



THE ECONOMIC DEVELOPMENT OF URBAN PLANNING IN CHINA.

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Abstract

To study the enlightenment of development economics on the economic development of urban planning, firstly, the research background and significance of the enlightenment of development economics on the economic development of urban planning are introduced. Secondly, through the main method of literature review, social investigation method, theoretical model analysis method and so on, combined with relevant theory of economics and related data analysis, it is found that economic theory can effectively explain the problems existing in the urban planning, avoid possible problems in urban planning, and provide effective theory basis for the development of the city. In this study, the theoretical value of the sub-optimal theoretical model, the supply and demand analysis model and the marginal analysis model under the pareto optimal state in the economic development of urban planning is mainly studied. A large number of theories and research results confirm that to do a good job in urban planning must be guided by relevant economic theories, which will make the progress of urban planning more rapid.

Keywords: Urban Planning, Theory of the Second Best, Supply-Demand Analysis, Marginal Analysis.

1. Introduction

Since the last 20 years of the 20th century, the economic system of planned economy countries has been transformed into the market economic system one after another after a long, complex and repeated competition process. The reform and opening up of developing countries are mutually compatible, and a new economic order has been gradually established through micro and macro control. As a result, the world economic development has become politically multipolar, the gap between the north and the south has widened, and the Matthew effect has intensified (Li et al. 2017). The marginalization of developing countries, market failure and deepening of the gap between microeconomics and macroeconomics have seriously affected urban construction and development. Nowadays, urban expansion, rapid urbanization, the concentration of rural population in large cities and the rapid expansion of megalopolis have become the main problems that need to be solved urgently in contemporary urban planning (Cheng 2015).

In today's economic globalization and regional integration, the traditional urban planning thoughts, which focus on the study of spatial pattern layout, are not enough to cope with the risks and challenges caused by the rapid development of cities (Jinzhu 2017). In this study, the sub-optimal theoretical model, supply and demand analysis model, marginal analysis model and other related theories under Pareto optimal state in economics are used to understand and solve problems in urban planning. The use of economic theories to promote the development of cities has been recognized by scholars in the field of urban research, and the research results have obtained certain economic value in the actual imple-

mentation of urban planning.

To sum up, it is mainly the research and analysis of the economic theory of urban planning, aiming at the organic integration of urban planning and economic theory (Fazeng and Jingyu 2007). Through the regulation and guidance of the government on economic development, the purpose of rationally allocating urban resources, improving the level and efficiency of urban industrial and economic development, and exploring the rational distribution of production and living space in the process of urbanization can be achieved, so as to provide theoretical basis and support for the government to formulate economic and efficient planning methods and improve the long-term decision-making mechanism (Cooke 2018).

2. State of the art

The outbreak of the industrial revolution started the wave of urbanization that western countries took the lead in (Bakir et al. 2018). After decades or hundreds of years of continuous development, countries gradually began to leapfrog to the modern society dominated by industry and cities (Musa et al. 2018). With the discussion and practice of urbanization theories by urbanization researchers in western developed countries, the morphological features of metropolitan areas, satellite cities, multi-centers and suburbanization have become the mainstream trend of urban evolution in western countries (Li, Sun and Fang 2018,). In 1949, when the People's Republic of China was founded, China's urbanization level was only 10.64%, the urbanization level of the whole world reached 29%, and the urbanization level of some developed countries reached 50%, which showed that China's urbanization process was carried out on a low basis (Li 2017). The rapid urbanization since the reform and opening up has greatly increased the proportion of

	2010	2020	2030	2050
Total population (100 million)	13.4	13.9	13.9	13
Annual growth rate (%)	-	0.37	0	-0.33
Urbanization level (%)	49.2	61.0	68.7	77.3
Average annual growth (%)	-	1.18	0.77	0.43
Urban population (100 million)	6.6	8.5	9.6	10
Annual growth rate (%)	-	2.56	1.22	0.20

Table 1. United Nations' predictions of urbanization level and total population in China.

China's urban population, which has increased by more than 500 million (Jokinen 2018). The population growth rate in China's urbanization process is relatively fast, but the urbanization rate is slower than that of South Korea and Japan at the same stage of development.

3. Methodology

3.1. Urban new economic growth theory

In the middle of the 20th century, the "Harrod-Domar model" and the "Solow-Swan Model" promoted a major breakthrough in urban economic growth theory. In the 1980s, after a relatively stagnant theoretical window period, some new theoretical research results emerged, which were collectively referred to as the urban new economic growth theory. EHelpman and Grossman (1991) used the theories of general equilibrium, imperfect competition and dynamic analysis to study the relationship between technological innovation, commercial activities and economic growth in the context of global economic integration. Barrow and Salaymartin (1995) sorted out all the economic growth theories and models in their book "Economic Growth" and analyzed the practical application of the breakthrough progress of new economic growth theory in various countries. Jones (1998) comprehensively compared and evaluated the substantive contents of traditional economic growth theory and new economic growth theory and proposed that technological innovation and invention were the engines of economic growth.

