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Retraction

Retracted: Challenges of International Trade and Government Governance from the Perspective of Economic Globalization

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] D. Ge, "Challenges of International Trade and Government Governance from the Perspective of Economic Globalization," *Advances in Multimedia*, vol. 2022, Article ID 5157048, 10 pages, 2022.

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Research Article

Challenges of International Trade and Government Governance from the Perspective of Economic Globalization

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How to provide a harmonious and fair competition environment for trade activities depends on the effective management of government departments and organizations. How to play a real protective role in trade activities requires the optimization of government functions and the enhancement of economic management capabilities. Therefore, timely forecasting changes in import and export trade and formulating targeted preferential policies are of great significance for evaluating the development of the national market economy, promoting the development of the national economy, and further enhancing the country's economic capacity. This chapter also establishes an early warning model of Shenzhen's import and export transactions based on GMDH network. On the basis of expounding the particle swarm optimization algorithm and GMDH algorithm, the optimization mode, method, and process of GMDH network based on particle swarm optimization are also expounded. First of all, in China's domestic macroeconomic environment, national policy environment indicators and foreign macroeconomic environment indicators, eight indexes related to international import and export transactions are selected, and the autocorrelation test and main component analysis of the indexes are carried out. Finally, the simulation results show that compared with a single GMDH network, the GMDH neural network after particle swarm optimization can get better prediction conclusions. The research results of this paper show that the GMDH network can more accurately predict the trend of Shenzhen's international import and export transactions because of its adaptive structure, creating a new way for international import and export transaction forecasting.

1. Introduction

Since the reform and opening up, especially after China's accession to the WTO, China's foreign economy and trade have developed rapidly and played an increasingly important role in national economic and social development. In 2002, China's total import and export volume was 620.8 billion US dollars, an increase of 21.5% over 8% in 2001. The ranking of China's export in the world rose from the 6th place in 2001 to the 5th place in 2002. In 2003, China's foreign trade continued to maintain a rapid growth. In 2002, China actually used 52.7 billion US dollars of foreign investment, an increase of 12.5%, becoming the country that used the most foreign direct investment in that year. In 2003, while maintaining a large scale of foreign investment, the quality and level were further improved[1]. The annual import and export scale exceeded 6 trillion dollars for the first time, ranking the first in the world; The total import and export volume of service trade reached 5298.27 billion yuan, an increase of 16.1% year-on-year. The deficit continued to decline. The mode of foreign trade, products, and regional structure were continuously optimized, and the contribution to high-quality economic development was further apparent. The rapid development of international trade is due to the strengthening of China's comprehensive national strength on the one hand, and the supporting and promoting role of information technology on the other. It has become the consensus of the whole society to attach great importance to the important role of international trade in national economic development and make full use of information technology to accelerate the development of international trade [2].

International trade forecasts are also part of macroeconomic forecasts. Import and export transactions have an important strategic position in the entire market economic system, and are the "engine" and "promoter" of a country's

Table 1: Development stages of world economy and international trade.

Process of economic globalization	Technology after Industrial Revolution-economic age	Development of international trade
Preparation stage before the formation of the world market from 1492 to 1760		The period from the end of the fifteenth century to the 1860s to promote the primitive accumulation of capital
Capitalist industrialization and the formation of the world market from 1760 to 1870	The early machine industry era from the 1960s and 1970s to the 1930s and 1940s	From 1860s to 1873, international trade was worldwide
1870–1914 internationalization of production and capital	Steam power and railway era from 1930s to 1940s to the end of nineteenth century	1873–1914 the international division of labor system and the formation of a unified market
Retrogression from 1914 to 1945	The age of electrical and heavy machinery from the late nineteenth century to the 1930s and 1940s	Stagnation in 1914–1945
New development from 1945 to 1990	The era of mass production from the 1930s and 1940s to the 1980s and 1990s	Rapid development from 1945 to 1973 Slow development from 1973 to 1990s
Great new development of globalization since 1990s	The information and communication era from 1980s to 1990s	Stable growth since 1990s

economic development. Therefore, timely analysis of changes in import and export trade, through targeted policy measures to influence national policies and to promote the growth of the national economy, has a significant role.

