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Research Article

Comprehensive Accounting of Resources, Environment, and Economy Integrating Machine Learning and Establishment of Green GDP

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In macroeconomics, GDP is one of the most important concepts and indicators. GDP has always been the most common indicator of national economic development in the world. With the development of the environmental protection movement and the rise of the sustainable concept, it is urgent to carry out resource and environmental accounting to comprehensively reflect the resource and environmental input in economic development. Green GDP is gradually developed in this context. The article introduces machine learning technology and data mining technology to establish a comprehensive accounting system for resource and environmental economy and green GDP. The data related to a city's green GDP is collected by mining and the environmental ecological cost is constructed to correct the city to obtain its green GDP value. Taking a city as an example and confirming the method proposed in this article, the final GDP of the city is 68.839 billion yuan, the environmental ecological cost is 4.635 billion yuan, and the green GDP is 64.204 billion yuan.

1. Introduction

The current international system of general economic accounting has major flaws: it separates the economic process from the environmental process, ignores the impact of resources and environmental factors on the economic development process, and does not reflect the impact of the economic process on the environment. Extending the global economy and environmental economy to national accounts and calculating green GDP is an important way for governments to implement macroeconomic regulation and achieve sustainable economic growth. Trying to measure a country's economic output while taking into account the depletion of resources and the destruction of the ecological environment, to comprehensively reflect the changes in the environment and economy, this is green GDP.

To achieve sustainable development, green GDP must be introduced. Green GDP represents not only economic growth, but also real living standards, welfare levels, and real wealth within the framework of sustainable social development. Its application will definitely change society's perception of economic growth: it not only pays more attention to the value of economic growth but also pays more attention to the quality of development and the environment in which people live. The concept of pursuing GDP subconsciously encourages people to plunder the Earth and exchange for growth with resource depletion and environmental damage, forming the so-called "exchange of environmental resources for growth," the consequences of this growth are serious.

Regarding machine learning, relevant scientists have done the following research. Helma et al. proposed a new machine learning network, a demonstration model involving repetitive data networks, using level information multiple times to track combat skills in combat [1]. Wang et al. proposed a data-driven machine learning method to predict Reynolds stress changes. This method was used to predict Reynolds stress in normal mountain floods with two more difficult training flow scenarios, showing the advantages of the proposed method [2]. A comparative study of the performance of two nonparametric machine learning techniques is conducted. The two methods are applied to predict the insolvency of Spanish nonlife insurers, based on a set of financial ratios, and are compared with three classical well-known techniques [3]. The purpose of the study by Voyant et al. is to outline methods for predicting solar radiation using machine learning methods. The performance ranking of such methods is complicated by the diversity of datasets, time steps, prediction horizons, settings, and performance metrics. To improve the prediction performance, some researchers propose to use mixture models or use ensemble prediction methods [4]. Zhou et al. presented a machine learning framework for big data to introduce a discussion of opportunities and challenges. The framework for machine learning follows the level of the pre-analysis and analysis process and is open to future work in many known and unknown research areas [5]. The purpose of the study by Kavakiotis et al. is to provide a systematic overview of machine learning software, computer techniques, and tools in the field of diabetes research with a wide range of mechanical algorithms. Most clinical databases are used for this type of data and diabetes studies are performed [6]. Analysis of interaction models is the process of understanding, analyzing, and refining machine learning models with interactive images. Liu et al. provide a comprehensive analysis and explanation of this rapidly evolving field. It ranks work into three categories: understanding, analytics, and sophistication, each with new impact research [7]. By combining machine learning and intelligent iterative sampling, the machine learning agent resulting from the iterative learning process proposed by Lamperti et al. is a highly accurate surrogate of the real model and significantly reduces the computational time required for large-scale exploration and calibration of the parameter space [8]. Zhang et al. presented a machine learning classifier where computations are performed on a formal matrix that stores machine learning models. The accuracy of the system is comparable to that of discrete systems, and its classification is tens of times lower than that of discrete systems using formal learning algorithms [9]. Zhang et al. report on recently developed deep learning methods and their applications in rational medicine research. Today, in the era of big data, these advances in artificial intelligence help guide early drug design and discovery [10]. Butler et al. provide a concise introduction to the latest developments in chemical engineering, the machine learning techniques used to solve research problems in the field, and future policy in the field. In the future, the design, synthesis, characterization, and application of molecules and materials will be accelerated by artificial intelligence [11]. Gastegger et al. use the computational capabilities of machine learning to predict the infrared spectrum of molecules with high accuracy. They have based their machine learning strategy on ab initio molecular dynamics simulations and developed a model of molecular dipole moment based on environment-dependent neural network load, demonstrating the power of machine learning methods [12]. Machine learning offers a valuable approach to improve classical automatic algorithms for the analysis of highly multivariate and multimodal biomedical data. Fatima and Pasha present a comparative analysis of different machine learning algorithms for the diagnosis of various diseases. They have drawn attention to different machine learning algorithms and tools used for disease analysis and related decision-making [13]. Cai et al. reviewed several commonly used feature selection evaluation methods and then gave an overview of supervised, unsupervised, and semi-supervised feature selection methods commonly used in machine learning problems such as classification and clustering. Finally, future challenges related to feature selection are discussed [14]. Sacha et al. propose a conceptual framework for modeling the interaction between human and machine learning elements in the process of visual analysis, clearly highlighting the key link between the automated algorithm and interactive visualization. This is expected to lead to more efficient data analysis [15]. These methods provide some approaches to our research, but due to the short time span and a small sample of studies, they have not gained public acceptance.

