



A Study on the Measurement of POI Data in Shandong Urban Governance Under Big Data

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Abstract. This paper takes the public participation in the field of urban planning in Shandong Province as the research object, introduces the meta governance theory and takes it as the theoretical basis. Through the case study of public participation in urban planning, this paper analyzes the achievements and problems of public participation in urban planning in China and the reasons for these problems; Based on the perspective of meta governance theory, this paper puts forward the basic conception of public participation in urban planning, defines the roles of the public, the third-party organizations, especially the government in the process of urban planning preparation and implementation; optimizes the workflow of urban planning implementation stage, and invites the public to participate in the urban planning work in advance. In order to achieve the purpose of early and continuous participation in urban planning; at the same time, put forward suggestions on improving public participation in urban planning and other related systems, through the improvement of relevant systems to ensure that public participation in urban and rural planning can be carried out orderly and efficiently.

Keywords: Meta governance · Public participation · Urban planning

1 Meta Governance Concept

Since the beginning of the 21st century, “governance theory” and “new public service theory” have become more characteristic of “public participation” after “new public management”. They all emphasize that public managers should be committed to serving the public and devolving power to citizens when they manage public organizations and implement public policies, It also emphasizes that the government should take citizens as the service object, take the civil rights as the core, and strive to realize the public interests through more democratic participation [1]. However, the “new public service theory” and “governance theory” overemphasize the power of the public. If there is no certain foundation of civil society and perfect legal protection system, it may lead to the rise of extreme populist forces. Relevant scholars have seen that there are certain defects in “governance” and the governance process itself, so many scholars have made new exploration.

The broad sense of urban governance mainly involves the problems of urban positioning, urban planning, urban sustainable development, and mainly dealing with various

elements of urban development; The narrow sense of urban governance mainly involves the organizational form, conflict of interest and integration of interests of the main body of governance, focusing on the provision of urban public services. The broad sense of urban governance refers to the social process that the decision-making of cities and cities can be made and implemented. It is marked that the traditional urban management mode led by the government is replaced by the “urban enterprise” governance mode led by the cooperation of government and enterprises. This is because the traditional policy mode under the guidance of monopoly supply of government can not effectively meet the needs of regional development, so industrial and commercial capital and social funds should be introduced, and then the market pressure in global market competition forces municipal authorities to abandon some autonomy and play an enterprise role. The governance mode of urban enterprise introduces the market spirit and the means of enterprise management into the process of urban governance. Local government integrates the marketing strategies and marketing methods of enterprises such as market mechanism, competition, innovation, public-private partnership and risk bearing into urban environment development, and forms a partnership mechanism of growth alliance or alliance between government and enterprises to strongly promote local development. At the regional level, more and more cross regional affairs that cross regional boundaries and beyond the authority of a single government force the local government to change its governance model, forming a “multi center, one and multi-level” regional governance pattern.

The city has a high complexity, so it is an extremely difficult task to effectively manage a big city. Therefore, setting an effective governance framework in advance will help to maintain the normal operation of the city and improve the management efficiency of the city.

In the era of globalization, the competition between cities is becoming more and more intense, which directly promotes the rise of urban governance research. Because of the different time and space and background, the urban governance model has the form diversity. Different cities and different urban departments in the same country background show different governance modes, and different governance modes have different theoretical basis. There is no fixed pattern of urban governance, and different countries, different regions, even the same city in the same country can show their own characteristics at different times. More precisely, each established urban governance model will bring some new problems, and these problems will lead to a new reform plan, which will help scholars interested in the process of change to study. At present, the practice of urban governance mode selection is undergoing a wide range of changes, its breadth and depth are unprecedented. This change is the process of reviewing and reflecting on the practice of the choice of early governance model, and also the process of adapting to the new era and environment. In a broad sense, urban governance includes two aspects: external governance and internal governance.

The external governance of a city mainly investigates the relationship between the city and the central government and the surrounding cities. As for the internal governance of a city, from the perspective of the main body, it refers to the division and interaction of the interest boundaries between the stakeholders in the city; From the specific content, including social, economic, environmental, emergency management and other aspects.

