

Research on the Deviation between Urbanization and Industrialization

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Abstract. The study was performed urbanization lagging behind industrialization is an important feature of China's urbanization development. The work used panel data from 30 Chinese provinces between 1997 and 2014 offer a fresh look at the reasons for this lagging development. The results show that the export-oriented development strategy has driven the rapid growth of China's industry. However, due to the difference in employment elasticity between industry and service industry, the unbalanced growth of off-farm output and off-farm employment has resulted in urbanization lagging behind industrialization.

1. Introduction

As the most populous developing country in the world, China's urbanization process will have a profound impact on global economic development. The 2001 Nobel Laureate in Economics, Stiglitz, ranked China's urbanization and US high-tech as two key factors affecting human development in the 21st century. At present, China is in the stage of accelerated urbanization development. The proportion of urban population in China's population has risen rapidly from 17.92% in 1978 to 59.58% in 2018, with an average annual growth rate of 1.04 percentage points.

Compared with the past, while China's urbanization process accelerated, but there is still a relatively lagging in the process of industrialization, in 2018 China's urbanization rate and the rate of industrialization ratio is 1.22, and in 2018 the rate of global urbanization and industrialization rate is 1.95, the average ratio of 4.1 in the United States, France is 4.11, the UK is 4.09, Germany is 2.64, 2.48 in Japan, brics countries of Brazil, Russia, South Africa and India are respectively 3.22, 1.97, 1.38 and 1.15. These data show that China's urbanization still lags behind its industrialization.

Urbanization is an important driving force for economic growth and the focus of transforming the economic development mode [1] [2]. In addition, it has become an important feature of China's economic development that urbanization lags behind industrialization and economic development, and also constitutes an important bottleneck of China's economic growth and transformation [3] [4].

As we all know, since the reform and opening-up, China's economy has made remarkable achievements, thanks to the release of the dividend of reform and demographic dividend. Reform to break the old system obstacle, will China into the vortex of the world economy, the demographic dividend will release the advantage of low labor costs in China, because of the cost advantage, make our country exports has increased dramatically, leading to the manufacturing industry in southeast coastal city of the land to take root, "made in China" which is famous in the world, since the 20th century, China's exports greatly boost the development of the domestic manufacturing industry [5]. The development of industrialization promotes the process of urbanization. However, due to the difference in employment elasticity between industry and service industry, the rapid export-led industrialization leads to the uncoordinated development of off-farm output value and off-farm employment, which leads to the deviation between industrialization development and urbanization process [6]. Therefore, we assume that the export strategy based on processing and manufacturing is closely related to the lagging development of urbanization.

2. Model Design and Variable Description

2.1. Model design

This paper holds that the export-oriented development strategy is closely related to the lag of urbanization, so the following model is established:

$$Lag_{it} = \alpha + \beta_1 NX_{it} + \beta_2 X_{it} + u_{it} \quad (1)$$

Where, the subscript t represents the time, and i represents the sample individual. Lag_{it} represents the urbanization lag index of individual i in year t , which is measured by the ratio of urbanization rate to industrialization rate. NX_{it} is the ratio of net exports to GDP. X_{it} is other control variables, including marketization index, GDP per capita, proportion of primary industry, proportion of secondary industry and influence of government; u_{it} is random error.

2.2. Variable description

The degree of lagging urbanization. In general urbanization lag variables can be measured in the ratio of non-agricultural rate and rate of industrialization, the urbanization rate and the ratio of the industrialization rate, conversion rate and the rate of industrialization rate of difference and industrialization, the urbanization rate of difference and so on a variety of ways, this paper chose the ratio of urbanization rate and industrialization rate as a measure of the degree of urbanization lag proxy variable, with the ratio of the resident population in cities and towns urbanization rate, rate of industrialization with the industrial added value of gross domestic product ratio. According to international experience, the lag index of urbanization in developed countries is generally around 4, that is, the urbanization rate is about 4 times of the industrialization rate, while that in developing countries is generally between 2 and 3 [7]. According to Chinese data, with the exception of Beijing, where the ratio exceeded 4 in some years, other provinces have had a lag of less than 4 for more than a decade. Therefore, we can measure the Lag of urbanization according to this index. The smaller the Lag, the smaller the ratio of urbanization to industry, indicating that urbanization lags behind.