2. State of the Art

2.1. Overview of Globalization Theory. Enterprise internationalization is an objective historical process. Its internal basic motivation comes from the improvement of productivity and the progress of science and technology. It also shows that the evolution process of enterprise globalization, international trade and scientific and technological progress is common. As shown in Table 1, Li Cong divided global globalization into six stages according to the global development and evolution of productive forces; Dicken subdivided the global classical economics before the Industrial Revolution into six stages according to the effect of technological change on the evolution of the global industrial structure. Five major technological development periods; in the history of global trade, experts have basically the same classification of trade development [3]. Steger believes that economic globalization refers to strengthening and expanding global economic links, including global trade, markets, capital, and economic systems. This is a comprehensive concept, the end result of which is the realization of global economic integration. It is a networked process of global economic integration through trade, capital flow, technological progress, information network development, and cultural exchange. It is mainly manifested in the comprehensive globalization of production, products, investment and financing, technological development and use, the regional grouping in the world operation, and the comprehensive internationalization of capital flow.

Historical research proves that the historical process of trade globalization and international trade is basically the same. Trade is the main part of economic globalization, which effectively promotes the development of economic globalization to a broad and deep level. At the same time, economic globalization has also become an objective condition for trade development, which has greatly expanded the world in terms of capacity and structure. The development space of trade [4]. Since the first industrial revolution, the development of trade globalization and international trade activities has been accompanied by tremendous technological progress and new technological changes [5].

To sum up, economic globalization mainly includes two meanings: one is the large circulation of global production factors and the reallocation of global resources; the other is the mutual influence and interdependence of the economies of various countries. Therefore, it can be said that economic globalization is, on the one hand, a process in which production factors such as capital, production, technology, information, and commodities circulate freely around the world and realize the efficient use of resources. On the other hand, it is also an interdependent network relationship, which is gradually formed in the process of continuous strengthening of the relationship between countries and regions.

2.2. Overview of Governance

2.2.1. Connotation of Government Governance. The sustained and stable development of a country cannot be achieved without effective governance. Like the rule of law, politics and the rule of virtue are also the basic ways of national governance. At present, the academic circles have fully discussed the relationship between politics and the rule of law, the relationship between the rule of law and the rule of virtue, but the relationship between politics and the rule of virtue still lacks in-depth discussion. In the new era, it is very important to scientifically grasp the connotation and relationship between politics and the rule of virtue for the modernization of national governance system and governance capacity. Politics is a kind of coercive force that concerns the interests of all members of society and governs their behavior. It usually has two meanings: "politics" refers to the political power and its main body, including political parties, governments, military forces, police, courts;

"Governance" refers to governance and its methods and means, including laws, systems, policies and various political behaviors, such as leadership behavior, governance behavior, management behavior, participation behavior. In contemporary China's national governance, politics plays a role in a democratic and consultative way, reflecting different interest requirements, political aspirations, opinions, and suggestions into the political system. Therefore, seeking the greatest common divisor of various will and interests, formulating public policies that meet the people's will and requirements, and promoting the implementation of these public policies have become the basic functions of politics. Therefore, in our traditional concept, the highest standard of governance is to achieve good governance. Good governance refers to the social management process of maximizing public interests. The process of government departments in a democratic society should not only refer to the process by which government departments unilaterally perform functions and powers, create services, maintain management, and deal with economic and social affairs, but also include government and society, government and market, government and the process of interaction between government and market, as well as government and citizens. In fact, the establishment and improvement of a system requires the cooperation of government departments and all social organizations. The greater the interaction between a regime and different forces, the greater the power it brings.

