

Research Article

Macroeconomic Multivariate Statistics and Regionalization Management Strategy Based on Random Matrix

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This paper adopts the method of the random matrix to conduct an in-depth study and analysis of the management of macroeconomic multivariate statistics and regionalization, and to design its management strategy based on a random matrix. A combination of theoretical and applied research, combined with the experience of other cities, is used to study regional economic management using literature analysis, comparative analysis, and deductive induction by summarizing the results achieved in community management, studying its experience, exploring the significance of community management in ETDZs for social development, analyzing the current obstacles and contradictions affecting community management in Suqian ETDZ, and proposing relevant countermeasures for the problems arising therein to enrich the relevant theories and thus promote the level of community management in ETDZs to a higher level. Macroeconomic uncertainty refers to the changes that cannot be accurately observed, analyzed, and foreseen, i.e., the deviation of the expected value of the economy from the actual value. Not all macroeconomic fluctuations belong to the category of macroeconomic uncertainty, only unpredictable economic fluctuations are uncertain. It can be seen from the above that there is a corresponding relationship between the financial income correlation matrix and the random correlation matrix, and both are affected by the same random factors. The importance of uncertainty for macroeconomic policy making is undeniable, and its quantification is a key step. In this paper, we propose an econometric model to eliminate expectations and compare the advantages and disadvantages of different measurement models; we measure a system of fourteen macroeconomic indicators to reflect macroeconomic uncertainty and provide quantitative measurement results for the correct understanding of macroeconomic uncertainty and economic policy making. Factor analysis is used to analyze these six comprehensive aspects to obtain the six-dimensional comprehensive scores of each province and city, and the scores are normalized and visualized. Based on a certain understanding of the economic equilibrium structure of each province and city in China, and a certain control of the overall development of each region itself at this stage, the future economic development trend is studied.

1. Introduction

The macroeconomic situation is the main external environmental factor for enterprise operation, which not only directly affects the movement of enterprise working capital, but also influences the choice of working capital financing strategy through the change of business risk. When making working capital financing decisions, the management will certainly consider the future development of the enterprise and changes in personal utility in the context of the macroeconomic situation and choose the financing arrangement that is most beneficial to its interests [1]. Therefore, by

combining macroeconomic factors such as the macroeconomic situation with management characteristics, the decision mechanism of corporate working capital financing strategy can be explored in a more three-dimensional way. Changes in the economic structure are very interesting and important. The development of industries is always fluctuating and unpredictable. If we can predict which industry is in a booming rising wind in the future, it will be of great benefit to both individual career planning and investment, and even government investment attraction. Statistical analysis methods are used to analyze indicator variables to observe the changes in the characteristics of indicators and

the hidden patterns. In specific applications, it is often necessary to analyze the distribution of many variables at the same time, which requires the application of statistical methods [2]. An important feature of modern economics is the use of statistical data and statistical methods to analyze economic problems. With the development of the economy, increasingly unknown problems require the analysis of known data characteristics to speculate on possible future trends. Statistical analysis methods are usually used in two ways, one is to split variables by analyzing a single variable and observing that variable acting alone, to avoid being influenced by other variables. The other is to analyze multiple variables at the same time, through the comprehensive analysis of multiple variables, to understand the characteristics of the research object from multiple aspects, and to be able to have a macroscopic grasp of the characteristics and trends of things. The hidden procedures for examination and approval are cumbersome, the social public management burden is heavy, the institutional setup and establishment management are not standardized, the administrative resources are wasted, and the talent management mechanism is not perfect, etc., which are not conducive to development.

In the process of regional economic development in development zones, the regional economic management system and the role of the government play a very important role. This is reflected in varying degrees in the development of the Sunna model, the Pearl River model, and the Wenzhou model. For regional economic development, the role and function of the government are not only reflected in the efficient allocation of resources and the formulation of various preferential policies for the whole regional economy, but also in the macroeconomic regulation and control of the regional economic development of the development zone [3]. Under such circumstances, how to face up to the problems of regional economic management, change the role of the government, and truly realize the effective adjustment of the government's role to gradually cultivate and guide market forces in order to achieve a certain balance between two dimensions of government and market, is also the key to the future development and sustainable vitality of development zones [4].

This study investigates the role of government in regional economic development to provide examples to support theoretical research and to help further improve the status and role of government in regional economic management. At the practical application level, through the practical research on the regional economic development of the development zone, the rational use of regional advantages, policies, and the change of the role of the regional government, the study focuses on exploring the problems and their causes, and provides information to support the further regulation of the regional economic development of the development zone; at the same time, the study proposes targeted solutions to the existing problems of the economic management system of the development zone, which not only provides a better understanding of the role of the government in the regional economic development of the development zone. At the same time, this study proposes

targeted solutions to the existing problems of the economic management system of the development zone, which not only provide a reference for the positioning of the government's role in the regional economic development of the development zone, but also provide a certain reference for the development of other similar regions, and lay a certain foundation for the enrichment of the management system used in the regional economic development. An effective regional economic management model will help to enhance the sustained, rapid, and stable development of the economy and are of great practical significance.

