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Retraction

Retracted: Data Envelopment Analysis Algorithm of Enterprise Economic Benefits Based on Leapfrog Algorithm

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This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret 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 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] Y. Chen and X. Zhao, "Data Envelopment Analysis Algorithm of Enterprise Economic Benefits Based on Leapfrog Algorithm," *Security and Communication Networks*, vol. 2021, Article ID 6013252, 8 pages, 2021.

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Research Article

Data Envelopment Analysis Algorithm of Enterprise Economic Benefits Based on Leapfrog Algorithm

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In order to deal with the problems of low analysis accuracy and poor security in the current enterprise economic benefit data analysis, this paper proposes an enterprise economic benefit data envelopment analysis algorithm based on leapfrog algorithm. According to the proposed method, with the help of comparing and analyzing different analysis algorithms of enterprise economic benefit data, the data envelopment analysis algorithm with strong usability is selected firstly. After that, the effectiveness of DEA is judged by introducing relaxation variables with the help of the data envelopment analysis algorithm, and the non-Archimedean infinitesimal model is used to build the basic operation mechanism. On this basis, the overall operation mechanism of leapfrog algorithm component is used to clarify the value range of relevant economic benefit data and the number of global mixed iterations. The experimental results show that the envelope analysis of enterprise economic benefit-related data using this method can not only improve the accuracy of data analysis but also effectively improve the security of relevant business data.

1. Introduction

With the continuous development of world economic globalization, the overall market competition in the world has become more intense, and the development of enterprises has entered a new stage. As one of the main bodies of the current development of socialist market economy, enterprises have become an indispensable and important part of promoting the development of socialist modernization. They play a very important supporting role in stimulating economic growth, promoting people's livelihood construction, and driving capital flow [1]. However, with the impact of economic globalization on the US border trade and other factors, how to more comprehensively understand the operation of enterprises has also become the focus of attention. Especially in recent years, with the in-depth development of lean management in China's enterprise management concept, more and more enterprises gradually accept and integrate this modern management concept and method, and enterprise managers also move forward from extensive management to lean management, which means that enterprise managers pay more and more attention to the effective analysis of enterprise economic benefits. However, due to the diversification and uniqueness of economic benefit data and the singleness of data envelopment analysis algorithm, there is no scientific and effective analysis of input factors: which factors bring more economic benefits, which factors should be targeted to increase the intensity of input, and whether the input should continue to be increased later [2]. Excessive investment by enterprises will lead to high cost and tight capital chain, which is not conducive to enterprise development. Too little input will lead to insufficient output. For these problems, enterprises cannot give accurate answers. How to better understand the economic benefits of enterprises and conduct omnidirectional and multiangle analysis of economic benefit data, so as to improve the accuracy of enterprise economic benefit data envelopment analysis algorithm and better show the development of enterprises, has also become the top priority of many expert media research [3]. In this regard, relevant experts and scholars have studied the data analysis of enterprise economic benefits and achieved some results.

Literature [4] proposed a new data asset lifecycle management method based on three-tier B/S architecture. Firstly, the influencing factors of data asset value are analyzed, and then the analytic hierarchy process and grey correlation analysis method are integrated to build the data asset full-cycle management system under the three-tier B/S architecture. The comparable data assets are defined by using the correlation degree, and the data lineage management means are substituted to complete the goal of efficient data asset full-cycle management, and then the data asset value evaluation model is established: explore a feasible path for the effective use of data assets, and achieve the goal of the highest benefit of enterprise assets at the same time. However, the application of this method has great limitations and the analysis accuracy is relatively low. Literature [5] studies the simplification of least squares Monte Carlo (LSMC) method in the measurement of economic capital of insurance companies and discusses the model processing in the implementation process of this method, as well as the simplification effect and efficiency improvement of nested stochastic simulation. On this basis, for variable annuity products, under different prediction periods, the least square Monte Carlo method is used to measure economic capital, and the effect is compared with the complete nested stochastic simulation. The results show that the least square Monte Carlo method plays a good role in simplifying the measurement of economic capital and has a good effect on the tail fitting of risk loss. At the same time, compared with the nested stochastic simulation commonly used in the measurement of economic capital, the operation efficiency is greatly improved. However, this method cannot achieve classification and comparison in analysis, so the accuracy of the final analysis data is relatively low, and the security cannot be guaranteed. Based on the traditional investment cost model and combined with the operation benefit, literature [6] established the economic model of photothermal power station, took the maximum economic benefit as the optimization objective, and used genetic algorithm as the optimization strategy to adjust the power generation capacity of photothermal power generation system, so as to optimize its economic benefit. Finally, for the separate operation of photothermal power station, the economic benefits of the solar thermal power station in the wind solar thermal combined system are verified by simulation. The application scope of this method is relatively small and the security is relatively small, so it cannot meet the confidentiality needs of current enterprise operation.