2.2.2. The Impact of Globalization on Government Governance. The process of globalization is not based on human will. This is a complex dynamic process interacting with the space environment, a process of unbalanced evolution among social participants, a process of fusion and pluralism, coordination and contradiction, and a result process of conceptual innovation and paradigm shift [6]. It not only objectively changes the role and operation form of government departments in our country, but also promotes the process of government department reform from the outside, and at the same time clarifies the basic problems that the current government department management must face and the basic tasks that must be achieved [7]. Globalization is like a "double-edged sword". On the one hand, this provides an opportunity for the construction and improvement of administrative management; on the other hand, it brings a major test to administrative management. Therefore, the advanced experience of corporate internal governance has already been applied to government departments to improve the work efficiency and competitiveness of government departments; and the government's performance management model has also been used for reference by government departments around the world, triggering the concept of "performance evaluation" [8]. The above case shows that government management is not only limited to a government in a specific field, but also completely subverts the inherent way of thinking of human beings. Through cross-research, learning, and reference models, it develops practical administrative management methods and improves the practical operation of government management. Ability. Specifically, the biggest challenge that the economic globalization poses between the government and the enterprise is that the government must provide support and guarantee for the enterprise, and the enterprise must be in the first position representing the interests of both the government and the enterprise[9]. This mainly reflects the rapid growth of contemporary China's public service market and the impact of changes in information technology. The impact of social transformation on administrative management is mainly manifested in two levels: first, it is required to continue to improve the original management system and operation methods, including the division of responsibilities and the establishment of stylized operating norms [10]. At the same time, local government departments must also have a certain strength to support and guide technological innovation activities, and guide the development direction and planning of education and scientific research, so as to enhance the decision-making ability and management level of high-level government. Second, leading industries and commercial organizations are rapidly transitioning to the direction of informatization construction [11]. Once the action and response capacity of the government departments are not fast and powerful enough, the government will become the target obstacle of the information society reform at any time [12]. Table 2 shows the view of American scholar Guy Peters, that is, four government management models oriented by new public management methods have begun to emerge, and they are emerging in the practice of contemporary Western administrative management reform.

With the deepening of world economic ties, the difficulties faced by developing countries have taken on a new significance. As an important international gateway of China, Shenzhen is one of the fastest growing cities in the world and the most economically developed cities in China. Its per capita GDP ranks the first among large- and medium-sized cities in China.

2.3. Forecast of International Import and Export Trade. Due to the establishment of the trade department, many import and export companies have to enter the competition stage together. In this way, they face increasingly fierce competition. At the national level in China, the macroeconomic forecast business of the National Macroeconomic Information Center is responsible for forecasting the main changes in China's domestic import and export economy, this year according to China's current domestic macroeconomic conditions and policy characteristics. The forecast results of the economic information center will become the most important basis for formulating Chinese government measures [13]. Figure 1 shows the total import and export trade volume of Shenzhen. It can be seen from Figure 1 that from 2015 to 2020, the export value of Shenzhen will be greater than the import value.

3. Methodology

3.1. Neural Network Theory. The basic structure, function, and main mechanism of the human brain are imitated, and a

Table 2: Main characteristics of the four new government governance models.

	Market government	Participatory government	Flexible government	Deregulated government
Main diagnosis	Forestall	Hierarchical control	Permanence	Internal control
Structure	Decentralization	Flat organization	Virtual organization	No specific suggestions
Management	Pay according to work; using other private sector management techniques	Total quality management; team	Managing temporary employees	More management freedom
Policy decision	Internal market, market stimulus	Consultation; negotiation	Test	Enterprise government
Public interest	Low cost	Consultation; participation	Low cost, coordinated	Creativity; initiative

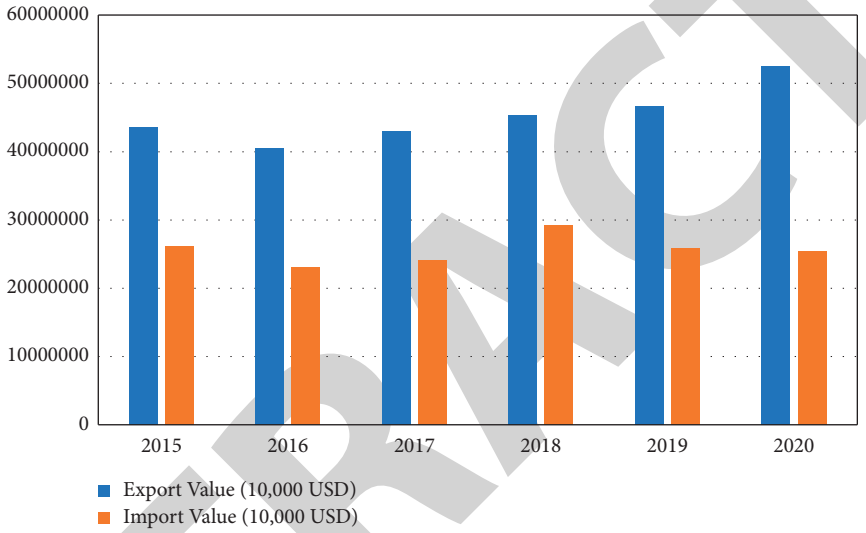

Figure 1: Shenzhen import and export trade.

neuron model similar to the biological neuron structure is also given, as well as a neural network mode composed of neuron structure and special laws. But in general, the artificial neural network model is very similar to the biological neural network. This mode is very similar to the biological neural network mode through action. The artificial neural network model is constructed by using the interaction between neurons.

