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Evaluation of central and local economic policies on hawkers in the post-epidemic era and suggestions for improvement

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Abstract. In response to the economic downturn caused by the COVID-19 epidemic, the Chinese government has released a series of policies to encourage the hawker economy. The objective of the study is to provide references for the establishment and improvement of China's hawker economic policy. In this paper, a sample of 105 hawker economy policies from 2020 to 2022 is selected, and the policy texts are analyzed and evaluated by constructing a three-dimensional analysis framework of "tool-subject-effectiveness", using content analysis and the PMC index model. The results of the study revealed that the development of central and local policy tools is uneven; central government subjects focus on top-level design, while local government subjects focus on practice; and the policies generally show good effectiveness. Based on this, the paper put forward relevant suggestions.

Keywords: hawker economy, policy tool, policy subjects, policy effectiveness, central-local relations, PMC-Index Model.

1. Introduction

The rapid evolution of Covid-19 has made the management of street vending a major challenge for governments at all levels. As the most common informal economy, the hawker economy uniquely promotes employment and drives economic growth. However, the hawker economy is also complicated by the fact that it is difficult to manage and easy to gather. For this reason, the government has issued a series of policy documents on the management of the hawker economy.

In the development and implementation of policy documents, central and local governments often differ in terms of objectives, tools, and priorities. In this context, it is important to consider the logic, similarities, and differences between central and local policy-making, and the impact of their characteristics on the achievement of objectives.

Currently, scholars have studied three main aspects of China's economic policies for hawkers during the epidemic. The first is the characteristics and differences in the economic policies of hawkers in different cities during the epidemic, including the regulatory policies of local governments (Chen & Wang, 2020) and the sustainability of hawkers in different cities (Zhang & Wang, 2021). Second, the impact of the epidemic on hawkers and the government's policy shift, including the impact of the epidemic on social networking services (Cao et al., 2021) and the dilemma faced by street hawkers (Mu, 2022; Tong et al., 2022). The third is the reference and inspiration of international experience on the practice of hawker governance in China (Yuan et al., 2022). By combing the literature, it can be found that most of the existing research focuses on local cities and less involve the central government, while there is a lack of research on the effectiveness of policies.

Given this, this paper focuses on the quantitative study of policy literature as a research paradigm and analytical perspective, and conducts policy analysis on a large number of policy texts by constructing a three-dimensional analytical framework of "tool-subject-effectiveness", in an

attempt to uncover the current situation and logical characteristics of the construction of central and local policy systems hidden behind the policy documents, to provide a theoretical basis for further improvement of related policies.

2. Three-dimensional Analysis Framework of hawker Economic Policy

2.1 X Dimension: Policy Tools

A policy tool can be understood as a relevant policy measure or tool that a government adopts to achieve a set policy goal when formulating or implementing a policy (Zhou, 2018). In this paper, based on Rothwell and Zegveld's classification, policy tools are classified into three types: supply-based policy tools, environment-based policy tools, and demand-based policy tools. Supply-based policy tools refer to policies to promote the hawker economy, including infrastructure, technical support, energy and transportation, education and talent development, funding support, etc. Demand-based policy tools refer to policies to stimulate the development of hawkers by stimulating demand, including market access, subsidies, pilot projects, overseas exchanges, etc. Environment-based policy tools refer to the creation of a business environment and atmosphere, including financial support, environmental health, medical social security, goal planning, public opinion monitoring and advocacy, etc.

2.2 Y Dimension: Policy Subject

A policy-issuing subject is an institution or organization that promulgates relevant policy documents by legal authority and procedures and is the core component of the policy system, whose function is to participate in or influence policy formulation, implementation, supervision, and evaluation (Liu et al., 2021). The policy subjects in this study include both the central government and local government levels. Central government subjects include the State Council and its offices and departments, the National People's Congress and its Standing Committee; local governments include provincial governments, prefecture-level cities, municipalities directly under the central government, people's congresses at all levels and their standing committees, etc.

