

Review

The studies on Chinese traditional culture and corporate environmental responsibility: literature review and its implications

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Abstract: There is a certain correlation between Chinese traditional culture and Chinese enterprises' performance of environmental responsibility, but there is little literature on the relationship between them from an empirical perspective. This paper combs and evaluates the relevant literature from three aspects: the evaluation of the economic and social effects of Chinese traditional culture, the influencing factors of corporate environmental responsibility, and the measurement of culture. Based on the literature review, this paper puts forward the following research enlightenment, that is, future empirical research should be carried out from the perspective of the intensity, effect, and heterogeneity of the impact of Chinese traditional culture on enterprises' fulfillment of environmental responsibility, as well as the moderating factors of the relationship between them.

Keywords: Chinese traditional culture; corporate environmental responsibility; literature review; research implications

JEL Codes: Z1, D9, G3

1. Introduction

Since the reform and opening-up, China's economy has made remarkable development achievements. However, it also consumes a lot of resources and energy in this process, facing severe ecological and environmental pressure, and the resource and environmental constraints of China's

economic development are increasing. In order to solve the dilemma of economic development under the constraints of resources and environment, the Chinese government has always stressed the need to implement the “Five Development Concepts” since the 13th Five Year Plan period. In 2020, the Chinese government also put forward solemn goals and commitments: “strive to peak carbon dioxide emissions by 2030”, and “strive to achieve carbon neutrality by 2060”, demonstrating China’s unswerving determination to take the path of ecological priority, green, low-carbon, and high-quality development. As the main body of the micro-economy and the main consumer of resources and energy, enterprises, especially the listed companies, should take the initiative to assume environmental responsibility. This is not only the key to their sustainable development but also an important path to promote the coordinated development of China’s economy, society and ecological environment. Therefore, it is of far-reaching significance to explore the influencing factors of corporate environmental responsibility and further enhance corporate environmental responsibility. In recent years, the Chinese government has implemented strict environmental regulations and introduced a series of policies and measures related to environmental protection. There is no doubt that strengthening formal systems such as environmental regulation is an important way to improve corporate environmental responsibility. However, in China, which is deeply influenced by religious rites and laws, traditional culture as an informal system is also an important aspect that affects the behavior and decision-making of enterprises.

Chinese traditional Confucian and Taoist culture contains rich ecological philosophy. Its value core takes “benevolence” and “love” as the main axis. On the basis of “self-cultivation and love”, it extends the spirit of benevolence to all things in nature and combines love with nature so as to seek the highest realm of “unity” between man and all things on the earth (Wang, 2019). This culture is closely related to corporate environmental responsibility. Specifically, the ideological quintessence, such as “unity of heaven and man”, “emphasizing righteousness over benefit”, and “moderation for morality”, in Chinese traditional culture, has a positive impact on people’s way of dealing with nature and economy. These ideological essences reflect how enterprises can coexist harmoniously with the natural environment and how to integrate “green” with enterprise development, so as to not only create profits but also abide by business ethics and save resources (Wu and Jiang, 2018). In this sense, Chinese traditional culture should be an essential factor affecting corporate environmental responsibility.

Little literature directly focuses on the relationship between Chinese traditional culture and corporate environmental responsibility, and it is rare to investigate the relationship between them from an empirical perspective. This paper combs and evaluates the relevant literature from three aspects: the evaluation of the economic and social effects of Chinese traditional culture (Section 2), the influencing factors of corporate environmental responsibility (Section 3), and the measurement of culture (Section 4), in order to provide reference and suggestions for the subsequent empirical analysis of the relationship between the two and the better use of Chinese traditional culture to promote enterprises to fulfill their environmental responsibility (Section 5).

2. Research review on the economic and social effects of Chinese traditional culture

Chinese traditional culture is composed of many schools of thought, among which Confucianism plays a leading role and has profoundly influenced Chinese people’s outlook on life and values for thousands of years. The research on the economic and social effects of Chinese traditional culture is generally carried out from the macro or micro level.

