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Quantitative Evaluation of Policies Linking the Increase and Decrease of Urban and Rural Construction Land: A PMC Index Model Approach

Jie Yuan[1,*]

[1]*School of Public Administration, Sichuan University, Chengdu, 610065, China*
[*]*Corresponding author: 2022225010108@stu.scu.edu.cn*

Abstract: *The policy of linking increases and decreases effectively alleviates urban land use conflicts and is a major boost to rural revitalization. This article combines text mining with the PMC index model to conduct a quantitative evaluation and analysis of the selected 35 representative policy texts of linking the increase and decrease. The results show that: the internal consistency of the 35 policies of linking the increase and decrease is generally at a good level. The central-level policies are obviously strategic, co-ordinated and comprehensive. The evaluation results of policies of linking the increase and decrease among the eastern, central, western and northeastern regions are difference. Based on the results, the following suggestions are put forward: building a collaborative governance system among departments, effectively encouraging the participation of social forces, and balancing the use structure of policy tools.*

Keywords: *Linking the increase and decrease of urban and rural construction land, policy formulation, text mining, PMC index model*

1. Introduction

With the rapid development of urbanization in our country, the large-scale flow of rural population has caused the population in our cities and towns to grow rapidly, and the demand for construction land has also increased, and the relationship between man and land has become particularly tense. At the same time, due to the massive loss of population in rural areas, the problem of "hollowing out" is more serious, resulting in a low overall utilization level of rural land. In this context, the policy of “linking the increase and decrease of urban and rural construction land” (hereinafter referred to as “linking the increase and decrease”) was applied. Since its implementation, the policy of linking increases and decreases has played an important role in optimizing the land use structure and intensive land use, coordinating urban and rural development, promoting the construction of new rural areas, and assisting poverty alleviation. However, due to the complexity of the implementation of policies linked to increases and decreases, during its evolution, policies linked to increases and decreases continue to face many new challenges, such as blindly applying for increases and decreases linked to indicators, resulting in a backlog of turnover indicators, and so on.

The policy goal of linking increases and decreases has not yet been fully realized. Corresponding policy means and methods must be improved and optimized. Relevant system exploration and policy research are crucial to realizing China's land reform goal of "improving the unified urban and rural construction land market and promoting the equal exchange of urban and rural factors" is of great significance. Based on this, this article will conduct a systematic and comprehensive evaluation of my country's increase and decrease linkage policies from the perspective of public policy formulation, combining text mining and PMC index models, explore the shortcomings in the formulation of increase and decrease linkage policies, and provide insights into the optimization of my country's increase and decrease linkage policies. Provide references and basis.

2. Literature Review

2.1 Policies of Linking Increases and Decreases

Land development rights transfer policy (TDR, Transferable Development Right) is generally implemented in foreign countries, and there is little research on the policy of linking increase and

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decrease. Linking increase and decrease is one of the characteristic practices of China's urban and rural land. Related research is mostly concentrated in China, which can be summarized into the following four aspects: First, policy interpretation. The essence of the policy linked to increases and decreases is the transfer of wealth rather than the generation of wealth [1] and needs to be changed in a timely manner. The second is the optimization of policy paths. Scholars build a regional innovative increase-decrease-linked savings indicator trading mechanism from the perspective of transaction entities, transaction prices, transaction carriers, and supporting measures, and focus on "reducing quantity and improving quality" when planning. The third is the increase or decrease linkage model. According to the guiding subject, it can be divided into three modes: government-led, enterprise-led and collective autonomy. According to the operation mode of the linked indicators, it can be mainly divided into land ticket trading, indicator turnover and other modes. The fourth is policy effect. Scholars have quantitatively measured the welfare of farmers in typical project areas linked to increases and decreases, farmers' resettlement satisfaction, and the value-added benefits of homestead withdrawal.

2.2 Policy Evaluation

Relevant research on policy evaluation abroad started earlier than at home, and has achieved many innovative results, which has reference and reference value for domestic policy evaluation research. In terms of policy evaluation methodology, it has experienced a process from positivism that overemphasizes scientific paradigm research to critical conformism methodology that increases the value orientation of policies [2]. In terms of policy evaluation standards, there are five types of evaluations and six standards. In terms of policy evaluation models, scholars have proposed policy modeling consistency (PMC) index models, propensity score matching models (PSM), etc. However, there is almost no research on the application of PMC models abroad. China's policy evaluation research draws on some foreign experience, starting from the perspective of policy formulation, taking policy texts as the research object, and mostly using the PMC index model for policy evaluation [3].

