

# Related Implementation and Thinking of Mathematical Statistical Method in Economics

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**Abstract:** Under the background of modern social development, with the gradual deepening of the reform of the market economic system, the social economy is developing rapidly, and more and more data are produced. Strengthening the comprehensive application of mathematical statistics method in economics is an important way to promote the comprehensive development of social economy. This paper mainly analyzes the application significance, problems and application paths of mathematical statistical methods in economics, aiming to further improve the in-depth application of mathematical statistical methods in economics.

**Keywords:** Mathematics; Statistical methods; Economics; Implementation

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## 1. Introduction

Mathematics is an applied tool, which is widely used in daily life and production. The effective application of mathematical statistical methods in economics can help enterprises solve related problems in economics, and help enterprises make correct development decisions, and promote the long-term development of enterprises. In addition, the application of mathematical statistical methods in economics can promote the mature development of economic theories. Based on this, it is necessary to combine the application of mathematical statistics method in economics, take targeted measures to strengthen the application benefit, and lay a foundation for the all-round development of social economy.

## 2. The Application Significance of Mathematical Statistical Method in Economics

### 2.1 The Help about Solving Economic Problems Effectively

The contents related to economics are more extensive. Once the analysis and judgment of economic problems are wrong, it is easy to cause serious consequences<sup>[1]</sup>. Therefore, it is necessary to adopt scientific methods to conduct objective and accurate analysis of economic problems, comprehensively trace the root causes of problems, and effectively solve them. Mathematical statistical methods have their own advantages, such as rigorous analysis process, accurate analysis and solution. Promoting the effective integration of mathematical statistical

methods and economics can generate theories of econometrics, property economics and so on, and can also help solve economic problems smoothly. In specific applications, to experience economic statistics - economic cycle process, combined with the actual economic issues, build the relevant economic data model, using the statistical method were analyzed, and the economic results, and on the basis of the economic theory on its comprehensive assessment carried out, ensure the smooth operation of the economic problems to solve, and provide guidance for effective development of economic activity.

### 2.2 The Help about Enterprises Make Scientific Development Decisions

Under the background of mathematical statistics, the application of quantitative analysis method in economics, has realized the innovation and optimization of the economic activity evaluation mode, can provide more scientific and reasonable social enterprise make economic decisions more scientific and accurate data, and effective analysis and forecast the future development of the enterprise situation, help enterprise sustainable long-term development. It can be seen that the reasonable application of statistical methods in economics can effectively improve the reliability of enterprises' economic decisions, reduce resource losses and improve the controllability of enterprises' future development.

### 2.3 Intensify the Applicability of Economic Theory

The application of mathematical statistics in eco-

nomics is mainly to analyze the changes of related transactions by means of deterministic and qualitative methods. In the actual application process, it is necessary to combine the actual situation and flexibly choose statistical methods to meet the personalized needs of different economic activities<sup>[2]</sup>. Statistics can be used to effectively describe the relationship between various elements of economics, analyze the quantitative relationship, form an analysis report, judge economic activities on the basis of economic theories, and give direction guidance, so as to strengthen the effective integration of economic theories and economic activities and strengthen their applicability.

### 3. The Application of Mathematical Statistical Methods in Economics

#### 3.1 The Economic System is not Perfect

When using mathematical statistical methods to solve practical problems in economics, it is necessary to meet the following factors: economic problem variables, economic problem analysis, economic theoretical basis, and on this basis to build a data economic model. However, in the construction of macroeconomic data economic model, it is necessary to perfect the market economy system and comprehensively study and analyze the economic phenomenon by comprehensively utilizing the macroeconomic theory, so that the economic model can play an overall role in the economic forecast and evaluation<sup>[3]</sup>. However, in the current economic development process, the market economic system is not mature, has not been demonstrated in practice, and many theoretical problems have not been effectively solved, leading to the difficulty in the effective application of mathematical statistical methods in economics.

#### 3.2 Lack of Talent

The application of statistical methods in economics, including data collection, processing, judgment, analysis and other links, requires a high level of comprehensive literacy for analysts, who need to have a relatively comprehensive knowledge of statistics and economics, and be able to skillfully apply it in solving practical problems in economics. But also need people who have certain computer application ability, to all aspects of knowledge to have dabbled in. However, in practical work, the knowledge system of many analysts is relatively simple, or they are inclined to economics or focus on statistics, and there are few compound talents who are professional in both aspects, which makes it difficult to fully explore and display the application function of statistical methods in economics<sup>[4]</sup>.