2.1. The impact of Chinese traditional culture on economic growth from a macro perspective

For the Chinese traditional culture with Confucian culture as the main content, the existing studies hold two different views on its impact on economic growth. Some scholars criticize the Confucian culture and believe that Confucian culture is not conducive to economic growth and development. The representative is German scholar Max Weber. Weber (1965) pointed out that “the rationalism of Confucianism is to adapt to the world and fear any change”. Therefore, Confucian culture does not have the rationalism needed for the development of modern capitalism. In addition, Confucianism regards “righteousness” as the top priority, and pursuing “profit” is regarded as a kind of “mean” behavior. This anti-utilitarian consciousness significantly weakens people’s sense of achievement in pursuing economic interests and may inhibit enterprises’ pursuit of profit maximization (Chen and Qiu, 2021). Finally, Confucianism has the concept of “learning to be an official”, under which “becoming an official” has become the best career, which may have a negative impact on the development of enterprises.

Another view about Confucian culture is that it is conducive to economic growth and development. First of all, Confucian culture attaches great importance to education. Confucius said, “to learn and at due times to repeat what one has learnt, is it not after all a pleasure?” (Confucian Analects Learning). “Even when walking in a party of no more than three, I can always be certain of learning from those I am with. There will be good qualities that I can select for imitation and bad ones that will teach me what requires correction in myself.” (Confucian Analects Shuer). Due to the orthodox status of Confucianism, the state not only builds government-run schools to cultivate talents but also encourages people to build academies and private schools (Wang, 2021). The development of education can promote the accumulation of human resources and promote economic growth. Secondly, the Confucian culture emphasizes benevolence, which not only plays a good role in maintaining social stability, but also an important condition for economic and social development. Thirdly, Confucian culture emphasizes honesty, and people should do their best to abide by the contract. From the perspective of corporate governance, it will reduce the information cost of principals and agents to a certain extent. Finally, Confucian culture contains the spirit of innovation. The Book of Changes emphasizes that “extensive creation of material and spiritual wealth is called great achievements, and continuous improvement is called virtue”. The proverb engraved on the bathtub by the king of Shang Tang said, “if you can be new every day, you should keep it new every day, and update it when it is new.” (Book of rites University). This spirit of innovation may contribute to economic development.

In empirical research, studies show that Confucian culture can promote economic growth. Zhang and Guo (2020) conducted an empirical analysis on the impact of Confucian culture on China’s economic growth rate, and they found that the “boy preference” of Confucian culture increased the gender ratio, and the increase of gender ratio had a significant positive impact on economic growth. Tian (2017) first refuted Max Weber’s theory that Confucian culture hindered the development of East Asian countries. Then, by analyzing the relationship between Confucian culture and the modernization of the “Five Asian Dragons”, he concluded that Confucian culture played a positive role in promoting the development of the “Five Asian Dragons”. Jia et al. (2011) constructed a simple analytical framework to describe the impact mechanism of Confucian traditional cultural beliefs on the economic growth effect of social security, using 26 years of data from 42 countries and regions. The results show that social security will inhibit long-term economic growth, and Confucian traditional cultural beliefs help curb the inhibitory effect of social security on economic growth. Jin and Lin (2018) took the total income data of the cultural industry published by the Ministry of Culture as an approximate estimate

of the nominal output of the cultural sector, substituted the cultural product price index with the consumer price index, estimated the cultural capital stock with the perpetual inventory method, and analyzed it with the panel regression model. It is found that cultural capital plays a positive role in promoting economic growth.

In addition to studying the impact of Chinese traditional culture on economic growth, many scholars have also investigated some other economic effects. Xie et al. (2017) used the index of Confucius Institutes to measure China's cultural output, and studied the relationship between China's cultural output and capital output by using the Mahalanobis distance matching method and double-difference method. The research results show that China's cultural output significantly promotes foreign investment. Feng et al. (2019) used the current and historical data of 181 counties (regions) in Sichuan, China, to study the relationship between the dissemination of Confucian culture and long-term human capital accumulation, and they found that the inheritance of Confucian culture significantly promoted the long-term cultivation of human capital. Wang et al. (2017) studied the rate of housing ownership from the cultural level and qualitatively measured the cultural tendency of housing with the dummy variable of Confucian culture. Mainland China, China Taiwan, South Korea, Japan, and Singapore are countries (regions) in the Confucian cultural circle, and the value is 1, while the rest is 0. Based on the panel data of 27 countries in the world's major cultural circles, OLS estimation is carried out, and the relationship between Confucian culture and housing ownership rate is tested. It is found that countries (regions) in the Confucian cultural circles have a higher housing ownership rate under the influence of cultural norms. Ye et al. (2018) employed the three dimensions of "future orientation", "socially-oriented collectivism" and "small group collectivism" in the GLOBE (Global Leadership and Organizational Behavioral Effectiveness) cultural custom index constructed by Zhao et al. (2015) and the four indicators of the number of top scholars in each province during the Ming and Qing Dynasties to construct the Confucian cultural index, and conducted research from the provincial perspective. It is found that Confucian culture can significantly increase the savings rate of residents, and the impact of Confucian culture on savings rate is more significant in rural areas and provinces with a low degree of openness to the outside world, and the impact is weak in places where Confucian culture has been severely damaged in history. Zeng et al. (2021) used transnational data from 1971 to 2017 to conduct an empirical study and found that aging has a limited impact on housing prices in countries belonging to the Confucian cultural circle.

