

Research Article

Analysis of the Influencing Factors of Enterprise Environmental Ethics on Enterprise Economic Performance

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In the information age, people's awareness of living environmental protection has increased unprecedentedly, and the concept of green environmental protection in enterprise economic behavior has been paid more and more attention by the market and consumers. The integration of green ideas, the improvement of production technology, and the research and development of environmental protection products have become the development trend of enterprises, and environmental ethical responsibility has also become an inevitable problem for enterprises. This paper analyzes the impact of enterprises' conscious commitment to environmental ethics on their economic benefits, identifies the key influencing factors with the help of scientific statistical methods, analyzes the action mechanism of influencing factors in performance on the basis of the effect model and communication model, and analyzes the correlation between environmental ethics and economic benefits. The experimental results show that the long-term dissemination of innovation and reputation factors in environmental ethics is conducive to the dissemination of green innovative technologies and products, obtaining the attention and recognition of more enterprises and stakeholders, broadening the scope of cooperation and sales, and obtaining the support of German consumers. Environmental ethics has a short-term direct effect on performance. When the direct effect is reduced, the intermediary effect of innovation and reputation factors can achieve a positive effect on performance by transmitting benefits.

1. Introduction

The development of modern industry has brought great changes to the social economy and enriched human material life. But it also brings serious ecological damage and environmental pollution. Environmental problems have seriously affected people's quality of life by the aggravation of environmental problems. With the enhancement of people's awareness of environmental protection, environmental issues have gradually become a global hot topic. Although government agencies have formulated various environmental laws and regulations, various environmental pollution incidents have still occurred frequently in recent years. Enterprises are the main drivers of environmental problems, so solving environmental problems requires government regulation. It also requires enterprises to pay attention to

environmental issues and consciously carry out environmental protection practices. An enterprise is a profit-making organization. The pursuit of profit is the driving force of enterprise development. Under the background of the era with sustainable development as the main melody, how to maintain a balance between environmental protection and economic performance has become a major problem faced by enterprise managers. Enterprise performance is not only an important issue concerned by enterprise managers but also a major direction concerned by academic researchers.

The change in material resources is relatively stable. Under the condition of limited quantity, the development of human society will inevitably change ecological resources. The process of pursuing economic improvement will have a negative impact on the balance of the natural environment and ecosystem, and even cause irreversible damage [1].

Similarly, the gradual deterioration of the natural environment and the gradual shortage of resources have an inhibitory effect on the development of human society, and the contradiction between the two is deepening. It is necessary for every country to take active and effective measures for ecological protection and sustainable development [2]. As an important part of the economic development, the economic activities that focus on ecological restoration cannot achieve the same negative impact on the initial scale of economic development, which cannot even double the time of economic development. People from all walks of life have gradually improved their awareness of ecological and environmental protection [3]. Relevant plans and reports advocate green production, green life, green technology, and green development, as well as reduce production and living energy consumption and pollution index, and jointly improve the quality of the natural environment [4]. Relevant experts and scholars stressed that eco-environmental protection is not achieved overnight, or can it be completed by a department or a system organization. It requires the participation of the whole society, improving relevant capital investment and protection and governance, building a scientific and perfect environmental supervision system, and optimizing environmental protection systems and processes.

Relevant laws have clear provisions on the standards to be met by enterprises' economic activities. This standard is the minimum standard that enterprises need to meet and bear the minimum responsibility, but it is not enough for enterprises to only meet the specified standards [5]. Whether considering the long-term development plan of the enterprise itself or for social development and human living space, the enterprise must face the choice of whether to actively undertake environmental ethical responsibility, which is its inevitable development trend [6]. Therefore, some enterprises choose to take the initiative to undertake the corresponding environmental ethical responsibility from the perspective of long-term development. Some enterprises linger between obtaining benefits in the short term and undertaking environmental protection responsibility. The main reason is that they have a different understanding of the relationship between enterprise development and economic benefits. Studying and understanding the impact effect and path of environmental ethical responsibility on enterprise performance can provide a decision-making basis for enterprise planning and management.

The innovation contribution of this paper is to test the relationship and interaction between environmental ethical commitment behavior and economic benefits through empirical analysis. It improves the cognitive depth of enterprises on green environmental protection and enriches the cognitive level and content of enterprise system management. We will identify the key factors that affect performance, establish dynamic panel model, intermediary effect model, and other analysis factors, and analyze the paths and principles that affect economic benefits. Some components of the internal innovation environment are closely related to performance and have a significant promoting effect on the latter. It is very necessary and important

to improve enterprise performance by building an internal innovation environment. Through correlation regression analysis, it is concluded that enterprises' conscious assumption of environmental ethical responsibility has a lagging positive impact on performance, that is, from the perspective of long-term development, undertaking environmental ethical responsibility has a significant role in promoting performance improvement.

2. Research Development and Current Situation of Enterprise Environmental Ethics

As the most direct factor affecting enterprise innovation, the internal innovation environment of enterprises is gradually attracting the attention of management theorists and business circles. Many related studies show that some components of the internal innovation environment are closely related to performance, and have a significant promoting effect on the latter. Therefore, it is necessary to analyze the constituent factors of the internal innovation environment and study the relationship between the internal innovation environment and performance. It is very important to improve enterprise performance by building an internal innovation environment. The first five internal factors that promote enterprise innovation are as follows: the support of senior leaders, the cooperation of functional departments, technical leaders, high-level talents, and a reasonable system. The top five obstacles are as follows: lack of funds, lack of talents, lack of information, high innovation risks, and inadequate incentives. It can be seen that most of these factors are related to management support, rewards, or incentives, organizational structure, and resource availability. The concept of enterprise environmental ethics integrates the concept of ecological and environmental protection on the basis of enterprise ethics. It is not only an affirmation of the dominant position of enterprises in society but also an expression of the dual attention of enterprises to economic performance and environmental performance [7]. Some scholars pointed out that environmental ethics is not an additional behavioral responsibility beyond the economic activities of enterprises. From the perspective of long-term development, it is an indispensable and unavoidable part of the strategic planning of enterprise development. It is both a challenge and an opportunity [8]. Other scholars believe that in the process of actively undertaking environmental ethical responsibility, enterprises will form difficult to replicate competitive advantages and immeasurable intangible assets, which are of strategic significance [9]. In addition, some scholars analyzed from the perspective of human coexistence that the importance of enterprises to the construction of environmental ethics is related to the strength, sequence, and results of environmental pollution protection and governance [10]. If enterprises take their own interests first and still choose the development mode of pollution before treatment, it is easy to produce the tragedy of ethical commons in the allocation of environmental resources, which is a major hidden danger for the development of society and enterprises [11].

