Research on Text Analysis and Quantitative Evaluation of Mass Innovation Space Support Policies in Jiangsu Province

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Abstract. Using ROSTCM6 text mining and UCINET data mining software to analyze the keywords, semantic network center and small groups of Jiangsu mass innovation space support policies. At the same time, three policies were selected and the PMC index model was used to conduct the quantitative evaluation of the three policies. The results showed that the PMC index of the selected policies were average, and they did not reach the excellent level. There is still room for improvement.

1. Introduction

The term "mass innovation" was first put forward by premier li keqiang at 2015 davos BBS. Since then, "mass entrepreneurship and innovation" has officially entered Chinese people's attention, and the spirit of innovation it holds has become an important driving force of economic development. The regional innovation strength of Jiangsu province has always been at the forefront of the country. Since the concept of "mass innovation space" was widely spread, the government of Jiangsu province has been paying more attention to mass innovation space and promoting the development of mass innovation space through a number of encouragement policies. Policy support is an important part of the good development of mass innovation space, but at the same time, with the increasing number of policies, the complexity of policies is also increasing. To better achieve policy objectives, policy makers need to ensure that policy beneficiaries effectively understand and enjoy policy. At the same time, policy makers need to constantly correct and optimize policies, which is particularly important for the healthy and effective development of mass innovation space. Therefore, it is necessary to conduct a scientific quantitative analysis of the existing mass innovation space support policies, and to realize accurate judgment of mass innovation space policies by constructing a quantitative evaluation system, so as to provide scientific and reasonable decision-making basis and evaluation method for the subsequent policy optimization of Jiangsu province.

2. Literature Review

China's mass innovation space support policy started late. Searching for the Peking University Magic Database with the key words of “Mass Innovation Space”, relevant policy documents will appear after 2015. In the past five years, all provinces and cities across the country have issued policy measures to support the development of mass innovation space, followed by academic research on the mass innovation space support policies. However, due to the short time, there is a lack of relevant research in China: Liu jianguo[1] firstly analyzed the development status and difficulties of mass innovation space in China. His paper reveals the causes of the dilemma from the aspects of institutional factors and government behaviors, and puts forward countermeasures and suggestions to optimize the current mass innovation space governance policy.Fan haixia[2]

collected the policies and measures supporting the development of "mass innovation space" in Beijing, Shanghai, Chengdu, Tianjin and other seven places, compared and analyzed the characteristics of the policies and measures of various places, and based on this, proposed the optimization Suggestions for the development of mass innovation space in various places. Su ruibo[3] extracted high-frequency words from mass innovation space support policy texts in five provinces and cities, including Beijing, Shanghai, Guangdong, Zhejiang and Jiangsu, and provided the network graph of high-frequency words with the help of software, to analyze the differences of mass innovation space support policy texts in five provinces and cities. Lei lianghai et al.[4] used content analysis method to analyze the content structure of Shanghai mass innovation space policies, and used policy tools as an analytical framework to encode policy texts and conduct frequency statistics to analyze the use results of policy tools.

A general survey of existing studies shows that most scholars focus on guiding practice in carrying out mass innovation space policy research, and most of them are based on the professionalism of themselves, suggesting what problems exist in existing policies and suggesting policy optimization. This kind of research is subjective and lacks scientific research methods. Su ruibo and lei lianghai have taken the research a step further. They did a quantitative analysis of the policies, but their research only stays at the level of frequency statistics. The author thinks that it is necessary to carry out frequency statistics of policy text from different analysis angles, but it should be more in-depth. Therefore, on the basis of existing research, this paper firstly uses ROSTCM6 software to extract high-frequency words from the policy text of makerspace in jiangsu province, statistics the word frequency and draw semantic network graph, so as to intuitively show the difference of keywords in the policy text. Secondly, UCINET software is used to calculate and identify the centrality and small groups of the policy semantic network, so as to determine the centrality of the policy network and the internal relationship between the policy text. Finally, this paper USES PMC index model to assign weight to the policy text. The quantitative score is used to evaluate the formulation of policies, so as to provide an effective basis for the further optimization of mass innovation space policies in jiangsu province.