Aiming at the problems existing in the above methods, this paper proposes a data envelopment analysis algorithm of enterprise economic benefits based on leapfrog algorithm. By comparing and analyzing different analysis algorithms of enterprise economic benefit data, the data envelopment analysis algorithm with strong usability is selected. Using the data envelopment analysis algorithm, the effectiveness of DEA is judged by introducing relaxation variables, and the non-Archimedean infinitesimal model is used to build the basic operation mechanism. On this basis, the overall operation mechanism of leapfrog algorithm component is used to clarify the value range of relevant economic benefit data and the number of global mixed iterations: input the relevant economic benefit values, determine whether the global mixed iteration times are reached by delimiting the value range, output the optimal control parameters according to the fitness arrangement order, and finally obtain the global optimal analysis results.

The contributions of this paper can be summarized as follows:

(1) This paper solves the problem of low analysis accuracy and poor security in the current enterprise economic benefit data analysis.

(2) This paper proposes a data envelopment analysis algorithm of enterprise economic benefits based on leapfrog algorithm.

The structure of this paper can be summarized as follows:

In section 2, we analyze the research status of enterprise economic data benefit analysis methods and select the data envelopment analysis algorithm with strong usability according to the effectiveness and shortcomings of the enterprise economic benefit data analysis algorithm. In section 3, we use the data envelopment analysis algorithm to judge the effectiveness of DEA by introducing relaxation variables and use the non-Archimedean infinitesimal model to build the basic operation mechanism.

In section 4, we use the overall operation mechanism of leapfrog algorithm component to clarify the value range of relevant economic benefit data and the number of global mixed iterations: input relevant economic benefit values, determine whether the global mixed iteration times are reached by delimiting the value range, output the most control parameters according to the fitness arrangement order, and finally obtain the global optimal analysis results.

In section 5, the experimental analysis is given.

In section 6, the conclusion is given.

2. Benefit Analysis Method of Enterprise Economic Data

2.1. Benchmarking Analysis. Benchmarking analysis, also known as the comparison gap method, is an overall evaluation process based on the best performance of the bid evaluation after comparison between the participating companies and the known companies, so as to find out the gap between them and improve them [7]. This benefit evaluation method is to explore the outstanding and obvious performance of the same kind of companies, so as to find the company with the best performance, and learn from the beneficial experience of sending a company's operation, so as to promote its own development. Generally, benchmarking analysis can be divided into three types: its own internal benchmarking, competitor benchmarking, and general benchmarking. The most important thing in practical application is to use competitor benchmarking to identify the strongest competitors and analyze the reasons for their high strength, so as to draw lessons from it.

2.2. Analytic Hierarchy Process. The so-called analytic hierarchy process is a benefit evaluation method that invites relevant scholars to make corresponding comparison of all indicators to form a judgment matrix and then measure and calculate the maximum eigenvalue and eigenvector to clarify the measurement of indicators [8]. It decomposes the complicated problems into several parts according to the dominant relationship and then constructs a new hierarchical structure. Then, after corresponding comparison, it determines the relative importance of each element and then arranges it according to its importance. The feature of the sending method is that it can comprehensively use personal intuition, life experience, and subjective insight to send h subjective factors [9]. This method is suitable when there is subjective information or uncertain factors [10].