Relevant research results show that the restriction of environmental ethics will promote the use of materials in production and business activities. Waste disposal from production to sales will consciously follow the principle of reducing resource waste and environmental pollution, increase the innovation investment of green technology and green products, virtually form a competitive barrier, and improve the core competitiveness [12, 13]. Some scholars take the interaction between environmental ethics and green technology innovation as the starting point. Through empirical analysis, the results show that the green intellectual capital of enterprises will be positively affected by environmental ethics and promote the economic benefits of green innovation [14]. Other scholars pointed out that the enhancement of enterprises' awareness of green environmental management has a certain impact on their economic benefits and market competition, but many studies pay too much attention to the research on the change in green management cost, ignore the role relationship of other influencing factors, and the research results are inconsistent [15]. In terms of the impact of environmental ethics on enterprises, some scholars believe that environmental ethics is one of the specific manifestations of the corporate culture. It has an innovative influence on the technological innovation, management strategy, and operation concept of enterprises, directly or indirectly promotes the decision-making direction of the management for the development of enterprises, and high awareness of environmental ethics will also increase the initiative of enterprises to undertake environmental management responsibilities [16].

The development of the information age comprehensively and systematically shows the destruction of the natural ecological environment. More people are aware of the importance of environmental protection and green development. Relevant systems and regulations are constantly revised and improved to form a binding force on the economic behavior of enterprises [17]. Relevant research shows that the operation and production activities of enterprises are easily constrained by legitimate pressure from the outside. If enterprises want to achieve the profit goal, they need to invest in green technology and green products, realize green innovation, and obtain the recognition of the external environment and organization [18]. Therefore, some scholars pointed out that the environmental ethics responsibility to be undertaken by enterprises is a long-term responsibility integrated into various daily activities of enterprises, reflecting the consideration of ecological, social, and economic benefits [19]. Some scholars further pointed out that the reasons for the initiative of enterprises to undertake environmental ethical responsibility can be divided into internal driving forces and external driving forces. Among the external driving forces, the national legal system has important constraints on the norms of enterprise behavior; the cultural environment has a far-reaching impact on corporate culture and management concepts; the important node of the formation of ethics is the environment; and the feelings of stakeholders on corporate environmental ethical responsibility are related to the sustainable development ability of enterprises. Among the internal driving

forces, corporate culture is the criterion reflecting the awareness and behavior of managers. Green environmental protection culture can promote enterprises to bear environmental responsibility and is one of the indirect indicators for enterprises to seek cooperation; the spirit displayed by the enterprise leadership is the core spirit of the enterprise behavior. The moral belief of the leadership largely determines the enterprise's ethical behavior [20]. In the Internet era, the status and role of enterprises in social development are more prominent. The greater the ability, the greater the responsibility. At present, the research results on the impact of enterprises' conscious environmental ethical responsibility on their performance are not accumulated, and further diversified, multifactor and multidirectional analysis and research are needed.

3. Factor Identification and Model Construction of Enterprise Environmental Ethics Affecting Enterprise Economic Benefits

When enterprises begin to change their ideas and take the initiative to undertake environmental ethical responsibility, their original business model will be affected, and the economic benefits will also change under the joint action of various influencing factors. Any change is multifaceted, and promoting the sustainable development of enterprises needs more positive influence and impetus. Therefore, identifying the influencing factors of economic benefits, understanding the action mechanism of influencing factors, and establishing relevant analysis theoretical models will be the content of this section [21].

3.1. Factors and Ways of Enterprise Environmental Ethics Affecting Enterprise Economic Benefits. According to the research data and literature related to enterprise environmental ethics and economic benefits, the research keywords are counted and analyzed with the help of appropriate and scientific measurement methods. The results show that the research focus of environmental ethics has been changing with the development of the global economy, science and technology, and society. In the literature published in the past 35 years, the research focuses most on the social responsibility of enterprises in environmental ethics, followed by the research on the sustainable development of enterprises and the environment. On this basis, it extends the changes and benefits of enterprises in environmental ethics. Among many keywords, the more they appear, the greater the basic function they play in relevant research, which is the basic driving force for the development of environmental ethics. During this period, there were two important changes in the keywords of environmental ethics research. Since 2010, keywords such as management strategic layout, innovation, and green environment have emerged, that is, in the initial stage of research, more research factors have been introduced with the changes in the external environment, which has enriched the research content and laid a foundation. Since 2015, under the influence of the Internet

economy, words about enterprise supply chains have entered the research field in an explosive way, and words related to environmental management and enterprise trust have begun to appear frequently, which has become an important goal of research on enterprise environmental ethics.

Enterprise ecological ethics is moral research on the relationship between enterprise and ecology, which expands enterprise ethics from enterprise social ethics to enterprise natural ethics. This is first the expansion of enterprise ethical values, and then the expansion of enterprise ethical objects and scope. It requires the formulation and implementation of new moral principles, moral norms, and moral practices of enterprise ecological ethics, which is a new field of enterprise ethics. Putting forward the problem of enterprise ecological ethics, it is rooted in the change in the relationship between enterprise activities and ecology. In the ethics system of enterprises, people generally only pay attention to dealing with the relationship between enterprises and the state, society, the public, and internal interpersonal relationships, that is, enterprise ethics mainly focuses on dealing with the relationship between people, pays attention to the social morality and interpersonal morality of enterprises, and pays little attention to the relationship between enterprises and the natural environment [22].