2.2. Microscopically investigate economic and social effects of Chinese traditional culture by using the data of families or listed companies

In the studies on residents from the micro level, the existing literature mainly uses the data of Chinese General Social Survey (CGSS) and surveys the results of respondents on issues related to Chinese traditional culture, so as to investigate the impact of Chinese traditional culture on inclusive finance and residents' social service expenditure (Shen and Gu, 2016; Chen, 2017).

In the relevant literature on listed companies, some studies mainly regard traditional Chinese culture as an important part of the "informal system" and investigate the impact of Chinese traditional culture, especially Confucian culture, on enterprise innovation, charitable donation, and social responsibility. This kind of literature mainly measures the influence of traditional Chinese culture on the listed companies by the number of Confucian temples/key temples/Taoist temples/Confucian temples or academies and Confucian cultural centers within a certain range of the registered place of the listed company.

In view of the negative cognitive bias of some scholars on the value of Confucian culture, Xu and Li (2019) conducted regression analysis based on the data of Chinese A-share listed companies from 2007 to 2016 using the Tobit model, and they found that the stronger the influence of Confucian culture on enterprises, the significantly higher the patent output level. It is found that Confucian culture affects enterprise innovation through alleviating agency conflict, improving human capital investment level, and reducing patent infringement risk. Similarly, Cai and Xie (2020) found that Confucian cultural tradition has an important promoting effect on contemporary enterprise innovation by using historical Confucius Temple data manually collected and financial data of Chinese A-share listed companies.

Considering that Confucian ethical values such as “benevolence loves others”, “righteousness before profit” and “the world is for the common good”, as well as “taking the world as one’s own responsibility”, “self-cultivation, family harmony, governance and world peace”, and “if we are good, we will help the world; if we are poor, we will stay on our own” are often used to constrain the behavior of individuals and regulate the relationship between individuals and the state, in recent years, some scholars have tried to investigate the influence of Confucian culture on corporate charitable donation and social responsibility. For example, the empirical analysis of Xu et al. (2020) shows that the greater the influence of Confucian culture on enterprises, the higher the probability of participating in charitable donation and the higher the donation expenditure. Gan (2021) found that the higher the intensity of Confucian culture, the better the quality of CSR (corporate social responsibility) performance. The research of Zou (2020) also shows that Confucian culture can promote enterprises to disclose social responsibility information and improve disclosure quality. As environmental pollution and climate change have become increasingly prominent in China in recent years, some studies have focused on the impact of traditional culture on corporate carbon emission information disclosure (Ding, 2018), and they found that the stronger traditional culture an enterprise possesses, the higher its carbon emission disclosure level will be. In general, existing studies have confirmed the positive economic and social effects of traditional culture from different levels.

3. Research review on the influencing factors of corporate environmental responsibility

It is of far-reaching significance to explore the influencing factors of corporate environmental responsibility (CER). This section reviews existing literature on the influencing factors of corporate environmental responsibility. Corporate environmental responsibility was first proposed by McGee (1998) who believes that system, economy and morality are the three main reasons for enterprises to fulfill environmental responsibility. Research on the influencing factors of corporate environmental responsibility in existing literature can be divided into two categories: one is external factors, the other is internal factors.