3. Text Mining and Analysis of Mass Innovation Space Support Policies

Text Mining (TM) refers to Mining and analyzing Text data of a large scale to extract potentially valuable information hidden behind Text in order to meet certain requirements and obtain valuable information[5]. Text mining is a kind of data mining technology, and has increasingly become a popular research tool[6]. Its basic mode is based on knowledge discovery to find important information hidden behind a large amount of text data[7]. In the face of the policy text with a large number of words, the text mining method is better than the traditional manual reading summary, which can overcome the problem of low efficiency and strong subjectivity, and more effectively analyze the policy characteristics. This research will adopt the method of text mining to analyze the mass innovation space support policies of jiangsu province successively, and establish the semantic text mining model of policies.

3.1. Sample Selection

Jiangsu province is a province with intensive innovation policise and a city with rapid development of mass innovation space in China. Therefore, this paper selects the mass innovation space support policies of jiangsu province as research objects. In order to ensure the timeliness of the policies, this paper collects the policy texts of promoting the development of mass innovation space issued by relevant departments of Jiangsu province from 2010 to 2018. Firstly, with "mass innovation space" as the key word, relevant policies are searched by full-text search in the policy file base of official websites of people's congress, provincial party committee, provincial government, department of science and technology, department of finance, department of human resources and social security, department of education and other departments of the two provinces. In addition, this paper, supplemented by Peking University magic weapon legal database, uses "mass innovation space" as the key word to conduct full-text search and download relevant policy documents to ensure the

comprehensiveness and integrity of the policy text. After that, policy texts with incomplete information and little relevance to mass innovation space should be eliminated. In the end, after eliminating the invalid policy texts, a total of 72s supporting mass innovation space policy texts of jiangsu province were sorted out.

3.2. Word Segmentation and Word Frequency Statistics

The collected mass innovation space support policy text library was imported into ROSTCM6 software, which was firstly processed by word segmentation, and then word frequency statistical processing was performed on the documents after word segmentation. Since the selected samples are the support policy of mass innovation space in jiangsu province, the words "space" and "jiangsu" in the high-frequency words are redundant in the analysis of the policy features, which need to be eliminated. In addition, adverbs of degree such as "significant" and verbs such as "raising", which often appear in policy texts, are redundant and need to be eliminated. After the redundant words are deleted, the high-frequency words to be analyzed in this paper are listed in Table 1.

Table 1. High frequency words of mass innovation space support policies in jiangsu province

Vocabulary	Word frequency	Vocabulary	Word frequency	Vocabulary	Word frequency
Startup	2252	New type	196	Establish	137
Innovate	1205	Society	190	Market	136
Serve	894	Gather	184	Train	131
Science and technology	889	Accelerate	183	Mechanism	125
Enterprise	857	Talents	181	Mode	122
Incubate	736	Community	178	Subsidy	120
Construct	553	Mass	177	Cultivate	117
Develop	486	Carrier	174	Perfect	116
Incubator	329	Management	168	Promote	114
Government	324	Personnel	162	Guide	113
Institution	310	Project	160	Create	113
Platform	307	Demonstration	160	Plan	111
Invest	277	Fund	156	Public	108
Technology	274	Key point	153	College	106
Boost	253	Give	152	Base	103
Country	251	Finance	149	Implement	100
Encourage	240	Organize	145	Employment	98
Resource	237	High-tech Zone	142	Professionalization	97
Policy	209	Internet	140	Achievement	96
Carry out	196	entrepreneur	139	R&D	90

3.3. Network Diagram Drawing

In order to draw and analyze the network graph of high frequency words, a common word matrix should be compiled. ROSTCM6 software can help generate the document of co-word matrix, which can be imported to draw the semantic network diagram. Fig. 1 shows the semantic network diagram of crowd mass innovation space support policy in jiangsu province. The line between each word in the figure indicates that it appears in the same policy at the same time. Through semantic network, the mass innovation space support policies are connected into a whole in the form of network, and the internal relations and distribution of high-frequency words in the policy structure of jiangsu province are depicted.

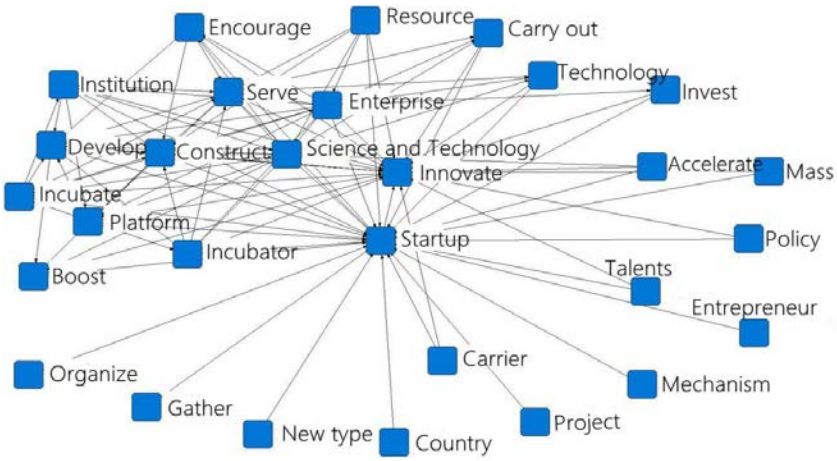

Figure 1. Semantic network graph of mass innovation space support policies in jiangsu province