2. Related Works

Regional economic governance is comprehensive governance that corresponds to the unique political, economic, and social problems faced by its development stage [5]. It is the way and process of various activity subjects, such as government, enterprises, and the third sector, to build a new relationship between each other and complete the collective activities of subject groups based on the demands of common interests through the institutional arrangements embedded in the group, and finally realize the common interests. The essence of the process is to reconcile the conflicting or different interests of each activity subject and to take joint actions to obtain the overall benefits [6]. The study of regional economic governance is a comprehensive and systematic subject, which needs to be discussed from multiple aspects and all aspects. Brown argues that investor sentiment can be understood as a fluctuating relationship between investors' expectations of average returns and their expectations of volatility. If the expected return is higher than the average return, it is called investors' bullish expectations, and conversely, it is called investors' bearish expectations [7]. Even though the exact value of this average return expectation cannot be determined and is not considered, it does exist [8].

Cerqueti et al. analyzes the sensitivity of market investors to changes in stock returns based on different levels of investor sentiment and suggests that the lower the investor sentiment, the more sensitive investors are to changes in stock returns, a phenomenon that suggests that the impact of investor sentiment on expected stock market returns may be irregular and asymmetric [9]. Liu et al. analyzes three investors. Glouchkov verified the role played by investor sentiment and its impact on financial markets by using a combination of theoretical and empirical studies to establish the sensitivity of individual stock returns to changes in sentiment, in the form of sentiment beta, and to associate the resulting set of sentiments, which we call overall market sentiment associated with an individual stock sentiment [10].

A robust working capital financing policy is characterized by the fact that temporary current liabilities only partially finance temporary current assets, while temporary current assets and permanent current assets are mainly financed by long-term liabilities, spontaneous liabilities, and equity capital, i.e., temporary current liabilities are smaller than temporary current assets. Whether at the international

level or at the domestic level, as a cross-border region spanning several administrative units, its regional economic development presents obvious barriers and discontinuities, and it is difficult to form a smooth and integrated economic continuum and economic community. Therefore, the main difference between these three different working capital financing strategies is the proportion of temporary current assets in working capital that is financed by temporary current liabilities. Under the prudent financing policy, the proportion of working capital from long-term liabilities and equity capital is higher, the cost of capital of these two components is higher than that of temporary liabilities, and the efficiency of the enterprise will be affected and decreased. So, the risks and benefits of this working capital financing strategy are relatively small. The aggressive financing policy, on the other hand, has relatively higher risks and benefits. The benefits and risks of the matching financing policy are the most reasonable and beneficial. However, this requires a high level of capital management and a comfortable use of working capital.

3. Macroeconomic Multivariate Statistical Analysis with Random Matrix

Macroeconomics, whether in an upward or downward phase of the economy, will undoubtedly have an impact on the financial decisions of the enterprise. The choice of investment projects and debt financing will fluctuate with the macroeconomic fluctuations. In times of bottlenecks in economic development, enterprises are less sensitive to the opportunities and costs of investment projects they can choose, so their investment efficiency declines [11]. In a period of economic upturn, the business environment is better, efficiency increases, the credit market information is more transparent, and the information asymmetry between borrowers and lenders diminishes, which will increase the opportunity for firms to raise debt from external sources. Conversely, a downturn in the economy makes it difficult for companies to raise external financing. The ability of companies to finance short-term financial liabilities is weakened [12].

Fractal analysis theory mainly includes single fractal analysis and multiple fractal analysis. In many kinds of literature, single fractal analysis is generally referred to as fractal analysis, while multiple fractal analysis is described by multiple or even infinite scales based on single fractal analysis, usually using singular spectral functions to describe the characteristics of different levels in the fractal structure, and studying the final characteristics of the whole from the local of the system. Large and small forecast errors occur in clusters, where the variance of the forecast error depends on the size of the subsequent disturbance term, and the forecast error is relatively small in one period, relatively large in another period, and then smaller in another period. This variation may be because the volatility of economic variables is susceptible to rumors, political changes, policy changes, etc. The conditional variance of the error term is time-varying and dependent on the magnitude of past errors.

The intercorrelation matrix determines the choice of asset portfolio solutions and even the management of asset risk [13]. It is also the process of innovating the economic management system, establishing, and developing a new system that is compatible with the development of socialist democracy and harmonious society. The interaction between financial assets or variables is usually measured by the intercorrelation matrix or covariance matrix between financial variables or asset returns. A hot topic of research in the financial market and financial engineering theory and practice is the way to obtain and use valid information in the correlation matrix or covariance matrix and to ensure its effectiveness. Portfolio theory proposes not to concentrate capital on a single asset, but to diversify capital to invest in multiple assets to achieve a portfolio of assets with a high return and low risk.

$$r_p = \sum_{i=1}^N w_i^2 r_{i*2}. \quad (1)$$

These issues must be considered comprehensively in the process of index selection to construct a comprehensive macroeconomic structure.

The selection of indicators for macroeconomic analysis must reflect comprehensiveness, reflect the impact on the economy from all angles, and study the laws of economic development in-depth. Therefore, the indicators in this paper are mainly selected from six major aspects: market, government, society, science and technology, ecological environment, and internationalization. There are many macroeconomic indicators, but not all of them are useful for the research problem. In this paper, we select the most relevant indicators that are representatives of the six comprehensive directions of market, government, society, science and technology, ecological environment, and internationalization.

The process of indicator selection cannot consider the quantitative analysis of the problem itself, but also needs to consider whether the indicators are easy to measure. Therefore, in the process of extracting variables, indicators that are easily accessible are selected as much as possible to reduce the difficulty of data collection work. Make regional public affairs that cannot be resolved between local governments, and empower regional economic management agencies to deal with them, to effectively solve the "cross-border" problems faced by the regional economy. Macroeconomic conditions are constantly changing, and to study the macroeconomic structure, indicators of a certain time scale are inevitably needed to accurately portray it. Therefore, the process of indicator selection needs to take full account of macroeconomic dynamic variability and collect some annual change data as shown in Figure 1.