The innovation of this article is that green GDP is introduced into the model construction to replace the traditional GDP that measures the level of economic development, which can better reflect the healthy and green development of the national economy. This article introduces data mining and machine learning technology to make the data more comprehensive and accurate. Based on existing research, we combine population mobility, industrial structure changes, and economic growth to study their structural relationships.

2. Methods of Establishing Green GDP

2.1. Machine Learning. Machine learning is an important research area in the field of artificial intelligence. It is a multidisciplinary field covering mathematics, statistics, computer science, and philosophy. The main purpose of machine learning is to find out how computers work to simulate human learning so that computers can learn. In the analysis method, machine learning mainly includes: (1) supervised learning which is based on a model that maps the input and output of the system according to the learning data. This mapping model is then used to classify or predict unlabeled patterns. (2) Unsupervised learning which is a form of learning that does not involve human data annotation. The purpose of learning is to use computer algorithms to find patterns in input data. (3) Part-time learning is a form of learning that is an intermediate step between controlled and uncontrolled learning.

Research on mechanical design algorithms should be carried out based on the following factors: (1) Theoretical analysis: explore the execution of various machine learning algorithms from a theoretical perspective, interpret the results obtained, and guide the development of more efficient algorithms. (2) Research on the representation of application problems: establish a scientific and efficient representation method for the application problem to be solved, so that the performance of the machine learning algorithm can be better utilized. (3) Task-oriented research: in practical applications, the data that needs to be processed and the needs of users show a diversified trend. Therefore, researchers are required to develop specific machine learning methods that can be given to a certain or a certain type of application problem. (4) Check the performance of the algorithm: researchers need to design different machine learning algorithms for different application problems, and design appropriate evaluation methods to improve the algorithms for the problems to be studied. (5) Search for cognitive models: learn about human learning processes and computer simulations, including observation, information presentation, memory and language learning, problem-solving, and reasoning.

Machine learning is a course with many features, including probability theory, statistics, estimation theory, and collective analysis. Machine learning is the study of how computers take into account or use human learning behavior to acquire and improve new knowledge or skills and to continuously improve existing information systems. Machine learning is essential for artificial intelligence and crucial for the development of intelligent computers.

Machine learning has two definitions: (1) machine learning is the science of artificial intelligence, in particular how to improve the performance of certain algorithms in empirical learning and (2) machine learning uses data or prior experience to optimize software performance criteria.

$$\vec{l}_h(t) = \arg\min\left\{f\left(\vec{l}_1(t)\right), f\left(\vec{l}_2(t)\right), \ldots, f\left(\vec{l}_m(t)\right)\right\}, \tag{1}$$

where m is the number of particles in the population and $\vec{l}_h(t)$ is the location of the optimal individual.

$$t_{\text{up}} = \frac{\eta}{1-\eta}, \tag{2}$$

where η is the amount of work before failure.

$$t_{\text{par}} = \frac{\eta/B}{1 - B/(B-1)\eta} \approx \frac{\eta}{B(1-\eta)}, \tag{3}$$

where B is the number of machines in the distributed cluster and t_{par} is data flow time.

$$n(m) = \text{sgn}[\sigma \cdot \varphi(m) + b], \tag{4}$$

where σ is the weight vector and b is constant.

$$P(\lambda) = \frac{1}{2}\sum_{u=1}^{i}\sum_{v=1}^{i} n_u n_v \lambda_u \lambda_v K(m_u, m_v) - \sum_{v=1}^{i}\lambda_v, \tag{5}$$

where $P(\lambda)$ is parameter of the decision function and λ_u is the nonsupport vector data points.

$$P = E^2 - \sum_{v=1}^{i}\left(E^2 + \varepsilon_v - \|\varphi(m_v) - a\|\delta_v + C\sum_{v=1}^{i}\varepsilon_v - \sum_{v=1}^{i}\varepsilon_v\mu_v\right), \tag{6}$$

where δ, μ is Lagrange multiplier, ε_v is slack variable, and C is soft boundary constant.

$$E_{\varsigma,A} = \begin{cases} \{m \in D \mid f(m) < A\}, \lambda \longrightarrow \infty \\ \{m \in D \mid f(m) < \lambda + \varsigma\} \end{cases}, \tag{7}$$

where ς is any small positive number.

$$\vartheta_{\text{uv}}(k) = \frac{1}{30}e^{-k/T_2} \cdot (b_{\text{va}} - b_{\text{vb}}) + \delta, \tag{8}$$

where T_2 is the positive integer, b_{va}, b_{vb} is the upper and lower bounds of space, and $\vartheta_{uv}(k)$ is the standard deviation vector.

$$\text{Qf}(x, y) = \; < f(t)|x|^{-1/2}\psi\left(\frac{t-y}{a}\right), \tag{9}$$

where x is the parameter that change the size of the window function and y is the parameter that act as translations.

$$\begin{aligned} \text{AC} &= -5\log P + 2\frac{s}{B}, \\ \text{BC} &= -3\log P + s\log B, \end{aligned} \tag{10}$$

where $\log L$ is the maximum log-likelihood function, s is the number of model parameters, B is the sample size.

$$\text{AC} = \int_0^1 (1 - f(n))\text{dn} = 1 - \int_0^1 f(n)\text{d}n, \tag{11}$$

where n is the integral variable.

$$\text{wAU} = \int_0^1 h(n)(1 - f(n))\text{d}n, \tag{12}$$

where $h(n)$ is the weighting function.

$$\begin{aligned} W_\delta &= \theta_1\left[\frac{C_\delta\sqrt{2\theta_2 g_0^2}}{\theta_1} + 1 + \frac{\theta_2 g_0(g_0 - 1)}{\theta_1^2}\right]^{1/g_0}, \\ \theta_u &= \sum_{v=k+1}^{b} \eta_v^u \quad (u = 1, 2, 3), \end{aligned} \tag{13}$$

where C_δ is the value of the normal distribution, k is the number of pivots retained in the model, and b is the number of all pivots in the model.