3.4. Centrality Analysis

The analysis of network centrality can be generally reflected by calculating two values of network center potential and point degree center degree. UCINET data mining software can realize this calculation. Table 2 shows the values of "point degree center degree" and "network center potential" of the semantic network of mass innovation space support policy in jiangsu province.

Table 2. Results of semantic web centrality analysis of mass innovation space support policies in jiangsu province

High-frequency words	Point degree center degree	High-frequency words	Point degree center degree
Startup	6.702	Technology	0.820
Innovate	5.202	Carry out	0.793
Serve	3.816	Invest	0.467
Enterprise	3.635	Accelerate	0.447
Science and technology	3.257	Mass	0.409
Construct	2.890	Talents	0.336
Develop	2.333	Carrier	0.329
Institution	1.815	Policy	0.320
Incubate	1.799	Project	0.168
Platform	1.715	Organize	0.154
Incubator	1.509	New type	0.152
Encourage	1.313	Mechanism	0.145
Resource	1.026	Entrepreneur	0.143
Boost	0.914	Gather	0.141

Network Centralization = 6.53%

The network central potential index can represent the concentration degree of policy high-frequency words in the whole network to some extent, and the value range is 0-1. The closer to 1, the higher the concentration degree of the network is. Table 2 shows that the central network potential of the semantic network of mass innovation space support policy in jiangsu province is 6.53%, which is relatively low, indicating that the network lacks central tendency and many high-frequency words have little correlation or lack of correlation, which indicates that the text content of mass innovation space support policy in jiangsu province is relatively scattered with different focuses and poor correlation.

Point degree center degree reflects the importance of a certain high-frequency word in the whole network, that is, how closely the high-frequency word is related to other words. The degree of point degree center is generally relative, that is, it is only suitable for the comparison of high-frequency

words in the network. If the node of a certain word has a higher degree of point degree center, the word is more important in the network. As shown in Table 2, the point degree center degree of "entrepreneurship" is relatively the highest in the semantic network of policy, which is 6.702, indicating that it is the most important and has the highest status in each network. However, the central degree of relative point degree of "cluster" is the lowest, which is 0.141, indicating that it has the lowest status in the overall semantic network of policy and is not closely related to other high-frequency words, which means that it may be concentrated in a certain policy.

3.5. Group Analysis

In addition to understand the policy network intensity and the importance of each word, you also need to further analyze the internal relationship between the policy of high frequency words, small group analysis is a kind of classification of research keywords network, network structure and development characteristics of the effective methods, such as size UCINET software of n - clique function of semantic network is used to identify the group policy, through the comparative analysis between the policy of high frequency words close degree completed initial clustering, to identify secondary clique. UCINET software was used to identify small groups in the semantic network of mass innovation space support policy in jiangsu province, and the results were shown in Fig. 2.

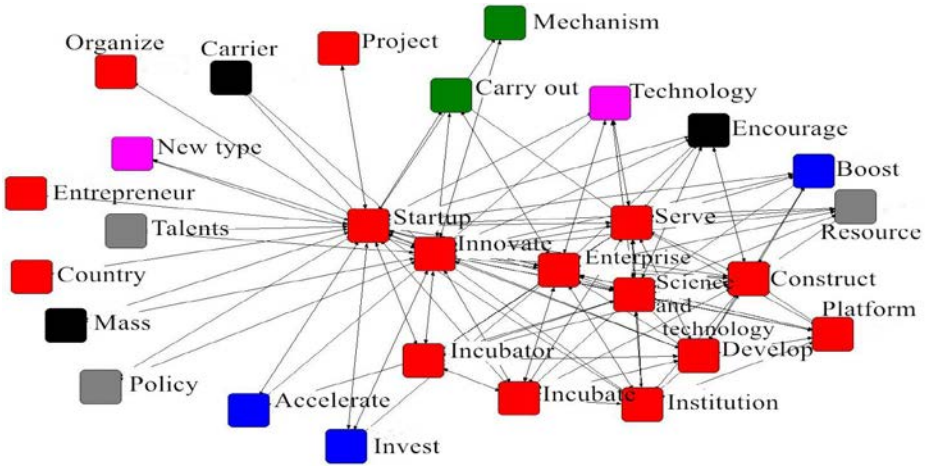

Figure 2. Group identification of mass innovation space support policies network in jiangsu province

The results show that the policy keyword network of jiangsu province can get 6 small groups, as shown in Table 3.