Since there are many economic indicators and many of them are highly correlated, some tertiary indicators are composite indicators obtained by combining some indicators with high correlation and through certain calculations. Economic development will certainly be accompanied by energy consumption, and the important manifestation of energy consumption is electricity consumption. Whether

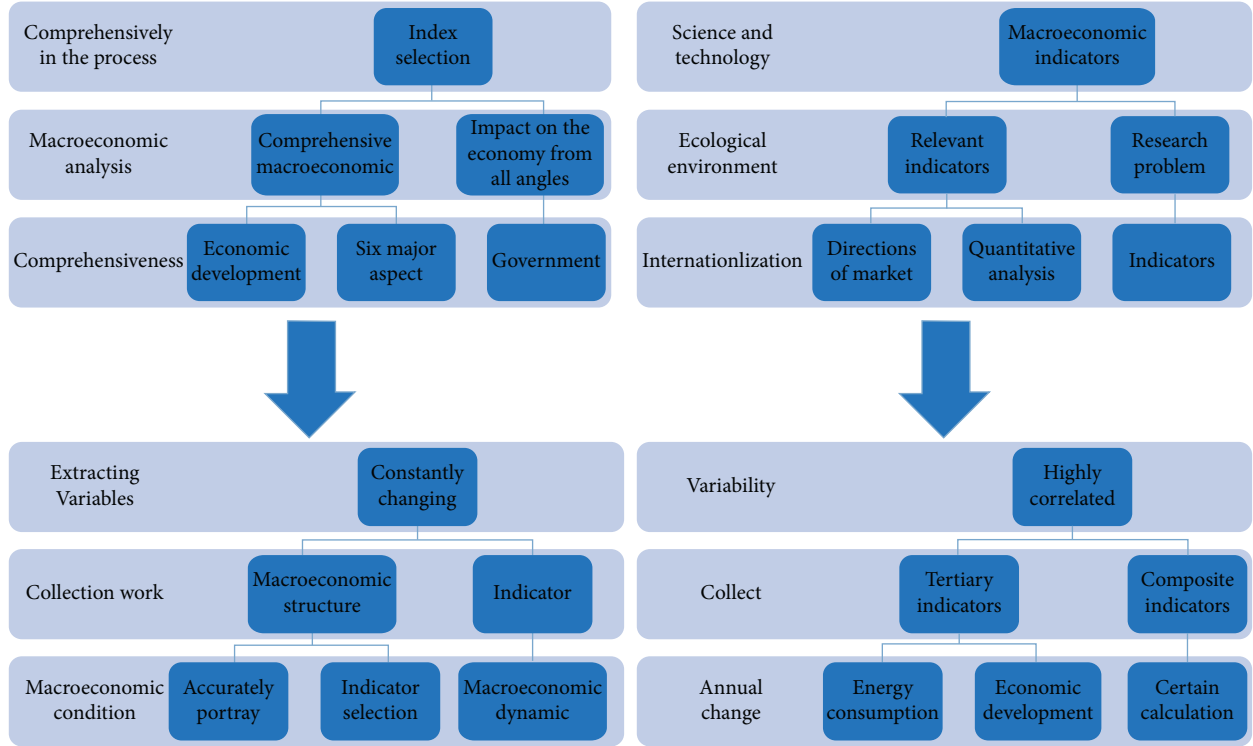


FIGURE 1: Macroeconomic multivariate statistical framework of random matrix.

electricity consumption will promote economic growth, this issue has become a popular issue for many scholars to study [14]. On the contrary, economic growth can reduce the urban-rural income gap. Shorten the urban-rural gap can promote economic development, so the urban-rural income ratio for economic development is the inverse indicator. The level of economic development also has a certain influence on the average life expectancy of human beings. The better the economic development, the greater the average life expectancy of people, so the length of the average life expectancy can reflect the development of the economy.

$$\xi_i(k) = \frac{\min_k \max_i |X_0(k) + X_i(k)| - \rho \max_i \min_k |X_0(k) - X_i(k)|}{|X_0(k) - X_i(k)| + \rho \max_i \min_k |X_0(k) + X_i(k)|}. \quad (2)$$

The correlation coefficients of the participating data series are pooled into one value as a quantitative representation of the degree of correlation and ranked according to the calculation result of the following equation to determine the degree of correlation between the participating data series and the standard data series.

$$\gamma_i = \frac{1}{n} \sum_{k=1}^n \xi_i(k). \quad (3)$$

The units of each indicator in the indicator system are different, and the indicators have positive and negative directions. The larger the positive indicator is, the better it is for the economy, while the smaller the negative indicator needs to be, the better it is. Therefore, before the problem is studied, the data needs to be normalized and standardized.

The problem of economic aggregates does not exist independently, and the study of economic structure is inseparable from the study of aggregates [15]. It is not enough to know the total national economy; we need to understand what the total economy consists of and what factors influence it. At the same time, to study the macroeconomic situation, we need to understand the main macroeconomic indicators, which are commonly used internationally: gross national product, inflation, employment rate, and balance of payments. To evaluate the economic situation, two indicators are used: GDP and GDP growth rate, as shown in Figure 2. The direction is the one-way volatility overflow of fiscal revenue to the Shanghai Composite Index.