The share of net exports. We use total exports minus total imports to represent net exports, and then net exports as a percentage of gross domestic product. This index in China statistical yearbook is generally expressed in dollars, so it is not comparable. We used the average exchange rate over the years to calculate the total import and export exchange rates and then calculated this index.

Control variables. In order to investigate the robustness of the estimated results, the following control variables are also included: Marketization index, GDP per capita, the proportion of primary industry, the proportion of secondary industry and Government influence.

Marketization index (Market). In China, many management system, institutional factors affecting the process of economic development, the household registration management system is an important impact factors affecting urbanization lag, the hukou system greatly limit the free flow of population, which contain the labor force between urban and rural transformation and industry transformation, this inevitably leads to the lag of urbanization development. This is the product of planned economy, is the result of market degree serious lag. In addition, the free flow of other elements also plays an important role in the coordinated development of urbanization and industrialization. Therefore, we believe that with the improvement of marketization mechanism and the continuous improvement of marketization degree, the lag of urbanization development will be alleviated. For marketization of the indicators, and was widely used for academia is a fan of waiting for the process of the marketization of China's marketization index: regional relative report, which mainly includes five aspects: the relationship between government and market, the development of non-state economy, product market development, market development and market intermediary organizations and the legal elements market development[8].

GDP per capita . The level of economic development is an important factor in the development of urbanization. Economic growth accelerates the process of urbanization, which promotes sustained economic growth through consumption and investment. However, China and Latin America two development modes, under the condition of the economic development level, urbanization development model but there exists a significant difference, China's urbanization

lagging behind industrialization, urbanization and Latin America are serious ahead of industrialization, so the influence of the economic growth of urbanization lag exists uncertainty, need empirical validation. We used the GDP deflator, deflating the historical GDP in 1997 and dividing by the total population to get GDP per capita.

The proportion of primary industry. Agricultural productivity is much lower than that of industry and service industry. Too many factors are concentrated in agriculture, which will inevitably affect the progress of urbanization. Agriculture in developed countries is generally within 5% of GDP. Therefore, we expect that the higher the proportion of primary industry, the more backward the development of urbanization.

the proportion of secondary industry(industry). The second industry was the highest of three times industry labor productivity in the industry, the second industry if occupying too much resources, will cause the distortion of the output value proportion and employment proportion, and the second industry employment proportion are the important factors that affect the urbanization rate, therefore, this paper argues that the higher the ratio, the second industry urbanization lagging behind industrialization. In this paper, the added value and GDP of the secondary Industry are used to represent the Industry

Government influence. The government plays an important role in China's development. The development strategy of the government affects the progress of urbanization. In order to attract investment, reduce the production cost of enterprises, and lower the prices of land, labor and other factors, some governments lower the income expectation of rural labor force, affect the urban-rural transformation of labor force, and thus hinder the process of urbanization. Due to public pressure, some governments will create various conditions to increase employment in order to meet the needs of social stability, which promotes the development process of urbanization. Therefore, due to the contradictory effects, the impact of government influence on urbanization needs to be empirically tested. This paper USES the proportion of local government budget expenditure to local GDP to show the influence of the government.

The sample data used in this paper are the inter-provincial panel data of 30 provinces in mainland China (excluding Tibet) from 1997 to 2016.

3. Panel Analysis with Province Fixed Effects

In this paper, the static panel fixed effect model is used to estimate equation (1), and the regression results are shown in Table 1. The static panel fixed effect model is used to estimate equation (1), and the regression results are shown in Table 1. In order to test the robustness of the model, variables were added to the model one by one, and the robustness of the model was judged by observing the changes in the positive and negative coefficients and the significance of the coefficients. From (1) to (6), in this paper, in order to join the net exports, marketization index, the per capita GDP, the second industry accounted for proportion, the first industry and the government influence, we can find that (1) - (6) the coefficient of each variable in the plus or minus sex completely consistent, and no significant changes, so we believe that the model is robust.