3.2. Urban economic base theory

Economic basic theory is the theoretical research tool of urban development mechanism and process, which can interpret the reasons of urban economic growth and summarize the process of urban development theoretically. In 1939, Homer Hoyt, an American economist, proposed the Urban Economic Base Theory on the basis of classical geographical theories. He explained the driving force which promoted the urban economic growth according to the view of export comparative benefits, and he believed that urban economic growth was achieved by meeting basic and non-basic departments or services needed within and outside the region, so as to facilitate the flow of capital into cities. The traditional urban economy basic theory holds that the increase of the frequency of urban basic social and economic activities promotes the growth of urban population. And the derived demand generated by the agglomeration effect of urban activities and urban population will

Project	Year	Nation	Eastern region		Central region		Western region		Northeast region	
			Quantity	Proportion (%)	Quantity	Proportion (%)	Quantity	Proportion (%)	Quantity	Proportion (%)
Designated city (a)	2000	663	245	36.95	168	25.34	160	24.13	90	13.57
	2005	661	232	35.10	168	25.42	171	25.87	90	13.62
Designated town (a)	2000	19780	7269	36.75	4759	24.06	6177	31.23	1575	7.96
	2005	19522	6196	31.74	4945	25.33	6883	35.26	1498	7.67
Urban population (ten thousand)	2000	45906	20355	43.71	10449	22.44	10208	21.92	5555	11.93
	2005	56212	24490	43.97	12849	23.07	12423	22.31	5930	10.65
Urbanization level (%)	2000	36.22	45.34	-	29.73	-	28.73	-	52.14	-
	2005	42.99	52.84	-	36.53	-	34.56	-	54.64	-

Table 2. Regional development status of urbanization in China during the tenth five-year plan period

promote the growth of urban non-basic activities, so as to promote the development of urban economy in a cyclical manner.

3.3. Optimal city size theory

At the end of the 19th century, Ebenezer Howard, the father of modern urban planning theory, proposed the concept of "Garden Cities" with both urban and rural advantages in his book "Garden City of Tomorrow", which opened up extensive academic discussion on Optimal City Size. Howard believed that the Garden Cities were designed to arrange healthy life and production in the future, and its scale should meet all kinds of social life and not be too large. The city was made up of a series of concentric circles, with parks and public buildings in the center, surrounded by permanent farmland, and the urban land was owned by the public.

3.4. Urban smart growth theory

In the middle and late 20th century, American urban environmentalists and planners proposed the theory of "Smart Growth" based on the European concept of "compact development". It aimed to control urban sprawl by adopting smart growth measures such as land mixed utilization, zoning guidance, open space layout, old city renewal and redevelopment, so as to protect urban ecological environment and improve the utilization rate of urban resources. After long-term practice and summary, the core content of urban smart growth theory can be summarized as follows: make full use of urban construction land to reduce sprawl; strengthen the renewal and redevelopment of urban stock land; urban construction projects are concentrated in layout to avoid "pendulum" transportation; protect open space such as urban ecological farmland and green space; rationally carry out community layout and restore the vitality of the neighborhood unit.

4. Result analysis and discussion

4.1. Pareto efficiency theory model

The Pareto efficiency theory is based on the premise of not harming the interests of others and is regarded by the economics as the best state of social resource allo-

Viewpoint	Representative scholar	Main research contents
Long-term growth theory	Tiebout	The concept of short-term change in regional economic activities was interpreted, and a model proving that regional multiplier effect would be stronger in the long run was proposed in 1962
	McNulty	Through the research, he believed that the effect of regional economic foundation maturation would be stronger in the long run and proposed that the long run was the economic foundation theory of regional development and growth
Short-term growth theory	Shaffer, Shahid Safess, Gilles	He applied the sample survey of the same economic zone to the basic analysis of regional economy and summarized the experience in the multiplier effect size and community conditions
	North, Hildebrand, Mace Weiss, Gooding	He assumed that the economic basic multiplier was a short-term concept and used the model to measure the impact of changes in the export part on the overall local economic activity without allowing the payment for imports or delayed payment
	Bender	Through the sample survey, he pointed out that the multiplier effect and the time pattern of the non-basic part's response to the change of the basic activity part depended on the structural characteristics of the regional economy

Table 3. Discussion of urban economy basic theories by early foreign scholars.

cation and redistribution, fully embodying the concept of liberalism fairness and efficiency.

