industry i in the total output value, and this index mainly reflects the upgrading between the three industries. In this paper, the ratio of tertiary output value to secondary output value (strc) is used as a measure of the advanced industrial structure upgrading, which will be used for the robustness test later in the paper. The data in this article comes from the China Statistical Yearbook、CSMAR database.

3.2 Model setting

The double fixed effects model used in this paper is equation (2), where *Upgrade* is the explanatory variable of this paper and represents the industrial structure upgrade; *urban* is the core explanatory variable and represents the new urbanization level. The subscripts *i* and represent

province i and year t, *Control* is a series of control variables, $year_t$ is the year fixed effect; γ_i is the province fixed effect, and ε_{it} is the residual term.

$$upgrade = \ C + urban_{it} + \sum_j^n \alpha_i \times Control + year_t + \gamma_i + \epsilon_{it} \quad (2)$$

To minimize errors due to omitted variables, the following control variables are presented in this paper[8]: financial support for science and technology (sci), level of financial development (fin), degree of marketization[9] (mar), degree of openness to the outside world (open).

3.3 Empirical results

Table 2 Impact of new urbanization on industrial upgrading (Explanatory variable: upgrate)

Variable	(1)	(2)	(3)	(4)	(5)
urban	0.033***	0.033***	0.033***	0.033***	0.027***
	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)
mar		0.002	0.002	0.002	0.004
		(0.005)	(0.005)	(0.005)	(0.005)
open			0.006	0.007	0.023
			(0.026)	(0.027)	(0.028)
sci				0.002	0.002
				(0.005)	(0.006)
fin					0.001
					(0.002)
_cons	2.309***	2.296***	2.299***	2.301***	2.276***
	(0.011)	(0.031)	(0.033)	(0.033)	(0.054)
year fixed effect	YES	YES	YES	YES	YES
province fixed effect	YES	YES	YES	YES	YES
N	330	330	330	330	291
R^2-within	0.7587	0.8002	0.8003	0.8005	0.7865

In the regression process, we adopt a regression strategy from simple to complex, as shown in Table 2, model (1) is a simple regression without adding any control variables, and the results show that novel urbanization has significantly driven industrial upgrading. After controlling for other factors affecting the industrial structure as much as possible, the estimate (5) shows that the estimated coefficient of 0.027 for the new urbanization rate is not significantly different from the coefficients of the previous models, indicating the exogenous nature of new urbanization. The above research results show that new urbanization construction has a strong effect in promoting industrial structure upgrading, and other structural factors also have an impact on industrial structure upgrading. The marketization process can break through the bottlenecks and limitations of industrial development, enhance the vitality of enterprises, stimulate innovation and promote industrial structure optimization and upgrading. The level of financial development can ease financing constraints and thus reduce barriers to industrial restructuring. Scientific and technological progress and development have promoted the upgrading of industrial value chains and have significantly increased all-factor productivity and facilitated the formation of modern industrial systems, especially government support for scientific research and development.

To further validate the robustness of the benchmark regression results, another indicator of industrial restructuring upgrading (strc) is used for robustness testing in this paper. As can be seen from the results in Table 3, both the simple regression estimates without adding any control variables and the estimates with further control for other variables show that the effect of new urbanization on industrial restructuring upgrading is significant. This is consistent with the benchmark regression results in the previous paper and suggests robust conclusions.

Table 3 robustness test (Explanatory variable:strc)

Variable	(1)	(2)
urban	0.182^{***}	0.122^{***}
_cons	1.109^{***}	0.838^{*}
	(0.054)	(0.456)
control variable	NO	YES
year fixed effect	YES	YES
province fixed effect	YES	YES
N	330	291
R^2-within	0.5504	0.5691

4. Summary

The study of national new urbanization construction is of great significance for industrial structure upgrading in the context of supply-side reform. In this paper, based on the national provincial panel data from 2006 to 2016, the principal component analysis method is used to construct a new urbanization indicator system, and the impact of new urbanization on industrial structure upgrading is further empirically examined using a double fixed effect model. The study shows that new urbanization does promote industrial restructuring and the robustness test results are consistent with the basic regression results.

Based on the results of the above analysis, this paper makes the following recommendations: New urbanization construction should be different from urbanization construction, and while promoting the work of the "conversion of agriculture to non-agriculturalism", it should also be taken into account in a comprehensive manner, based on the national policy of "three to go, one to drop, one to make up", and should focus on promoting urban system reform and policy innovation, so that while building a good new urbanization, it can also promote industrial structure upgrading through new urbanization.

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