2.3. Fuzzy Comprehensive Evaluation Method. The so-called fuzzy comprehensive evaluation method is a benefit evaluation method based on fuzzy mathematics theory [11]. Fuzzy comprehensive evaluation is an effective method to evaluate many comprehensive problems and is widely used in environmental engineering, mining engineering, and so on. In order to apply the send one method, first build a hierarchical fuzzy subset to quantify the fuzzy indicators with fuzzy and difficult-to-quantify boundaries, and then combine various indicators by using the fuzzy change theory; that is, change the qualitative evaluation into quantitative evaluation, so as to effectively solve the problems with great difficulty in quantification in the actual evaluation process [12]. Compared with other methods, the seed delivery evaluation method is more systematic and the results are more clear.

2.4. Artificial Neural Network Evaluation Method. The so-called artificial neural network evaluation method refers to the corresponding simulation of the working principle of human brain neural network, the establishment of learning model, and the analysis by using the existing empirical knowledge, so as to reduce the error between the best solution and the actual value as much as possible [13]. This benefit evaluation method is interactive, which can take scholars' intuition W and experience mode into account and reduce the impact of various uncertain factors in this process as much as possible. In the process of training corresponding learning samples, carry out corresponding trade-offs for the weight coefficients between input factors and input factors, with high fault tolerance. The adaptability is also strong. The most important thing is to be able to efficiently deal with complex systems with nonlocality and nonlinearity [14].

2.5. Data Envelopment Analysis. Data envelopment analysis was first proposed by three outstanding operational research scholars, A. Charnes, W. W. Cooper, and E. Rhodes, in 1978. This analysis model can deeply analyze the effectiveness of the same type of decision-making unit with various inputs and outputs. It is a new systematic efficiency evaluation and analysis method [15]. Because the first DEA model was proposed by Charnes, Cooper, and E. Rhodes in 1978, the name of this model is the combination of the first letter of the names of the three scholars, that is, the CCR model. Following the CCP model, in 1984, Banker, Charnes, and Cooper proposed a BCC model especially used to evaluate the technical effectiveness of decision-making units. Subsequently, relevant scholars put forward the additive model, CCGSS model, to evaluate the technical effectiveness of decision-making unit in 1985. In recent years, with the more and more extensive research of DEA and the continuous in-depth application of DEA methods, the DEA model system has been further improved and improved. These improvements mainly involve the improvement of weight, the control of input and output elements, the evaluation of decision-making units, the development of DEA application, and the application of comprehensive DEA model, and DEA data envelopment analysis can be applied in financial analysis and other aspects [16].

3. Constructing the Operation Mechanism of Enterprise Economic Benefit Data Envelopment Analysis

This paper will build C^2R model to realize the basic analysis of enterprise economic benefit data envelopment, and its main contents are as follows.

Supposing there are n decision-making units (DMUs), the enterprise economic benefit unit will be represented as j $\mathrm{DMU}(x_j, y_j)$, and the input quantity and the output quantity are, respectively,

$$\mathbf{x}_j = \left(x_{j1}, x_{j2} \ldots\ldots x_{jk} \ldots\ldots\ldots x_{jn}\right), \tag{1}$$

$$\mathbf{y}_j = \left(y_{j1}, y_{j2} \ldots\ldots y_{jk} \ldots\ldots y_{jn}\right). \tag{2}$$

For the j_0 DMU, the unit composed of its input quantity and output quantity is set to (x_{j0}, y_{j0}).

$$Vp = \frac{u^T \mathbf{y}_j}{v^T \mathbf{x}_j}. \tag{3}$$

Equation (3) is the evaluation index expression of the decision unit DMU_j; among them, $\mathbf{u} = (u_1, u_2 \ldots\ldots u_n)$, that is, the weight coefficient of the output quantity $\mathbf{y}_j$, $\mathbf{v} = (v_1, v_2 \ldots\ldots v_n)$ is the weight coefficient of the input quantity $\mathbf{x}_j$, and V_p is the evaluation index. As can be seen from the formula, $V_p \leq 1$, as V gets closer to 1. Input $\mathbf{x}_j$ works more DEA for output$\mathbf{y}_j$, that is, the more likely $\mathbf{x}_j$ is fully reasonably used. When V_p equals 1, the input quantity $\mathbf{x}_j$ and the output quantity $\mathbf{y}_j$ have the best correspondence, that is, the whole system is the most efficient.