Table 3. Results of semantic network group analysis of mass innovation support policies in jiangsu province

Group	Keyword
Group1	Innovate Startup Serve Incubate Enterprise Science and technology Entrepreneur Incubator Institution Platform Project Country Organize Develop Construct
Group2	Accelerate Invest Boost
Group3	Talents Resource Policy
Group4	Encourage Mass Carrier
Group5	Technology New type
Group6	Mechanism Carry out

As mentioned above, the semantic network of mass innovation space support policy in jiangsu province lacks central tendency, and many high-frequency words have little or no correlation with each other, which indicates that the text content of crowd maker space support policy in jiangsu province is relatively scattered with different focuses. Among the several small groups divided at

present, small group 1 has a large scale and formed a relatively complete and concentrated path to promote the development of mass innovation space: among them, "innovation" and "entrepreneurship" are the most mentioned keywords in the mass innovation space support policy, which are at the core of the keyword network. These two keywords summarize the overall goal of jiangsu province to formulate mass innovation space support policy, namely to promote mass innovation and entrepreneurship. The two key words of "service" and "incubation" reflect the functions of mass innovation space. One is to provide differentiated, diversified and professional services for innovation and entrepreneurship. The other is to attach great importance to the important functions of mass innovation space in project incubation, enterprise incubation and industry incubation. "Enterprise", "science and technology", "entrepreneur", "incubator", "institution", "platform" and "project" are the fields or objects of mass innovation space support policies. The verbs of "organize", "develop" and "construct" indicate that the mass innovation space in jiangsu province is still in the early stage of construction. In short, small group 1 can be summarized as follows: science and technology enterprises, entrepreneurs, incubators and all kinds of related institutions and platforms should accelerate the construction and development of masss innovation space, improve the relevant services and incubation level of mass innovation space, so as to effectively support mass innovation and entrepreneurship. The "investment" in group 2 reflects the government's financial support for the construction of mass innovation space, and encourages various social forces to invest in the construction of mass innovation space. Both "accelerate" and "advance" can reflect the policy semantics of the urgency of financial support for mass innovation space development. Small group 3 reflects jiangsu province's support for talents, resources and policies to promote the construction of mass innovation space. The "encouragement" in small group 4 has obvious guiding characteristics, indicating that jiangsu province's mass innovation space support policy attaches importance to the construction of "carriers" for innovation and entrepreneurship, and has a wide range of objects, which is reflected in the drive of "mass" innovation and entrepreneurship rather than the innovation and entrepreneurship of specific groups and organizations. In small group 5, "new" and "technology" reflect the essence of mass innovation space, which is a new innovation and entrepreneurship service platform and incubator, mainly providing technology innovation, technology trading, technology transfer and other services for start-up enterprises. "Mechanism" in group 6 indicates that the policy attaches great importance to the construction and improvement of mechanism and system, and "develop" indicates that the policy has made substantive plans to support the development of crowd innovation space.

4. PMC Index Model for Quantitative Evaluation of Mass Innovation Space Support Policies

The Policy Modeling Consistency Index (PMC) model is formed on the basis of the Omnia Mobilis hypothesis proposed by Ruiz Estrada[8] et al., which emphasizes that everything in the world is in a state of continuous development and correlation. Therefore, comprehensive consideration should be given to the selection of evaluation indicators and no relevant variables should be omitted as far as possible. The PMC model evaluation method can evaluate a representative policy in multiple policies of a certain region by determining multidimensional indexes, analyze its advantages and disadvantages and determine its consistency level. In addition, the specific evaluation score of a certain dimension of representative policies of the two regions can be calculated to compare and analyze the policy-making level of the two regions. This is one of the more advanced ways of assessing policy. This paper intends to evaluate the mass innovation space support policy in jiangsu province through PMC model. The specific steps of building the PMC index model are: index classification and parameter identification, construction of multi-input and output table, measurement and calculation of PMC index, and drawing of PMC surface diagram.