The meaning of "suboptimal theory" is that it is necessary to satisfy ten assumptions when the Pareto optimal state is reached. If at least one of these conditions can't be satisfied, then the suboptimal state obtained by satisfying all the remaining nine conditions is not necessarily closer to the Pareto optimal state satisfied by ten conditions. Because the ideal Pareto optimal state can't be realized, the optimal result after some conditions are destroyed is called "suboptimal". An important policy implication of this theory is that when Pareto optimization can't be realized due to certain constraints, the "suboptimal" point obtained doesn't have to be the most efficient point. It can be concluded from the "suboptimal theory" that urban planning is one of the main forms of government intervention in the market. In the process of the government seeking the suboptimal state of resource allocation, the core role of urban planning should be to guarantee a certain level of social welfare. The "suboptimal" point of urban space resource allocation is not necessarily the most efficient point, but it must be the relatively high level of social welfare.

4.2. Supply and demand analysis model

Supply and demand analysis method is an economic model as an economic analysis tool. It is usually used to determine market equilibrium prices and equilibrium production. Both the demand and supply in the model belong to the basic concepts of economics.

Scholar	Correlation theory	Research methods	Main content
Andrew S. Harvey, (1974)	Economic base theory and sector development theory	Sector development theory and what-if analysis	He took 39 Canadian cities as examples to test the interaction between economic basic theory and department theory in urban development, and summarized the dual growth model of cities to interpret urban economic development
Randolph C. Martin, (1980)	Economic base theory	Regressive model analysis	β coefficients calculated by simulation tests were used to measure the impact of regional development projects on the growth of non-agricultural industry income in American cities and towns
Lesage, (1990), Moore et al., 1994	Economic base theory	Location quotient analysis	The turning point of regional economic development was studied with location quotient analysis method
James E. McNulty, (1995)	Economic base theory	Location quotient analysis and comprehensive analysis	He used economic basic theory to evaluate the reasons for excessive construction, and pointed out that the multiplier effect from the basic department to the non-basic department had delayed payment of import loans, so the employment growth rate of the non-basic department would continue to decline, while the basic department would slow down
Gordon, (2010)	Economic base theory	Model analysis and regression analysis	On the basis of two independent data sets, the economic basic model was established to evaluate the non-urban population in the United States in 1980, 1990 and 2000, and the employment situation of eight major industries was divided into basic and non-basic categories, and the non-basic employment demand of these industries was predicted with least squares regression analysis

Table 4. Application of urban economy basic theories in foreign academic circles.

Demand refers to the selective consumption process generated by the public's demand for a certain commodity, while supply refers to the selective production produced by producers in response to the public's demand for purchase. Compared with the market with monopoly or oligopoly, this model is more suitable for the open and competitive market. Consumer demand and producer supply form two market forces that jointly determine the equilibrium of product output and price. And proficiency in the supply and demand model can effectively provide theoretical support for analytical research and summary.

Note: the blue curve on the upper right is the supply curve, which represents the quantity of products sold by the manufacturer at the corresponding price level; and the red curve on the lower right is the demand curve, which represents the purchase amount of the consumer at the corresponding price level; and the intersection of the two curves is the equilibrium price and output.

4.3. Marginal analysis model

Marginal analysis is one of the basic research methods in economics. In the analysis process, the additional expenditure is compared with the additional income, and when the two are equal, the critical point of maximum profit is reached. As a variable analysis method, it is usually used in the early stage analysis of decision-maker's additional investment share budget in the process of project construction. For urban planning, comprehensive and in-depth marginal analysis is con-

ductive to planners and decision-makers to clearly understand the risks and benefits of increasing economic input and compare the additional costs and additional benefits caused by the adjusted plan, so as to make the optimal choice.

5. Conclusions

Urban planning can guide the urban economic activity space, promote the development of urban economic, reshape the urban development rules, formulate and implement economic policies and other economic characteristics. The main research objectives of urban planning economics are to improve the theory of urban planning, assist in the selection, formulation and management of urban planning, and embody the core values of "people-oriented" urban planning, so that the development of urbanization in the country can better adapt to the trend of economic globalization, and the level of urbanization in the country and people's quality of life can be improved. With the development of the modern urban planning discipline for one hundred years, the accumulation of economic theories for thousands of years, and the inheritance of Chinese philosophy for five thousand years, it is not comprehensive to understand urban planning only from the limited economic theories of urban planning. In order to apply the relevant theories of urban planning in economics to practice, it is necessary to absorb a large number of philosophical thoughts and more research theories and practical experience for comprehensive analysis and guidance of urban planning. Therefore, in the future work and study, it should make more efforts to study relevant theories of urban planning economics and make its own contribution to the research of urban planning theory in China by combining the advanced theoretical research results of developed countries. Here, it also hopes that China's urban planning and development is more and more smooth.

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