2.3 Z-dimension: Policy Effectiveness

Policy effectiveness refers to the actual effect produced by the implementation of the policy (Liu et al., 2021). In this paper, a benchmark was established through a variable setting and the policy was evaluated by comparing the PMC value with the benchmark. The high value of the PMC index indicates that the policy is more comprehensive, can solve the problem well, and promote the development of the hawker economy, and the policy effectiveness is better. Based on the previous research results and the content characteristics of the policy, this paper constructs the PMC evaluation system, as shown in Table 1. The evaluation levels are divided into perfect consistency, good consistency, acceptable consistency, and low consistency, and the evaluation index system is shown in Table 2.

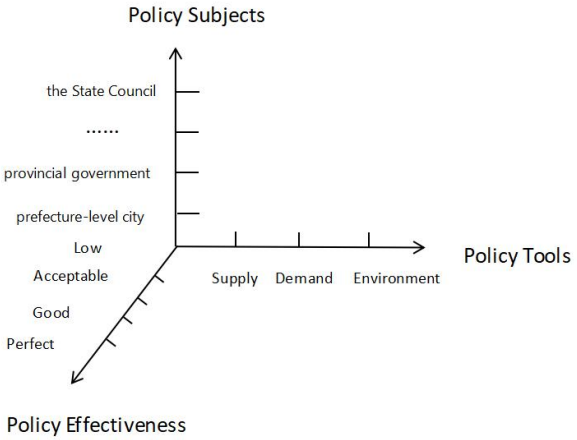

Figure 1. A three-dimensional analytical framework for hawker economic policy

Table 1 PMC evaluation variable settings

Primary variables	Secondary variables	Secondary variable evaluation criteria	Source or basis
X_1 Policy Nature	$X_{1.1}$ Projection $X_{1.2}$ Regulation $X_{1.3}$ Recommendation $X_{1.4}$ Description $X_{1.5}$ Guidance	Whether projection is involved, yes for 1 no for 0 Whether regulation is involved, yes for 1 no for 0 Whether recommendation is involved, yes for 1 no for 0 Whether the description is involved, yes for 1 no for 0 Whether guidance is involved, yes for 1 no for 0	Zhang and Geng (2015)
X_2 Policy Subjects	$X_{2.1}$ Central $X_{2.2}$ Local	Whether central is involved, yes for 1 no for 0 Whether local is involved, yes for 1 no for 0	Policy Text
X_3 Policy Target	$X_{3.1}$ Government Departments $X_{3.2}$ Operators	Whether the government department is involved, yes for 1 no for 0 Whether the operator is involved, yes for 1 no for 0	Policy Text
X_4 Policy timeliness	$X_{4.1}$ Long-term $X_{4.2}$ Mid-term $X_{4.3}$ Short-term	Whether the long-term is involved, yes for 1 no for 0 Whether the med-term is involved, yes for 1 no for 0 Whether the short-term is involved, yes for 1 no for 0	Zhang and Qie (2017)
X_5 Policy Focus	$X_{5.1}$ Food Safety $X_{5.2}$ Market Management $X_{5.3}$ Production and operation	Whether food safety is involved, yes for 1 no for 0 Whether market management is involved, yes for 1 no for 0 Whether production and operation are involved, yes for 1 no for 0	Text Mining
X_6 Policy Tools	$X_{6.1}$ Supply-based $X_{6.2}$ Environmental-based $X_{6.3}$ Demand-based	Whether the supply-based type is involved, yes for 1 no for 0 Whether the environmental-based is involved, yes for 1 no for 0 Whether the demand-based is involved, yes for 1 no for 0	Shi et al. (2020)
X_7 Policy Perspective	$X_{7.1}$ Macro $X_{7.2}$ Microscopic	Whether macro is involved, yes for 1 no for 0 Whether microscopic is involved, yes for 1 no for 0	Zhou and Chen (2020)
X_8 Policy Guarantee	$X_{8.1}$ Legal Protection $X_{8.2}$ Funding Support $X_{8.3}$ Financial Support	Whether legal protection is involved, yes for 1 no for 0 Whether funding support is involved, yes for 1 no	Text Mining