The macroeconomic situation affects the business risk and the management's judgment of future development. When the macroeconomic situation tends to rise, the business risk of enterprises tends to decrease and the management is optimistic about future development, so they will expand the investment in working capital and dare to raise funds by short-term debt. For the Shanghai Composite Index and fiscal expenditure, the Wald test results show that there is no significant volatility spillover effect between the two. If the economy is in a recession, the business risk increases and the management is not confident about future development, so it will reduce the working capital and adopt a more conservative financing strategy to reduce the overall risk of the enterprise.

The noise of the matrix can be obtained from the eigenvalues of matrix C . Part of the eigenvalues can achieve the reflection of the real information, but due to the finite length of the time series T and the interference of random factors, the matrix C will generate noisy eigenvalues, which

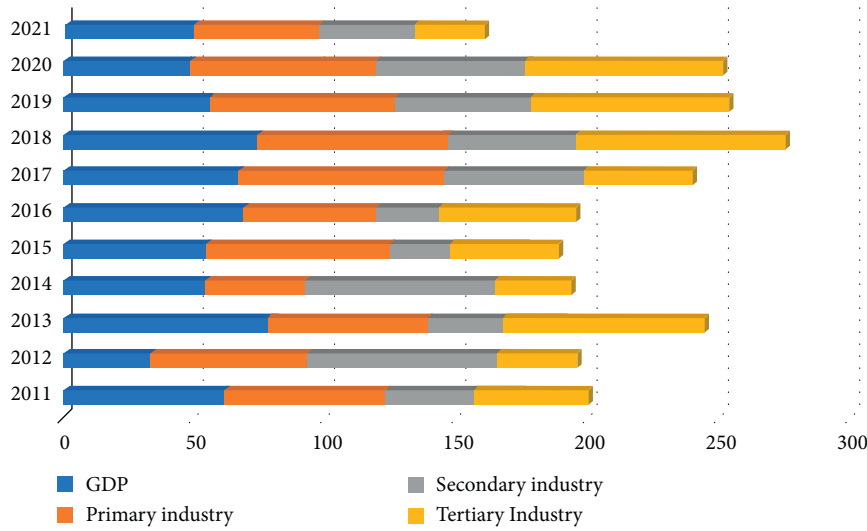


FIGURE 2: GDP data.

are unable to truly reflect the relevant information. Generally, randomness is an inherent characteristic of the noise eigenvalues of the financial return correlation matrix, which makes it possible to estimate the range of noise eigenvalues of the financial correlation matrix by applying the corresponding random matrix eigenvalue distribution. The following section focuses on the identification principle of noise eigenvalues.

N is the number of random variables, and the variables are completely uncorrelated, i.e., the correlation matrix is a unit matrix [16]. The mean and variance of the random variables are in turn equal to the mean and variance of the return series of matrix C . This means that there is one and only one return series equal to the mean and variance of any set of random variables selected from the number of N return series. The correlation matrix is formed by extracting a subsequence of length T from the random variables, and the correlation matrix will change and vary as the subsequence is intercepted. In this paper, by adjusting the subsequence to a sequence with mean 0 and variance 1 (i.e., the selected subsequence normalization process) to the random correlation matrix, only the covariance matrix is required. In the process of standardizing the subsequence of random correlation moments to that random correlation matrix, only the covariance matrix is required. The random correlation matrix can be expressed as follows:

$$R = \frac{1}{T}A^T A. \tag{4}$$

The correlation coefficient of the random variables with the number N is equal to 0, but usually the correlation coefficient of the matrix R is not 0, indicating that R does not reflect the relevant information correctly. Under the influence of random factors, since the matrix R is a time series with finite length, the R -pass tends to deviate from the true correlation matrix.

In conclusion, to truly reflect the correlation information among variables, it cannot be achieved by the eigenvalues of

the matrix R . Since the financial return correlation matrix C and the random correlation matrix R are composed of two series with an equal number, length, mean, and variance, and the finite length of the series causes the correlation matrix to be influenced by random factors, it can be seen from the above that the financial return correlation matrix and the random correlation matrix have a corresponding relationship, and both are influenced by the same random factors.

Since the presence of random factors forms both the noise eigenvalues of the financial return correlation matrix and the eigenvalues of the random correlation matrix, the financial correlation matrix can have the same noise eigenvalues as the random correlation matrix if the financial correlation matrix and the random correlation matrix are in correspondence [17]. Accordingly, the range of the noise eigenvalues of the financial correlation matrix can be determined by the distribution of the eigenvalues of the corresponding random matrix.

4. Design of Regionalized Economic Management Strategy

As a pioneer zone under the market economy system and an experimental zone of economic development mechanism innovation, the achievements of the development zone in recent years have been world-renowned. However, there are some new contradictions and problems that need to be solved. The regional economic management system of the development zone is not a sound legal system, the government's functional authority is not in place, preferential policies are washed out, the decentralization of government is not implemented, the approval of the hidden procedures is cumbersome, the burden of social public management, institutional settings, and establishment management is not standardized, administrative resources are wasted, talent management mechanism is not perfect, and other problems that are not conducive to development [18]. Aiming at the problems that arise in it, relevant countermeasures are put

forward to enrich the relevant theories, to promote the community management level of the Economic and Technological Development Zone to a higher level. Research to solve these problems, for the comprehensive deepening of the improvement of the regional economic management system, to further play a leading demonstration role in the development of regional economic development, has important practical significance.