To sum up, the current academic interpretation of policies on the linkage of increases and decreases focuses on qualitative research, which lacks objective evidence to a certain extent and is not conducive to in-depth research on policies. Although the evaluation of policy effects is scientific and reasonable, it still has shortcomings, that is, it lacks a basis for increasing increases. The study of the delinking policy itself is only suitable for ex post evaluation. Based on this, this article explores the feasibility of the policy itself from the perspective of policy design, and conducts a quantitative study on the increase and decrease linkage policies using text mining and the PMC index model to provide reference for newly released increase and decrease linkage policies in the future.

3. Materials and Methods

3.1 Data Collection

In order to ensure comprehensive coverage of the policy, this article uses the official platforms of the Chinese Government website, the Ministry of Natural Resources and other ministries and commissions, Peking University Magic Weapon, Wanfang Law and Regulations Database and other channels, taking October 2005 to December 2021 as the time span and taking "Urban and Rural Construction" as the time span. Use the title keyword to search for policy texts, including national-level policies, provincial-level policies, municipal-level policies, and district- and county-level policies. As of December 2021, a preliminary search has yielded 1,151 currently effective policy texts linking increases and decreases.

In order to ensure the accuracy and representativeness of the policy, the retrieved texts will be screened according to the principles of content relevance and text format. (1) Content-related principles. The text clearly contains "linking the increase and decrease of urban and rural construction land" and its synonyms in the title, and the policy content is directly related to the increase and decrease linkage policy, not including indirectly related policy texts such as file management of projects linked to increases and decreases, establishment of project leadership working groups. (2) Text format principles. The format should be specific authoritative and formal texts such as laws and regulations, opinions, notices, and formats such as replies, administrative license approvals, and forwarding notices with duplicate content should be eliminated text. In accordance with the above principles, through reviewing the text content, 326 policy documents linked to increases or decreases were screened out.

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3.2 Construction of the PMC Index Model

The core point of the PMC index model is that no relevant variables should be ignored when analyzing policy texts. Therefore, the model does not set limits on the number and weight of variables in policy evaluation [4], thereby reducing the risk of ignoring non-economic variables. Policy fragility and improve the systematicness of evaluation. When there are more variables involved in evaluating policies and fewer variables are ignored in the policy formulation process, the higher the PMC index, the better the consistency and rationality of the policy [5]. Therefore, this article chooses the PMC index model as a research method to quantitatively evaluate the increase-decrease linkage policy. The main steps to establish the PMC index model are as follows: classification of variables and identification of parameters, creating a multiple-input-output table, calculation of PMC index, dawing PMC surface.

3.2.1 Classification of Variables and Identification of Parameters

In this study, the increase and decrease linkage policy text was imported into NVivo 12 plus qualitative analysis software to perform file merging, word segmentation processing and word frequency statistics. The specific steps are: import the 326 increase and decrease linkage policy documents into the "internal materials" of the word frequency query, set the number of "displayed words" to 500, "have minimum length" to 2, the grouping method to "exact match", and stop words. It is the default vocabulary (that is, words with no real meaning such as "and" and "even though" are automatically eliminated), and the output results are displayed in descending order of word frequency [6]. Since the research object of this article is policies linked to increases and decreases, the high-frequency words "project", "increase" and "related" that appear after word segmentation and do not have a significant impact on the results need to be eliminated, and then "implementation" and " For verbs with unclear direction such as "continue", 396 effective high-frequency words were finally compiled.

In the process of building the PMC index model, variable extraction is mainly based on policy texts. Therefore, this article uses the reverse query function of NVivo 12 plus to analyze the content of the original policy text where the high-frequency words are located, code it step by step on 396 effective high-frequency words, and use the grounded theory method combined with relevant references to extract secondary variables and primary variables.

The PMC index model requires the consideration of various heterogeneous influencing factors, so the variable results extracted from high-frequency vocabulary coding are not enough to evaluate the increase or decrease linkage policy. Therefore, this article refers to the policy text evaluation indicators in the existing literature, and adds the release subject, policy nature, policy, etc. to the five first-level variables extracted above. There are five first-level variables: tools, policy timeliness, and policy disclosure. As a result, this article finally constructed a quantitative evaluation system for increase-decrease linked policies that includes 10 first-level variables and 45 second-level variables.

In order to balance all variables, this article sets all secondary variables to account for the same proportion, and uses binary as the parameter identification standard to facilitate the subsequent calculation of the multi-input-output table. The scoring method is: use content analysis method based on text mining tools to identify parameters of secondary variables based on sample policies. If the content of the policy sample meets the content of a certain secondary variable indicator, the parameter value of the secondary variable corresponding to the policy sample is 1. Otherwise, the parameter value is 0, as shown in Table 1 .