Artificial neural networks (ANNs) originate from signal transmission patterns within neural units in the brain. The internal signal transmission process of neurons is mainly modeled by computer, which is called the human neural network model [14]. So far, there are dozens of neural network models, and the two most common models are feedback neural network and feedforward neural network.

(1) Forward input algorithm: input value net_i:

$$\text{net}_i = \sum_{j=1}^{M} w_{ij} x_j + \theta_i. \tag{1}$$

Output value of the ith node in the hidden layer y_i:

$$y_i = \phi(n_i t_i) = \phi\left(\sum_{j=1}^{M} w_{ij} x_j + \theta_i\right). \tag{2}$$

Input value of the kth node in the output layer net_k:

$$\text{net}_k = \sum_{i=1}^{q} w_{ki} y_i + a_k. \tag{3}$$

The output value of the kth node in the output layer is o_k:

$$o_k = \psi(\text{net}_k) = \psi\left(\sum_{i=1}^{q} w_{ki} y_i + a_k\right). \tag{4}$$

Among them, AK represents the kth node threshold of the network output layer.

In the reverse transmission system of the neural network, the deviation between the output value of the network and the target data is counted first, and then, the error gradient descent algorithm is used to adjust the weighting and threshold of each layer of the system according to the deviation. Through continuous iterative correction, the real-time data of the system can be connected to the expected data in the near future [15]. The prediction error value E_P of the neural network is shown in equation.

$$E_p = \frac{1}{2} \sum_{k=1}^{L} (T_k - o_k)^2. \tag{5}$$

For P training samples, the total error value of the network is shown in equation.

$$E = \frac{1}{2}\sum_{p=1}^{P}\sum_{k=1}^{L}\left(T_k^p - o_k^p\right)^2. \quad (6)$$

3.2. GMDH Network

3.2.1. GMDH Network Structure. GMDH first generates the first generation of intermediate candidate patterns through the initialization pattern of the reference function. When several items are selected from the first-generation intermediate candidate models and the calculation rules are added, the second intermediate candidate model can be obtained through GMDH. Repeat the above steps until the best model is obtained. In this way, the GMDH model can adaptively construct a high-order polynomial kernel function model with an explanatory function for the dependent variable through the independent variables [16]. The network structure of GMDH is shown in Figure 2.

The GMDH system establishes a complex network structure through adaptive multi-layer iterative technology, and uses the principle of minimum error to determine the optimal network mode, and uses Kolmogorov–Gabor polynomial to establish a nonlinear mapping between input and output [17]. The development process of network learning is as follows.

(1) Set the maximum number of neurons in each layer of the network system RJ and the number of initialization variables d_0 of the network system, and then. select the minimum error standard of the network
.

(2) By adjusting the dimension of the input data, an initial system containing only the first layer of neurons is established.

(3) The threshold mean square and R2 JK of each neuron are estimated separately. For the jth layer of the network, arrange R2 JK from the largest to the smallest. Consider the first RJ R2 JK as the selection neuron to keep, and the rest as non-selection neurons.

For the selected neurons, first find the minimum R2 JK and compare it with the minimum R2J-1,K in the previous level. If r2jK < *r*2j-1,K, then go to Step (4), otherwise go to Step (5).

(4) The next layer of neurons is obtained from the neurons at the current position.

(5) The network is completed.

3.2.2. GMDH Network Features. Selection theory is the cornerstone of self-organizing data mining theory and has a long methodological history. The theoretical basis of self-organizing data mining refers to the spontaneous construction of research objects according to certain rules. After the construction is completed, the organization can automatically schedule according to the changes of the system to complete the dynamic balance of the system. At present, various self-organizing system software has been applied and has played a good role in system simulation, prediction, identification, and so on.

