

Research on the Policy Support Mechanism for Constructing Russia Border Free Trade Zone

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Keywords: Free Trade Zone, Policy Support, AHP.

Abstract. Cooperation between China and Russia in border area is crucial. The two governments should establish a border free trade zone at an early date. Relevant policies must be adjusted for build the Russia border free trade zone, and the support of fiscal and taxation policies is particularly important. Considering the realistic feasibility factors, the feasibility and obstacles of the construction of the Russia border free trade zone all exist, but the feasibility is more than the obstacles. This article is based on this; explore the dynamic mechanism for building policy support for the Russia border free trade zone. The internal power and the external power promote each other and influence each other to promote the development of Russia border trade, and use the analytic hierarchy process to test the factors affecting the construction of the Russia border free trade zone policy support mechanism.

The Construction of the China-Russia Border Free Trade Zone Policy Support Dynamic Mechanism

External Dynamic Mechanism

The external driving force for its development is mainly composed of external powers such as policy support, bilateral trade demand between China and Russia, and resource endowment factors.

Policy Support

The support for the establishment of the Russia border free trade zone policy is inseparable from the government direction, and the cooperation of relevant departments, it also involves the behavior of both the government and the enterprise, which requires mutual participation and cooperation.

Bilateral Trade Demand

Demand effectively drives supply. Market demand is a key external factor driving the development of Russia bilateral industries and enterprises. Without demand, the development of Russia border trade will be slow or even stagnant.

Resource Endowment Elements

Resource endowment, also known as factor endowment, refers to a country's various factors of production, including labor, capital, land and other aspects. Labor and land resources are key factors in promoting economic and industrial development. The Chinese side has abundant labor resources, and Russia has vast land resources, and the two sides complement each other.

Intrinsic Dynamic Mechanism

The internal driving force for the development of Russia border trade mainly comes from the internal development of the industry. With the support of the policy, the forces formed by the internal spontaneous development promote its development. The internal driving force of Russia border trade development mainly includes enterprise factors and economic interests.

Enterprise Factor

Enterprises are the specific units of activities in the construction of the Russia border free trade zone and have an important status and role. The willingness of enterprises to participate, the leading role of leading enterprises and the strength of enterprises may affect the policy support of the Russia border free trade zone.

Economic Interest Factors

The Russia border free trade zone involves different economic entities, involving relationships such as government, enterprises, and markets. The pursuit of the themselves greatest interests by different economic entities contributes to the occurrence of economic activities and promotes the formation and development of market relations.

The Impact Analysis of the Dynamic Mechanism based on Policy Support

By analyzing the dynamic mechanism of policy support, use the analytic hierarchy process to determine the weight of the influencing factors, and the index factors affecting the construction of the Russia border free trade zone policy support dynamic mechanism are empirically analyzed.

Research Methods

The Analytic Hierarchy Process (AHP) is a hierarchical weighted decision analysis method proposed by Thomas L. Saaty, a US operations researcher and professor at the University of Pittsburgh (Thomas L. Saaty, 1980). The steps to determine the weight of the indicator using the AHP method are as follows:

Construct a Recursive Hierarchical Model

Firstly, the factors affecting the final evaluation problem are divided into different levels. The indicators at the same level are independent of each other. They are dominated by the upper level indicators and dominate the next level indicators to form a recursive hierarchical structure model, as shown in Table 1.

Table 1, Recursive hierarchy model

μ_1	μ_2	μ_3	...	μ_m
μ_{11}	μ_{12}	μ_{13}	...	μ_{1m}
μ_{21}	μ_{22}	μ_{23}	...	μ_{2m}
\vdots	\vdots	\vdots	...	\vdots
μ_{n1}	μ_{n2}	μ_{n3}	...	μ_{nm}

Constructing a Judgment Matrix

The judgment matrix is the importance comparison between the indicators, using the "1-9" scale table. If the recursive hierarchy model is determined, the affiliation between the indicators is also determined. For the n indicators of the same level, by analysis the importance of two-two indicators, a comparison judgment matrix $A=\{a_{ij}\}$ satisfying the following conditions is obtained, as shown in Table 2.