Learning is the process of increasing or improving the performance of a system through repeated use so that the next time the system performs the same or a similar task, and it performs better or more efficiently than before. Figure 1 shows the basic structure of machine learning.

The interaction of the entire system structure with the outside world has the function of providing some information for the system components learned from the environment. The environment provides data linking, research, data processing, databases, storing processed data, implementing links, and using data to guide them in projects, as well as research links to data retrieval sources. The system must be involved in the actual use and transmission of information to the environment.

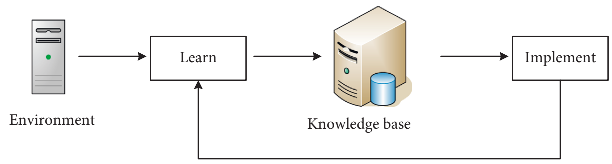

Figure 1: The basic structure of the learning system.

The environment can be part of the system's operation, and can also include operational elements and external conditions. The atmosphere is a collection of external information conveyed in one or more forms and is the source of external information. An example of an environment model analysis is an image or scene that needs to be recognized. In an environmental management system, equipment management is a manufacturing process. The information provided to the system by the analytical environment has two aspects: the level of the information and the quality of the information. The level and quality of environmental information are major factors influencing the design of machine learning systems.

The basic form of the knowledge base, the presentation of information, is very important. Common ways to present information are: vector attributes, production rules, markup systems, and frames. First, the expression must describe what is missing from the internal structure. An object is described using a set of properties or objects. It also takes into account the ease of applying analytical methods. At the same time, consideration should be given whether there is an opportunity to change the knowledge in the knowledge base. On the other hand, the flexibility of the system must also be considered. The knowledge base should be highlighted at an early stage and should be continuously monitored and new knowledge added during the learning process.

In the overall structure of the machine learning system, the learning element is the basic unit and interface of external communication. This module manages, analyzes, compresses, or simulates environmental information, creating new data entries or using this information to modify the database to improve system performance for project completion. The implementation phase includes knowledge-based projects; while updating the implementation results with information obtained during the implementation phase of the research phase, it completes the analysis of the new knowledge base and guides ongoing work. The complexity of the project depends on whether the project implementation requires one or more concepts, and whether the project is implemented in one or more phases.

Most machine learning work consists of two things: the ability to classify input data, such as signal processing, speech analysis, astronomical text, and other image processing. Medical research can also be thought of as a category in a certain sense, even in terms of electrician and business functions. It develops skills in problem-solving, behavior planning, and behavior management. The system learning process can be evaluated based on the following factors: classification accuracy, that is, whether the input data can be correctly and accurately ranked. System accuracy is determined by several factors such as size, classification, features, and model quality, and classifies system structure and system analysis methods. Accuracy and quality of responses: whether it is a rating system or a solution system, there are issues with the accuracy of responses. At the same time, accuracy does not mean good quality, and good quality involves several factors such as readability and stability. Figure 2 shows the flow chart of data classification based on machine learning.

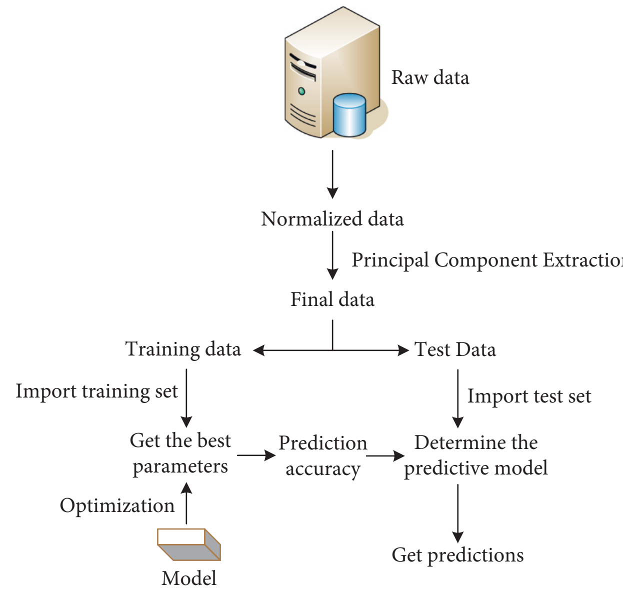

Figure 2: Flowchart of data classification based on machine learning.

2.2. Green GDP. Green GDP is the core indicator in the comprehensive environmental-economic accounting system, which integrates resources and environmental factors based on the current GDP. Specifically, green GDP is the cost of economic losses caused by environmental pollution, degradation of natural resources, poor education, uncontrolled population, and poor management of GDP. This indicator essentially represents the net positive effect of national economic growth.