3.1. The main focus of external factors is formal environmental regulation

If there is no strong external pressure, enterprises will not take the initiative to fulfill their environmental responsibilities for pollution control projects that require large investments and are not conducive to cost reduction. Therefore, it is necessary for the government to control environmental problems through a series of non-market means. Environmental regulation is considered to be the initial driving force for enterprises to actively undertake environmental responsibility. When facing strong pressure of environmental regulation, in order to avoid being punished, enterprises usually

assume environmental responsibility and take environmental protection measures actively. The research results of some scholars show that environmental regulation has a positive impact on corporate environmental responsibility (e.g., Long et al., 2018; Ruan et al., 2016; Liu and Guo, 2019). However, some scholars believe that environmental regulations will weaken the competitiveness of companies, thus reducing the level of corporate environmental responsibility. When enterprises are faced with strict environmental regulations, they will spend more on environmental governance, which will affect the operating efficiency and competitiveness of the company and deter potential investors (Guo et al., 2020). Therefore, when enterprises face more strict environmental regulations, they are easy to fall into a dilemma between economic benefits and environmental responsibilities, at which point some enterprises may refuse to undertake environmental responsibilities (Wang et al., 2021). In addition, some scholars have found that informal environmental regulations will also affect corporate environmental responsibility. With the enhancement of environmental awareness, the public has increasingly higher requirements for corporate environmental responsibility. Under the pressure of the public, enterprises' attitude towards environmental responsibility is also changing. To prevent the spread of negative information, enterprises with high media attention are more likely to disclose more information and improve their environmental performance (Marquis and Qian, 2014).

In the analysis of external factors, a small number of scholars also consider the factor of culture. In the research on corporate information disclosure, Bi et al. (2015) took China's heavily polluted industries as the research object and found that traditional culture had a significant positive relationship with corporate environmental information disclosure. The research of Zhang (2021) also shows that regional culture has an essential impact on the quality of enterprise information disclosure. Du et al. (2013) and Tsendsuren et al. (2021) studied the impact of religion (an important component of culture) on corporate environmental responsibility. Specifically, Du et al. (2013) empirically studied the role of Buddhism on corporate environmental responsibility by taking Chinese listed companies from 2008 to 2010 as samples, and they found a positive correlation between Buddhism and corporate environmental responsibility, thus confirming the view that Buddhism can arouse awareness of social responsibility and improve the level of corporate environmental responsibility. Meanwhile, Tsendsuren (2021) uses the data of American listed companies from 2014 to 2016 to study and finds that local religious risk-taking behavior is significantly correlated with enterprise CER practice. Badcock (2017) focuses on the extent to which corporate culture can change corporate behavior to fulfill environmental responsibility, and they concluded that it only functions as supplements not replacements.

Although the above studies have taken into account the impact of culture, there are still some problems worth concern. First, corporate environmental responsibility is a voluntary action taken by enterprises to go beyond the legal requirements and integrate environmental objectives into the core strategy and management operation of enterprises as a strategic investment, which can improve the productivity of enterprises and create competitive advantages. A higher level of CER disclosure does not always mean a higher level of corporate environmental responsibility. The impact of culture on corporate environmental responsibility needs to be further discussed. Secondly, culture is a concept with rich connotations, and religion is only one of them. For China, compared with Buddhism, traditional culture is more affected by Confucianism, and Confucianism contains richer ecological thoughts. Therefore, only considering the influence of religion is not comprehensive, and it is meaningful to extend it to the impact of traditional culture on corporate environmental responsibility. Chinese traditional culture is broad and profound, and many of its ideas have had a far-reaching impact on modern enterprises. Chinese traditional culture contains ecological ethical thoughts such as "unity

of heaven and man” and “Tao follows nature”. These thoughts will affect the ecological concept of enterprise management.

3.2. Enterprise-related internal factors

Corporate financialization is a critical influencing factor on the fulfillment of corporate environmental responsibility. Li et al. (2020) used the data of Chinese listed companies from 2008 to 2015 to find that corporate financialization has a significant negative impact on corporate environmental responsibility, and the impact is heterogeneous. As the level of corporate environmental responsibility increases, corporate value has changed from the pursuit of shareholder value maximization to the dual goal of shareholder value maximization and social effect maximization. A high level of financialization will hinder the fulfillment of corporate environmental responsibility, but with the progress of environmental responsibility fulfillment, the negative impact of corporate financialization on corporate environmental responsibility gradually weakens.

