Analysis on Development Countermove in Nantong

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Abstract: This article choose Nantong, the city with rapid economic and social development in china as the research object. Using the statistical data of national economy in 1985-2011, for the standard of mean value of urbanization in Beijing and Shanghai, analyze the urbanization development level in recent years in Nantong by the analytic hierarchy process (AHP). The results showed that with a high level of economic and social life, the current urbanization rate of Nantong is 80%, close to the standard level, population and geographical landscape urbanization level is about 2/3 of the standard level; among the individual indicators, the higher ones are the level of development of the second industry output value accounted for the proportion of GDP, road area per capita, per capita residential area, water penetration and urban gasification, which are above or close to the optimal level. However, compared with the optimal level, the gardens green area, annual electricity consumption, number of bus per ten thousand people, number of college students is lower. Therefore, for the future of Nantong urbanization, we should continue to adjust and improve the industrial structure, and gradually reduce the proportion of secondary industry, promote the urban landscape construction vigorously, speed up the improvement of public transport system and the development of further higher education.

Key words: Nantong, urbanization, development level, countermove

1 Data

The relevant data on urbanization in this article primarily choose the urban

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Statistical Yearbook of China (1985-2011) for total 27 years, while also referring to the Nantong Statistical Yearbook (1999-2011) and the Jiangsu Statistics Yearbook (1991-2011). Mainly select proportion of non-agricultural population, urban population density, second and third industries employment, GDP per capita, the average wage, the proportion of built-up area, number of college students and so on, totally 17 key indicators.

2 Establishment of Nantong urbanization development index system

In order to reflect a more comprehensive level of urbanization, the feasibility and objectivity of the data acquisition were taken into account, urban population density, green space area, and totally 17 indicators were selected, and these indicators are divided into demographic, economic, geographical landscape and social life, four Ⅱclass indicators; And according to the analytic hierarchy process (AHP) to deal with the index, the weight of each index value are obtained (Table 1).

Table 1. Evaluation system and weight of Nantong urbanization quality

	Category	Index	Weight
The level of urbanization （A）	Population （B1） 0.29	Urban population density （km^2 per capita）（C1）	0.100978
		The proportion of non-agricultural population（%）（C2）	0.100978
		Second and third industry employment （%）（C3）	0.088073
	Economy （B2） 0.235	GDP per capita （RMB）（C4）	0.112832
		The average wage （RMB）（C5）	0.053307
		The second industry output value accounted for the proportion of GDP	0.0347

		(%)(C6)	
		The third industry output value accounted for the proportion of GDP (%)(C7)	0.05381
	Geographical landscape (B3) 0.235	Built-up area (%)(C8)	0.071534
		Built-up area green coverage (%)(C9)	0.0613115
		Gardens green area (Hectare)(C10)	0.051559
		Road area per capita (m^2)(C11)	0.051089
	Social life (B4) 0.24	Residential area per capita (m^2)(C12)	0.048024
		Annual electricity consumption (Billion kwh)(C13)	0.038904
		City water penetration (%)(C14)	0.034296
		City gasification rate (%)(C15)	0.04116
		Number of buses per ten thousand people (C16)	0.04116
		Number of college students(C17)	0.36456

Put the average level of urbanization in Shanghai and Beijing as optimal standard, determine the level of urbanization in Nantong, established the urbanization index system of Nantong.

$$F_i = \frac{A_{i1}}{A_{i0}} \qquad (4\text{-}1)$$

$$F = \sum_{i=1}^{17}\left(\frac{A_{i1}}{A_{i0}} \cdot Q_i\right) \qquad (4\text{-}2)$$

$$F_{B1} = \sum_{i=1}^{3}\left(F_i \cdot \frac{Q_i}{\sum_{i=1}^{3} Q_i}\right) \qquad (4\text{-}3)$$

$$F_{B2} = \sum_{i=4}^{7}\left(F_i \cdot \frac{Q_i}{\sum_{i=4}^{7} Q_i}\right) \qquad (4\text{-}4)$$

$$F_{B3} = \sum_{i=8}^{11}\left(F_i \cdot \frac{Q_i}{\sum_{i=8}^{11} Q_i}\right) \qquad (4\text{-}5)$$

$$F_{B4} = \sum_{i=12}^{17}\left(F_i \cdot \frac{Q_i}{\sum_{i=12}^{17} Q_i}\right) \qquad (4\text{-}6)$$