Since its launch, GDP has been regarded as the most effective indicator to measure economic growth and has become an important indicator to measure the economic development of different countries. It represents the overall macroeconomic status of a country in a certain period of time and is the most important global indicator to measure the economic development of a country or region. However, with the rapid development of the economy, the loss of natural resources, the occurence of pollution problems, and the increase in the deterioration of the ecological environment occur. The current accounting results do not reflect environmental damage caused by the use of natural resources and economic activities, or changes in the use of resources and the environment and the progressive and sustainable development of a country or region. The result of this stage of development is that the more the release of harmful substances is, the higher the GDP is. Developing countries that depend on the exploitation of mineral, land, water, and forest resources to generate substantial incomes urgently need environmental and budgetary resources and appropriate GDP adjustments. To solve the deficiencies of traditional GDP in measuring sustainable development, the concept of green GDP is proposed.

The green GDP accounting account is a national economic account after adjustment of resources and environment, which consists of two parts: the first is the subsidiary account, that is, the subsidiary account of resource and environmental costs; and the second is the main account, that is, the green national economic account. The final value-added indicator of the green GDP accounting account is green GDP. Compared with the original GDP indicator, the result of this indicator deducts the cost of resources and environment in the economic process and is a more realistic aggregate indicator reflecting economic growth.

Green GDP has been revised and adjusted to traditional GDP, which is consistent with the national accounting standards. Considering the use and cost of environmental resources in the economic process can more clearly reflect the true level of the country's economy and environment, or the relationship between them is the most important indicator of a country's sustainable development. Green GDP is based on the theory of sustainable development, adapting GDP to changes in natural resources and environmental values, and reducing the value of green GDP in GDP after resource loss. Green GDP refers to green gross domestic product, which represents the reduction of resource use and damage to the environment by economic development, including factors such as cost reduction, cost degradation, and compensation. They affect economic and social value, and thus capture the true total economic output. Figure 3 shows the green GDP accounting process.

The basic concepts mainly involved in green GDP accounting are green GDP gross value and green GDP net value. Green GDP is based on the traditional gross national product, considering environmental costs and resource costs. Therefore, the calculation of environmental cost and resource cost becomes the key to sustainable income calculation. Gross Green GDP: green GDP is equal to GDP minus the cost of depletion of natural resources with intermediate consumption. Net Green GDP is equal to Green GDP minus the depreciation of fixed assets and the cost of resource depletion and environmental degradation with the nature of depreciation of fixed assets.

Human economic activity consists of two parts. On the one hand, it creates wealth for society, the so-called positive effect; and on the other hand, it hinders the development of the productive forces of society in various forms and ways, the so-called negative effect. These negative impacts are concentrated in the unrestricted demand for environmental resources, the absolute number of environmental resources is decreasing year by year, resulting in a decline in the quality of the ecological environment. The current SNA reflects only the positive effects of economic activity, not the negative ones, as they are incomplete, limited, and contrary to sustainable development policies.

The current SNA accounting system with GDP as the core indicator is based on market transactions, and goods and services are accounted at the market price of their transactions. Traditional economic theory holds that things are worthless without labor participation and market transactions. Since natural resources are derived from nature, without the participation of human labor, they are of course considered to be valueless and "inexhaustible," and their price is zero. In fact, due to the extensive use of natural resources, they have become scarce and even threaten the sustainable development of the economy. Natural resources, as the driving force of economic growth, should be reasonably priced and deducted from GDP as intermediate inputs or depreciation in the production process.

The misdirection of this accounting system will lead to the falseness of the current national economic output value, that is to say, the economic output value does not reflect the future income loss due to resource depletion and environmental degradation. The phenomenon of resource hollowing in economic development, that is to say, due to wrong guidance, the situation of resource destruction, and waste in our country is quite serious. This kind of economic growth is accompanied by the continuous weakening of the resource base, which is called the phenomenon of resource hollowing in economic development.

Green GDP is a comprehensive consideration of external factors and natural resources. Taking into account the new GDP based on the local administrative system, it reflects the overall economic prosperity of a country or region. Green GDP has two meanings: first, production and economic development must take place in a natural and environmentally sound environment: it must develop and utilize natural resources equitably and efficiently for sustainable economic development; second, commodity production and economic development not only enrich material life but also complete the efficient configuration of the environment and the continuous improvement of the quality of life. These indicators reduce the factors of sustainable economic development and the negative impact on the environment, as well as the positive impact of economic growth. The greater the proportion of green GDP, the greater the positive impact of macroeconomic growth and the less negative impact. The progress of today's human society faces many crises, including environmental crises. In principle, the fundamental question is whether human societies can continue to survive. Applying green GDP accounting can lead to changes in approach and awareness. It emphasizes the cost and price of using the environment and environmental resources in GDP growth, thereby improving resource protection for the environment, reducing the negative impact of development, and achieving sustainable development and economic growth.