Development zones are a powerful engine of economic development and an important means of opening to the outside world. Whether it is the total economic volume, the scale of high-tech industries, or the growth rate and quality of operation, development zones occupy an important frontier position and play an important role in supporting, demonstrating, and leading reform and opening, scientific and technological innovation and economic and social development for the whole country and the region. There are many drawbacks in the management system and mechanism of the development zone government, thus making it difficult to realize the innovation of the management system and the transformation and upgrading of government functions in the region, and there is an urgent need to accelerate the pace of the reform of the regional economic management system as shown in Figure 3.

Strictly speaking, the community is also a big family, and only by widely carrying out activities that are popular among the masses can we lead through culture, unite people's hearts, transmit positive energy, and truly give residents a sense of belonging and a sense of home [19]. At present, the activities carried out by community self-governing organizations are not diversified enough, the content is not rich enough, the frequency is not regular enough, and some of them still stay at the level of large cultural performances led by the government.

$$P_C(\lambda) = \frac{1}{N} \frac{dn(\lambda)}{d\lambda^2}. \quad (5)$$

The formation of economic regions is closely related to administrative boundaries, and different disciplines have made different interpretations of boundaries, but according to the research of political geography, international boundaries have a unified definition. International law defines the border of a state as the imaginary boundary that divides—the territory of one state and the territory of another state, or the territory of a state and unoccupied land, the territory of a state and the high seas, as well as the national airspace and outer space; the border is the line where a sovereign state exercises its sovereignty. Borders are characterized by objectivity and naturalness, politics, hierarchy, and dynamism [20].

There are various types of cross-border areas, and different types of cross-border areas may have some peculiarities and exhibit different regional characteristics, but in general, cross-border areas formed by crossing administrative boundaries have the following three common characteristics. Whether it is personal career planning or investment, or even the government's investment promotion, it has great benefits. Statistical analysis method

observes the characteristic changes and hidden laws of the indicators through the analysis of the indicator variables.

Due to the shielding effect of administrative boundaries, such national borders often become the main means for a country to adopt tariff and nontariff measures to protect its economy, making it difficult to achieve true globalization of the global economy. This border effect of administrative divisions also exists among administrative units within a country. While there is a certain openness of various administrative borders, there is also a certain degree of closedness. Therefore, whether at the international level or at the domestic level, as cross-border regions spanning several administrative units, their regional economic development presents obvious barriers and discontinuity, and it is difficult to constitute a smooth and integrated economic continuum and economic community in space. This is also a major problem that needs to be addressed in the economic development strategy of cross-border regions as shown in Figure 4.

According to the theory of traditional regionalism, the administrative units within the now-formed economic region are reorganized to form a pattern of regional economic governance by an administrative body. According to the theory of public choice school, polycentric decentralized administrative units are to be formed in the economic region to achieve governance of the regional economy through democratic administrative mechanisms [21]. The other is to analyze multiple variables at the same time. According to the theory of new regionalism, based on not changing the existing administrative divisions, a strong central government should integrate the economic regions, form regional economic management institutions, and form a pattern of governance with the participation of various local governments, citizens, social organizations, and other organizations. Compared with the three theories, traditional regionalism is too costly, and the integration of administrative divisions has a large scope of change and is in an unstable state, which can be considered if the regional economic development is in a mature period.

5. Analysis of the Results

5.1. Analysis of Macroeconomic Random Matrix Multivariate Statistics Results. So far, we find that the uncertainties of economic indicators measured by the three methods in different periods are very similar, but the expressions have their own characteristics. When comparing the uncertainty results measured by the three methods, the uncertainty measured by the SV model is relatively smoother. For example, the Markov mean uncertainty is obtained by using the product of the sum of the squares of the deviations of the two-state forecasts and the probabilities of the two-states, and thus, the uncertainty varies greatly as shown by the Markov autoregressive model for the 2016 to 2020 chain. The CPI uncertainty graph shows that the uncertainty of the 2016 to 2020 chain CPI is not only large but also changes rapidly, thus the graph is a long vertical line; while the uncertainty of the SV model of the 2016 to 2020 chain CPI is a higher continuous curve, although the uncertainty is also large.

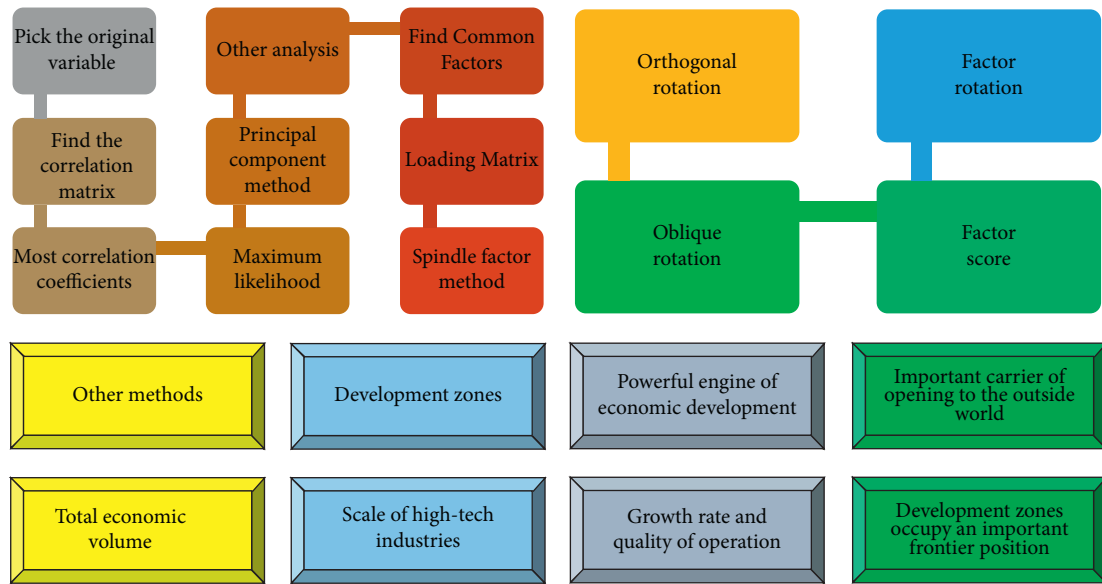


FIGURE 3: Logical block diagram of factor analysis.