In the research in this field, when the number of studies on the factors affecting the economic benefits of enterprises by their environmental ethics is insufficient, the results are shown in Figure 1. Combined with the empirical analysis of the corresponding literature, the direct impact of social responsibility factors on the economic performance of enterprises is small in the actual environment. The environmental ethics consciousness generated by it can enhance the corporate culture and drive the innovation consciousness and ability of enterprises in green environmental protection. These scarce and irreplaceable resources obtained are innovation ability, reputation, and green technology. On the contrary, human resources and other factors have a sustained indirect effect on economic benefits. Therefore, in environmental ethics, the economic benefits of enterprises are most affected by enterprise innovation and reputation factors [23].

The influence of key factors is not only produced in a direct way but also has an indirect influence on each other. The direct impact has two sides, not only showing enthusiasm but also the fundamental purpose of enterprise operation is to obtain profits. It actively undertakes social responsibility, reduces the pressure on the government, is conducive to obtaining policy support, effectively forms strategic relations with stakeholders, and obtains additional economic value. A positive public image reduces the risk level of capital evaluation, improves the freedom of business activities, increases brand recognition, widens the market, and drives economic benefits. However, if the economic benefits obtained by the enterprise are far lower than the capital cost invested, the economic loss will reduce the amount of funds. Under the condition of limited capital resources, the enterprise will face the pressure of operation pressure and increased

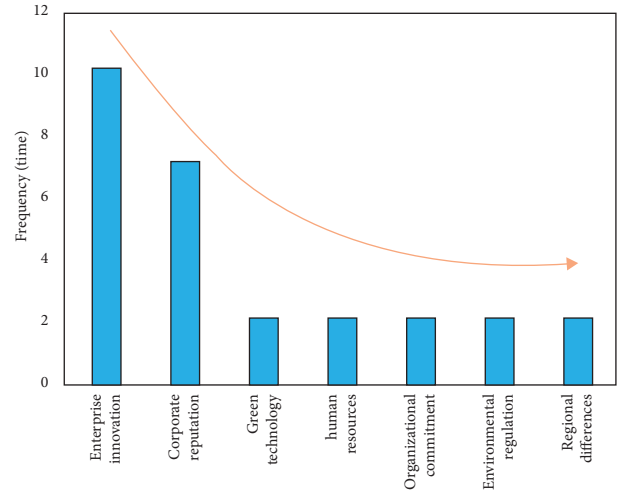


FIGURE 1: Identification results of key factors in environmental ethics research in the cited literature.

opportunity cost. As shown in Figure 2, it is the way in which enterprise environmental ethics factors affect economic benefits.

Compared with the direct impact, the indirect impact has more sustainability and importance in terms of enterprise benefits. If enterprises voluntarily meet higher green environmental protection standards, they must improve and innovate the existing systems, management methods, and technologies, promote the research and development of new products, and improve the innovation ability of enterprises. In the information age, the level of independent innovation capability reflects the productivity level and development potential of an enterprise. Therefore, the development process of innovation effect is also a process for enterprises to expand the scope of cooperation and improve economic benefits. At the same time, the responsible behavior of the enterprise can obtain a good reputation, strengthen the identity of the interest community and partners inside and outside the enterprise, improve the understanding of the industry and other industries in a short time, and provide positive and effective help for the production and development of the enterprise. In addition, the high-quality corporate image can attract more high-quality employees, cooperation, and consumers, create a relatively stable and good living environment for enterprises, and promote the expansion of market share.

3.2. Theoretical Model and Intermediary Mechanism of Enterprise Environmental Ethics. According to the mediating effect and path theory, the mediating effect of the key factors of enterprise environmental ethics can be divided into three parts. The first part mainly shows the effect of enterprises actively undertaking environmental protection responsibility on their performance. This part will be combined with the habitual characteristics of performance economic indicators. The basic dynamic panel model takes Y_{mt-1} as the independent variable, and $t-1$ represents the delayed period, as shown in formula (1):