Senior management is the internal driving force of CER practice (Qin et al., 2019). Senior management or Green Boards (directors with work or academic experience in environment-related fields) supporting corporate environmental responsibility strategies are more likely to promote the sustainable development of enterprises and improve corporate environmental responsibility (Glennie and Lodhia, 2013; Jung et al., 2021).

Factors like enterprise size, age, and business scope also influence the fulfillment of corporate environmental responsibility. Hatmanu et al. (2019) took small and medium-sized enterprises as the research object and found that comparatively larger enterprises were more inclined to undertake environmental responsibilities, and for small and medium-sized enterprises in EU 15 countries, as the enterprise age increases, these enterprises may bear less environmental responsibility with the increase of their age. In addition, multinational corporations face global market pressure on environmental issues, and they often pay more attention to environmental responsibility (Hitt et al., 1997; Prakash and Potoski, 2006).

4. Research review on the cultural measurement

4.1. Research review on the measurement of transnational culture

The measurement of transnational culture is mainly based on the “Cultural Dimensions Theory” (Hofstede, 1980), which has been widely used and verified for many times since it was proposed in 1980. Hofstede has measured the culture of various countries from six dimensions: power distance, uncertainty avoidance, individualism and collectivism, masculinity and femininity, long-term and short-term tendency, indulgence and restraint (Hofstede et al., 2010), measuring the acceptance of the unequal distribution of power by the vulnerable groups of a country or society, the correlation between individuals and groups, the gender role difference between men and women, the future orientation of social members, and the control of social members over desires and impulses.

Specifically, power distance defines the degree of acceptance of unequal power distribution by vulnerable groups in a society. High power distance indicates high acceptance of unequal power distribution in society, while low power distance emphasizes the importance of equal rights. Uncertainty avoidance is defined as the degree to which members of a society feel threatened by

ambiguity or unknown situations. Members of a society with a large degree of uncertainty avoidance are more conservative and have greater demand for certainty. In contrast, members of a society with a small degree of uncertainty avoidance think uncertainty is normal and have a higher degree of acceptance of uncertainty. Individualism and collectivism mainly indicate the degree of connection between individuals and groups. In an individualistic society, the connection between members of the society is loose, while in a collectivist society, the connection between members of the society is close. The masculine and feminine metric measures the degree of gender role differences between men and women in a society or country. In a masculine society, gender roles are clearly divided. People tend to focus on the importance of personal achievement, material success, and status. In a feminine society, the gender roles of males and females overlap, and the difference is not absolute. People care more about the quality of life and take care of the less fortunate. Besides, people ensure leisure time and seek consensus. The long-term and short-term tendencies mainly measure people's orientation towards the future. The long-term tendency emphasizes frugality and hopes to achieve long-term goals through efforts. The short-term tendency emphasizes respecting traditions and fulfilling social obligations and expects to see results in the short term. The indulgence and restraint dimension measures the degree of control over desires and impulses by social members. An indulgent society reflects people's positive attitude, and they believe that they can do whatever they want. In a constrained society, the satisfaction of members' needs is constrained by strict social norms, which require people to exercise self-restraint. At present, Hofstede has measured the cultural dimensions of 117 countries globally, providing a powerful tool for the analysis of cultural differences among different countries. Xu and Xu (2018) analyzed the cultural differences between China and 23 countries along the Belt and Road by using the six-dimension theory of culture, and they studied the culture-difference impact on the export of Chinese industrial robots. Zhao (2012) used the Hofstede model to investigate the influence of cultural factors on economic growth.

4.2. Research review on the measurement of the corporate culture

Corporate culture is a value system shared by employees of an enterprise. Measuring corporate culture is an important way to understand the construction of corporate culture objectively. In terms of measuring corporate culture, most scholars conduct surveys by setting up questionnaires, which are mainly based on Denison's Organizational Culture Questionnaire (OCQ) or Quinn's Organizational Culture Assessment Instrument (OCAI). The OCQ is a scale of corporate culture designed by Denison based on the competitive value framework model (Denison, 2000), which is a measurement system with 4 cultural characteristics as the core, 12 indicators as the intermediate link, and 60 final items as the final object of investigation. It can clarify the advantages and disadvantages of corporate culture construction, so as to better help enterprises improve business performance. Cameron and Quinn developed the OCAI scale from the two dimensions of "external orientation and internal orientation" and "flexibility and stability".