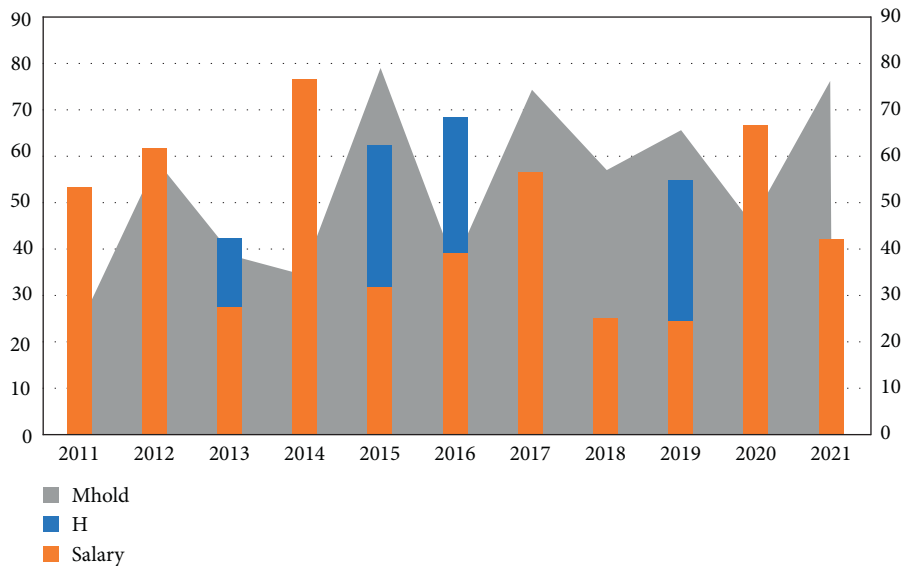


FIGURE 4: Annual mean statistics of key variables.

Thus, the subtle differences between different methods of measuring uncertainty can be seen as shown in Figure 5. Through the comprehensive analysis of multiple variables, we can understand the characteristics of the research object from multiple aspects, so that we can have an overall grasp of the characteristics and trends of things on a macro level.

Building a service-oriented government is not only the result of optimizing the reform of the regional economic management system and abandoning the obsolete model that is incompatible with the market economy, but also the process of innovating the economic management system and establishing a new system that is compatible with the development of socialist democracy and the construction of a harmonious society. While insisting on changing

government functions and fully performing government functions as the main content, it is also necessary to improve the concept, improve the legal system, and optimize the organizational structure and operation mode. Improve the government’s awareness of public services, provide more public goods to society, and realize the reform of the regional economic management mechanism. The resulting correlation matrix will also vary and appear different, so that the resulting correlation matrix is random.

Local governments are direct participants in the regional economy and the most direct beneficiaries of regional economic integration. Local governments are the main organizers and promoters of regional economic cooperation and have a great influence on the development of regional

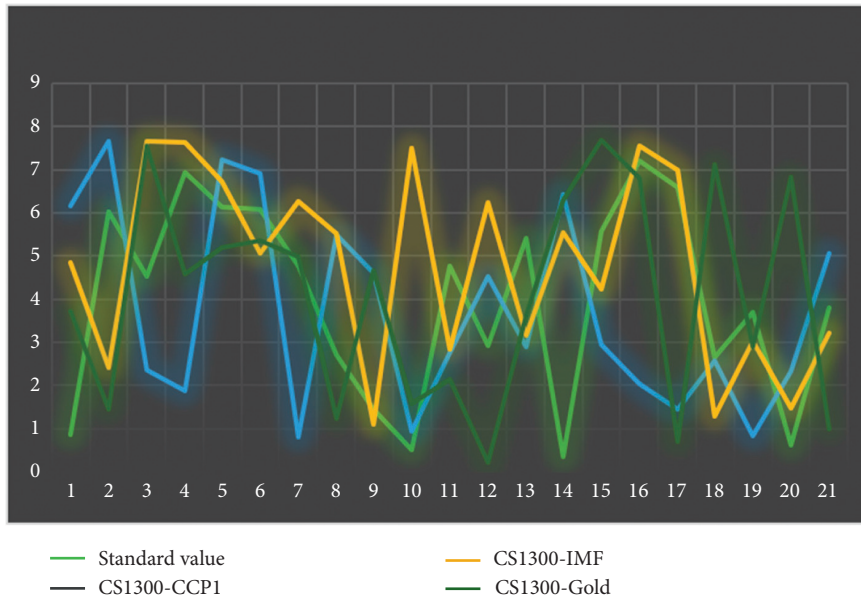


FIGURE 5: Double logarithmic plots of correlation statistics and degrees of freedom.

economic cooperation. Theoretically, it is most effective for local governments to voluntarily conclude administrative agreements to reach a consensus and coordinate public affairs in the region. However, in practice, local governments will consider their interests, and the theory of regional externalities leads to the lowest efficiency of autonomous coordination and agreement among members in the region. Regional governing bodies established based on administrative agreements have little authority and no decision-making power on intraregional affairs. This may eventually lead to widening disparities within the region, serious local protectionism, and the existence of regional governing bodies in name only as shown in Figure 6.