(1) Can be used for small sample modeling

The commonly used statistical economic model can make the fitting model have good accuracy after the number of fitting data is large enough, and it is difficult to calculate the small sample data with influence. The GMDH model based on self-organization can automatically select parameters in the dataset that interfere with the model automatically by using the adaptive structure of the data, so it can effectively solve the problem of noise [18].

(2) Can explain what constitutes the object

The establishment of GMDH network has gone through a stage of continuous reconstruction and complete reconstruction of the intermediate model. The intermediate model is continuously reconstructed until the convergence process is fully realized. Therefore, the formation of GMDH system reflects the construction stage from simple to complex. In the design process, the system must select the key factors that reflect the economic goals among a large number of economic factors. Therefore, this technique can actively select elements that are highly associated with the target in the modeling environment [19].

3.3. PSO Algorithm

3.3.1. Overview of PSO Algorithm. PSO is a population-based stochastic optimization technique, which was proposed by Eberhart and Kennedy in 1995. Particle swarm optimization (PSO) simulates the swarm behavior of insects, herds, birds, and fish. In the process of calculation, the algorithm first initializes a group of solutions and obtains the individual optimal solution and the group optimal solution. Then, each individual obtains the optimal solution by following the two optimal solutions. PSO algorithm does not have crossover and mutation operations and relies on particle speed to complete the search. In iterative evolution, only the optimal particle transmits information to other particles. The particle update formula of PSO algorithm is shown in equations (7) and (8).

$$v_i = w \times v_i + c_1 \times \text{rand} \times \left(P_{\text{best}}(i) - x_i\right), \quad (7)$$

$$x_{i+1} = x_i + v_{i+1}. \quad (8)$$

where w represents inertia weight, C_1 and C_2 are acceleration factors.

The linear decreasing inertia weight (ldiw) can be used, and its calculation formula is shown in equation.

$$w(k) = w_{\text{start}} - \frac{\left(T_{\max} - k\right)}{T_{\max}}, \quad (9)$$

where k is the current iteration number of the algorithm. Generally, the initial inertia weight is large and the end

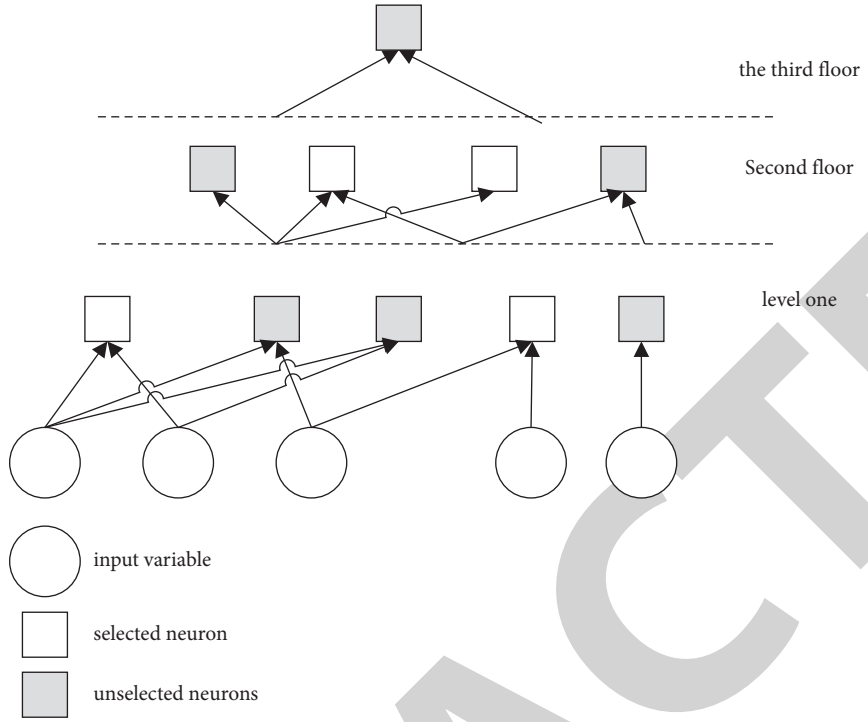

Figure 2: GMDH network structure.

inertia weight is small. In this way, the algorithm represents a refinement process from the global optimal value search to the local best quality search.