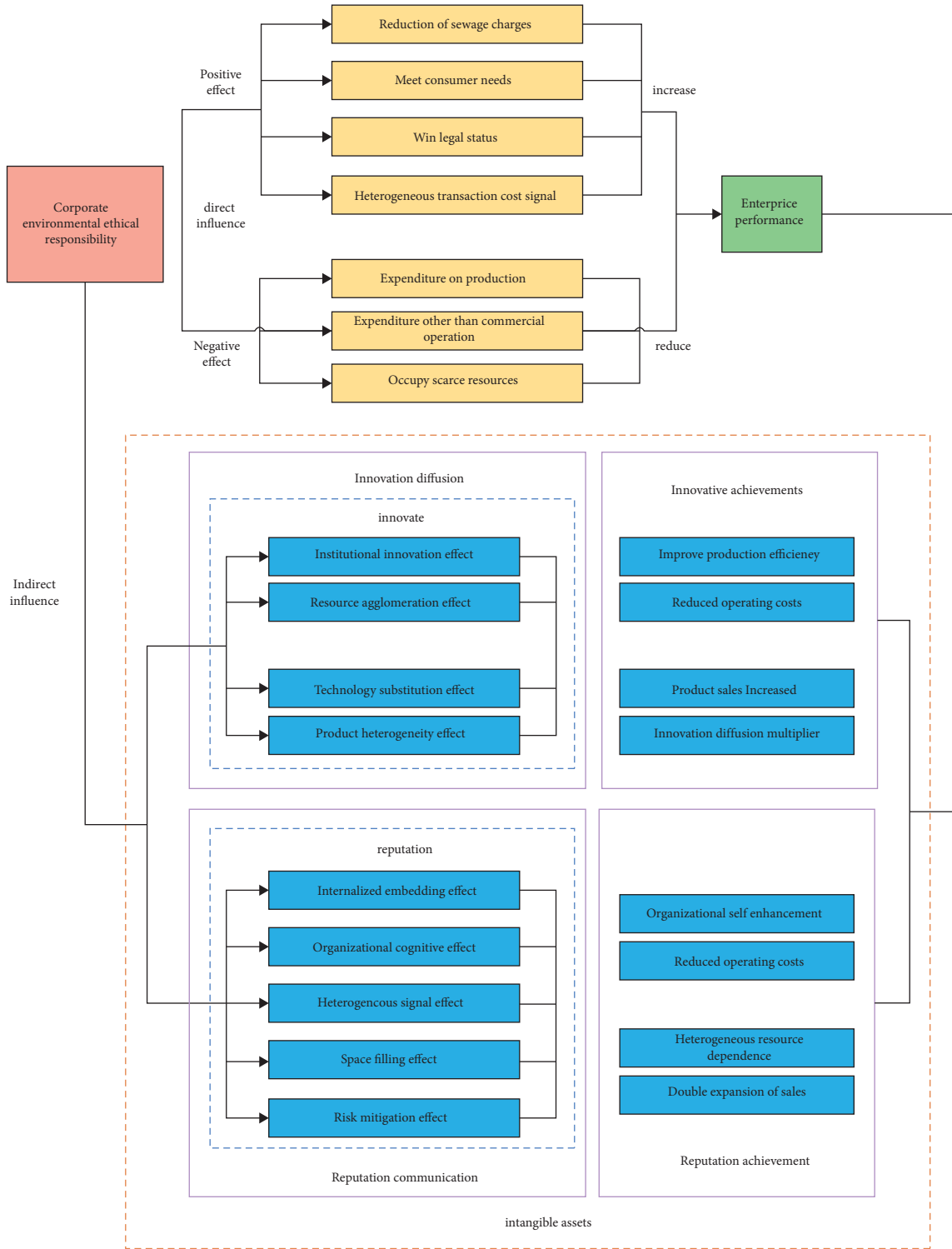


FIGURE 2: The way of the influence of enterprise environmental ethics factors on economic benefits.

$$Y_{mt} = \lambda_{10} + \varphi_{11} \cdot Y_{mt-1} + \varphi_{12} \cdot Ceer_{mt-1} + \sum_{n=3}^k \varphi_{1n} C_{mnt} + \alpha_{1mt}, \quad (1)$$

where $Ceer_{mt-1}$ stands for the delayed corporate environmental ethics responsibility, C_{mnt} is the control variable, and φ stands for the impact.

The second part shows the effect of innovation and reputation as intermediary variables, as shown in formula (2):

$$Me_{mt} = \lambda_{20} + \varphi_{21} \cdot Me_{mt-1} + \varphi_{22} \cdot Ceer_{mt-1} + \sum_{n=4}^k \varphi_{2n} C_{mnt} + \alpha_{2mt}. \quad (2)$$

It shows the effectiveness of the intermediary function of the intermediary variable, as shown in formula (3):

$$Y_{mt} = \lambda_{30} + \varphi_{31} \cdot Y_{mt-1} + \varphi_{32} \cdot Ceer_{mt-1} + \varphi_{33} \cdot Me_{mt} + \varphi_{34} \cdot Me_{mt} \cdot Ceer_{mt-1} + \sum_{n=5}^k \varphi_{3n} C_{mnt} + \alpha_{3mt}. \quad (3)$$

According to the regulation effect, (4) and (5):

$$Y_{mt} = \lambda_{40} + \varphi_{41} \cdot Y_{mt-1} + \varphi_{42} \cdot Ceer_{mt-1} + \varphi_{43} \cdot Mo_{mt} \cdot Ceer_{mt-1} + \varphi_{44} \cdot Mo_{mt} + \sum_{n=5}^k \varphi_{45} C_{mnt} + \alpha_{4mt}, \quad (4)$$

$$Y_{mt} = \lambda_{50} + \varphi_{51} \cdot Y_{mt-1} + \varphi_{52} \cdot Ceer_{mt-1} + \varphi_{53} \cdot Me_{mt} + \varphi_{54} \cdot Mo_{mt} + \varphi_{55} \cdot Mo_{mt} \cdot Me_{mt} + \sum_{n=6}^k \varphi_{5n} C_{mnt} + \alpha_{5mt}. \quad (5)$$

Among them, if φ_{43} shows obvious statistical significance, it plays an obvious regulatory effect in the direct impact of environmental ethical responsibility on performance; and if φ_{55} shows obvious statistical significance, it will play an obvious regulatory effect in the indirect impact of environmental ethical responsibility on performance, as shown in Figure 3.

The above formula is solved by the system generalized moment estimation method. According to the relevant acquisition principles, the overall moment conditions are expressed in (6):

$$E(Z'_m(\Delta y_m - \lambda \Delta y_{m-1} - \Delta X_m \varphi)) = 0. \quad (6)$$

The corresponding sample moment conditions are expressed in (7):

$$g_j = \frac{1}{N} \sum_{m=1}^N Z'_m(\Delta y_m - \lambda \Delta y_{m-1} - \Delta X_m \varphi) = 0. \quad (7)$$

The minimization objective function is shown in (8):

$$\min_{\lambda, \varphi} \left[\frac{1}{N} \sum_{m=1}^N Z'_m(\Delta y_m - \lambda \Delta y_{m-1} - \Delta X_m \varphi) \right] W_N \left[\frac{1}{N} \sum_{m=1}^N Z'_m(\Delta y_m - \lambda \Delta y_{m-1} - \Delta X_m \varphi) \right], \quad (8)$$

$$W_N = \left(\frac{1}{N} \sum_{m=1}^N Z'_m Z_m \right)^{-1}.$$

After solving, the parameter estimation solution can be obtained as expressed in (9):

$$\begin{pmatrix} \hat{\lambda} \\ \hat{\varphi} \end{pmatrix} = \left(\left(\sum_{m=1}^N \begin{pmatrix} \Delta y'_{m-1} \\ \Delta X'_m \end{pmatrix} Z_m \right) W_N \left(\sum_{m=1}^N Z_m (\Delta y_{m-1} \quad \Delta X_m) \right) \right)^{-1} \left(\left(\sum_{m=1}^N \begin{pmatrix} \Delta y'_{m-1} \\ \Delta X'_m \end{pmatrix} Z_m \right) W_N \left(\sum_{m=1}^N Z'_m \Delta y_m \right) \right). \quad (9)$$