Table 1: Scoring details for quantitative evaluation indicators of policies linked to increases or decreases

Primary Variables and Numbers	**Secondary Variables and Numbers**	**Evaluation Criteria for Secondary Variables**
Release Subject X1	People's governments at all levels (X11)	Whether the policy is issued by the people's government at all levels, it is 1 if it is, and 0 if it is not.
	Ministry of Natural Resources at all levels (X12)	Whether the policy is issued by the Ministry of Natural Resources at all levels (including the former Ministry of Land and Resources), it is 1 if it is, and 0 if it is not.
	Ministry of Finance at all levels (X13)	Whether the policy is issued by the Ministry of Finance at all levels, yes is 1, no is 0
	Other institutions or departments (X14)	Whether the policy is issued by a department other than the above-mentioned department, it is 1 if it is, and 0 if it is not.
ParticipantsX2	Government departments at all levels(X21)	Whether government departments at all levels participate in policy implementation, yes is 1, no is 0
	Village level	Whether village-level organizations participate in policy implementation is 1 if yes,

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Primary Variables and Numbers	Secondary Variables and Numbers	Evaluation Criteria for Secondary Variables
	organization (X22)	0 if no
	Villager (X23)	Whether the villagers participate in the implementation of the policy, it is 1 if it is, and 0 if it is not.
	Social Organization (X24)	Whether social organizations participate in policy implementation, it is 1 if it is, and 0 if it is not.
Policy Nature X3	Prediction (X31)	Whether the policy contains predictability, it is 1 if it is, and 0 if it is not
	Description (X32)	Whether the policy is descriptive content, 1 if yes, 0 if not
	Supervision (X33)	Whether the policy involves supervision content, it is 1 if it is, and 0 if it is not.
	Recommend (X34)	Whether the policy is recommended content, 1 if yes, 0 if no
	Judgment (X35)	Whether the policy contains judgmental content, it is 1 if it is, and 0 if it is not.
Policy Content X4	Hook up project planning (X41)	Whether the policy content includes linked project planning, it is 1 if it is, and 0 if it is not.
	Linked to project approval (X42)	Whether the policy content includes the approval of linked projects, it is 1 if it is, and 0 if it is not.
	Rural Land Consolidation (X43)	Whether the policy content includes rural land consolidation, it is 1 if it is, and 0 if it is not.
	Construction of farmer resettlement areas (X44)	Whether the policy content includes the construction of farmer resettlement areas, it is 1 if it is, and 0 if it is not.
	Relocation compensation (X45)	Whether the policy content includes relocation and resettlement compensation, it is 1 if it is, and 0 if it is not.
	Reclamation of idle land (X46)	Whether the policy content includes the reclamation of idle land, it is 1 if it is, and 0 if it is not.
	Jianxin District Construction (X47)	Whether the policy content includes the construction of new districts, it is 1 if it is, and 0 if it is not.
	Hooked project acceptance (X48)	Whether the policy content includes the acceptance of linked projects, it is 1 if it is, and 0 if it is not.
	Savings Indicator Trading (X49)	Whether the policy content includes savings indicator transactions, it is 1 if it is, and 0 if it is not.
Policy Tools X5	Authoritative tool (X51)	Whether the policy uses authoritative tools, it is 1 if it is, and 0 if it is not.
	Motivational Tools (X52)	Whether the policy uses incentive tools, it is 1 if it is, and 0 if it is not.
	Capacity Building Tools (X53)	Whether the policy uses capacity building tools, it is 1 if it is, and 0 if it is not.
	Symbols and Persuasion Tools (X54)	Whether the policy uses symbols and persuasion tools, it is 1 if it is, and 0 if it is not.
	Learning Tools (X55)	Whether the policy uses learning tools, it is 1 if it is, and 0 if it is not.
Policy Guarantee X6	Organizational Leadership (X61)	Whether the policy reflects the content of organizational leadership, it is 1 if it is, and 0 if it is not.
	Management mechanism (X62)	Whether the policy reflects the management mechanism, it is 1 if it is, and 0 if it is not.
	Financial Support (X63)	Whether the policy reflects financial support, it is 1 if it is, and 0 if it is not.
	Typical Demonstration (X64)	Whether the policy embodies typical demonstration content, it is 1 if it is, and 0 if it is not.
	Supervision and Inspection (X65)	Whether the policy reflects the content of supervision and inspection, it is 1 if it is, and 0 if it is not.
	Perfect system (X66)	Whether the policy reflects content related to system improvement, it is 1 if it is, and 0 if it is not.
Policy Function X7	Standardized implementation process (X71)	Whether the policy standardizes the implementation process, it is 1 if it is, and 0 if it is not.
	Red line for protecting farmland (X72)	Whether the policy is conducive to protecting the red line of cultivated land, it is 1 if it is, and 0 if it is not.
	Saving and intensive use of land (X73)	Whether the policy promotes economical and intensive land use, it is 1 if it is, and 0 if it is not.
	New rural construction (X74)	Whether the policy promotes the construction of new rural areas is 1 if it is, and 0 if it is not.
	Helping in the fight against poverty (X75)	Whether the policy helps poverty alleviation, yes is 1, no is 0
Function Level X8	Executive (X81)	Whether the policy level includes administrative aspects, it is 1 if it is, and 0 if it is not.
	Economy (X82)	Whether the policy level includes economic aspects, it is 1 if it is, and 0 if it is not.
	Social (X83)	Whether the policy level includes social aspects, it is 1 if it is, and 0 if it is not.
	Ecological (X84)	Whether the policy level includes ecological aspects, it is 1 if it is, and 0 if it is not.
Policy Validity X9	Long term (X91)	Whether the policy time limit is greater than 5 years, it is 1 if it is, and 0 if it is not
	Mid-term (X92)	Whether the policy time limit is 3 to 5 years (including 5 years), 1 if yes, 0 if no
	Short term (X93)	Whether the policy time limit is 1 to 3 years (inclusive), 1 if yes, 0 if no
Policy Disclosure X10	none	Whether the policy is public or not, it is 1 if it is, and 0 if it is not.