Among them, the urban economic operation governance is carried out by the city government according to the economic control objectives of the central government, aiming at the problems in the urban economic operation, including four main tasks: determining the appropriate economic development speed, forming a reasonable economic structure and spatial layout, maintaining the normal market economic order and tamping the city finance. Urban social governance is to reduce the social problems of cities by adjusting and improving the relationship between urban distribution, rectifying and maintaining the public security, and reconstructing and innovating urban community organizations. The urban environmental governance mainly includes the treatment of urban pollution, urban public transport and other hard environment and the construction of a good soft environment for urban development. Urban emergency management is to take timely and effective measures to prevent the occurrence of crisis or reduce the damage degree of the crisis and protect the public interest of the city, mainly including four stages: disaster reduction, disaster preparation, response and recovery.

2 Quantitative Identification of Urban Functional Areas Based on POI Data

For each functional area unit, frequency density (FD) and category ratio (CR) are constructed to identify functional properties:

$$F_i = \frac{n_i}{N_i} (i = 1, 2, \dots, 6) \quad (1)$$

$$C_i = \frac{F_i}{\sum_{i=1}^6 F_i} \times 100\% (i = 1, 2, \dots, 6) \quad (2)$$

Where, denotes the type of Po i ; n_i represents the number of type i POI in the unit; n represents the total number of type i POI; F_i represents the frequency density of the type i POI in the total number of this type of POI; C_i ; represents the ratio of the frequency density of the type i POI to the frequency density of all types of POI in the unit.

According to the formula, the frequency density and type proportion of each unit are calculated, and the type proportion value of 50% is determined as the standard to judge the functional properties of the unit [2]. When a certain type of POI accounts for 50% or more in a unit, it is determined that the unit is a single functional area, and the nature of the functional area is determined by the type of POI; when the proportion of all types of POI in the unit does not reach 50%, it is determined that the functional area is a mixed functional area, and the mixed type depends on the three main POI types in the unit; when the POI is not included in the unit, the unit is determined as a single functional area, That is, the type proportion is null, and the type unit is called no data area.

3 Basic Conception of Public Participation in Urban Planning from the Perspective of Meta Governance

3.1 Guiding Ideology of Public Participation in Urban Planning System

First, according to the idea of “separating government from enterprise, separating government assets, separating government affairs and social affairs”, we should promote

the separation of public participation in various urban and rural planning plans from the work of organization, preparation and approval. In the case of public participation in urban planning in the third chapter, the public participation part of the planning and reconstruction of Enning road in Guangzhou and the overall planning of Shenzhen city are organized or participated by the third party, and have achieved certain results. In the future public participation work, we can learn from this kind of experience, under the premise of refining the relevant provisions, actively introduce the third-party institutions to carry out relevant public services through PPP mode, and weaken the government's "interest subject" image in public participation.

Second, public participation in urban planning should be as early as possible and sustainable. Through the analysis of the experience of foreign representative countries, it is found that the introduction of public participation at the beginning of the scheme is a very important method. In the current relevant legislation, public participation is emphasized only at the planning level of the master plan, while in the detailed planning, opinions are solicited after the scheme is determined. The lack of early participation is not conducive to the public's deep understanding of the program. Although it is a kind of right of objection to a certain extent, it is undoubtedly a disguised deprivation of rights compared with the right of participation that should be enjoyed. For the stakeholders around the specific project, due to whether the planning of the construction project is legal or not, and whether the scheme is excellent or not has a great impact on the value of their own assets [3]. A successful or unsuccessful construction project may bring sunshine, fire protection, parking and other impacts, and traffic, noise, light, smell and even the groups attracted will cause assets devaluation. The public participation should be carried out as early as possible, so that the interested parties can fully express their right of objection.