The innovation and reputation of enterprises play a driving force in economic performance. In addition to meeting internal needs, they should also continue to spread, realize innovative applications in a wider range, and obtain reputation recognition in a wider field. Enterprises acquire relevant knowledge through knowledge transfer in cooperation, which can increase their understanding of the feasibility of knowledge innovation, so as to improve the willingness of enterprises to cooperate and innovate and promote the improvement of innovation income. Knowledge flows among enterprises through transfer, and the diversification and differentiation of knowledge make cooperative enterprises expand

the breadth and depth of shared knowledge, and improve the speed of enterprise learning, which is conducive to the formation of cooperative innovation ability. Further, promote value creation and improve innovation performance. Therefore, the way and breadth of factor communication will bring changes to the benefits of enterprises to a certain extent. The communication of innovation and reputation has a latent period, that is, the accumulation of enterprises in two aspects. Once the two meet the communication conditions, they will continue to spread to the supply chain and the market, and have a corresponding impact. There are M enterprises in the communication network, and they meet the conditions

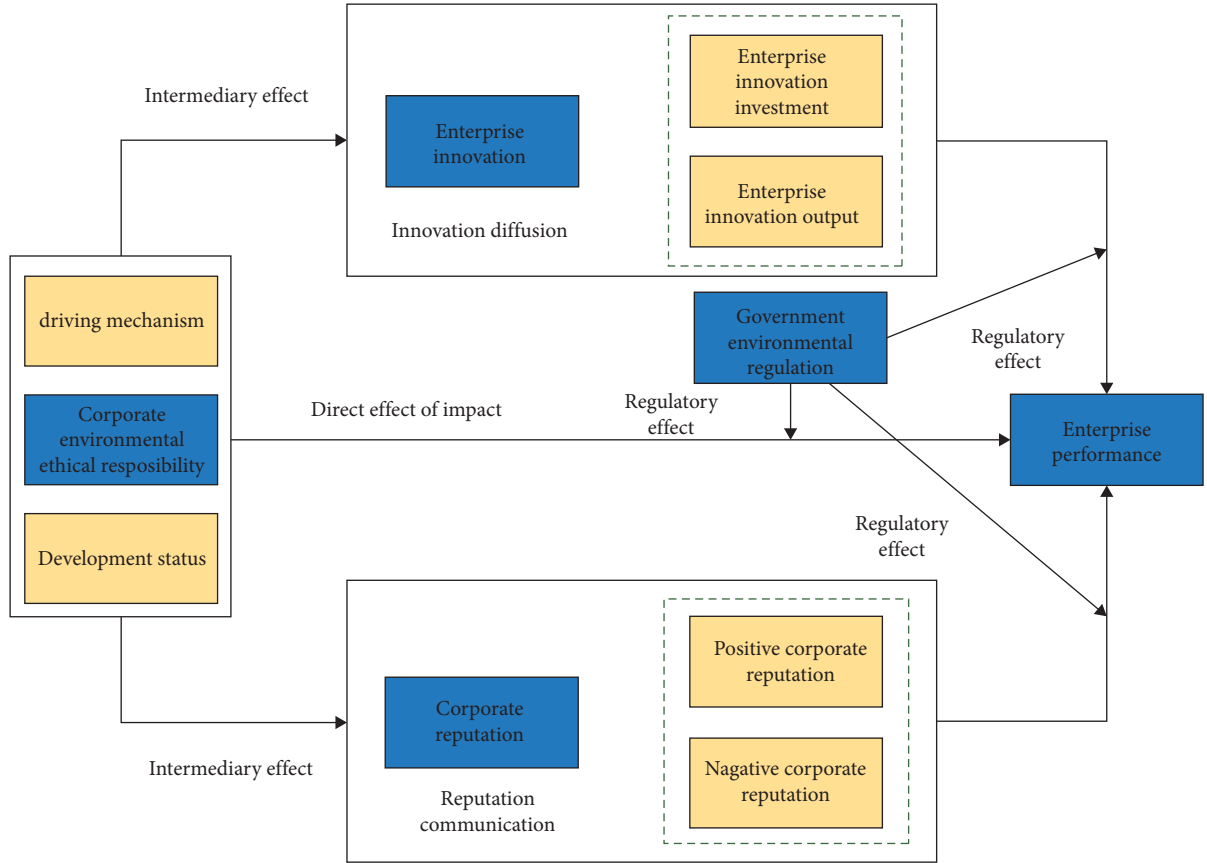


FIGURE 3: Schematic diagram of the mechanism of corporate environmental ethical responsibility affecting corporate performance.

stated in (10):

$$\begin{cases} s(t) = \frac{S(t)}{M}, \\ e(t) = \frac{E(t)}{M}, \\ i(t) = \frac{I(t)}{M}, \\ r(t) = \frac{R(t)}{M}. \end{cases} \quad (10)$$

The factor propagation equations are shown in (11):

$$\begin{cases} \frac{ds(t)}{dt} = \epsilon r(t) - \alpha s(t) - bs(t), \\ \frac{de(t)}{dt} = \alpha s(t) - \beta e(t) - ve(t), \\ \frac{di(t)}{dt} = \beta e(t) - \sigma i(t), \\ \frac{dr(t)}{dt} = bs(t) + \sigma i(t) + ve(t) - \epsilon r(t), \end{cases} \quad (11)$$

α represents the acceptance probability of the factor, β represents the propagation conversion rate of the factor, ν represents the failure probability of the transformation of potential propagation targets, σ represents the success probability of the transformation of propagation targets, ϵ represents the probability of repropagation conversion of the transformation failed targets, and b represents the rate of rejection of propagation.