3.2.2 Creating A Multiple-input-output Table

The multi-input-output table can quantify a single variable in multiple dimensions, allowing it to analyze the pros and cons of various policies linked to increases and decreases from all angles, which is conducive to subsequent quantitative evaluation of policies. The multi-input-output table includes first-

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level variables and second-level variables. Each first-level variable is independent of each other and there is no order. Each second-level variable has the same proportion and no quantitative restrictions. This article establishes a multi-input-output table based on the 10 first-level indicators and 45 second-level indicators set above.

3.2.3 Calculation of PMC Index

The calculation of PMC index is divided into the following four steps: First, according to equations (1) and (2), the selected policy samples are evaluated according to the detailed scoring rules for quantitative evaluation indicators of increase or decrease linked policies. Assign values to the secondary variables and construct a multi-input-output table. Secondly, calculate the value of the first-level variable according to formula (3), and the score range of each variable is [0, 1]. Again, the first-level variable values are substituted into equation (4) to calculate, and the first-level variable values are summed to obtain the PMC index of each policy sample.

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

$$X = \{\ XR{:}[0\sim1]\ \} \tag{2}$$

$$X_i\left[\sum_{j=1}^{n}\frac{x_{ij}}{T(x_{ij})}\right] \tag{3}$$

$$\text{PMC-Index} = \sum_{i=1}^{m}\left(X_i\left[\sum_{j=1}^{n}\frac{x_{ij}}{T(x_{ij})}\right]\right) \tag{4}$$

Among them, $X_i$is the first-level variable, $X_{ij}$is the second-level variable, T is the number of second-level variables of a certain level variable; i is the first-level variable serial number, i = 1,2,3…,m; j is the second-level variable serial number , j = 1,2,3…,n. This article divides the PMC index calculation results into five levels, as shown in Table 2 .

Table 2: PMC index scoring grade classification criteria

PMC index	0~2.99	3~4.99	5~6.99	7~8.99	9~10
Policy consistency rating	Bad	Acceptable	Good	Excellent	Perfect

3.2.4 Drawing PMC Surface

The specific operation process when drawing the PMC surface is as follows: Substitute the PMC index calculation results of each sample into the PMC index model matrix (5) to construct the PMC surface diagram. By intuitively and clearly reflecting the PMC index, the pros and cons of the policy can be analyzed. Analyze the internal structure. Because X10 has only one level variable, and the X10 variable score of each policy is fixed at 0 or 1. At the same time, considering the symmetry characteristics and surface effect of the matrix, in order to achieve the best PMC surface chart effect, this article will draw the PMC surface chart when eliminating the first-level indicator X10 is conducive to constructing a 3×3 PMC matrix, thereby completing the drawing of the PMC surface diagram.