4.1. Variable Classification and Parameter Identification

This paper takes Jiangsu mass innovation space support policy as the research object, based on Estrada's policy evaluation research[9], with reference to Xiao Niantao[10], Zhang Yongan[11], and Wei Wei[12] and other scholar-related variables, and considering the characteristics of the mass

innovation space support policy, select the nine level index and 34 secondary index (see Table 4).

Table 4. Setting of first-level variables and corresponding second-level variables

First-level variables	Paraphrase	Number	Second-level variables	Number	Second-level variables
X1: Policy nature	Contains 5 secondary variables to determine whether the policy has the role of prediction, supervision, initiative, description, and diagnosis	X1:1	Prediction	X1:2	Supervision
		X1:3	Initiative	X1:4	Description
		X1:5	Diagnosis		
X2: Continuing effectiveness	Contains 3 secondary variables to determine the effect aging of policy on policy receptors	X2:1	Short term	X2:2	Medium term
		X2:3	Long term		
X3: Policy domain	Contains 3 secondary variables to determine the areas involved in the policy content	X3:1	Economic	X3:2	Science and technology
		X3:3	Environment		
X4: Policy evaluation	Consists 4 second-level variables to evaluate whether the policy has theoretical and practical basis, clear objectives, detailed planning and innovation encouragement	X4:1	Theoretical and practical basis	X4:2	Clear objectives
		X4:3	Detailed planning	X4:4	Innovation encouragemen t
X5: Object of action	Contains 4 secondary variables to determine which areas the policy focuses on	X5:1	Industry	X5:2	Industrial park
		X5:3	Enterprise	X5:4	Creator group
X6: Policy level	Contains 3 secondary variables to determine the scope of the policy	X6:1	Provincial	X6:2	Municipal
		X6:3	Development district		
X7: Policy function	Contains 4 secondary variables to determine the function or task of the policy	X7:1	Technology innovation	X7:2	Government purchases
		X7:3	Specification guide	X7:4	Institutional constraints
X8: Incentives	Contains 7 secondary variables to judge the incentive means used by the policy to support the development of mass innovation space	X8:1	Talents introduction	X8:2	Stock ownership incentive
		X8:3	Capital investment	X8:4	Investment subsidy
		X8:5	Tax preference	X8:6	Facilitation services
		X8:7	Intellectual Property		
X9: Policy disclosure	There are no secondary indicators. Judge whether the policy is open or not				

All second-level indicators determined in this study occupy the same proportion in scoring, and set parameter values for all second-level indicators according to binary 0 and 1. If the policy includes a second-level indicator, it will be assigned a value of 1. Otherwise it's 0.

4.2. Build a Multi-Input Output Table

In fact, the establishment of multi-input and output table is to form a set of data analysis framework.

This paper designs the multi-input and output table shown in Table 5, which contains 9 first-level indicators and 34 second-level indicators.

Table 5. Multiple input output table

X1					**X2**			
X1:1	X1:2	X1:3	X1:4	X1:5	X2:1	X2:2	X2:3	
X3					**X4**			
X3: 1	X3:2	X3:3			X4:1	X4:2	X4:3	X4:4
X5					**X6**			
X5:1	X5:2	X5:3	X5:4		X6:1	X6:2	X6:3	
X7					**X8**			
X7:1	X7:2	X7:3	X7:4		X8:1	X8:2	X8:3	X8:4
					X8:5	X8:6	X8:7	
X9								

4.3. Calculation of PMC Index

Based on the secondary indicators set in the multi-input and output table above, the comprehensive score of mass innovation space policy is calculated according to Eq. 1.

$$PMC_i = \sum_{i=1}^{5}\frac{X1:j,i}{5} + \sum_{i=1}^{3}\frac{X2:j,i}{3} + \sum_{i=1}^{3}\frac{X3:j,i}{3} + \sum_{i=1}^{4}\frac{X4:j,i}{4} + \sum_{i=1}^{4}\frac{X5:j,i}{4} + \sum_{i=1}^{3}\frac{X6:j,i}{3} + \sum_{i=1}^{4}\frac{X7:j,i}{4} + \sum_{i=1}^{7}\frac{X8:j,i}{7} + X9 \tag{1}$$

In the Eq.1, “i” represents the ith policy selected, and “j” represents the second-level index corresponding to this policy. Based on the above equation, the PMC index of the selected mass innovation space support policy is calculated, and the policy is graded according to Table 6.