The purpose of regional economic management institutions is to achieve good regional economic governance, and they should also have clear responsibilities and authorities with the corresponding regional governance authority to achieve effective regional governance. It is possible to become the cultivator and guide of the regional market system based on its relatively advanced cognitive belief of the market economy or the behavioral logic of rational choice. Regional economic management agencies should solve the problem of cross-border governmental functions and management agencies caused by cross-border production factors and other economic factors. The clarification of the authority of regional economic management agencies can be more conducive to dealing with cross-border issues in the economic region, so that regional public issues that cannot be solved or cannot be solved between local governments can be given to regional economic management agencies to deal with, effectively solving the “cross-border” problems faced in the regional economy.

To solve cross-regional public issues, the central government needs to play a coordinating and supervisory role, because the central government can act as an impartial judge of disputes between local governments, and thus act as an

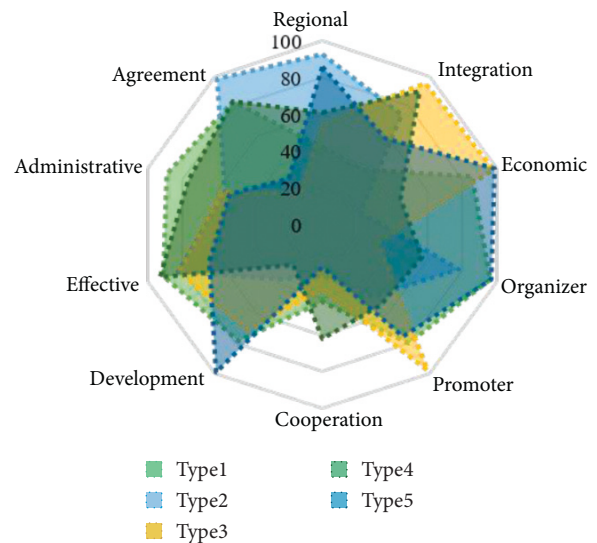


FIGURE 6: Descriptive statistics chart.

arbiter of information and conflicts in the game structure of local governments.

When setting up regional economic management institutions, it should fully reflect the division of authority between the central and local governments on regional economic issues. It is to study the final characteristics of the whole from the parts of the system. The horizontal cooperation mechanism between local governments is the embodiment of political democracy, which is more effective in dealing with regional economic affairs, and the central government should guarantee the full autonomy of local governments and divide the scope of authority between the central and local governments to better realize regional governance. Therefore, in the setting and operation system of regional economic management institutions, the principle

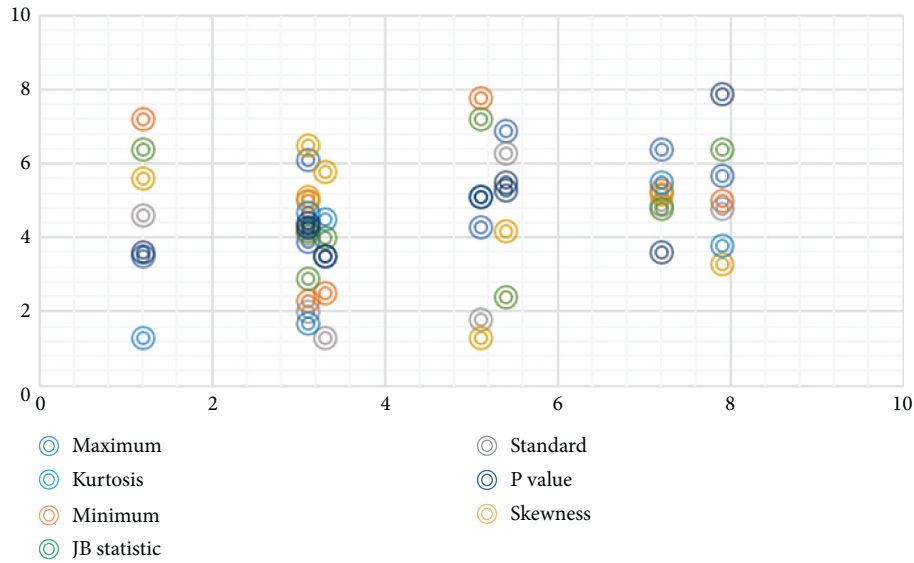


FIGURE 7: Analysis of macroeconomic variables.

of combining centralization and decentralization and linking and collaborating between the central government and local governments should be adopted, and the macro-control function of the central government should be properly played based on fully mobilizing and giving full play to the enthusiasm of local governments to carry out horizontal collaboration.

5.2. *Analysis of the Results of Economic Regionalization Management Strategy.* For the current economic development of the development zone, the dominant industry is still an industry, but as mentioned above, more industrialized enterprises consume natural resources, which is not in line with the national concept of resource conservation, and although there is abundant energy in the region, it is also difficult to meet the needs of the huge market. In the future development, the development zone should not only improve the industrial structure to cope with the needs of sustainable economic development in the future but also improve the market mechanism in the process of market economy development and weaken the government's support. During this transformation, it is necessary to establish a unified market system to meet the economic development of the development zone.

For economic development, the construction of a unified, open, competitive, and orderly public resource transaction market system is the basis for the decisive role of the market in the allocation of public resources, and is the basic direction for the construction of the public resource transaction market system, which can not only meet the needs of the market-oriented market economy transformation, but also continuously improve the market economy management system in a unified market economy system, and lay the necessary foundation for the development zones.