Specifically, the two variables of "external orientation and internal orientation" and "flexibility and stability" formed a four-quadrant graph, which classified four types of corporate culture called Clan, Adhocracy, Hierarchy, and Market (Cameron et al., 2006). As for the Clan Culture, just as the name implies, the enterprise is like the family of employees, while managers and leaders are like elders and relatives. The Adhocracy Culture is more concerned with the position of an enterprise in market competition and the evaluation of the enterprise by customers, peers, and the public. The hierarchy

culture is maintained by a strict and complete system, and the implementation of the system is relatively strict. Enterprises under market-oriented culture mainly focus on their own position and competitiveness in the market and customers' recognition of them. After many tests, this scale can effectively measure the value orientation of enterprises and is used by many scholars to measure corporate culture (Tian et al., 2008; Li et al., 2012).

4.3. Research review on the measurement of traditional Chinese culture

Traditional Chinese culture is composed of many ideological schools, among which Confucianism plays a leading role, and Confucianism has profoundly affected Chinese people's outlook on life and values for thousands of years. Therefore, most empirical studies on traditional Chinese culture are conducted on the measurement of Confucian culture. At the same time, the measurement of traditional Chinese culture is mainly based on the following two aspects.

One is to measure Confucian culture based on the sorting of historical materials. For example, Huang and Li (2019) used the number of Confucian temples within a certain range of a company's registered place to measure the impact of Confucian culture on the company. Gu (2015) studied the relationship between Confucian ethics and agency costs by measuring the Confucian tradition according to the number of ancient official schools and academies within a certain range of a company's registered place. Ye et al. (2018, 2019) and Chen and Qiu (2021) measured Confucian culture by sorting out the number of "Number One Scholars" in various regions during the Ming and Qing Dynasties. Specifically, the more "Number One Scholars" in a region, the deeper the Confucian cultural foundation in that region. During the development of Confucian culture, seven cultural centers, namely Lu, Shu, Luo, Min, Taizhou, Zhedong, and Linchuan, have been formed. Ye (2018) measured the influence of Confucian culture by the distance between a company's registered place and these seven Cultural centers.

The second is to measure Confucian culture through questionnaire surveys. Contemporary people's concept of elderly care is deeply influenced by Confucian culture. In areas with great influence of Confucian culture, the basic mode of providing for the aged is family care. As China develops into an industrialized society, more and more people no longer rely too much on children's support for the elderly. Based on this, Du and Zhan (2019) and Chen (2017), based on the China Comprehensive Social Survey (CGSS) question "Who do you think should be responsible for the elderly with children?", to identify the strength of Confucian influence. Zhao et al. (2015) constructed the GLOBE (Global Leadership and Organizational Behavioral Effectiveness) Cultural Custom Index of Chinese provinces with 9 cultural measurement dimensions¹ and 3,690 college students' questionnaires from 31 provinces

¹The 9 dimensions are: performance orientation, future orientation, uncertainty avoidance, assertiveness, gender egalitarian, societal collectivism, in-group collectivism, power distance and, humane orientation. Among them, performance orientation describes "to what extent society encourages its members to pursue more outstanding performance"; future orientation describes "to what extent society encourages members to adopt behaviors such as planning, investing in the future and delaying gratification"; uncertainty avoidance describes "the extent to which social members reduce uncertainty about future events through social norms, rituals and rules and regulations"; assertiveness describes "the extent to which individuals exhibit characteristics of rebellion, confrontation and aggressiveness in social interactions"; gender egalitarian describes "to what extent does society reduce gender role differences and gender discrimination"; societal collectivism describes "to what extent does society's institutional practice encourage and reward collective resource allocation and collective action"; in-group collectivism describes "the extent to which individuals are proud, loyal and cohesive to their organizations and families"; power distance describes "the extent to which members of a society expect or accept that power can be unequally shared among members of a society", and humane orientation describes "the extent to which social members encourage and approve behaviors including fairness, altruism, kindness, generosity, and caring for others".

and cities across the country. Based on this index, Ye et al. (2018) selected three dimensions of “future orientation”, “societal collectivism”, and “in-group collectivism” as well as the number of “Number One Scholars” in Ming and Qing Dynasties to measure Confucian culture comprehensively. They pointed out that the regions with higher scores of collectivism generally pay more attention to the overall interests of the society, while the pursuit of individual and the realization of self-value is weakened. This cultural phenomenon is more prominent in the countries and regions with Confucian culture circles. Future orientation refers to the extent to which a society encourages future-oriented behaviors such as planning, investing in the future, and delaying gratification, which echoes Confucian values of restraint and frugality. Therefore, the dimensions of “future orientation”, “societal collectivism” and “in-group collectivism” are effective measures of Confucian culture.