Table 6. Classification of policy levels

PMC score	9~8	7.99~6	5.99~4	3.99~0
Level	Excellent	Good	Average	Bad

4.4. Construction of PMC Surfaces

The construction of PMC surface can more intuitively show the evaluation effect of policy quantification. The calculation of PMC matrix based on PMC index is the basis of the construction of PMC surface. Because there are 9 first-level indicators set in this paper, the third-order square matrix is generated, and the calculation of PMC surface is conducted according to Eq. 2.

$$PMC = \begin{Bmatrix} X1 & X2 & X3 \\ X4 & X5 & X6 \\ X7 & X8 & X9 \end{Bmatrix} \tag{2}$$

5. Empirical Research on Quantitative Evaluation of Mass Innovation Space Support Policies

Based on the PMC index evaluation model built above, this paper selects three comprehensive and representative crowd maker space support policies from the collected crowd maker space support policies in jiangsu province, which are summarized as P1, P2 and P3. Due to the small number of policies for crowd innovation space support issued by jiangsu province, it is difficult to select. See Table 7 for policy details.

Table 7. Support policies of mass innovation space in jiangsu province

Policy name	**Number of issuing institution**
Implementation plan of developing the mass innovation space to propel mass innovation and entrepreneurship (2015-2020)	No.34, 2015, Su ban issued
Implementation opinions on promoting the construction of the mass innovation community	No. 150, 2016, Su zhengban issued
Implementation plan of developing the mass innovation space for mass innovation and entrepreneurship to drive employment (2015-2020)	No. 184, 2015,Su renshe issued

In this study, two doctors and four masters from Guangdong Soft Science Key Research Base were invited to assign the second-level indicators in the table of multiple inputs and outputs of the three mass innovation space support policies. After three times of scoring and discussion on the definition of indicators, the scoring results reached an agreement, as shown in Table 8.

Table 8. Input and output table of three mass innovation space support policies

	X1					**X2**						
	X1:1	X1:2	X1:3	X1:4	X1:5					X2:1	X2:2	X2:3
P1	1	0	1	1	0					1	0	0
P2	1	0	1	1	0					1	0	0
P3	1	1	1	1	0					1	0	0
	X3					**X4**						
	X3: 1	X3:2	X3:3						X4:1	X4:2	X4:3	X4:4
P1	1	1	1						1	1	1	1
P2	1	1	1						1	1	1	1
P3	1	0	1						1	1	0	1
	X5					**X6**						
	X5:1	X5:2	X5:3	X5:4						X6:1	X6:2	X6:3
P1	1	1	1	1						1	0	0
P2	1	0	1	1						1	0	0
P3	1	1	1	1						1	0	0
	X7					**X8**						
	X7:1	X7:2	X7:3	X7:4		X8:1	X8:2	X8:3	X8:4	X8:5	X8:6	X8:7
P1	0	1	1	0		1	1	1	1	1	0	1
P2	1	0	1	0		0	0	1	0	0	1	1
P3	0	1	1	1		1	0	1	0	0	0	0
	X9											
P1	0											
P2	1											
P3	1											

Based on the scoring results of the multi-input and output table of the three policies in Table 8, the respective PMC indexes are calculated according to the Eq.1, and the results are shown in Table 9. Then PMC curve diagram is drawn according to the PMC surface in Table 10, as shown in Fig. 3, Fig. 4 and Fig. 5.

Table 9. PMC indices for the three policies

	P1	P2	P3	Mean value
Policy nature	0.60	0.60	0.80	0.67
Continuing effectiveness	0.33	0.33	0.33	0.33
Policy domain	1.00	1.00	0.67	0.89
Policy evaluation	1.00	1.00	0.75	0.92
Object of action	1.00	0.75	1.00	0.92
Policy level	0.33	0.33	0.33	0.33
Policy function	0.50	0.50	0.75	0.58
Incentives	0.86	0.43	0.29	0.52
Policy disclosure	0.00	1.00	1.00	0.67
PMC score	5.62	5.94	5.92	5.83
Number	PMC score	Level		
P1	5.62	Average		
P2	5.94	Average		
P3	5.92	Average		

Table 10. PMC Surfaces for Three Policies

$$P1 = \begin{Bmatrix} 0.60 & 0.33 & 1.00 \\ 1.00 & 1.00 & 0.33 \\ 0.50 & 0.86 & 0.00 \end{Bmatrix} \quad P2 = \begin{Bmatrix} 0.60 & 0.33 & 1.00 \\ 1.00 & 0.75 & 0.33 \\ 0.50 & 0.43 & 1.00 \end{Bmatrix} \quad P3 = \begin{Bmatrix} 0.80 & 0.33 & 0.67 \\ 0.75 & 1.00 & 0.33 \\ 0.75 & 0.29 & 1.00 \end{Bmatrix}$$