In the case where the input-output variables of the studied system are known, the $(\mathbf{x}_j, \mathbf{y}_j)$ is known, and the input-output weights are unknown, the way to improve V_p is therefore to change the input-output weights as much as possible, so the purpose of constructing the C^2R model is to quantify u and v, making V_p as close to 1 as possible.

The model expression for C^2R is as follows:

$$\left\{ \max \frac{\sum_{k=1}^{n} u_k y_{jk0}}{\sum_{i=1}^{m} v_i x_{jk0}} = V_p \right\}. \tag{4}$$

This formula is the C^2R model in the data envelope analysis, and generally it is the dual model using the C^2R model in the application. Its dual model is

$$\left\{ \begin{array}{c} \min \theta = V_D \\ \sum_{j=1}^{n} \lambda_j \mathbf{x}_j \leq \theta x_0 \\ \sum_{j=1}^{n} \lambda_j y_j \geq y_0 \\ \lambda_j \geq 0 \end{array} \right\}. \tag{5}$$

When a new variable $s^+ \geq 0, s^- \geq 0$ is introduced, formula (5) is converted:

$$\sum_{j=1}^{n} \lambda_j \mathbf{x}_j + s^- = \theta x_0, \sum_{j=1}^{n} \lambda_j \mathbf{y}_j - s^+ = y_0. \tag{6}$$

Formula (6) introduces the dual model of the C^2R relaxation variables$^+$, s^-, which is a widely used form of the C^2R waveform. In the formula, θ is the evaluation index of the current evaluated unit (x_0, y_0), reflecting its effectiveness. When θ approaches 1, the evaluation unit (x_0, y_0) becomes more effective. λ_j is the weight of the input and output quantities, and in (9), θ approaches or reaches 1 by changing the different weight values. The s^+, s^- are relaxation variables, representing output insufficiency and excess of input, respectively.

The evaluated unit is absolute DEA valid only if $\theta = 1$ and s^+, s^- all is 0; the evaluated unit is the absolute DEA that is valid. Otherwise, the evaluated unit is valid only if $\theta = 1$ but s^+, s^- is not 0, the evaluated unit is valid as a relative DEA, and when $0 < \theta < 1$, the evaluated unit is invalid. In the C^2R model, DEA effectiveness refers to the comprehensive effectiveness of the corresponding decision units, which includes scale effectiveness and technical effectiveness. In the BC^2 model, DEA effectively refers to technical efficiency. Scale refers to the increasing output as the input increases; the technical effectiveness refers to the same input; the evaluation unit can use less output [17]. For n decision units, defined as formulas (1) and (2), the mathematical expression for the BC^2 model is as follow$_s$:

$$\left\{ \begin{array}{c} \max\left(\mu^T y_0 + \mu_0\right) = V_p \\ \omega^T \mathbf{x}_j - \mu^T \mathbf{y}_j - \mu_0 \geq 0 \\ \omega^T x_0 = 1 \end{array} \right\}. \tag{7}$$

After introducing the relaxation variable $s^+ \geq 0, s^- \leq 0$, formula (7) becomes

$$\sum_{j=1}^{n} \lambda_j \mathbf{x}_j + s^- = \theta x_0, \sum_{j=1}^{n} \lambda_j \mathbf{y}_j - s^+ = 1. \tag{8}$$

In (8), when $\theta = 1$ and $s^+$and s^- are 0, the evaluated decision unit DEA technology is valid. When $\theta = 1$ and $s^+$and s^- are not 0, the weak DEA technology is effective; when $\theta \neq 1$, the decision unit evaluated was non-DEA valid.