$$\text{PMC Surface} = \begin{bmatrix} a1 & a2 & a3 \\ b1 & b2 & b3 \\ c1 & c2 & c3 \end{bmatrix} = \begin{bmatrix} X1 & X2 & X3 \\ X4 & X5 & X6 \\ X7 & X8 & X9 \end{bmatrix} \tag{5}$$

4. Results and Discussion

4.1 Evaluation Object Selection

This article screened a total of 326 policy texts, including 12 national-level policies and 314 provincial, municipal, district and county-level policies linked to increases and decreases. Due to the large volume of the filtered policies, it is difficult to calculate the PMC index of all policy texts. Policy samples need to be selected as specific evaluation objects. The screening criteria are: First, the evaluation objects should be policies with consistent ideas, formal content, highly representative content, and recent release time. Secondly, in order to enhance the representativeness of policy samples, the coverage of evaluation objects needs to be in place. Therefore, on the basis of excluding Hong Kong, Macao and Taiwan, this article selects one increase or decrease linkage policy from the policy documents issued by each province, autonomous region, and municipality directly under the Central Government, and uses it as the evaluation target together with 12 central-level increase or decrease linkage policies, and selects a

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total of the texts of 35 policies linked to increases and decreases are numbered P1 to P35.

4.2 PMC Index of Policies of Linking the Increase and Decrease of Urban and Rural Construction Land

In order to ensure the scientificity and objectivity of the research, this article uses NVivo 12 plus text mining tool and content analysis method to conduct quantitative evaluation and analysis on 35 samples of policies linked to increases and decreases, effectively avoiding the subjectivity of expert scoring. On this basis, the study combines the actual situation and policy characteristics of my country's increase and decrease linkage, and assigns values to the secondary variables of the multi-input-output table according to the scoring rules, thus obtaining a multi-input-output table of 35 policies.

On the basis of the multi-input-output table, calculate the first-level indicator value of each policy text according to formula (3); then substitute it into formula (4) to calculate the PMC index of each policy text; finally calculate the average value of each indicator, and Determine the level of the PMC index and obtain a summary table of the PMC index for policies linked to increases or decreases (Table 3).

4.3 PMC Surface of the Policy Linking the Increase and Decrease of Urban and Rural Construction Land

Table 3: The PMC index for 35 representative policies (divided by region)

	Central Region											
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
X1	0.250	0.750	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
X2	0.500	0.750	0.750	0.500	0.500	0.500	0.750	0.750	0.750	0.750	0.750	0.750
X3	0.600	0.800	0.600	0.800	0.800	0.800	0.800	0.400	0.400	0.800	0.600	0.600
X4	0.444	0.667	0.333	0.222	0.333	0.222	0.444	0.778	0.889	0.556	0.889	0.444
X5	0.600	0.800	0.600	0.600	0.600	0.600	0.800	0.400	0.800	1.000	0.600	0.800
X6	0.667	0.667	0.833	0.833	1.000	0.833	0.833	0.667	0.833	1.000	0.667	0.667
X7	0.400	1.000	0.800	0.800	0.800	0.400	0.800	0.600	0.800	0.800	0.600	0.200
X8	0.500	0.750	0.500	0.500	0.750	0.750	0.750	0.750	0.500	0.750	0.500	0.750
X9	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333
X10	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
PMC index	5.294	7.517	6.000	5.839	6.367	5.689	6.761	5.928	6.556	7.239	6.189	5.794
Ranking	27	2	18	21	14	24	6	19	10	3	15	22
	Eastern Region								Middle Region			
	P16	P17	P20	P22	P29	P30	P33	P35	P13	P19	P25	P26
X1	0.250	0.250	0.500	0.250	0.250	0.250	0.250	0.750	0.250	0.250	0.250	0.250
X2	0.500	0.250	0.250	0.750	0.750	0.750	1.000	1.000	0.500	0.750	1.000	0.250
X3	0.400	0.200	0.800	0.600	0.400	0.400	0.600	0.600	0.800	0.600	0.800	0.400
X4	0.222	0.222	0.444	0.556	0.222	0.333	0.556	0.556	0.556	0.556	0.444	0.333
X5	0.200	0.400	0.400	0.600	0.400	0.600	0.800	1.000	0.800	0.600	0.800	0.400
X6	0.333	0.333	0.667	0.500	0.667	0.500	0.667	0.833	0.667	0.667	0.667	0.333
X7	0.200	0.400	0.600	0.600	0.600	0.400	0.600	0.800	1.000	0.800	0.800	0.400
X8	0.500	0.250	0.750	0.500	0.250	0.500	0.750	0.750	0.750	1.000	0.750	0.500
X9	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333
X10	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
PMC index	3.939	3.639	5.744	5.689	4.872	5.067	6.556	7.622	6.656	6.556	6.844	4.200
Ranking	34	35	23	24	31	29	10	1	8	10	5	32
	Middle Region		Western Region							Northeastern Region		Mean
	P27	P31	P14	P15	P18	P21	P24	P28	P32	P23	P34	
X1	0.500	0.250	0.500	0.500	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.307
X2	1.000	0.250	0.750	0.250	0.750	0.750	0.750	0.750	1.000	0.750	0.750	0.671
X3	0.800	0.400	0.600	0.600	0.800	0.800	0.800	0.400	0.600	0.600	0.400	0.611
X4	0.111	0.333	0.444	0.111	0.444	0.556	0.333	0.556	0.556	0.111	0.444	0.435
X5	0.800	0.600	0.400	0.600	0.800	0.400	0.600	0.600	1.000	0.400	0.800	0.634
X6	0.667	0.500	0.500	0.833	0.667	0.667	0.667	0.500	0.667	0.500	0.500	0.657
X7	0.600	0.200	0.600	0.400	0.600	0.600	1.000	0.800	0.800	0.600	0.800	0.634
X8	0.750	0.250	0.750	0.500	0.750	0.750	1.000	0.500	1.000	0.500	0.750	0.643
X9	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333
X10	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
PMC index	6.561	4.117	5.878	5.128	6.394	6.106	6.733	5.689	7.206	5.044	6.028	5.927
Ranking	9	33	20	28	13	16	7	26	4	30	17	19~20