Table 1. The results of static panel fixed effect model

	(1)	(2)	(3)	(4)	(5)	(6)
NX	-1.927*** (0.216)	-1.779*** (0.201)	-1.694*** (0.204)	-1.393*** (0.181)	-1.103*** (0.187)	-1.093*** (0.188)
Market		0.065*** (0.007)	0.026** (0.017)	0.065*** (0.016)	0.039** (0.017)	0.039** (0.017)
GDP			0.052** (0.021)	0.051*** (0.019)	0.049*** (0.019)	0.047** (0.019)
Industry				-3.011*** (0.291)	-4.204*** (0.376)	-4.222*** (0.379)
Agriculture					-2.518*** (0.514)	-2.479*** (0.520)
Government						0.128

						(.273)
Constant	1.252*** (.063)	.838*** (0.073)	.973*** (0.089)	2.097*** (0.131)	3.169*** (0.254)	3.153*** (0.256)
F-test	34.83 (0.0000)	60.09 (0.0000)	74.76 (0.0000)	57.98 (0.0000)	47.13 (0.0000)	39.38 (0.0000)
N	510	510	510	510	510	510

*** Significant at the 1%, ** at the 5%, * and at the 10% level. The quantities in parentheses are the heteroskedasticity-robust t-values.

The regression results in table 1 show that when explanatory variables are added one by one, the regression coefficients of net exports are all negative and are all significant at the level of 1%, so we can consider that net exports are negatively correlated with the lagging indicator of urbanization. Therefore, with the increase of net exports, the lagging development of urbanization is significantly intensified, which is completely consistent with the conjecture of this paper. This is mainly because the increase of net export drives the development of industry, but due to the low employment elasticity, the increase of output value cannot bring about the synchronous increase of employment, resulting in the increase of off-farm output value faster than the increase of off-farm employment, resulting in the lagging development of urbanization[9].

For other control variables, the marketization degree also shows high robustness. In all equations, the coefficient of this index is significantly positive, indicating that with the improvement of the marketization process, the lag of urbanization development will be significantly alleviated. Due to institutional factors always restricts the development of China, hampering the free movement of factors of production, it is an important factor in China's urbanization lag, such as the household registration system has greatly limited the labor transfer between urban and rural areas, this essentially adds to the cost of labor transfer, led to the element cannot achieve optimal configuration, make a lot of zero marginal productivity of labor can't transfer out, greatly hindered the advance of urbanization process. With the development of marketization process, production factors are allocated to industries or sectors that make the best use of everything in order to pursue the compensation matching their marginal productivity, which promotes the balanced and coordinated development of the economy, thus driving the coordination of urbanization and industrialization development.

The coefficient of economic development level, that is, per capita GDP, is significantly positive because with the development of economy, urban sectors will provide more jobs, thus promoting the transformation of rural labor force, making the development of urbanization and industrialization more coordinated. The proportion of the added value of the primary industry and the proportion of the added value of the secondary industry have significantly increased the lag of urbanization development. As is known to all, a large proportion of primary industries indicates that the economic development level is still underdeveloped. In addition to its low labor productivity, a large amount of labor force is trapped in rural areas, which undoubtedly hinders the development of urbanization.

For the secondary industry, although its employment elasticity is obviously higher than that of agriculture, there is still a big gap with the tertiary industry, which is also an important factor leading to the lag of urbanization. Government influence promotes the alleviation of the lag of urbanization, which may be the result of various policies adopted by the government to increase urban employment in order to maintain social stability. However, the model shows that the coefficient of government influence is not significant.

4. Conclusion

China's urbanization undoubtedly lags behind the development of industrialization, the research is mainly concentrated in the household registration system and get up early on heavy industry development strategy. However, the development strategy of heavy industry has been the policy orientation in the early years of the founding of the People's Republic of China. In the new era, this paper analyzes the reasons for this lag from a new perspective -- trade affects the lag of

urbanization development. Based on panel data from 30 provinces from 1997 to 2016, we find: The increase of net export significantly aggravates the degree that urbanization lags behind industrialization, the increase of export drives the growth of industry, and the low employment elasticity gradually widens the gap between off-farm output value and off-farm employment, thus exacerbates the hysteresis. The degree of marketization and the level of economic development can improve this lag. With the improvement of the level of economic development and marketization, urbanization and industrialization tend to develop in a coordinated way, which also provides the government with appropriate policy tools for macro-control. The proportion of primary industry and the secondary industry significantly promoted the incoordination of development.

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