Table 2, Scale of the judgment matrix

scale	meaning
1	means that two factors are of equal importance
3	means one factor is slightly more important than another factor
5	means one factor is more important than another factor
7	means one factor is obviously more important than another factor
9	means that one factor is absolutely much important to another factor
2, 4, 6, 8	the median of the above adjacent scales
reciprocal	importance comparison after two reciprocal corresponding factors exchange order

Calculate the Weights of Indicators at All Levels

According to the judgment matrix, the steps for calculating the weights of the indicators at each level are as follows:

Calculate the product of each row element of the judgment matrix M_i :

$$M_i = \prod_{j=1}^n b_{ij}, i=1, 2, 3, \dots, n \quad (1)$$

Calculation M_i Nth root square:

$$\overline{W}_i = \sqrt[n]{M_i}, i=1, 2, 3, \dots, n. \text{ in the formula } n \text{ is the order of the matrix} \quad (2)$$

Pair vector

$$\overline{W} = (\overline{W}_1, \overline{W}_2, \dots, \overline{W}_n)^T \quad (3)$$

Normalize and calculate as follows:

W_i is the weight of each indicator sought

Calculate the Maximum Eigenvalue of the Judgment Matrix

$$\lambda_{\max} = \sum_{i=1}^n \frac{(A \cdot W)_i}{n \cdot W_i}, \text{ in the formula:}$$

$$A \cdot W = \begin{bmatrix} a_{11} & a_{12} & \boxed{?} & a_{1n} \\ a_{21} & a_{22} & \boxed{?} & a_{2n} \\ \boxed{?} & \boxed{?} & \boxed{?} & \boxed{?} \\ a_{n1} & a_{n2} & \boxed{?} & a_{nn} \end{bmatrix} \cdot \begin{bmatrix} W_1 \\ W_2 \\ \boxed{?} \\ W_3 \end{bmatrix}$$

$$(A \cdot W)_i = a_{i1} \cdot W_1 + a_{i2} \cdot W_2 + \dots + a_{in} \cdot W_n \quad (4)$$

Consistency Test

Consistency is an important indicator to evaluate whether the score is reasonable. The purpose of consistency check on the evaluation result of the judgment matrix is to measure the validity of the hierarchical order. Because the judgment matrix is quantified by relevant scholars and experts based on subjective experience, it is impossible to be completely Consistency, T. L. Saaty is proposed by determining the value of C•R, the random consistency ratio (Thomas L. Saaty, 1980). C•R is calculated as: C•R=C•I/R•I. When C•R<0.1, it means that the judgment result of the comparison

matrix can be accepted, and the consistency is satisfied. Where $R \cdot I$ is the average random consistency indicator, which is related to the order n of the judgment matrix.

$$\lambda = \frac{1}{n} \sum_{i=1}^n \frac{(A \cdot W)_i}{W_i}$$

First, calculate the consistency indicator $C \cdot I$: $C \cdot I = (\lambda_{max} - n) / (n - 1)$. And In this formula: A : is the known judgment matrix; n : judgment matrix order; W_i : relative weight column vector.

Secondly, check $R \cdot I$, which is the average consistency index of the same order matrix.

Finally, calculate the consistency ratio $C \cdot R$. $C \cdot R = C \cdot I / R \cdot I$, when $C \cdot R = 0$, A has complete consistency. When $C \cdot R < 0.1$, A has satisfactory consistency. When $C \cdot R \geq 0.1$, A has unsatisfactory consistency and should be adjusted or discarded.

The same order matrix average consistency index $R \cdot I$ is shown in Table 3.

Table 3, Average random consistency indicator

Order n	1	2	3	4	5	6	7	8	9
R_1	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45

Establishment of Indicator System of Influencing Factors

Through the above analysis, we select a number of specific indicators to analyze the factors affecting the construction of the China-Russia border free trade zone policy support dynamic mechanism, and construct the indicator system as shown in Table 4, the indicator meaning and economic significance are all reflected in the table.