Primary variables	Secondary variables	Secondary variable evaluation criteria	Source or basis
	$X_{8.4}$ Self-management	for 0 Whether financial support is involved, yes for 1 no for 0 Whether self-management is involved, yes for 1 no for 0	
X_9 Policy Evaluation	$X_{9.1}$ Clear objectives $X_{9.2}$ Detailed planning $X_{9.3}$ Program Science	Whether clear objectives are involved, yes for 1 no for 0 Whether detailed planning is involved, yes for 1 no for 0 Whether the program science is involved, yes for 1 no for 0	Hu et al. (2020)
X_{10} Policy Disclosure		Whether policy disclosure is involved, yes for 1 no for 0	Lu et al. (2021)

Table 2 Evaluation Index system

Evaluation	Perfect consistency	Good consistency	Acceptable consistency	Low consistency
Score	10～9	8.99～7	6.99～5	4.99 ~ 0

3. Data Sources and Research Methods

3.1 Research Methodology

3.1.1 Content analysis

This study uses a content analysis method. Policy texts are by their very nature collections of words, numbers, punctuation and other symbols that combine to reflect the will and intentions of public authorities such as the government, as well as being a reflection of government action (Li, 2007). The basic steps include 1) collecting data and coding them using NVivo12 Plus qualitative research software. 2) conducting quantitative analysis using NVivo12 Plus software, including coding queries, frequency statistics and ratio calculations, and word frequency analysis. 3) Test the coding results, including reliability and validity tests. 4) elaborating on the hot spots and problems found, and giving corresponding suggestions and outlooks.

3.1.2 PMC Index model

PMC index model is Ruiz Estrad with the 'Omnia Mobilis' assumption (everything is moving) as the guiding idea, which advocates that everything is in constant motion and interconnected, so the influence of each relevant variable should be valued, and the model does not set a limit on the number of secondary variables and the variables have the same weight (Estrada, 2011). The specific steps include four: 1) establishing a multi-input-output table; 2) determining the variables and parameters; 3) calculating the PMC index values; and 4) plotting the PMC-Surface according to equation (5).

The PMC index value calculation steps are divided into four steps, as shown below.

$$..... \quad X \sim N[0,1] \tag{1}$$

$$..... \quad X = \{XR : [0,1]\} \tag{2}$$

$$..... \quad X_i(\sum_{j=1}^{n} \frac{X_{ij}}{T(X_{ij})}) \tag{3}$$

where i is a first-level variable, i=1,2,3 .....n, j is a second-level variable and $T(X_{ij})$ is the number of second-level variables under a particular first-level variable.

$$PMC = \begin{bmatrix} X_1\left(\sum_{j=1}^{5}\frac{X_{1j}}{5}\right) + X_2\left(\sum_{j=1}^{2}\frac{X_{2j}}{2}\right) + X_3\left(\sum_{j=1}^{2}\frac{X_{3j}}{2}\right) + X_4\left(\sum_{j=1}^{3}\frac{X_{4j}}{3}\right) + X_5\left(\sum_{j=1}^{3}\frac{X_{5j}}{3}\right) + \\ X_6\left(\sum_{j=1}^{3}\frac{X_{6j}}{3}\right) + X_7\left(\sum_{j=1}^{2}\frac{X_{7j}}{2}\right) + X_2\left(\sum_{j=1}^{4}\frac{X_{8j}}{4}\right) + X_9\left(\sum_{j=1}^{3}\frac{X_{9j}}{3}\right) + X_{10}\left(\sum_{j=1}^{1}\frac{X_{10j}}{1}\right) \end{bmatrix} \quad (4)$$

$$PMC - Surface = \begin{bmatrix} X_1 & X_4 & X_7 \\ X_2 & X_5 & X_8 \\ X_3 & X_6 & X_9 \end{bmatrix}$$

3.2 Data Source and Sample Selection

This paper compiles a sample of 105 policies spanning the period from 2020 to 2022 and including both central and local governments (see Table 3). The policies selected in this paper are publicly available through the Beihang University Faber database, the State Council Policy Document Library, and the portal sites of central ministries and commissions.