A_0 — optimal standard; F_i — comparison value of i index;

F — urban comprehensive index; F_{B1} — urbanization index of population;

F_{B2} — urbanization index of economy; F_{B3} — urbanization index of geographical landscape;

F_{B4} — urbanization index of social life; A_{i1} — actual value of i index;

A_{i0} — optimal value of i index; Q_i — weight of i index.

3 Analysis on urbanization of Nantong

3.1 Urbanization of population

It mainly reflected the agricultural population shifted to urban population which resulted in urban employment structures and related facilities changes. Calculated the urbanization rate of population $_{(FB1,}$ 4-3) in 2010 was 69.6%, which is the average of 69.9% in Beijing and Shanghai. Urbanization level of population in Nantong has been in a fluctuating upward trend, in 2005 appeared a sudden increase in 2005 that reached to 93 %, down to 69.6% in 2010.

3.2 Urbanization of economy

It mainly represented the urbanization level by total economy and economic structure to represent the urbanization level. Calculated the urbanization rate of economy $_{(FB2,}$ 4-4) in Nantong 2010 was 90.6% that is reached to Beijing and

Shanghai in economic terms alone. The fastest growth of GDP per capita was from 2000 to 2005, the growth rate reached 20.4%.

3.3 Urbanization of geographical landscape

Geographical landscape is mainly reflecting a situation of urban infrastructure. Calculated the urbanization rate of geographical landscape $_{(FB3,}$ 4-5) in Nantong 2010 was 67.7% which is the average of Beijing and Shanghai. The gardens green area in Nantong was much lower than in Beijing and Shanghai that only reached 67.7% of the average. This result mainly led to the rapid growth of built-up area during this period.

3.4 Urbanization of social life

Social life is mainly related to people's daily life like housing, water and electricity, number of buses and education. Calculated the urbanization rate of social life (F_{B4}, 4-6) in Nantong 2010 was 94.3% which was in a steady growth started from 1985. Water penetration and urban penetration rate has reached the level of these two cities; The gap on number of buses per ten thousand people in Nantong was so large compared with in Beijing and Shanghai that in the future urban strategic planning should be pay attention to the improvement of public transport.

4 Conclusions

According to the data from 1985 to 2010 in Nantong, put every five years as a period, the overall level of Nantong urbanization development and its individual indicators were analyzed with the standard level of urbanization development in Beijing and Shanghai. The urbanization rate of Nantong was 80% in 2010, as the standard level of urbanization, 69.6% to population, 90.6% to economy, 67.7% to geographical landscape and 94.3% to social life, which considering that urbanization of population and geographical landscape need to be strengthened in the future.
 Since the 1990s, level of urbanization in Nantong has made great achievements, compared with the standard level, economic and social life were in a high level of urbanization, while the population and geographical landscape of urbanization is about 2/3 of standard level. Among the 17 indicators, the higher ones are level of the second industry output value accounted for the proportion of GDP, road area per capita, residential area per capita, water penetration and urban gasification, which are above or close to standard level. The second industry output value accounted for the proportion of GDP increased year after year, on which the economic development of Nantong is relying more and more, that is not conducive to its urbanization; Compared to standard level, only 9.5% to gardens green area, 21.5% to number of

buses per ten thousand people and 14.7% to number of college students. To accelerate the process of urbanization in Nantong, should continue to adjust and improve the industrial structure, gradually reduce the proportion of the second industry, vigorously promote the urban landscape construction, speed up the improvement of public transport system and further development of higher education.

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