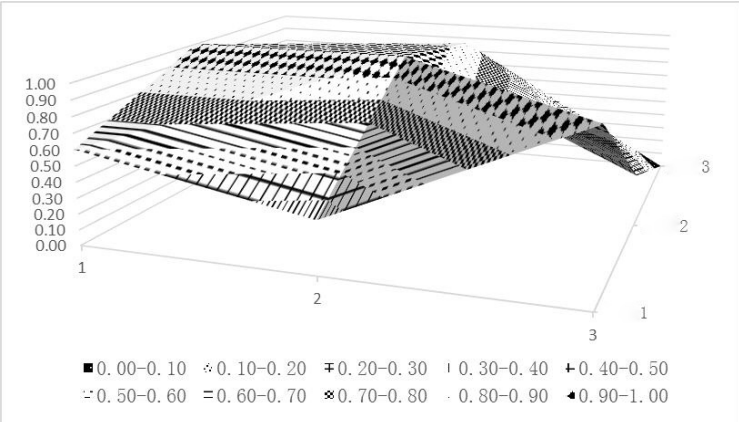

Figure 3. PMC surface diagram of P1

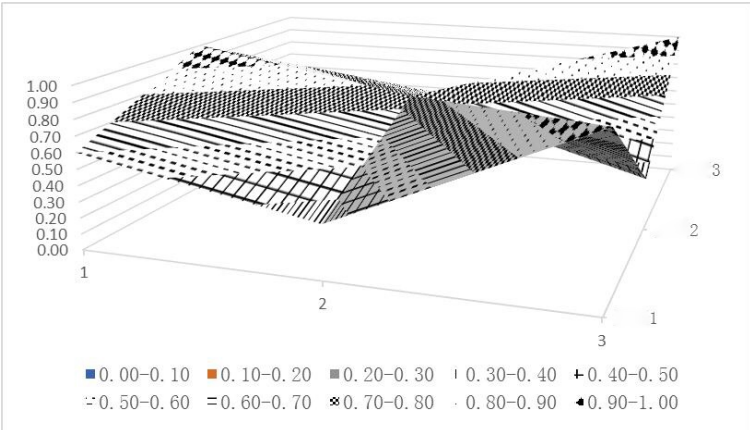

Figure 4. PMC surface diagram of P2

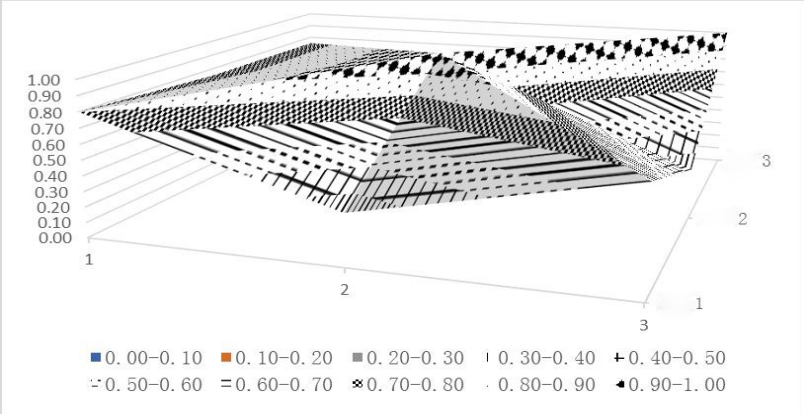

Figure 5. PMC surface diagram of P3

By calculating the PMC scores of the three policies, it can be known that the PMC indexes of the three policies are relatively similar and all of them do not reach good grades, so it can be reflected that there are still many areas to be improved in the three policies. Policy 1 had the lowest PMC index at 5.62.As can be seen from the surface graph, the values of policy nature, policy function and policy disclosure are relatively low. Reviewing policy 1, there is no relatively perfect supervision system in the policy nature. In policy function, the degree of encouragement for technological innovation is relatively small. Although there is good normative guidance, there is also a lack of practical and effective systems for the constraints to the mass innovation space. In addition, the policy of policy 1 has poor openness and fails to meet the standard of transparency to the public, which makes the policy's ability to radiate to the public poor. The value of policy 2 is the highest among the three policies, and the value of this policy is higher in the policy domain and policy evaluation. In policy domain, policy 2 takes economic, technological and environmental considerations into account to some extent. In policy evaluation, it has a relatively perfect theory and actual basis, put forward "by the end of 2020, in the province's focus on cultivating and building about 100 enrichment of innovation resources, perfect innovation service, industry characteristic, suitable living environment, the management system of science of the community" clear goals and objectives, at the same time has detailed planning, support and encourage all kinds of innovative activities.