Table 3 Hawker economic policy

Serial number	Policy Name	Issuing Unit	Issue Date
1	Tongliao City Office of the People's Government on the issuance of "support to protect the operation of mobile hawkers to promote the development of the ground stall economy guidance" notice	Office of the People's Government of Tongliao City	2020.06.14
2	Hebei Province, Housing and Urban-Rural Development Department on the reasonable setting of mobile hawkers operating sites notice	Hebei Provincial Department of Housing and Urban-Rural Development	2020.06.15
3	Implementation Opinions of the General Office of the State Council on Further Optimizing the Business Environment and Better Serving Market Participants	General Office of the State Council	2020.07.15
4	Jiangsu Province, small food workshops and food stalls management regulations (2021 Amendments)	Jiangsu Provincial People's Congress	2021.05.27
.....			
104	Liaoning Province Food Safety Regulations (2022 Amendments)	Liaoning Provincial People's Congress	2022.04.21
105	Hohhot City to deal with the new coronavirus infection pneumonia prevention and control work command on the epidemic during the regulation of street stores along the mobile hawkers operating behaviour announcement	Huhehaote City Command for Prevention and Control of Novel Coronavirus Infection Pneumonia	2022.11.25

4. Results and Discussion

4.1 Results

4.1.1 Policy Text Content Code

In this paper, the collected policy documents are coded based on the above classification method of policy tools. Specifically, supply-based, demand-based, and environment-based policies are coded as nodes, while the classes they include are coded as sub-nodes, and the coding table is shown in Table 4. Fifty-six policies used supply-based policy tools, fifty-eight policies used environment-based policy tools, and twenty-four policies used demand-based policy tools.

Table 4 Policy code table

Policy Tools		Documents	Reference Points	Description
Supply-based	Infrastructure	22	32	Complete sewage treatment, environmental sanitation, and other facilities and equipment
	Technical Support	8	12	Actively guide the use of 5G technology to create new unmanned retail stations
	Transportation and Energy	7	9	Responsible for the implementation of the power supply needs of the stall area
	Education and Talent Development	10	11	Education to guide the market operators to operate in a civilized manner
	Business Area	45	48	Designate operating areas for hawkers
	Funding Support	11	20	Reduce urban road occupancy fees for outdoor commercial activities by 50%
Environmental-based	Financial Support	11	20	Finance departments are responsible for increasing financial support for the stalled economy
	Legal System	7	12	Constitute a crime, Criminal responsibility shall be investigated according to law
	Environmental Health	24	38	Increase sanitation and cleaning, strengthen the management of hawkers
	Goal Planning	11	21	Supervision and management of food hawkers in the annual supervision for food safety
	Market Management	24	63	Strengthen supervision and management to ensure orderly operation Urban management
	Medical Social Security	6	9	Provide emergency rapid aid, and other services to effectively respond to various emergencies
	Outbreak Prevention and Control	11	13	Control the flow of people in the market
	Public Opinion Monitoring and Advocacy	23	22	All localities should strengthen the guidance of public opinion through television, newspapers, and other media to create a good atmosphere
Demand-based	Subsidies	9	6	Subsidize activities such as promoting consumption at night clusters
	Overseas Exchange	6	9	The introduction of ASEAN country's characteristic food, and snack brands
	Social Cooperation	6	11	The government should fully listen to the opinions of business managers
	Pilot sites	5	8	Become a national pilot demonstration pedestrian street
	Consumption upgrade	4	6	Help merchants to realize intelligent upgrades and optimize consumption experience

4.1.2 Reliability Test and Validity Test

In this study, the Kappa coefficient was used for the reliability test. Three policies were selected and one observer was asked to recode the one policy tools nodes, and the Kappa coefficients were subsequently calculated. The Kappa coefficients were calculated by NVivo12 plus as 0.8393、0.757、0.7782 and the consistency was 98.72%、99.16%、99.36%, respectively. Kappa coefficient evaluation criteria are shown in Table 5. Overall the Kappa coefficients are high and the coding results have high confidence.