Formula (12) represents the propagation equation of the innovation factors transformed by the above formula in the complex network:

$$\begin{cases} \frac{ds(t)}{dt} = \epsilon r(t) - \langle k \rangle (\alpha_1 e(t) + \alpha_2 i(t))s(t) - bs(t), \\ \frac{de(t)}{dt} = \langle k \rangle (\alpha_1 e(t) + \alpha_2 i(t))s(t) - \beta e(t) - ve(t), \\ \frac{di(t)}{dt} = \beta e(t) - \sigma i(t), \\ \frac{dr(t)}{dt} = bd(t) + \sigma i(t) + ve(t) - \epsilon r(t), \end{cases} \quad (12)$$

where α_1 represents the coefficient of easily accepted communication target transformed from accepted communication target to accepted communication target, α_2

represents the coefficient of easily accepted communication target transformed from transmitted target to accepted communication target, and $\langle k \rangle$ is the average value of the number of connections between all enterprises in the network and other enterprises.

The propagation system is a boundary region, i.e., $D\{(e, i, r) | e, i, r \geq 0 \text{ and } e + i + r \leq 1\}$. Combined with the normalization condition $s(t) + i(t) + e(t) + r(t) = 1$, the propagation threshold is obtained through the equilibrium relationship, as shown in formula (13):

$$\tilde{h} = \frac{\varepsilon \langle k \rangle (\alpha_1 \sigma + \alpha_2 \beta)}{\sigma (\beta + \nu) (b + \varepsilon)}. \quad (13)$$

When the threshold is greater than 1, innovation continues to spread, otherwise, it stops gradually.

The scale-free propagation model of the reputation factor is shown in (14):

$$\begin{cases} \frac{ds(t)}{dt} = -k(\alpha_1 \Theta_1 + \alpha_2 \Theta_2) s_k(t) - b s_k(t) + \varepsilon r_k(t), \\ \frac{de_k(t)}{dt} = k(\alpha_1 \Theta_1 + \alpha_2 \Theta_2) s_k(t) - \beta e_k(t) - \nu e_k(t), \\ \frac{di_k(t)}{dt} = \beta e_k(t) - \sigma i_k(t), \\ \frac{dr_k(t)}{dt} = b s_k(t) + \sigma i_k(t) + \nu e_k(t) - \varepsilon r_k(t), \end{cases} \quad (14)$$

where $\Theta_1 = \sum k p(k) E_k(t) / \langle k \rangle$ represents the communication probability between the reputation recognition target and any user at this time, and $\Theta_2 = \sum k p(k) I_k(t) / \langle k \rangle$ represents the communication probability between the reputation communication target and any user at this time. The threshold is expressed as formula (15):

$$h = \frac{\langle k^2 \rangle}{\langle k \rangle} \left(\alpha_1 \frac{\sigma}{\beta} + \alpha_2 \right) \frac{\varepsilon \beta}{b \nu \sigma + b \beta \sigma + \nu \sigma \varepsilon + \sigma \varepsilon \beta}. \quad (15)$$

4. Simulation Experiment Results

4.1. Analysis of the Influence Factors of Enterprise Environmental Ethics on Economic Benefits. Suppose there are 400 enterprises in the network, and the communication model parameter is $\alpha = 0.5, \beta = 0.2, b = 0.04, \nu = 0.1, \varepsilon = 0.07$, and $t = 0.01$. The influence of factors is analyzed in the time dimension. The time of the communication process starts from 0 to 30, as shown in Figure 4. The results show that in the whole communication process, the communication speed of innovation factors is gradually decreasing, and the proportion of enterprises that accept innovation communication and turn into communicators has been increasing. The number of enterprises that are easy to accept communication, potential to accept communication, and refuse to participate in communication shows different downward trends, that is, a certain number of enterprises turn into

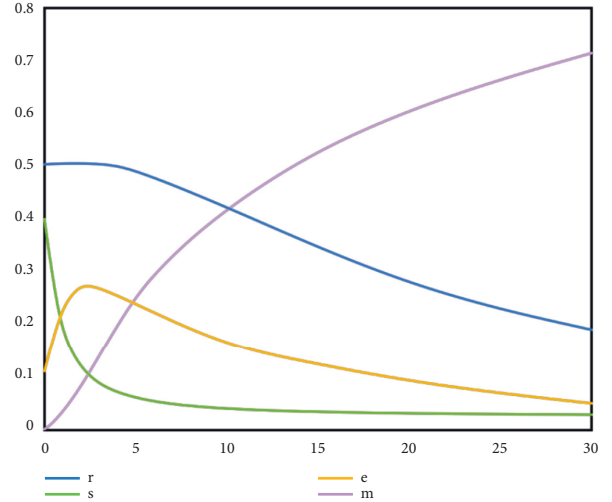


FIGURE 4: Innovation factors affect the change results in time dimension.

communicators with different acceptance targets, The higher the conversion rate, the wider the propagation speed and range. In addition, the increase in exchanges between different enterprises will promote the dissemination of innovation factors and attract more attention from enterprises. The larger the scale of dissemination, the more it can promote the dissemination of innovative technologies and products and obtain more economic benefits. Compared with traditional technologies and products, green technologies and products can improve the production capacity of enterprises, optimize processes, and reduce costs, which is more in line with the needs of society for environmental protection, improve market competitive advantage, and achieve higher performance. Improving the green ability of enterprises will help enterprises better solve environmental problems, help enterprises win green benefits, occupy a strong position in the competition, and finally, help enterprises achieve green development.