The green accounting system examines social production, resources, and the environment as a whole to examine the quantitative relationship and regional boundaries between development, social production, resource development and utilization, and environmental protection. And incorporating it into the green accounting results of environmental resources will have an impact on the regional pattern. Like traditional national

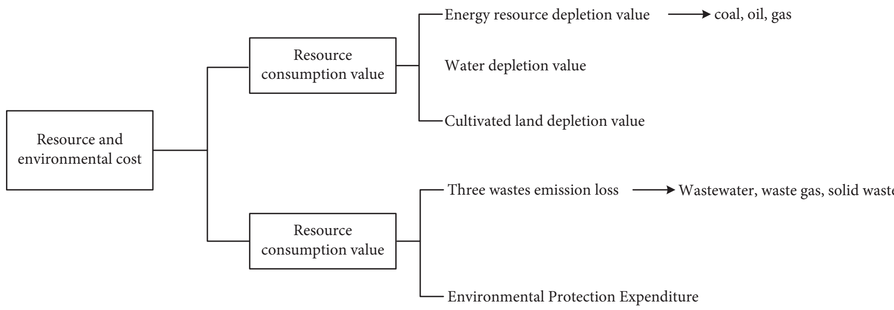

Figure 3: Green GDP accounting process.

accounts, traditional input-output accounting theories and table designs are essentially based on purely economic analysis, regardless of the natural resources and ecosystems that are closely related to economic activity. Therefore, when formulating a green GDP accounting system in accordance with the requirements of sustainable development, the traditional output and input accounting should be revised according to the green input-output principle. An increase in ecosystem cost can often be: a direct economic loss due to the destruction of natural resources, predatory development, environmental damage, and pollution. Financial investment is paid as the cost of protecting the environment to reduce pollution and achieve ecological balance, such as crop restoration and land improvement. Figure 4 shows the classification of environmental economic accounting.

3. Experimental Analysis and Results

In short, data mining is a complex process of searching for new, potentially useful and ultimately understandable, data from big data. Searching for information in a database is an interactive process between a human and a computer, involving many extraction steps, and processing the data is just a basic one. Figure 5 shows the process of knowledge discovery.

The knowledge discovery process is used to mine the data related to environmental economic comprehensive accounting and green GDP, and use machine learning technology to analyze and process the obtained data. The schematic diagram of the model is shown in Figure 6.

Select a city to demonstrate the model proposed in this article. As shown in Table 1, the population situation of the city in recent years is shown.

It can be seen that the life expectancy of the city's residents in 2020 has reached 81.26 years, which is a certain improvement compared with 2018 and is already higher than the average level of developed cities in the world.

By adjusting the energy and industrial structures, focusing on the implementation of clean energy alternatives, the work of atmospheric environmental governance has been comprehensively advanced. With the replacement of coal-fired stoves with clean energy, air pollution has been effectively controlled, and air quality is getting better and better. The main indicators of air quality are shown in Figure 7.

It can be seen that the overall level of ambient air quality in the city has been significantly improved, and the annual and daily averages of exhaust emissions and two pollutants have been effectively controlled.

By continuing to strengthen river environmental governance and intensifying water environmental control, the water quality of downstream of an important river in the city has been improved. The water quality indicators of the main parts basically meet the landscape water standards, the ecological functions are gradually restored, and the black and odor phenomenon is basically eliminated. As shown in Figure 8, the main indicators of water treatment and pollution detection in the sea area near the city.

It can be seen that the discharge of industrial wastewater has been controlled, the discharge of wastewater in the city has been reduced year by year, and the discharge of industrial wastewater with serious pollution has been greatly reduced. With the addition of sewage treatment plants in the city, the scale of sewage treatment capacity has expanded, and water quality has improved significantly.

Table 2 shows the specific calculation results of pollution funds.

Some environmental pollution can be reduced through prevention and treatment measures to avoid its damage. Often people spend more on prevention in order not to be harmed. Table 3 shows the city's prevention spending data in 2020.

Figure 9 shows the city's solid waste emissions and total loss value data.

It can be seen that the city's solid waste discharge has been controlled and is decreasing year by year at a certain amount. Domestic waste decreased significantly in 2017 and then rose to the previous level.

Such a merger is important for a comprehensive analysis of the environmental economy because it broadens the boundaries of traditional accounts and accounting, absorbing natural assets, and their internal changes. As shown in Figure 10, for the relevant data, it can be seen that the output and intermediate consumption of the two types of agriculture and electricity, gas, and water are very large.

Constructing the environmental ecological cost to correct the city, and calculating the green GDP, the results are shown in Table 4.

When the economy develops to a certain historical stage, if the growth rate of green GDP is lower than that of GDP, it indicates that the scarcity of natural resources and pollution reduction are increasing, which is not conducive to the

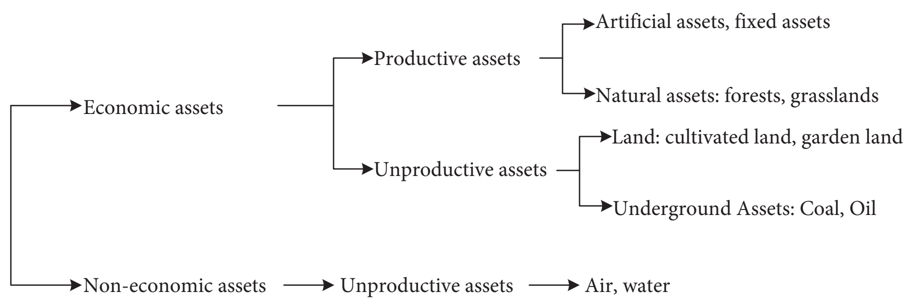

FIGURE 4: Environmental economic accounting classification.

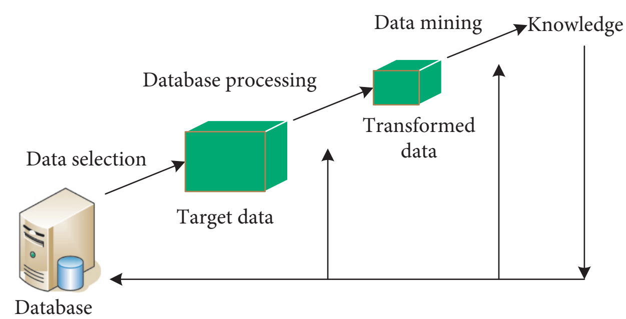

FIGURE 5: Process of knowledge discovery.