By discussing with another observer, the coding results are combined and restructured in this paper. For example, nodes such as bank credit and financial sector were combined into one node of "Financial Support". It can be considered that the validity test increased the rigour of the study and the coding results have good validity.

Table 5 Kappa coefficient evaluation criteria

Evaluation	Less than 0	0.0-0.2	0.21-0.40	0.41-0.60	0.61-0.80	0.81-1.00
Score	Very poor	Slightly weak	Weak	Moderate	Strong	Very strong

4.1.3 PMC-Index Model Results

Based on the variable classification system in Table 1, a multi-input-output table was first constructed (see Table 6), followed by assigning values to secondary variables based on Equation (1) and Equation (2), followed by calculating primary variables based on Equation (3), and finally bringing the values of primary and secondary variables into Equation (4) to calculate PMC index values (see Table 7). In this study, 30 policies with high representativeness were selected for analysis. According to the calculation results in Table 7, two of the 30 selected policies were perfectly consistent, 22 were good consistent, five were acceptable consistent, and one was low consistent.

Table 6 Multi-input-output table

Primary variables	Secondary variables				
X_1	$X_{1.1}$	$X_{1.2}$	$X_{1.3}$	$X_{1.4}$	$X_{1.5}$
X_2	$X_{2.1}$	$X_{2.2}$			
X_3	$X_{3.1}$	$X_{3.2}$			
X_4	$X_{4.1}$	$X_{4.2}$	$X_{4.3}$		
X_5	$X_{5.1}$	$X_{5.2}$	$X_{5.3}$		
……					
X_9	$X_{9.1}$	$X_{9.2}$	$X_{9.3}$		
X_{10}					

Table 7 Calculation results of PMC index values

	P1	P2	P3	P4	P5	.....	P15	P16	P17	.....	P29	P30
X_1	0.6	0.8	0.8	0.8	0.4		0.2	0.6	0.4		0.6	0.8
X_2	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5		0.5	0.5
X_3	1	1	1	1	1		0.5	1	1		1	1
X_4	0.33	1	1	1	0.66		0.33	0.33	0.33		0.66	0.66
.....												
X_9	1	1	1	1	1		0.66	1	1		1	1
X_{10}	1	1	1	1	1		1	1	1		1	1
PMC-Index value	7.1	9.30	7.63	8.72	8.07		4.62	7.6	6.57		8.18	8.38

4.2 Analysis of X-dimensional Policy Tools

The coding of policy tools yields a total of 370 policy tools. In general, the structure of the use of policy tools shows an uneven trend. Among them, environment-based policy tools are used most frequently. The number amounted to 198 items, accounting for 53.51%, indicating that the government focused on promoting the development of hawkers by creating a favourable business environment. The next most frequently used policy tool is the supply-based, with the number of 132 (35.68%), indicating that supply-based policy tools such as infrastructure are gradually being emphasized; the least frequently used policy tool is the demand-based, with the number of 40 (10.81%), indicating that demand-based policy tools such as social cooperation and overseas exchanges have not been given enough attention and there is still much room for improvement.

Further analysis reveals that the supply-based policy tools that are used more frequently are business area and infrastructure, accounting for 36.36% and 24.24%, respectively. This indicates that the government attaches importance to the management of the economic externalities of hawkers and addresses the negative impacts of hawkers on society by providing infrastructure and designating business areas. However, the number of policy provisions related to technical support, education and talent development is relatively small, reflecting the government's absence in technical improvement and talent training. The demand-based policy tools that are used more frequently include overseas exchanges and social cooperation, accounting for 22.5% and 27.5%, respectively. It shows that the government relies more on guiding market players to exchange and cooperate to stimulate demand and focuses on internationalization, while tools such as subsidies and consumption upgrading are used less frequently. The environmental-based policy tools that are used more frequently are market management, environmental health, and public opinion Monitoring and Advocacy, accounting for 31.82%, 19.19%, and 11.11%, respectively. It shows that the government focuses on guaranteeing the healthy development of the hawker economy by regulating market order and strengthening sanitation; and creating a favourable public opinion environment through publicity and supervision by the Internet, TV, and other media. However, the government needs to improve financial support, the legal system, and medical and social security.