The relaxation variables s^+ and s^- are vectors containing j elements; to determine whether s^+ and s^- are 0, you have to judge whether each element in s is 0. However, this makes the computation of the whole evaluation model too large, so we need to introduce a specific non-Archimedes infinitesimal BC^2 model [18]. This model only needs to judge the s^+ and s^- element of 0 to achieve the goal. The mathematical expression for the BC^2 model with a non-Archimedes infinitesimal size is

$$v = \left\{ \begin{array}{c} \min\left[\theta - \varepsilon\left(\hat{e}^T s^- + e^T s^+\right)\right] = V^D \\ \sum_{j=1}^{n} \lambda^j \mathbf{x}^j + s^- = \theta x_0 \end{array} \right\}. \tag{9}$$

In formula (9), ε is a non-Archimedean infinitesimal number and can be regarded as a number less than any positive number and greater than 0. According to the current operation of the enterprise economic benefit data envelope analysis algorithm, in order to improve the accuracy of the algorithm and reduce the impact of the enterprise economic benefit data envelope analysis algorithm, this paper will be based on the non-Archimedes infinitesimal [19] BC^2 model, based on the frog jump algorithm to better optimize the enterprise economic benefit data envelope analysis algorithm.

4. Data Envelopment Analysis Algorithm of Enterprise Economic Benefits Based on Leapfrog Algorithm

Frog leaping algorithm was originally proposed on the basis of SCE algorithm and particle swarm optimization algorithm. Inspired by the "cultural gene inheritance" in nature, it is a meta heuristic search method for solving optimization problems [20]. The algorithm uses the heuristic function to guide the population search in a strategic way and finally finds the optimal solution of the problem.

The specific description is as follows: there is a frog population living in a swamp, and many stagnation points are scattered in the swamp, covering the whole swamp. Frogs jump between different stagnation points in order to find places with more food. The whole frog population in the swamp is divided into several different frog subgroups. Each subgroup has its own cultural gene and implements local search strategy and independent evolution. Each frog in the subgroup also has its own culture. Frog individuals exchange information through cultural exchange, and frog individuals will affect each other. During local search, the cultural information of frog individuals with the best results in the subpopulation or the whole population will directly affect the inheritance and evolution of individuals, improve the quality of cultural genes, and speed up individual evolution. After local search, the frog individuals with poor performance values in the subpopulation are updated, and the emergence of new frog individuals means that the subpopulation has realized independent evolution. Among them, the jump step of frog individual represents the increment of frog individual evolution and the change of cultural characteristics. The new individual after evolution is the new stagnation point reached by frog, which is a candidate solution in the process of evolution. The candidate solution returns to the cultural genome to continue inheritance and evolution. The cultural gene subgroups that have evolved independently for many times are fused with each other, so that the optimal information in each subgroup can be exchanged to form a new frog population with the same scale, redivide the cultural genome, and carry out cyclic operation according to the above steps until the optimal stagnation point is found.

Its basic ideas are as follows: n frogs are randomly generated in the S dimensional solution space to form the initial population, and the i frog can be represented as $X_i = [x_{i1}.x_{i2}, \ldots, x_{iS}]$. After obtaining the initial population, frogs within the population were arranged in descending order according to fitness to record the optimal fitness frog individuals in the population X_g. Frog populations were divided into m, per group of n frogs, satisfying $N = m * n$. The specific grouping is as follows: the first is assigned to group 1, the second to group 2, the m to group m, and the $m + 1$.

The frogs with the best and worst fitness were recorded in each group as, respectively, X_b and X_w, with set X_g representing the highest fitness in the entire population.