In the reputation factor propagation model, the number of users is 25000, the parameter values are $\alpha = 0.8, \beta = 0.3, b = 0.04$, and $\nu = 0.1, \sigma = 0.01, \varepsilon = 0.07$, and the propagation time is 20. Figure 5 shows the change results of reputation factors in the time dimension. The proportion of communicators keeps increasing in the overall communication process of reputation factors, and the proportion of easily accepted communication targets has maintained a downward trend and the decline rate is gradually decreasing. The rate of its transformation into communication will largely affect the communication speed and scale of reputation factors, and there is a certain positive correlation between them; the proportion of targets who agree with reputation but do not spread first maintains the upward trend of decreasing rate, and then changes to the downward trend until it is relatively stable; and the target proportion refusing to accept the communication has been declining at a stable rate, which can reflect the negative public opinion of the enterprise, but the reputation of the enterprise cannot be completely erased by a certain amount of negative

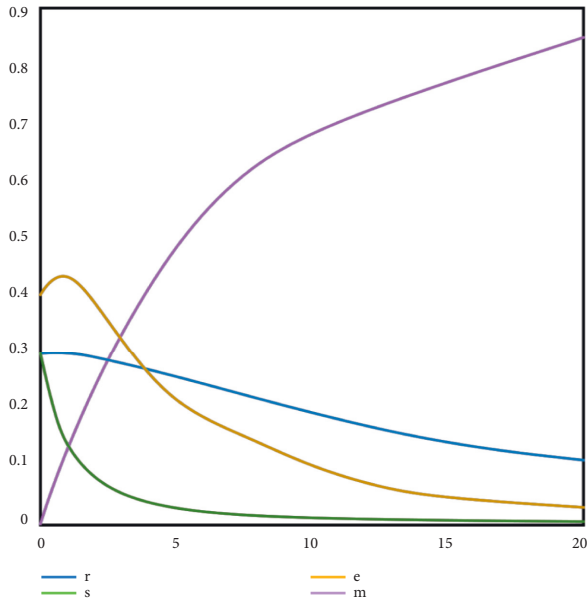


FIGURE 5: Reputation factors affect the change results in the time dimension.

information, and the nonprincipled and essential negative information will not completely cut off the communication channel of the enterprise reputation. This shows that the longer the reputation factor spreads, the more attention, familiarity, and recognition it will receive, improve brand awareness, promote enterprises to cooperate with more enterprises, obtain more production factors, reduce enterprise costs, increase consumers' purchase possibility, and increase enterprise economic benefits. In addition, a good reputation creates a better environment and market for the development of the enterprise to a great extent. In the face of sudden negative public opinion, it can obtain processing time and maintain the operation of the enterprise.

4.2. Empirical Results on the Factors of Enterprise Environmental Ethics Affecting Enterprise Economic Benefits. According to the relevant social responsibility reports, this paper selects 460 listed enterprises in recent 10 years as the research sample, selects 16 variables such as score, performance, return on assets, scale, debt ratio, and innovation obtained by enterprises taking the environmental ethics responsibility actively, and carries out the corresponding sample regression analysis through the statistical method. In big data analysis, regression analysis is a predictive modeling technology, which studies the relationship between dependent variables (targets) and independent variables (predictors). This technique is usually used for predictive analysis, time-series models, and the discovery of causal relationships between variables. Figures 6 and 7 show the test results and relevant variable coefficients of the direct impact of corporate environmental ethics on performance. It can be seen from the results that there is an obvious correlation between the scores obtained by enterprises taking the initiative to bear environmental responsibility and their performance, scale, and debt ratio. The first two are positive correlations

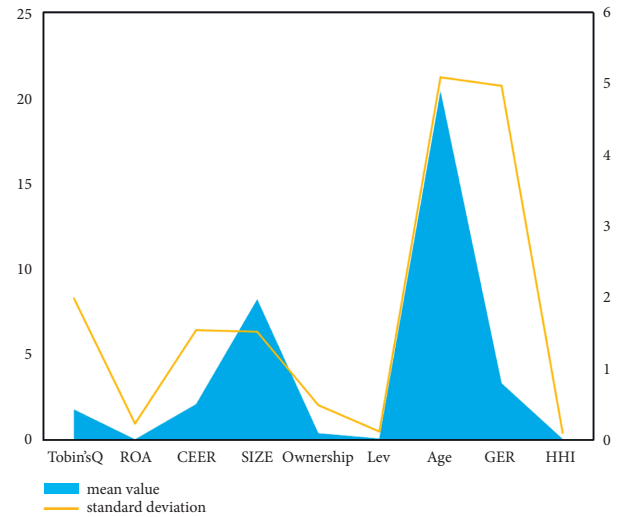


FIGURE 6: Test results of the direct impact of corporate environmental ethics on performance.

	one	two	three	four	five	six	seven	eight
Tobin'sQ	1.00							
ROA	0.151***	1.00						
CEER	0.053***	0.01	1.00					
SIZE	-0.288***	0.041**	0.009***	1.00				
Ownership	0.182***	-0.014	-0.07	-0.238***	1.00			
Lev	-0.277***	-0.027	-0.069***	0.082***	-0.187***	1.00		
Age	-0.107***	-0.029**	0.034**	-0.079**	-0.108***	0.122***	1.00	
GER	0.032***	-0.024	0.005	-0.008	-0.078***	0.092***	0.02	1.00
HHI	0.061***	-0.002	0.036	0.092***	-0.059***	0.05***	-0.049***	0.048***

*** (p<1%); ** (p<5%); * (p<10%)

FIGURE 7: Enterprise environmental ethics has a direct impact on performance.

and the last one is a negative correlation. There is no obvious correlation between it and the overall return on assets of the enterprise. The corresponding regression analysis shows that the short-term return on assets will be positively affected by environmental ethical responsibility factors, but it is not obvious. The positive corresponding effect will be prominent after the extension of time. At this time, it is the long-term return on assets index. In terms of direct impact effect, enterprises' active undertaking of environmental ethics responsibility will have a delayed positive impact on economic benefits, and the effect is not obvious in the initial stage, but obvious in the long term.