3.2 The Principle of Constructing the System of Public Participation in Urban Planning

Through the interpretation and extension of the "ladder of citizen participation", it can be found that in the embryonic period of political democratization, civil rights and consciousness began to awaken gradually, and the ability and degree of organization of citizen participation were improved. At this time, the corresponding forms of citizen participation should be based on citizens' knowledge, consultation with citizens and interactive dialogue, Government decision-making power begins to be shared, citizens gradually identify with their own citizenship, and citizen participation is gradually organized and institutionalized, which has a certain influence on policy. At this time, the degree of public participation is "moderate participation". In the stage of high participation, the government began to authorize citizens, and the community managed independently. The awareness of citizenship was mature, and the knowledge and ability of participation were greatly improved. At this time, the characteristics of public participation form are: citizens become the master of community governance, active participation policy, and citizens' opinions have substantial influence.

4 Countermeasures of Public Participation in Urban Planning from the Perspective of Meta Governance

4.1 Improve the System of Public Participation in Urban and Rural Planning

The urban and rural planning law only requires public participation at the legal level. There are no specific provisions on how to carry out public participation, when to start and end public participation, the effectiveness of public participation, and what kind of punishment will be imposed for failing to carry out public participation according to the requirements, which leaves certain discretion for the planning department in the specific operation of public participation. Therefore, in the formulation of the provisions on public participation in urban planning, we should focus on how to refine the protection of citizens' right to know, to participate and to supervise, to formulate and promulgate relevant rules to make public participation in urban planning concrete and legal. According to meta governance theory, the government should be the main body of establishing public participation system and management cooperation network, platform and channel. While participating in negotiation and dialogue, it should encourage governance forces to play games fairly, so as to ensure that the final decision-making is the common interest pursuit of all governance subjects.

4.2 Improve Urban Planning and Other Related Systems

As for the negative impact of construction projects, government departments need to establish a sound mechanism and quantify them through specific values. For public welfare projects, the government should not only bear the normal operation cost of the project, but also increase the investment in infrastructure of affected residential areas, such as maintenance fund, environmental sanitation facilities, greening and so on, to balance the adverse effects; For quasi public welfare projects or industrial projects with certain profitability, enterprises should bear this part of the cost and establish a mechanism to share benefits with the surrounding affected residents.

People who hold a rational view will not object to the construction project itself, but from the perspective of economic man, they are opposed to the construction project built around themselves, especially those who have bought or even moved into the community before the construction of unfavorable projects [4]. On the one hand, it is the planning department's insufficient publicity for the planning scheme; on the other hand, the developer is suspected of deliberately concealing it. Even if the adverse project has been identified in the upper planning, the stakeholders are not willing to accept the fact from the emotional and self-interest. For the unfavorable projects that have been planned first but the stakeholders are later, they should be publicized to the public as soon as possible, and the developers should be required to clarify the adverse factors in the sales contract, so as to avoid transferring the risk to the government; for the adverse projects that must be added in the planning revision, many site selection schemes and income sharing mechanisms should be made, and decision-making should be made in an open and transparent way.

5 Conclusion and Prospect

The meta governance theory has a more clear and appropriate positioning for the government's functions, has a strong goal for the future social development, and fully considers the stage of civil society development in the realization path, which is more consistent with the development goal of "strong government and strong society" and the current situation of social development of "strong government and weak society". From the perspective of meta governance theory, in order to realize the legal, orderly and efficient public participation in urban planning, planning departments should change their own positioning, on the one hand, they should be separated from the specific and transactional work and become the main body of balancing the interests of all parties; on the other hand, they should be the makers and organizers of public participation in urban planning.

Acknowledgements. Shandong Social Science Planning Research Project: Research on the Path and Countermeasures of public participation in Urban Governance of Shandong from the perspective of multiple Governance, Item number: 20CPYJ27.

References

1. Fu J.: Research on the Right of Public Participation in Urban Planning. Jilin. Jilin University (2013)
2. Yang, G.: Public participation in urban planning in the United States today. *Foreign Urban Plan.* **2**, 2–5 (2002)
3. Carol. Pettman's theory of participation and democracy, [M]. Chen Yao. Trans. Shanghai: Shanghai People's publishing house, 2006: 8–10
4. Zhang, J.: A historical outline of western urban planning thought. Nanjing. Southeast University Press, pp. 205–206 (2005)