4.3 Analysis of Y-dimension Policy Subject

From the policy subject dimension, the policies issued by the central government contain some guiding contents. It shows that the central government provides the top-level design for the local policy system of the hawker economy, and provides a clear path and relaxed atmosphere for the development of the hawker economy. The policies issued by local governments contain a large number of specific measures. It shows that local governments have provided institutional guarantees for the planning and governance of the hawker economy and created a favourable policy environment at the practical level.

The word cloud map study shows that the policies issued by local government subjects overlap highly with those issued by central government subjects in terms of keyword frequency. In this study, 30 policies were translated into English and word cloud maps were created. As can be seen from Figures 2 and 3, the large font size of keywords such as food, safety, market, and production represents the high frequency of these keywords in the policies, which are the common focus of the central government and the local government. It shows the high continuity and consistency of policies between local subjects and central subjects, and the policies promulgated by the central government are an important basis and reference for local governments to formulate and implement policies. At the same time, local government subjects are more detailed in specific measures and combined with the actual local situation, and local subjects build the practical structure of the policy of the hawker economy under the top-level design of the central subject, and both of them together create a good policy environment for the governance of the hawker economy.

Figure2 Word cloud map (local)

Figure3 Word cloud map (centre)

4.4 Analysis of Z-dimension Policy Effectiveness

In general, the effectiveness of central and local policies is good, generally showing the advantages of clear objectives, detailed planning, and scientific programs, with food safety, market management, production and operation as the focus of policy pointers, and through legal protection, funding support, financial support, self-management and other measures to protect the work of government departments at all levels and the production and operation of market operators.

As shown in Figure 4 to Figure 7 surface plots, the paper selects one policy from each of the four grades to draw the surface diagram and analyzes the strengths and weaknesses of the policies with the help of the PMC surface diagram. Specifically, the two policies rated as perfect consistency belong to local subjects, which are provincial government subjects and prefecture-level city government subjects, with balanced policy performance, focusing on the balance of specific measures and overall requirements, focusing on the market. Six of the 22 policies rated as good consistency were issued by central government subjects, with a good rate of 86% in the central policy sample, indicating that the central government subjects have a certain degree of scientificity, directivity, and feasibility in the planning of economic policies for hawking. At the same time, the central and local policies are generally at a disadvantage in terms of policy tools, policy protection, policy timeliness, and policy focus, among which the lack of long-term planning, the absence of demand-based policy tools, and the absence of specific measures for policy protection are important reasons. The policies evaluated as acceptable consistency are all issued by local governments, and the imperfection of policy timeliness, policy focus, policy tools, policy guarantee, and policy perspective restricts the effectiveness of the policies. A policy evaluated as low consistency is issued by local government subjects, and the policy content only involves providing funding support to operators, which restricts the applicability and effectiveness of the policy with a single content.