As shown in Figure 8, the results of the mean and standard deviation of the variables related to innovation factors and reputation factors are shown in Figure 9 and Figure 10. From the results, there is a certain difference in the correlation between the environmental responsibility score and innovation factor variables, that is, it shows an obvious correlation between the cost generated by innovation and the innovative output breaking through the tradition. When the innovative output still maintains the traditional performance, the correlation is not obvious. Regression analysis shows that enterprises' voluntary improvement of environmental ethics standards has a positive

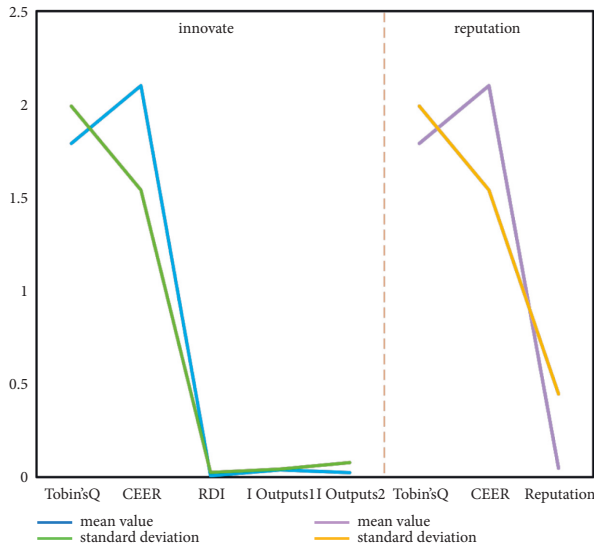


FIGURE 8: The mean and standard deviation results of variables related to innovation factors and reputation factors.

	one	two	three	four
Tobin'sQ	1			
CEER	0.0522***	1		
RDI	0.3429***	0.0207*	1	
Innovation	0.1468***	0.0306	0.1884***	1
Innovation	0.1345***	0.0608**	0.0163	0.303***

***($p < 1\%$); **($p < 5\%$); *($p < 10\%$)

FIGURE 9: Innovation factor variable correlation coefficient results.

	one	two	three
Tobin'sQ	1		
CEER	0.0519***	1	
Reputation	0.0502***	0.0444***	1

***($p < 1\%$); **($p < 5\%$); *($p < 10\%$)

FIGURE 10: Reputation factor variable correlation coefficient results.

effect on the cost input increased by innovation, but it has different effects on different types of innovation output, that is, it has no obvious effect on breakthrough output, while nonbreakthrough output has an obvious positive effect. Therefore, when the direct effect of enterprises undertaking the role of environmental ethical responsibility on their own performance is weak, nonbreakthrough innovation factors will affect part of the effect on performance in the communication process, resulting in a conducive effect.

Compared with innovation factors, there are few variables related to corporate reputation factors, and the values of sample corporate reputation indicators are not high, which indirectly reflects that it is difficult for enterprises to maintain a good reputation. In addition, the reputation of the sample enterprises is uneven, and the difference is obvious. The reputation is obviously positively affected by the enterprise's initiative to bear environmental responsibility. In its regression performance, it also has a conducive effect on performance, that is, in the process of the gradual weakening of the direct effect, it will partially affect the transmission and play a role in performance.

To sum up, the longer the reputation and innovation factors exist, the more they will attract the attention of the enterprise; and the longer the acceptance time of the enterprise's reputation and innovation, the more they will play a role in promoting the economic growth of the enterprise. In addition, the direct effect of environmental ethical responsibility on performance is delayed, and the effect is more obvious in the long run. When the direct effect is weakened, the intermediary effect of innovation and reputation factors will transmit part of the influence to economic benefits and play a role. There is a positive correlation between the performance of corporate environmental responsibility and corporate value. Enterprises' performance of environmental responsibility will improve their social reputation, thereby increasing enterprise value. When there is a negative correlation, it means that undertaking environmental responsibility will increase costs and reduce short-term profits. This leads to the disadvantages and lack of competitiveness of enterprises in the same category. Irrelevant means that enterprises will increase production costs by assuming social responsibility, but it will also bring benefits. For example, it improves the utilization rate of resources and so on.

5. Conclusion

The ecological environment is the basic space for human survival and social development. The deterioration of natural environmental conditions and the shortage and scarcity of resources are mostly caused by the excessive pursuit of economic interests and human survival interests. Facing the problems and negative effects brought by the change in the ecological environment, all sectors of society should take the initiative to bear the corresponding ethical responsibility. Taking effective environmental protection measures, improving environmental protection technology, and developing green products are the trend for enterprises to achieve sustainable development. However, due to the differences in the cognition of different enterprises on environmental ethical responsibility and environmental awareness, it is difficult to make reasonable and effective decisions. Based on the relevant literature, this paper analyzes the factors that enterprises actively undertake environmental ethical responsibility and the key factors that affect performance. And through the effect model and communication, the mechanism of influencing factors in performance is analyzed. The experimental results show that the longer the transmission

time of innovation and reputation factors, the more enterprises accepted and recognized, and the more likely the enterprises that initially did not accept to become communicators so as to increase the scope and attention of enterprise resources, improve market competitiveness, and promote the improvement of economic benefits. At the same time, a good reputation helps enterprises develop a good living environment, obtain the support of more stakeholders and the recognition of consumers, and increase the probability of cooperation and consumption. In addition, through correlation regression analysis, it is concluded that enterprises' conscious undertaking of environmental ethical responsibility has a lagging positive impact on performance, that is, from the perspective of long-term development, undertaking environmental ethical responsibility plays an obvious role in promoting performance improvement. In the empirical analysis, this study gives all dimensions of the internal innovation environment and all indicators of enterprise performance completely equal weight. This may be different from the real situation. Therefore, future research needs to consider more practical factors and improve the internal innovation environment of enterprises to form an important factor system. There is no dynamic analysis of the samples, so the respondents can be tracked in the future in order to get a more detailed and specific analysis.

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 or personal relationships that could have appeared to influence the work reported in this paper.

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