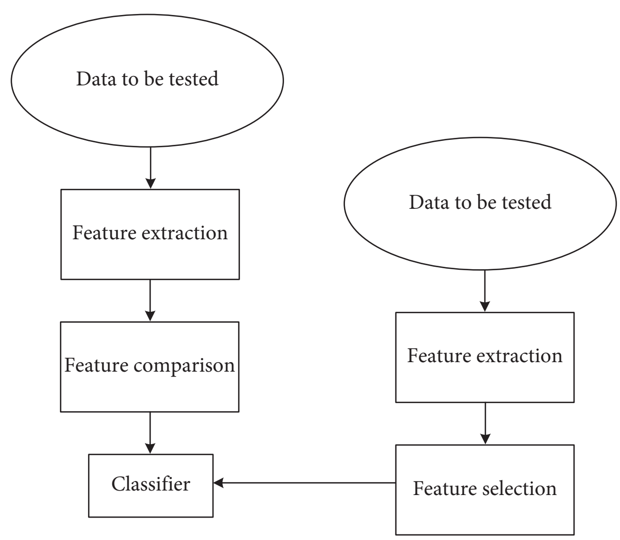

FIGURE 6: Model diagram.

TABLE 1: Demographics of the city.

Year	Year-end resident population	Year-end registered population	Resident population density	Average life expectancy
2018	1814.05	1365.02	2864	79.92
2019	1857.06	1379.81	2935	81.06
2020	1888.49	1392.07	2975	81.26

sustainable development of human society. Furthermore, combining resource scarcity with GDP can indicate the strengths and weaknesses of resource use. Under the condition of a certain price, if the cost of using resources is high, their share will increase, which is a manifestation of resource waste and resource abuse, and needs to strengthen supervision and means. Only in this way, it can be beneficial to the sustainable development of human society.

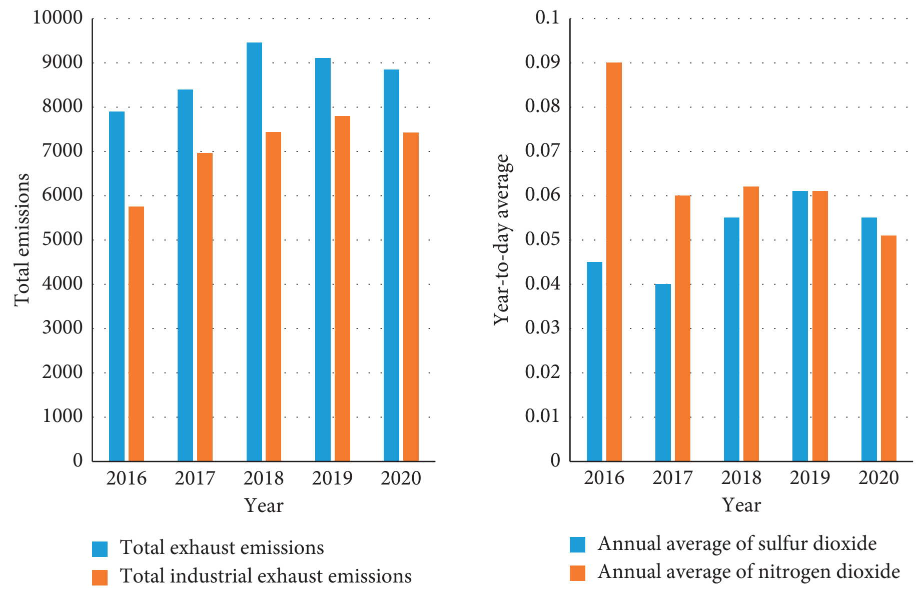

Figure 7: Main indicators of air quality.