3.3.2. PSO Algorithm Parameters

(1) Population size M

The number of particles M is generally 20~40, and 100–200 particles are required for special problems. The larger the number of particles, the larger the search range, the easier it is to find the global optimal solution, and the longer the running time of the algorithm.

(2) Inertia weight

Inertia weight ω: it reflects the extent to which the current velocity of particles inherits the previous velocity, as shown in :

$$\omega(k) = \omega_{\text{stant}} - (\omega_{\text{stant}} - \omega_{\text{stant}}). \quad (10)$$

Under this setting, with the iterative calculation of the algorithm, the inertia weight is gradually reduced from 0.9 to 0.4, which not only makes the algorithm have strong global search ability in the early stage, but also ensures that the algorithm has strong fine search ability in the later stage.

(3) Maximum speed

The maximum search speed of the maximum speed Vmax particle. If the maximum speed Vmax is set too small, the search area of each iteration of the particle is small, and sufficient optimization cannot be carried out in the overall interval, which may cause the particle to fall into a local optimal solution.

4. Result Analysis and Discussion

4.1. PSO-Optimized GMDH Network Model. When the GMDH network forms a complex network structure through the combination and competition among users, the prediction accuracy of the network is related to the weight. The maximum weights of the GMDH network were obtained using least squares. The weight algorithm is quite rough, so the result of the weight operation has a great influence on the result.

The calculation method of particle swarm has powerful global and local functions. Therefore, on the basis of the composition and initial structure of the GMDH network, the weight of the GMDH network can be searched by the PSO algorithm, which can help network scientists to fit the model more accurately and obtain good model results [20]. The basic calculation process of the GMDH network based on particle swarm optimization is shown in Figure 3.

4.2. Experimental Data and Analysis

4.2.1. Correlation Index Analysis. Based on the theory of international trade in the socialist market economy, the international trade relationship between import and export affects the country's overall economic situation, the government's foreign trade policy, and the general trend of the global economy. Therefore, this paper provides important indicators related to Shenzhen's import and export transactions in these three aspects.