Although all three policies are not good, they are basically very close to good. On the one hand, as a new policy in the past two years, the three policies have all played a good leading role in different aspects. On the other hand, the contents and aspects of the three policies still need to be expanded, and the follow-up policies should actively absorb the excellent parts of the three policies, supplement the uninvolved contents and reasonably improve the imperfect parts, so as to play a positive role in promoting the development of mass innovation space.

6. Research Conclusion

This paper uses the text mining method to make an objective policy analysis of the mass innovation space policy in jiangsu province, and finds the problems of low correlation concentration and relatively scattered content in the policy text. This may mean that each policy has its own focus, which has certain promotion significance for a certain field, but also has the limitation of insufficient comprehensive and single content. Therefore, it is still necessary to broaden the coverage of mass innovation space support policy and dig into the specific content. In addition, this paper selects three more comprehensive policies from the collected mass innovation space policies of Jiangsu Province, and uses the PMC model to quantitatively evaluate the three policies. Through this model, we can learn 9 first-level indicators and the 34 second-level indicators of the three policies to determine the advantages and weaknesses of the three policies, which are instructive for the abolition, reform and establishment of policies. This makes up for the shortcomings of fuzzy synthesis which leads to inaccurate evaluation results and strong subjective color. In addition, using

the PMC model for the evaluation of the mass innovation space policies, the general situation of each indicator can be clearly understood in the PMC curved surface diagram. The empirical results show that the scores of the selected three policies fail to meet the excellent standard, which indicates that jiangsu province still has great room for improvement in the policy of mass innovation space. The purpose of this paper is to provide a scientific and effective method for the quantitative evaluation of the mass innovation space policy. On the one hand, it also provides a scientific basis for the future development, correction and optimization of the mass innovation space policies of Jiangsu Province.

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8. References

[1] Liu jianguo. Research on mass innovation space governance and policy innovation [J]. Innovation and technology, 2017, (01):69-71. (in Chinese)

[2] Fan haixia. Comparison of local policies supporting "mass innovation space" [J]. Research on modern state-owned enterprises, 2016, (18): 210.(in Chinese)

[3] Su ruibo. Comparative analysis of policies supporting mass innovation space in guangdong, jiangsu, zhejiang, Beijing and Shanghai based on co-word analysis [J]. Science and technology management research, 2017, (13):94-100. (in Chinese)

[4] Lei lianghai, Jia tianming. Research on the supportive policies of mass innovation space in Shanghai [J]. Shanghai economic research, 2017, (03):32-39.(in Chinese)

[5] Chen zhiqun. Text mining and Chinese text mining model research [J]. Information science, 2007, 25(7):1046-1051. (in Chinese)

[6] Ruan guangce. Difference analysis of network news reports based on text mining [J]. Information science, 2012(1):107-111. (in Chinese)

[7] Yang zhangbo, Gao shanxing. Research on strategic guidance interaction based on text mining and semantic network method -- a case study of biotechnology enterprises [J]. Science of science and management of science and technology, 2015(1):139-150.(in Chinese)

[8] Estrada M A R, Yap S F, Nagaraj S. Beyond the Ceteris Paribus Assumption: Modeling Demand and Supply Assuming Omnia Mobilis[J]. Social Science Electronic Publishing, 2010.

[9] Estrada M A R. Policy modeling: Definition, Classification Andevaluation [J]. Journal of Policy Modeling, 2011(4), 523-536.

[10] Xiao niantao, Xie chi. Theoretical framework analysis of the evaluation index system of financial support policy for small and medium-sized enterprises [J]. Journal of hunan university (social science edition), 2013, (05):51-56. (in Chinese)

[11] Zhang yongan, Xi haituo. Innovation policies of the state council, based on the quantitative evaluation index of PMC model [J]. Science and technology progress and countermeasures, 2017(17). (in Chinese)

[12] Zang wei, Li tiantian, Xu lei. Research on tools mining and quantitative evaluation of mass innovation space support policy in Beijing [J]. Soft science, 2018(9).(in Chinese)