#### 3.3 Lack of Awareness of Application of Statistical Methods

The application of mathematical statistical method in economics must ensure that it is scientific and feasible. Mathematical statistical methods in economics, the effective application of economics can be simplified, build more economic data model of visualizations, convenient and economic analysis, more quick access to relevant economic results, meet the actual demand of economics, as shown in Figure 1, using the econometric model, the linear relation between the statistical data visualizations show, Promote the effect of economic data analysis<sup>[5]</sup>. but in the actual work, many analysts to show off their own school, the irrational use of statistical methods and even abuse, and there are a lot of analysts of relevant theoretical knowledge is not skilled, blindly use in enterprise economic problems, lead to enterprise decision-making errors, seriously affect the enterprise long-term development.

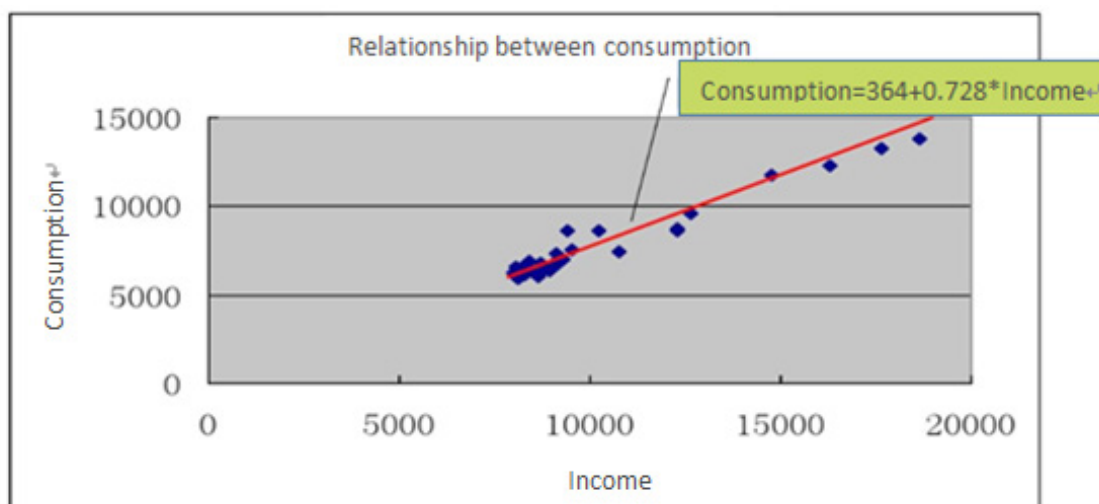


Figure 1. Econometric model

## 4. The Application Path of Mathematical Statistical Method in Economics

### 4.1 To Establish the Systematic Market Economy System

At present, the reform of market economy system is gradually deepening, and the development prospect of market economy is superior. In this case, the perfect market economy system is to build the system, follow the rules of market economy development, optimize the environment of market economy development, for the long-term sustainability of market economy development to provide a solid guarantee, optimize the industrial structure, to meet our country's current economic development needs, build the conscience of the market economy environment, actively encourage social enterprises to participate in market competition, We will promote innovative development of enterprises and enhance their competitiveness in the core market and their comprehensive reality<sup>[6]</sup>. In addition, in the process of mathematical statistics method, want to combine time development situation, and the dynamic development of social economy status, the real-time update of statistics theory, economics theory and perfection, and summarize the practical experience, the practice process of different statistical methods, effect and so on to carry out comprehensive discussion, so that the improvement of the economic research method provides the basis for the enterprise, The scientific use of statistical methods is realized to provide the basis and guarantee for enterprises to make scientific decisions in economic activities, to help improve the market economic system, and to create a good external environment for the sustainable development of enterprises<sup>[7]</sup>.