Based on the summary results of the PMC index and Fig. 1 , the PMC index range of the 35 policies linked to increases and decreases is [3.639, 7.622], the mean is 5.927, the ranking is 19 to 20, and the internal consistency level of the policies is good. Among the 35 policies, the consistency of 5 policies is acceptable, the consistency of 26 policies is good, the consistency of 4 policies is excellent, and the internal consistency of no policy reaches the perfect level. A horizontal comparison shows that the consistency of policy documents issued by the central government is higher than that of provincial policy documents. Among them, the mean value of X1 (0.307) is at a low level, which shows that the issuing body of the linkage policy is relatively single, and fewer policies are issued jointly by departments. The scores of X2, X3, X5, X6, X7 and X8 are all between 0.6 and 0.7, which shows that the quality of policies linked to increases and decreases is good, but there is room for improvement.

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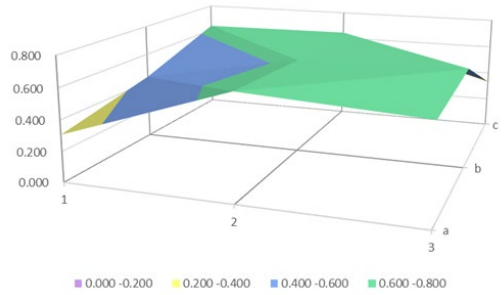