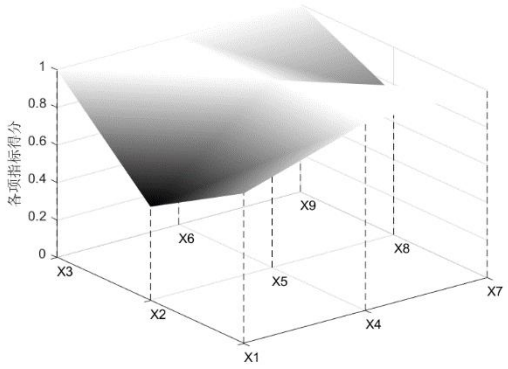

Figure4 Perfect consistency

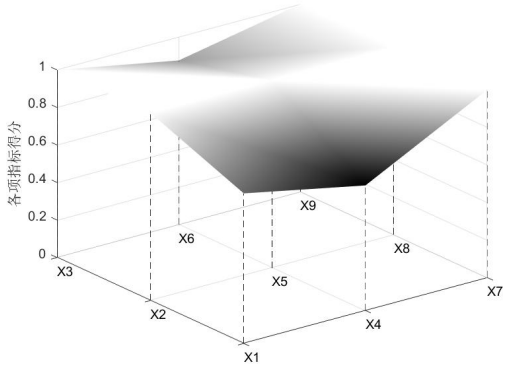

Figure 5 Good consistency

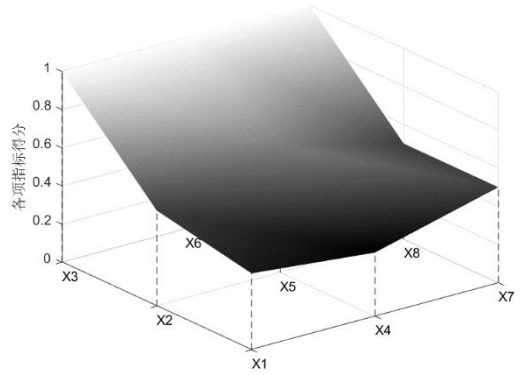

Figure6 Acceptable consistency

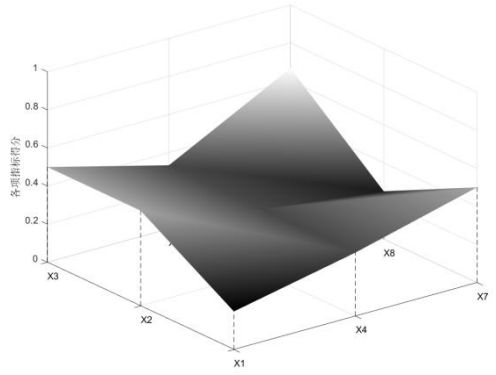

Figure7 Low consistency

5. Conclusion and Recommendation

5.1 Conclusion

By using NVivo12 Plus software to code the policy text and construct the PMC index model, it is found that from the perspective of the policy tool dimension, the central-local level hawker economic policies are generally supply-based and environment-based, and the demand-based policy tools are missing a large extent, especially in the central government subjects. From the perspective of policy subjects, central government subjects focus on the top-level design of policies, while local government subjects focus on the practicality of policies, and there is continuity and consistency in the policies of the central and local governments. From the perspective of policy effectiveness, policy effectiveness is generally good, but there are some problems. The lack of attention to long-term planning, the loss of policy focus, the narrow policy perspective, the dislocation of safeguards, and the departure of demand-based policy tools constrain policy effectiveness, while the single-point policy effect is not ideal.

5.2 Recommendation

5.2.1 Reasonable Allocation of policy tools

The government should reasonably allocate policy tools and increase the use of demand-based policy tools. First, government finance departments at all levels should increase subsidies for consumption in the hawker economy to boost consumer demand. Second, the government and other market players should strengthen the strength and scope of cooperation. hawkers and consumers should take the initiative to respond to market-related departments about the phenomenon, suggestions, and requests; government subjects should be open to listening to the views of the public, take the initiative to carry out research and accurately solve the problems of the hawker economy. Third, focus on the pilot and the promotion of advanced experience. On the one hand, pilot and demonstration projects should be established to explore the optimal model between the hawker economy and urban development and be promoted; on the other hand, the synergy between various departments should be improved to promote the upgrading of the consumption of the hawker economy and to achieve the sustainable development of the hawker economy.

5.2.2 Improve the policy-making system

Improve the policy-making system and give play to the leading role of the central government in policy-making. First, the central government should use policy tools rationally. The State Council and the National People's Congress should increase the use of demand-based policy tools, create a good demonstration for demand-based policies, and guide the balanced development of local policy tools. Second, while responding to the central government's policies, local government should take

practice as a starting point to introduce specific and comprehensive policies, reduce the use of single-pointing policies, and improve the practicality and applicability of policies.

5.2.3 Improve policy effectiveness

Improving policy effectiveness and policy quality. First, governments at all levels should establish cooperation and exchange mechanisms, study and transplant advanced experiences, and improve the comprehensiveness and applicability of policies. Secondly, policy evaluation should focus on policy timeliness, policy guarantee and policy focus, and timely release of guarantee measures after determining policy focus, to improve the effectiveness of the policy.

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