Table 4, Index system of influencing factors for constructing China-Russia border free trade zone policy support dynamic mechanism

Classification		Specific factors	Meaning
Extrinsic motive	Policy support factor	1) Policy direction	
		2) Fiscal and tax policy	Includes financial support, public goods supply, tariff policy, value added tax, income tax policy, tax incentives, etc.
		3) Financial policy	Including offshore financial development, policy financial services, RMB internationalization, etc.
		4) Industrial policy	Including industrial support industry, industrial development planning, etc.
		5) Policy of the law	Including policy environment, policy system, etc.
	Market demand factor	6) Product requirements	Reflecting the demand for Russian products
		7) Service requirements	Reflecting the services of relevant departments to Russian trading enterprises
	Resource endowment factor	8) Labor force	
		9) Capital	
		10) Land	
Internal motivation	Business factor	11) Enterprise participate willingness	
		12) Leading role of leading enterprises	Mainly regionally renowned companies with industry leadership
		13) The strength of the enterprise itself	Reflect corporate asset strength, brand value, etc.
		14) Technological innovation	Reflecting the technological innovation and cooperation capabilities of Chinese and Russian companies
	Economic interest factor	15) Government interests	
		16) Corporate interests	
		17) Other stakeholders	Intermediary organization

Empirical Analysis of Influencing Factors

In order to analyze the factors built in table 1 that influence the establishment of the Russia border free trade zone policy support dynamic mechanism, and comprehensively consider the advantages and disadvantages of various methods, this paper uses the analytic hierarchy process to study and try to rank the importance of the influencing factors. The factors that have a greater impact are selected in order to lay the foundation for the empirical analysis of the policy support for the construction of the Russia border free trade zone in the following chapters. Using the above method, the index system is sent to 60 experts for scoring, and then the MATLAB7.0 software editing program is used for calculation, and the weights of each index in each subsystem can be obtained (see Table 5 for details).

Table 5, The weight of built the indicator system of the influencing factors of the China-Russia border free trade zone policy support mechanism

Classification		Specific factors	Weight		
			Group weight	Overall weight	ordering
Extrinsic motive	Policy support factor 0.3518	1) Policy direction	0.2771	0.0975	2
		2) Fiscal and tax policy	0.2619	0.0921	4
		3) Financial policy	0.1153	0.0406	1
		4) Industrial policy	0.1343	0.0473	10
		5) Policy of the law	0.2114	0.0744	5
	Market demand factor 0.1647	6) Product requirements	0.4194	0.0691	6
		7) Service requirements	0.5806	0.0956	3
	Resource endowment factor 0.1997	8) Labor force	0.1549	0.0309	15
		9) Capital	0.2915	0.0582	8
		10) Land	0.5536	0.1106	12
Internal motivation	Business factor 0.1772	11) Enterprise participate willingness	0.3535	0.0627	7
		12) Leading role of leading enterprises	0.3095	0.0549	9
		13) The strength of the enterprise itself	0.203	0.036	13
		14) Technological innovation	0.134	0.0238	17
	Economic interest factor 0.1065	15) Government interests	0.409	0.0436	11
		16) Corporate interests	0.2678	0.0285	16
		17) Other stakeholders	0.3232	0.0344	14

The weights of the indicator system established by the analytic hierarchy process are shown in Table 5-5. The five major factors are policy support strength factors, resource endowment factors, enterprise factors, market demand factors, and economic interest factors. According to the expert's opinions, the weights are: 0.3518, 0.1997, 0.1772, 0.1647, and 0.1065, that is, policy Supporting strength factors are the most important factors affecting the construction of the Russia border free trade zone, followed by resource endowment factors, enterprise factors, market demand factors, and economic interest factors.

In the calculation of the weight of specific indicators, experts are required to score the importance of the indicators in the group according to the above five categories of factors, and then use the AHP to calculate the weights within the group; the weights within the group are multiplied by the weights of the above five categories of factors. Calculate the overall weight, which is the weight of each indicator when they in the overall impact factor indicator system.

All the influencing factors can be ranked in order of importance according to the overall weight. We can know that the proportion of policy support factors is higher among the top 10 factors. And these factors are closely related to the support of the China-Russia border free trade zone policy.

Acknowledgement

This paper is supported by the research project of the basic research business fee of the provincial colleges and universities in Heilongjiang Province (key projects), the “construction and integration of financial and taxation financial policies, support for the construction of Longjiang Silk Road Belt” (Project No.: 2017-KYYWF-E0106)

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