Figure 1: PMC surface for 35 policies

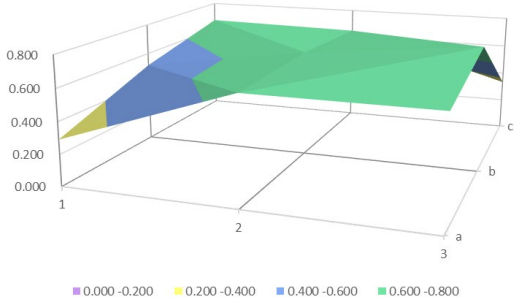

Figure 2: PMC surface for policies of the central region

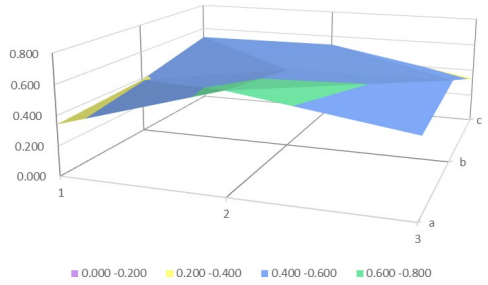

Figure 3: PMC surface for policies of the eastern region

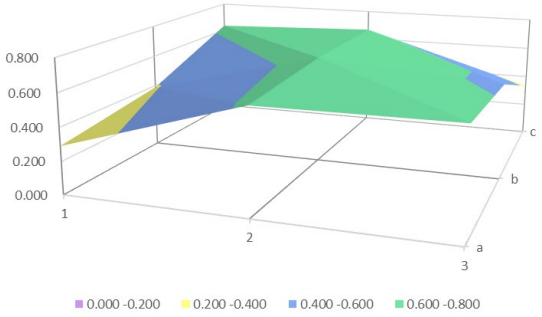

Figure 4: PMC surface for policies of the middle region

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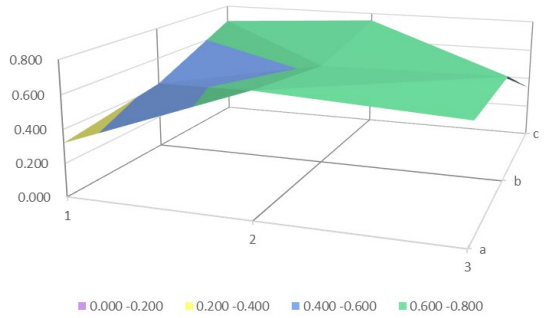

Figure 5: PMC surface for policies of the western region

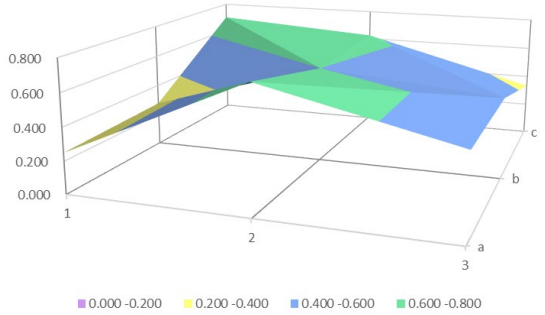

Figure 6: PMC surface for policies of the northeastern region

Policies issued by the central government are mostly strategic and co-ordinated, and their policy quality is also higher than that of provincial, municipal, district and county-level policies. Therefore, the consistency of central-level policies is higher than the average level (6.264 > 5.927). Among the 12 policies, there are 2 items are excellent and 10 items are good. According to Fig. 2 ,The overall surface diagram is a "semi-valley depression", that is, "X5-X8" is the valley line, and the scores of surrounding X7 and X6 are higher than those of X5 and X8. Due to the characteristics of central policies, the guarantee index scores of most policies are higher than the overall average, and their policy guarantees pay more attention to the simultaneous effects of multiple aspects, focusing on strengthening the organizational leadership, management mechanism, supervision and inspection, and system improvement of the policy. However, due to central-level policies the overall planning and guidance is rarely mentioned in terms of financial support and typical demonstrations. In terms of policy content, the mean score of central policy is higher than the overall mean, and the policy content of its unit policies is more comprehensive than that of local policies. Looking at the release time of central-level policies, it can be seen that the types of policy content are gradually decreasing, indicating that the policy content is gradually reduced. The content specialization gradually increased, and the standardization of policies at the central level also increased[7-9].

The PMC index of policies linked to increases and decreases in the eastern region is generally low. There are 3 policies in the policy consistency level that are acceptable, 4 policies are good, and 1 policy is excellent. The average first-level indicator score is generally lower than the overall average, Scores of 0.4–0.6 account for the majority. Combined with the time of publication, as time goes by, the overall consistency of the policies linked to increases and decreases issued by the eastern region shows a weakening trend. According to Fig. 3 , since first-level indicators such as X3, X4, and Relatively simple, the current eastern region as a whole pays relatively little attention to policies linked to increases and decreases. In terms of the main body of issuing documents, similar to central-level policies, the policies linked to increases and decreases in eastern provinces and cities also have the problem of a single body of issuing documents. They are mainly issued by the people's governments of various provinces and cities or natural resource departments, and there is almost no joint document issued by departments. In terms of participants, the mean value of policy indicators in the east is higher than the overall mean, indicating that the number of participating groups in the policies linked to increases and decreases in eastern provinces and cities is relatively high, but social power is still relatively lacking.

The overall consistency of policies linked to increases and decreases in the six central provinces is medium. The PMC index range is [4.117, 6.656]. The internal consistency of 2 policies is at an acceptable level and 4 policies are at a good level; the average PMC index is slightly lower. at the overall mean.

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According to Fig. 4 , the PMC surface map in the central region is generally close to a "half-ridge bulge", and "X5-X8" are "ridge lines", that is, X5 and X8 have the highest scores. Combining the PMC index summary table and the multi-input-output table, the application of policy tools in the central region is better than that in other regions. It has increased the use of learning tools, paid more attention to the decentralization of power, encouraged and implemented grassroots autonomy, but still lacks symbolic and persuasive tools. In terms of application, the government lacks relevant publicity of policies and the establishment of role models. In terms of function, the area's increase-and-decrease linked policy has a wider scope and takes into account administrative, economic, social and ecological aspects as much as possible. In terms of policy content, the average value in the central region is lower than the overall average, indicating that the content of policies in the central region has gradually become more targeted and specific, which is conducive to the smooth implementation of the policy.