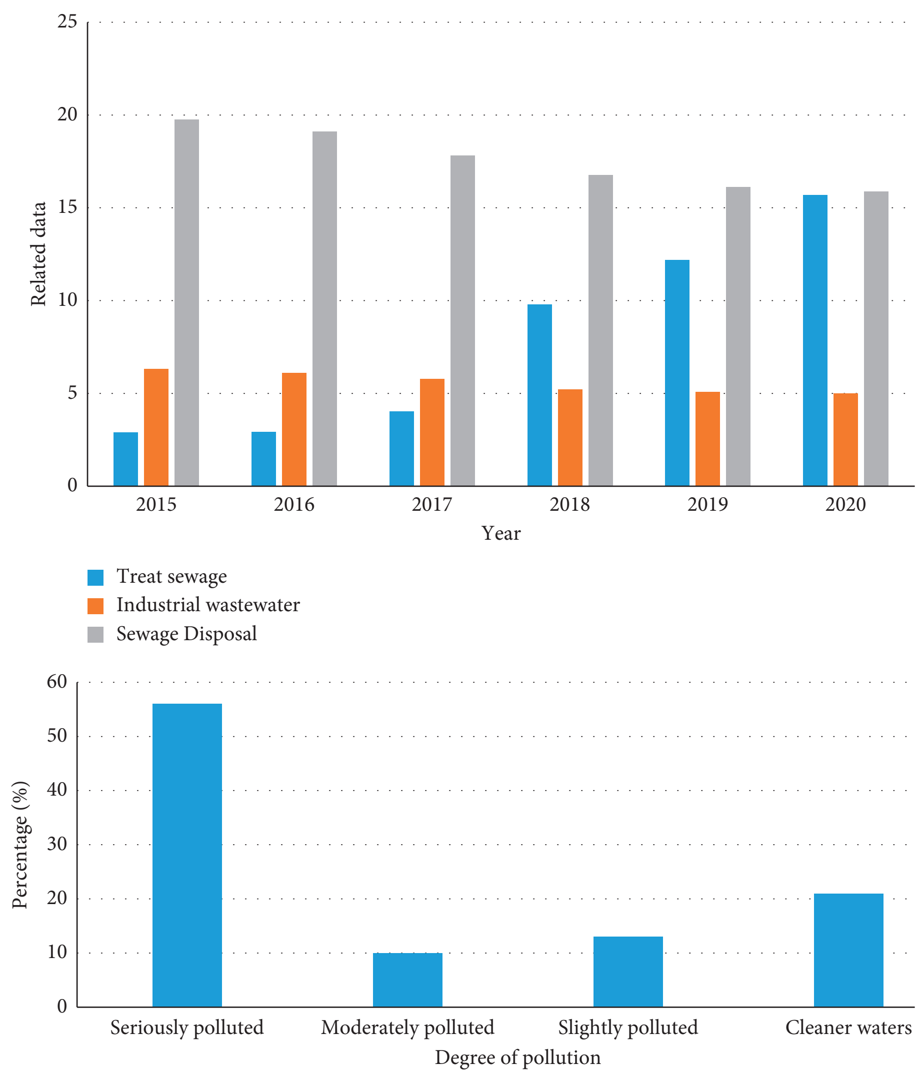

Figure 8: Main indicators of water treatment and pollution detection in the sea area near the city.

Table 2: Specific calculation results of pollution funds.

	Wastewater treatment	Waste gas treatment	Solid waste management
Fund usage(million)	194302	184068	80109
Total amount of governance(tons)	1756582	71268	59289
Unit governance funds	0.1105845	2.5829305	1.35084508

Table 3: Data on prevention spending in the city in 2020.

Prevention spending		Value (ten thousand yuan)	Quantity
Economic assets	Land solid waste	806.02	674
	Underground resources	985.05	3545
Noneconomic assets	Water	7529.8	8.61
	Air	1354.2	1.254.42

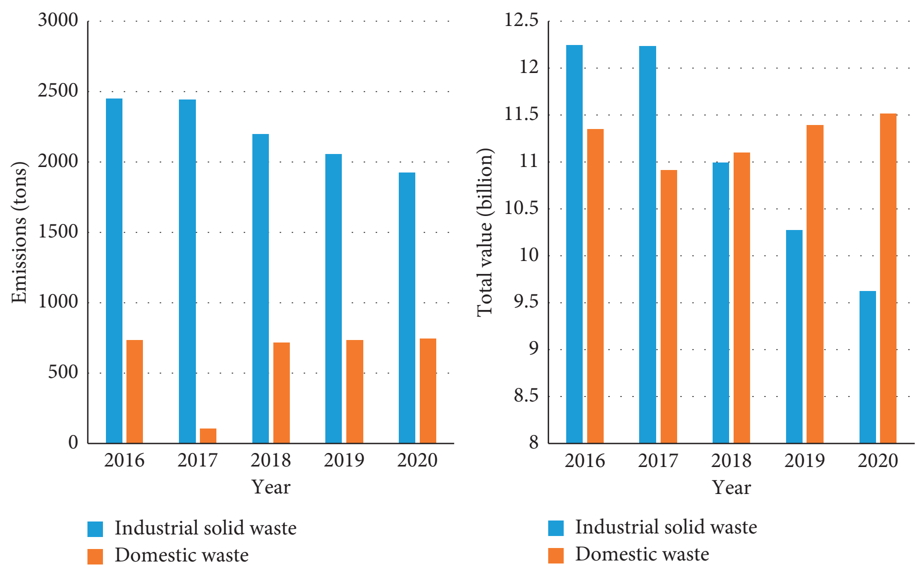

Figure 9: Total solid waste emissions and lost value.

4. Discussion

From the above information, it can be seen that population movement slows the growth of green GDP in the short term, but this effect is temporary. In the long run, population mobility, especially high-quality talent, will contribute to green GDP growth. Whether it is economic, financial, commercial, or shipping centers, these industries need more high-level and capable professionals to join. Therefore, to develop green GDP in the future, it is necessary to change the traditional way of maintaining the competitiveness of the industry by relying on economic resources, labor-intensive, and strengthening technology. Innovation and investment invest in talent more likely, and it will promote global innovation, take technology as the fulcrum, and make innovation the main driving force of development. It will promote global innovation, take technology as the fulcrum, and make innovation the main driving force of development. In this case, it is necessary to understand and make full use of the floating population to improve the overall quality of intrinsic productivity. It should strengthen community education based on various factors such as culture, legal knowledge, and professional quality, and comprehensively improve the quality. This reduces barriers to high-quality professional jobs, allowing them to better participate in advanced industries, leading to a gradual increase in demographic change drivers. At the same time, in order to improve the quality of the talent culture in the community, several educational and training institutions can be opened, especially in some areas that require intervention and guidance, as well as li that improve the quality of technical professional training.