Local search within the group was performed according to (10) and (11), namely, updating X_w.

$$D = r\left(X_b - X_w\right), \tag{10}$$

$$X_w' = X_w + D, \quad \|D\| \leq D_{\max}. \tag{11}$$

In type, r is a random number between 0 and 1. $D_{\max}$ represents the maximum value of the altered position allowed by the frog. After updating, if the obtained frog X_w' outperforms the original frog X_w, it replaces the frogs in the original group. If there is no improvement, replace X_b with X_g, and perform local search by formula (10) and formula (11). If there is still no improvement, a new frog needs to be produced randomly, to replace the original X_w. Repeat the above local search for L times. After completion of the local search, the frogs within all groups were remixed and sorted and divided into groups, before local searches, and so repeat until G of global mixing iterations was reached.

The enterprise economic benefit data envelopment analysis algorithm based on leapfrog algorithm has strong global search ability, fast calculation speed, and high calculation accuracy and finally realizes the effective analysis of enterprise economic benefit data. Therefore, the basic flow of the data envelopment analysis algorithm of enterprise economic benefits based on leapfrog algorithm is as follows:

(1) *Parameter Initialization*. Using BC^2 as the base model, the range of K_p,K_i, andK_d values , frog population N, spatial dimension S, group number m were determined. Each group contains a frog number of n. The maximum change of the frog is $D_{\max}$. The number of local analyses is L, global mixture iterations are G, and the maximum local analysis radius is $r_{\max}$.

(2) The fitness value F_i for each frog was calculated according to formula (12), arranged in descending order according to fitness, and divided into m group, and n frog per group; then,

$$F_i = \int_0^{\infty} t|e(t)|\mathrm{d}t. \tag{12}$$

In the formula, F_i represents the fitness of the first frog and $e(t)$ represents the system control error.

(3) Determine X_b and X_w in each group. For the entire group Xg, according to equations (11) and (12) until the partial analysis results are obtained, the obtained results are remixed into L.

(4) Determine whether the number of global hybrid iterations is reached, and then output the optimal control parameters; otherwise, go to (2) and continue the iteration.

(5) Export the global optimal analysis results, and the full running procedure is shown in Figure 1.

5. Experimental Analysis

5.1. Experimental Design. In order to verify the safety and accuracy of the proposed method in enterprise economic benefit data envelopment analysis, simulation experiments are carried out. Taking company X as an example, assuming that the block length of economic benefit data is 100, the time span is from December 2019 to December 2020, the bandwidth of data feature sequence distribution set is 14 dB, taking 10, 20, 30, 40, and 55 as the size of segmented sample set for storing information coding in media corpus, and the intensity of data attack in media corpus is 30 dB. The waveform of sample media corpus data is shown in Figure 2.

5.2. Experimental Index Design. Based on the experimental scheme designed above, the experimental indicators of this paper are set as the accuracy and data security between economic benefit data analysis and business results. In order to promote the effectiveness of the experiment, the experiment is carried out in the form of comparison, which compares the methods in this paper, the data asset full-cycle management method based on three-tier B/S architecture, and the economic benefit optimization method of photothermal power station based on genetic algorithm. Many iterations are carried out in the comparison process to improve the accuracy of the experiment.

5.3. Analysis of Experimental Results. In order to verify the effectiveness of the design method in this paper, the method in this paper, the full-cycle management method of data assets based on three-tier B/S architecture, and the economic benefit optimization method of photothermal power station based on genetic algorithm are experimentally compared. The economic benefit data samples of X enterprise are