### 4.2 Improve the Comprehensive Quality of Statistical Talents

Compound talents are the key force to promote social progress and enterprise development. Enterprises only firmly grasp the talent, in order to ensure long-term development. Based on this, in order to ensure the effective application in economics, mathematical statistical method to cultivate inter-disciplinary talent, not only to fully familiar with the relevant economic theory, but also can carry on the flexible application of various statistical methods, and the interdisciplinary knowledge widely, such as marketing, psychology, sociology, etc., In order to promote the professional level and comprehensive quality of statistical talents, ensure the reasonable application of mathematical statistical methods in economics, and avoid the problems of statistical loopholes caused by human factors<sup>[8]</sup>. Colleges and universities should ac-

tively promote the teaching reform, combine the market development demand, innovate the teaching mode, promote the effective integration of economics teaching and mathematics statistics teaching, provide more compound high-quality talents for the social and economic development, and provide talent assistance and intellectual support for the effective solution of enterprises' economic problems.

### 4.3 Deep Improvement of the Data Collection Network

The effective application of mathematical statistical methods in economics can provide help for the comprehensive solution of practical problems in economics, and provide scientific basis and directional guidance for the formulation of economic decisions. In a sense, mathematical statistical methods serve economics, and the key link to achieve this is to ensure that the collected statistical data should have the following characteristics: Comprehensiveness, objectivity and timeliness, and has a certain degree of feasibility and operability, fully excavate its function in economics, in the solution of economic problems to obtain the corresponding application benefits<sup>[9]</sup>. Based on this, a more comprehensive and systematic economic data collection network should be built in combination with the actual needs, so as to provide more timely and comprehensive data information for economic research and the solution of economic problems, and ensure the authenticity, accuracy and comprehensibility of the data. While ensuring the speed and quality of economic data collection, attention should also be paid to the targeted collection of relevant data, the establishment of uniform data collection indicators, the definition of data collection scope, and the establishment of established collection conditions<sup>[10]</sup>. In addition, with the gradual development of emerging industries, it is necessary to strengthen the comprehensive collection and collation of the data generated by this industry. Strengthen the intensity of economic data survey, comprehensive use of advanced information technology, improve the speed and quality of data collection, build a top-down data collection system, and strengthen the communication and cooperation between various departments to ensure the smooth collection of economic data.

## 5. Conclusions

From what has been discussed above, the effective application of mathematical statistical methods in economics can help enterprises make scientific decisions, help solve economic problems comprehensively, improve the applicability of economic theories, and provide guid-

ing opinions for the long-term development of enterprises. However, in the practical application process, there are still problems such as the lack of complex talents, the imperfect economic system and the unreasonable application of statistical methods. Therefore, it is necessary to lay a good foundation for the effective application of mathematical statistical methods in economics by optimizing the education reform of colleges and universities, cultivating compound talents, meeting the needs of market economy development, constructing a more perfect market economy system, and constructing a scientific and reasonable data collection network.

### References

- [1] Feng Tian. The application of mathematical statistical methods in economics[J]. *Modern Vocational Education*,2018(27):153.
- [2] Wang Weiyang. Application of mathematical statistical methods in economics [J]. *Science, Technology and Development of Enterprises*,2018(04):73-74.
- [3] Guo AI. Application of mathematical statistical methods in economics [J]. *Time Finance*,2018(06):264-265.
- [4] Li Xiang. A Brief Analysis of the Application of Mathematical Statistics in Economic Research [J]. *Value Engineering*,2017,36(32):179-180.
- [5] SANG Shiyi. The role of mathematical statistical method applied to economics [J]. *Scientific Chinese*,2017(20):139-140.
- [6] CHENG Junxiao. Analysis on the application of mathematical statistical methods in economic research [J]. *Economic Research Guide*,2017(03):7-8.
- [7] HUANG X F. Application of mathematical statistical methods in economics [J]. *China Market*,2015(15):142-143. (in Chinese with English abstract).
- [8] Wang Shenglong. *Modeling and Simulation in Hybrid Flow Shop Scheduling* [D]. Hubei: Wuhan University of Science and Technology,2012.
- [9] Gao Huadong, Ju Lili, Xie Wen. Efficient Gauge-invariant Method for the Time-dependent Ginzburg-Landau Equations [C]. *Chinese Mathematical Society*. 2014:1-1.
- [10] Anru Zhang. Cross: Efficient Low-rank Tensor Completion[C]. // *Proceedings of the Symposium on Integrated Methods of Mathematical Statistics in Medical Imaging and Big Data*. 2016:1-1.