The rapid development of the service industry is the prerequisite and inevitable result of the optimization and modernization of the industrial structure. Continued growth in the tertiary industry, especially in the service sector, has attracted large numbers of migrants seeking work. At the same time, it is also necessary to further develop advanced service industries, such as securities, futures, foreign exchange, and other advanced financial services, as well as high-tech industries that are key to innovation, information technology, and high added value, to attract the best talents to the city. This will fully leverage its assets as China's economic and financial center and promote the development of the city's economic and financial potential.

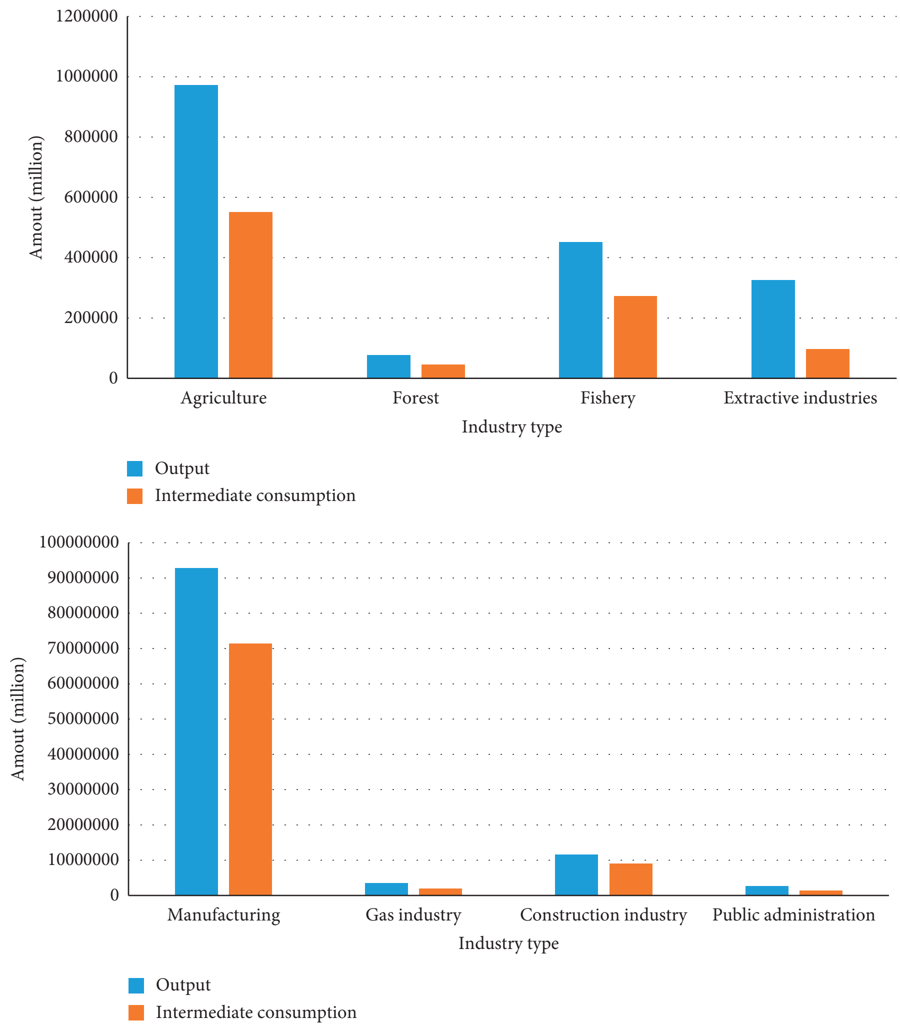

Figure 10: Provision and use of relevant data.

Table 4: The city's green GDP composition.

Project	Natural resource depletion loss	Natural resource degradation loss	Transfer of non-economic assets
Value	384333.18	49482.54	2888.65
Project	Prevention spending	Environmental cost	GDP
Value	22235.45	453165.59	688.39
Project	Environmental ecological cost	Environmental cost/GDP(%)	Green GDP
Numerical value	46.35	6.73	642.04

When introducing the green GDP accounting system, the resources and environment of social production should be regarded as a comprehensive system. In this comprehensive system, the quantitative relationship and quantitative boundary between the development of social production, resource consumption, and ecological environment protection are investigated, and the internal relationship between objective phenomena is systematically considered through the introduction of the accounting index system. The design of the green GDP accounting system should be based on scientific evidence and fully reflect the nature, characteristics, and interaction of green GDP and sustainable development. To ensure the credibility and objectivity of the assessment results, the reporting of relevant indicators should be clear and the measurement methods should be standardized. Environmental accounting indicators should not be rigid, but should be formulated based on repeated practice and research, and should be regularly reviewed according to changes in economic conditions and objective circumstances to reflect the dynamic process of sustainable development.

5. Conclusion

Since the reform and opening up, China has made remarkable progress due to its rapid economic growth for all to see. But the rapid growth of GDP is accompanied by the massive consumption of natural resources and the rapid deterioration of the environment. The growth of China's GDP is largely based on excessive consumption of resources and environmental degradation. It is precisely because the current national economic accounting system has some defects in resource and environmental accounting, so green GDP accounting is imperative. Taking into account the actual situation of a city, the formula and method of green GDP accounting for the city are proposed, and the city's GDP in recent years is used as an example for green GDP accounting, which yields data on the city's green GDP and calculates the share of green GDP in that year, based on which recommendations for the city's sustainable development are made. For green GDP accounting, some special industries should also be considered, that is, environmental protection industries and environmental protection-related industries, but this article does not make a distinction.

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 no conflicts of interest.

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