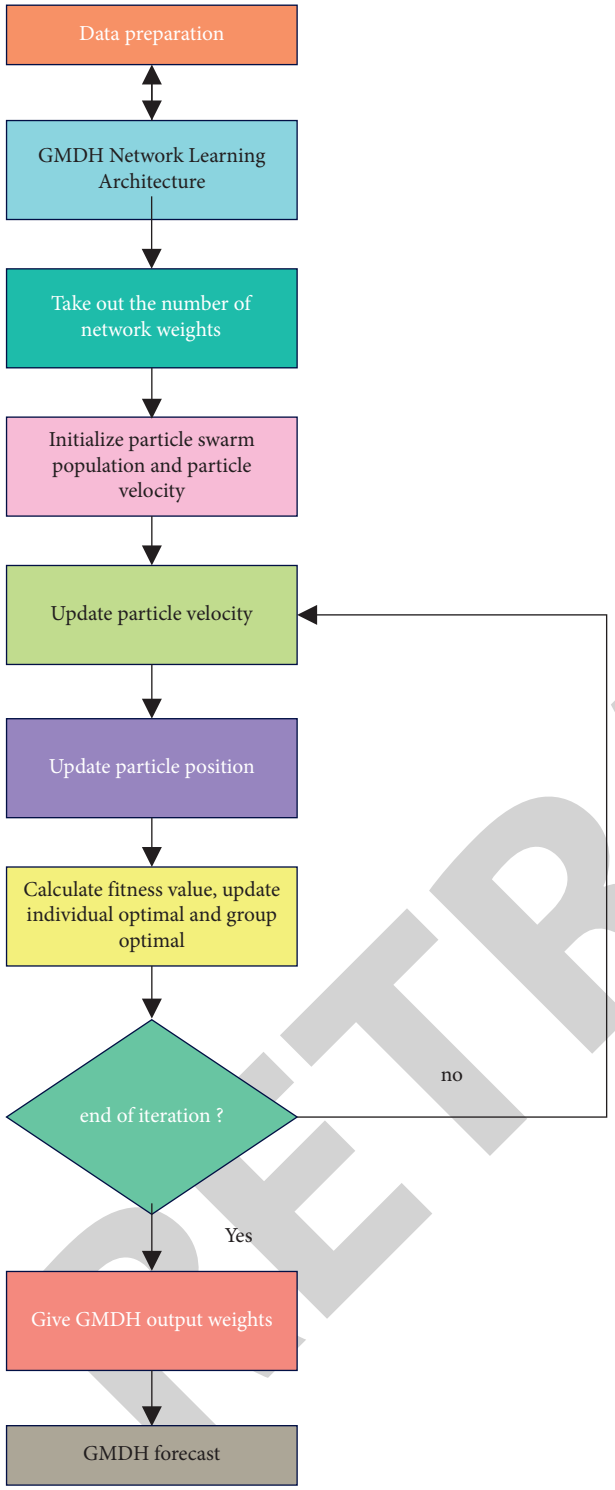

Figure 3: GMDH network prediction based on PSO optimization.

Foreign capital can provide leading technology and management and can improve the efficiency and industrial structure of enterprises in the short term. Most of the foreign-invested industries are processing trade. The main import and export mode of production and trade, which is dominated by foreign investment companies, makes the connection and correlation between the foreign investment and international trade closer. This article uses the actual total foreign investment (million US dollars) as one of the import and export forecast indicators. Secondly, from the factors of policy environment, we mainly look at tariffs. The Chinese government generally adopts measures to increase or decrease tariffs to improve or adjust the structure of import and export trade. International tariffs on imported goods refer to the international tariffs levied by the General Administration of Customs of the importing countries on the importers in accordance with international tariffs when importing overseas goods in China. Therefore, the global economic growth rate is selected as the impact index of import and export trade.

As can be seen from Figure 4, China's import and export trade has been growing in 2020. The growth rate of export trade has been higher than that of import from April to December. The import and export volumes are higher than that of February, and the export volume in other months is greater than that of import.

4.2.2. Experimental Verification of GMDH Network Prediction Model Based on PSO Optimization. On the basis of data normalization, in view of the similarity between indicators and in order to simplify the calculation complexity of the model, the principal component analysis method is used to analyze and reduce the dimension of the original data, and more than 95% of the explanatory variables of the normalized indicator matrix are proposed as the relevant data for the calculation of Shenzhen's import and export trade quota. The principal component data are shown in Table 3.

After extracting the principal components from the training data through principal component analysis, first select 23 groups of principal component data from 1985 to 2007 as the training data, and then select the period from 2008 to 2012. The five main component data of the year are used as forecast data. Based on the network adaptive structure, the forecast results of Shenzhen's import and export trade from 2008 to 2012 are shown in Figure 5.

From Figure 5, it can be found that, especially for the values of 2009, 2010, and 2012, the estimation deviation is still relatively large. The particle swarm algorithm can be used to optimize the weights of the GMDH network. The main technical parameters of the PSO algorithm are: the PSO scale is 20, the iteration frequency is 100, and the individual length is 16, that is, all the weights contained in each body. The optimization goal is to make the absolute value of the deviation between the sample and the fitting in the training very small. Finally, the best weights were obtained in the PSO network optimization, as shown in Table 4.

The prediction results of GMDH network optimized by PSO are shown in Figure 6.

From Figure 6, we can find that the expected accuracy of the PSO-optimized GMDH network is much higher than that of the original GMDH network, especially in 2009, 2010, and 2012, when non-optimized. After the expected error of the GMDH network increases, the expected accuracy of the GMDH network optimized by PSO is also greatly improved,

Figure 4: Growth rate of China's import and export trade in 2020.

Table 3: Principal component data.

First principal component	Second principal component	Third principal component
−0.75	0.45	−0.11
−0.99	0.40	−0.12
−0.95	0.35	−0.13
−0.91	0.30	−0.10
−0.87	0.27	−0.20
−0.86	0.30	−0.09
−0.82	0.25	0.13
−0.71	0.19	0.28
−0.60	0.14	0.17
−0.51	0.12	0.09
−0.24	−0.40	0.02
−0.20	−0.30	0.02
0.02	−0.40	−0.05
−0.02	−0.40	−0.07
0.09	−0.39	0.19
0.13	−0.45	0.04