As shown in Figure 7, in concrete implementation, the development zone has obvious location advantages, which

are reflected in the convenient transportation conditions and network to meet the needs of the development zone to maintain smooth communication with the outside world; the development zone has a relatively deep economic foundation as a guarantee to smoothly promote the development of the economic unity; at the same time, the development zone has a relatively complete logistics center to meet the needs of the distribution of goods. Large and small forecast errors will appear in groups, where the variance of forecast errors depends on the magnitude of subsequent disturbance terms, and forecast errors are relatively small in a certain period. Therefore, in the process of cooperation with other governments, in addition to collaboration in government-related matters, there are significant advantages in the construction of a market economy system, and it becomes possible to cultivate and build a unified market system in the process of cooperation within the development zone or between the development zone government and local governments.

From Figure 7, the standard deviation of macroeconomic variables is not large, which indicates that the data are relatively stable; in terms of skewness, the exchange rate, manufacturing purchasing index, and consumer confidence index is greater than 0, which indicates that the distribution of these data is right-skewed. The kurtosis of all the variables is greater than 0, indicating that the distribution of the log return series is cusp to cusp. The JB statistic corresponding to the P value is 0, so the original hypothesis is rejected and these series do not obey normal distribution.

There is no completely uniform standard for the selection of the GARCH model, especially for the multivariate BEKK-GARCH model. When there are more variables, more parameters need to be estimated for each coefficient matrix, making parameter estimation very difficult. Therefore, in the empirical evidence, to simplify the model and facilitate the calculation, the two-variable case is often used, and the two-variable BEKK-GARCH model is used in this

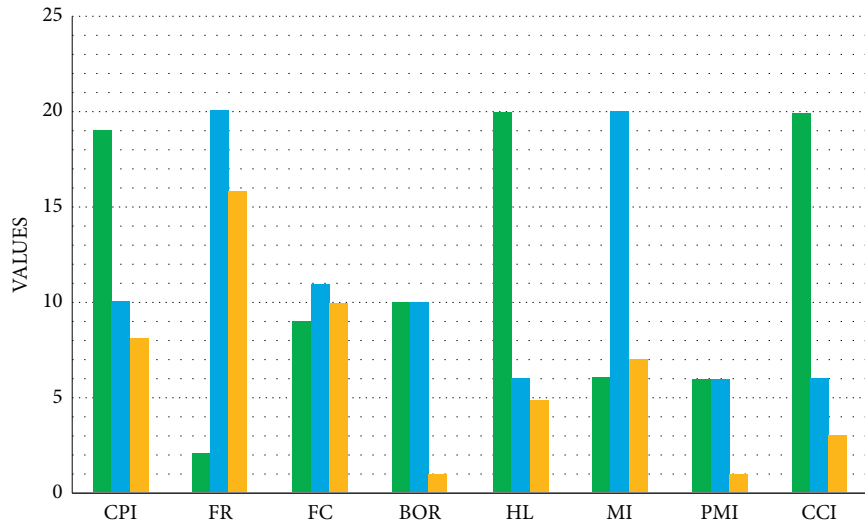


FIGURE 8: Correlation and tube strategy test results.

paper for the empirical analysis. Most of the models in each variable pass the significance test, indicating that both the squared residuals and the preconditional variance values affect the volatility of each variable in the table, which also indicates that these variables have volatility aggregation and time-varying characteristics, as shown in Figure 8.

The test results in Figure 8 show that if the significance level is 5%, it is known that there is a unidirectional volatility spillover effect between the SSE index and fiscal revenue in the direction of unidirectional volatility spillover from fiscal revenue to the SSE index. Portfolio theory proposes that funds should not be concentrated in a single asset, but should be dispersed to invest in multiple assets to achieve a portfolio of assets, to achieve high returns, and low risks. For the SSE index and fiscal expenditure, the Wald test results show that there is no significant volatility spillover between them. If fiscal spending is replaced with an interest rate, it is found that there is only one-way volatility spillover from interest rate to SSE between SSE and interest rate.

The monetary compensation incentive of the management tends to make the working capital financing conservative; the equity incentive of the management tends to make the working capital financing aggressive. When macroeconomic trends are favorable, the role of monetary compensation in inducing a prudent financing strategy is weakened and the role of equity incentives in inducing an aggressive financing strategy is enhanced. It is necessary to further understand what constitutes the economic aggregate and what factors affect it. Further study proves that the difference between monetary compensation incentive and equity incentive on working capital financing strategy is mainly due to the difference in compensation sensitivity and opportunity cost between them.

6. Conclusion

The structural analysis of macroeconomy is related to the direction of national or regional economic development. The analysis of macroeconomic indicators at all levels and their

interpretation from multiple perspectives can make the national economic structure adjust in the direction of optimization. To a certain extent, regional planning weakens policy preferences and highlights institutional innovation and regional cooperation, in which the role of the government is particularly obvious. At the same time, studying the macroeconomic situation requires an understanding of the main macroeconomic indicators. This will become the trend in the future development of development zones. In the process of regional economic management in development zones, no matter what management model is explored, the role of the government cannot be denied, and the cooperation between economic development or economic cooperatives must be implemented under the coordination of the government. Therefore, in the future research, how the government can properly participate in the economic management of economic and technological development zones should also become the focus of research and development trends.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interests or personal relationships that could have appeared to influence the work reported in this paper.

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