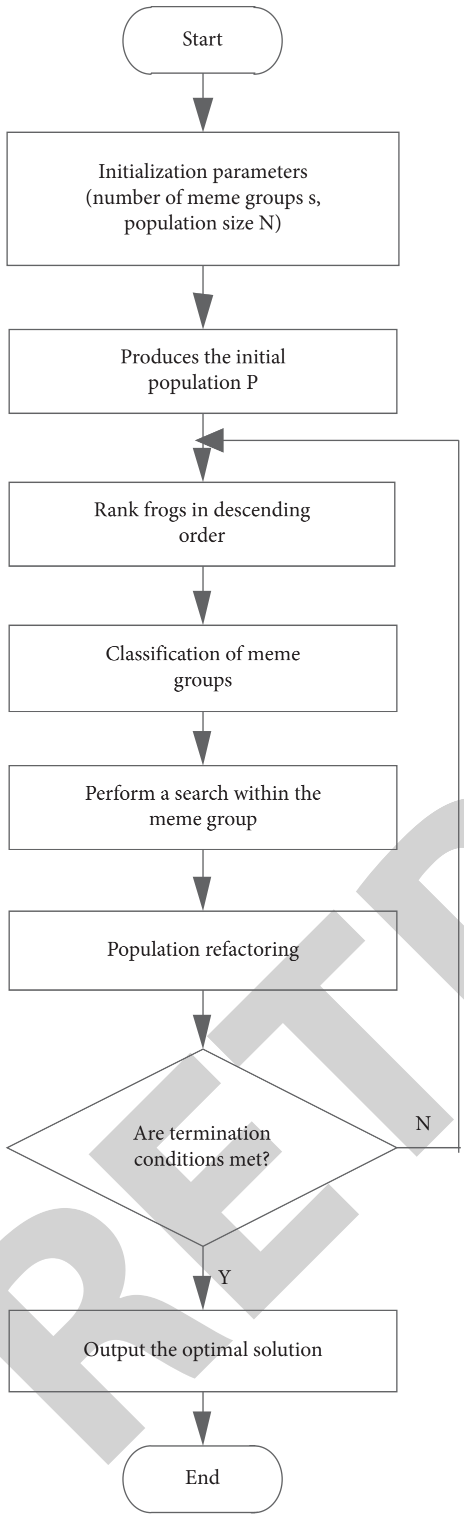

Figure 1: Data envelopment analysis process of enterprise economic benefits based on leapfrog algorithm.

analyzed and compared with the actual operation results. The results are shown in Figure 3.

By analyzing the data in Figure 3, it can be seen that, under the same amount of data, there are some differences in the analysis results obtained by the method in this paper, the

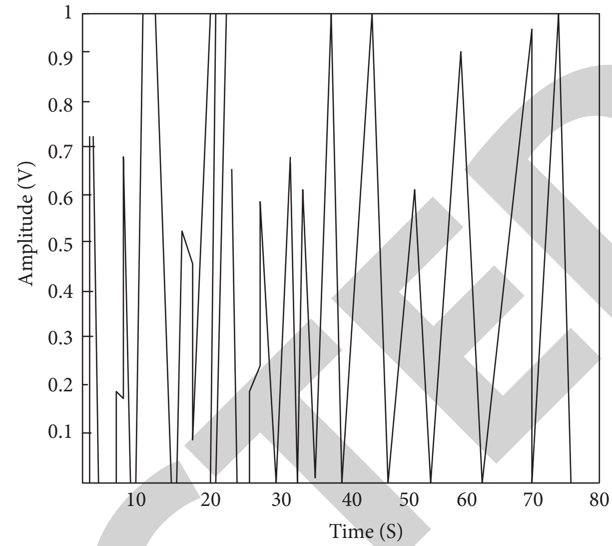

Figure 2: Waveform of economic benefit data of sample x enterprise.

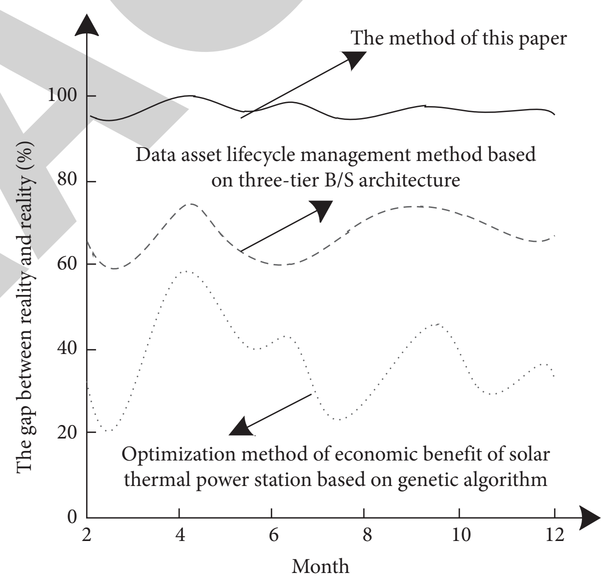

Figure 3: Analysis of the gap between the analysis value of different methods and the actual operation.