The difference in the PMC index of policies linked to increases and decreases in the western region is small, ranging from [5.128, 7.206]. There is one policy with an excellent level of policy consistency, and 6 policies with a good level. The average value is higher than the overall average (6.162 > 5.927). Combined with Fig. 5, it can be seen that the quality of provincial and municipal policies in the western region is relatively high. There are many poverty-stricken areas in western provinces and cities, and activating land resources to help alleviate poverty is an important issue. Therefore, the application of policies linked to increases and decreases has received relatively more attention in the western region. Before 2020, our country is in a decisive period of poverty alleviation, and the western provinces and cities, the last poor areas, have become the "main battlefield." Therefore, the newer policy documents linking increases and decreases in western provinces and cities are mainly based on assisting poverty alleviation through cross-provincial adjustment of savings indicators, which makes the policy content of the western region policy more targeted due to the development goals of that period, the score is slightly lower. In terms of policy guarantees, due to the central level's emphasis on the development of the western region, the organizational leadership and management mechanisms for policy implementation are relatively complete, but there is a lack of role models, which also reflects the lack of symbolic and persuasive tools in policy tools.

In the Northeast region, since Heilongjiang Province has not issued a public increase-decrease linkage policy, this article only studies the increase-decrease linkage policies of Liaoning Province and Jilin Province. The PMC indexes of the policies of the two provinces are 6.028 and 5.044 respectively, and the consistency levels are both good. Among them, the policy PMC of Liaoning Province is slightly higher than the overall average, and the policy PMC of Jilin Province is lower than the overall average. The overall policy consistency of Northeast China is at a medium-to-lower level. According to Fig. 6 , the PMC surface map in this area shows irregular concave and convex shapes, with X2 and X7 scoring higher and X1 and X4 scoring lower. Among them, the situation reflected by X1 and Based on comprehensive inference, the policy of linking increases and decreases in Northeast China is still in the exploratory stage.

5. Conclusions and Recommendations

This article uses the PMC index model analysis method to conduct a quantitative evaluation of China's 35 central- level and provincial-level policies linked to increases and decreases. The research conclusions are as follows: (1) The overall internal consistency of the 35 policies linked to increases and decreases is a good level, with increasing the hook-reduced topside is in good condition. (2) The policy consistency at the central level is generally higher than the overall average level. It can be seen that the policies at the central level are obviously strategic, co-ordinated and comprehensive. The evaluation results of increase-decrease linkage policies among the eastern, central, western and northeastern regions are different : the tilt of policy functions at the macro level makes the western region with more poverty-stricken areas have a slightly better policy consistency level than other regions, while the eastern, The central and northeastern regions are significantly lower than the overall average level, and policy formulation lacks adaptability to local conditions; at the micro level , policy coverage among regions is low and the pertinence is different.

Based on the research conclusions, the optimization suggestions are as follows: First, build a departmental collaborative governance system. It is necessary for all departments and agencies to unite and cooperate and do their best, such as increasing the number of joint documents, implementing cross-department supervision and inspection, establishing an information sharing platform for increase and decrease linkages, and so on, giving full play to the functions of each department and agency, and taking into account regional differences in increase and decrease linkages. nature, to form policy synergy and

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improve the quality of policies linking increases and decreases. The second is to effectively encourage social forces to participate. Fund raising, savings indicator trading and information sharing need to encourage banks, enterprises and other social forces to participate in the entire process of policy implementation. The third is to balance the structure of the use of policy tools. First of all, incentive measures should be improved in the policy to increase the response motivation of various departments, agencies and villagers, thereby improving the completion efficiency of my country's increase and decrease linked projects. Specifically, we need to improve fiscal and credit-related monetary policies, and governments at all levels from national departments to village collective organizations to establish different levels of performance appraisal mechanisms and supporting reward and punishment mechanisms from top to bottom. Secondly, strengthen the use of symbolic and persuasive tools as well as learning tools. When formulating policies, content should be added to encourage governments at all levels and village collectives to strengthen publicity on policies linked to increases and decreases. At the same time, local governments at all levels should give grassroots organizations certain decision-making powers. In short, by balancing various policy tools and leveraging the synergy between tools, we can better stimulate policy vitality.

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