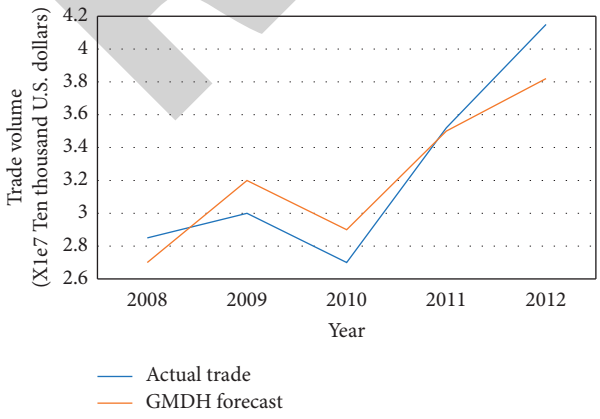

Figure 5: GMDH forecast.

Table 4: PSO optimization weight.

Category	Weight
Initial weight of the first layer	0.1508–0.0273 0.4210 0.2007–0.5610 0.42133
First layer optimization weight	0.4370–0.0417 0.7012 0.0189–0.5774 0.0712
Initial weight of the second layer	-0.0311 1.4782-0.16445 -0.2498 0.490311.6774–0.1548 -1.9252 0.0777–0.2153
Second layer optimization weight	0.212301.5232–0.3444 -0.1198800.4776 1.4861–0.3401 -2.0678-0.2345 -0.1005

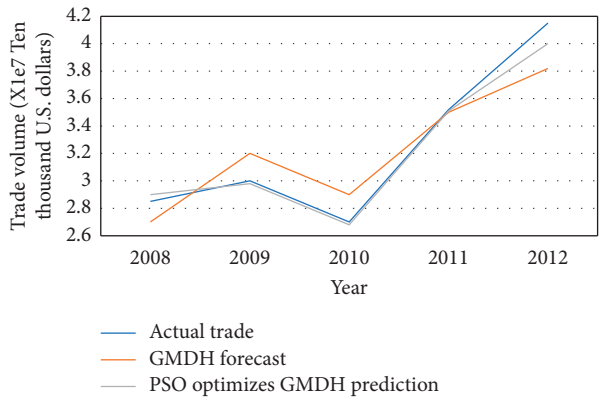

Figure 6: PSO-optimized GMDH network prediction.

which proves that the particle swarm optimization algorithm has achieved good effectiveness.

This section mainly discusses the issue of Shenzhen's import and export trading environment index system and selection criteria. In the domestic and foreign economic and trade environment, international economic environment index system and foreign economic and trade environment index system, eight items are selected related

to Shenzhen's import and export trade environment. The index system, and then, is tested for autocorrelation. We first preprocessed the data, and then, divided it into training results and test data in the methods of normalization and principal component extraction, and then used the training results to adaptively initialize the dual GMDH network. After testing and analyzing the modeling and fitting effect of the network, the simulation results show that the modeling and fitting efficiency of the dual GMDH network designed by the particle swarm optimization method is better than that of the single GMDH neural network.

5. Conclusion

In international trade activities, the government not only plays a separate management role, but also plays a participatory role. This chapter mainly takes Shenzhen's total import and export foreign trade as the main analysis object. On the basis of analysis, the GMDH network is fitted after training, and the GMDH network is optimized by particle swarm optimization to achieve good estimation accuracy. The prediction accuracy of GMDH network and particle swarm optimization GMDH neural network is tested by forecasting the quantity of import and export trade quotas in Shenzhen. On the basis of normalizing the information and extracting the principal components, the information is divided into practice information and test information. It is then adaptively re-initialized to the GMDH network using the exercise information. When the training method is used to complete the training, the fitting characteristics of the network can be analyzed by testing the big data, and the network can be adjusted by the particle swarm method to achieve a better fitting effect. Restricted by scientific research and the author's research ability, this method still has many shortcomings, and the next step needs to increase exploration from the following aspects. (1) There are many reasons related to foreign trade. In this paper, only eight indexes with strong correlation were selected, and the next one is to extract more indexes related to import and export transactions. (2) The GMDH network is progressing rapidly. At present, on the basis of the basic GMDH system, a multi-level GMDH system and a GMDH based on logic gates have been developed, and the next step will be to increase the research and development.

Data Availability

The labeled dataset used to support the findings of this study is available from the author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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