full-cycle management method of data assets based on three-tier B/S architecture, and the economic benefit optimization method of photothermal power station based on genetic algorithm. Among them, the analysis results of this paper are almost close to the actual business situation and have high accuracy. This is because this paper integrates the leapfrog algorithm on the basis of enterprise economic benefit data envelopment analysis to verify the effectiveness of this method.

In order to further verify the effectiveness of the proposed method, this method, the data asset full-cycle management method based on three-tier B/S architecture, and the economic benefit optimization method of photothermal power station based on genetic algorithm are compared

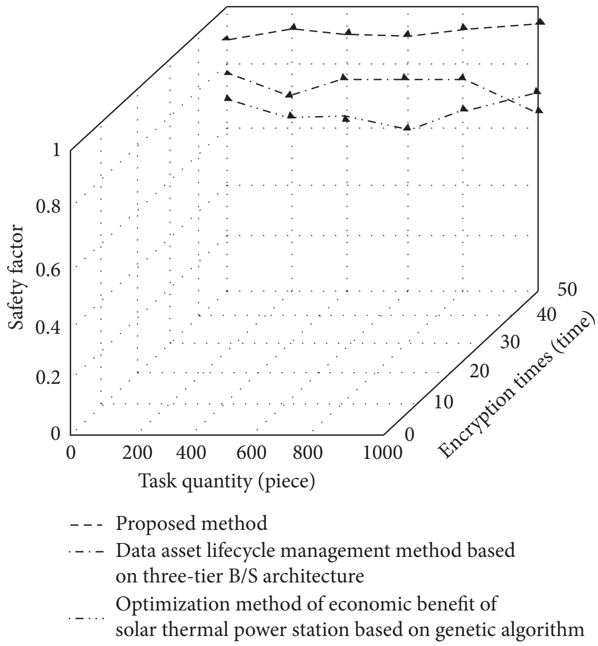

Figure 4: Comparison of safety coefficient of enterprise economic benefit data with that of different methods.

experimentally. The security of economic benefit data encryption of sample x enterprise is analyzed. Taking the encrypted security coefficient as the measurement standard, the value range of security coefficient is [0, 1]; the closer the security factor to 1, the better the security. The security results after encryption by the three methods are shown in Figure 4.

By analyzing the curve trend in Figure 4, it can be seen that, under the same experimental conditions, the security of economic benefit data encryption of sample x enterprise is analyzed by using the method in this paper, the full-cycle management method of data assets based on three-tier B/S architecture, and the economic benefit optimization method of photothermal power station based on genetic algorithm. It can be seen that there are some differences in the security coefficients of the three methods. Among them, the encryption security coefficient of this method is higher and higher than 0.9, while the encryption security coefficient of the other two methods is lower than that of this method. This is because the encryption key is designed in the data envelopment analysis algorithm, which improves the security of data and has a certain reliability.

6. Conclusion

This paper presents a data envelopment analysis algorithm of enterprise economic benefits based on leapfrog algorithm. According to the proposed method, with the help of comparing and analyzing different analysis algorithms of enterprise economic benefit data, the data envelopment analysis algorithm with strong usability is selected firstly. After that, the effectiveness of DEA is judged by introducing relaxation variables with the help of the data envelopment analysis algorithm, and the non-Archimedean infinitesimal model is used to build the basic operation mechanism. On this basis, the overall operation mechanism of leapfrog algorithm component is used to clarify the value range of relevant economic benefit data and the number of global mixed iterations. The experimental results show that the analysis accuracy of this paper is close to the actual situation and has strong security. Although the performance of the algorithm proposed in this paper is superior, the algorithm still has the problems of high computational complexity and high overhead in the actual system. Therefore, the above problems need to be solved in the future [21–25].

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 interest.

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