5. Implications from the research on the relationship between Chinese traditional culture and corporate environmental responsibility

From the above literature review, we can see that only a little literature focuses on the relationship between Chinese traditional culture and corporate environmental responsibility. For the research of Chinese traditional culture, the existing literature is based on the macro and micro levels and carries out research from different angles. Although there has been rich research, the impact of Chinese traditional culture on the economy and society is more complex and controversial, so it is necessary to study further. Research on the influencing factors of corporate environmental responsibility is discussed from the external and internal perspectives, and there are many related studies. However, at present, only a few scholars combine Chinese traditional culture with corporate environmental responsibility, and their studies have some limitations. Accordingly, this paper gives the following research enlightenment.

First, it is necessary to study whether Chinese traditional culture has a significant impact on the environmental responsibility of listed companies. As early as in the Book of Rites (written about 2500 years ago), people have attached great importance to environmental protection. However, in modern times, insufficient attention is paid to whether traditional culture impacts corporate environmental responsibility, and if so, whether it is positive or negative.

Second, is there heterogeneity in the impact of Chinese traditional culture on corporate environmental responsibility in different industries and different types of enterprises?

For the study on the heterogeneity of different industries, all listed companies can be divided into heavy pollution industries and non-heavy pollution industries according to the Classified Management Directory of Listed Companies' Environmental Verification Industries issued by the Ministry of Environmental Protection in 2008. Enterprises are the main source of all kinds of pollution, 80% of environmental pollution comes from enterprises, and the energy consumption of heavy pollution industries accounts for as much as 70% (Yin et al., 2019). It is generally believed that heavy polluting industries will bear more environmental responsibilities while having high pollutant emissions. It is worth exploring the role of traditional culture as an influencing factor in the environmental responsibility fulfillment of two different types of industries.

For the study on the heterogeneity of different types of enterprises, listed companies can be further divided into two types: state-owned enterprises and private enterprises. State-owned enterprises are subordinate to the government. Based on the long-term historical inheritance, state-owned enterprises may be more affected by traditional culture than private enterprises. Moreover, compared with private

enterprises, state-owned enterprises may take more active environmental responsibility to create a good corporate image due to state endorsement. In addition, enterprises can also be categorized according to different market competition attributes (Jin et al., 2021; Fu and Hong, 2018). The more competitive the market environment is, enterprises may have no time to take into account environmental responsibility. Enterprises in an oligopoly or monopoly environment may have more energy to pay attention to the commitment of environmental responsibility from the perspective of their own long-term development, so as to establish a good corporate image.

Third, what are the specific moderating factors related to the impact of Chinese traditional culture on the environmental responsibility of listed companies?

It is preliminarily considered that the moderating factors can be roughly divided into two aspects: the level of residents' education and the intensity of environmental regulation. The residents' education level can reflect the overall scientific education level of the region. The higher the level of science and education, the more profound people's understanding of traditional culture, which is reflected in the enterprise level, is to bear more social responsibility. As for the formal environmental regulation, it aims to protect the environment and regulate various behaviors that pollute the public environment. The stronger the formal environmental regulation is, the stronger the traditional culture of being kind to nature will be in the region, which will make the enterprise more inclined to assume environmental responsibility

6. Conclusions

China is deeply influenced by religious rites and laws, and traditional culture as an informal system is an important aspect that affects the behavior and decision-making of enterprises, thus influencing their environmental responsibility fulfillment. However, few studies directly focus on the relationship between Chinese traditional culture and corporate environmental responsibility, and it is rare to investigate their relationship from an empirical perspective. This paper combs and evaluates the relevant literature from three aspects and put forward implications for future research on the relationship between Chinese traditional culture and corporate environmental responsibility. The conclusions are as follows.

First, for the research of Chinese traditional culture, the existing literature is based on the macro and micro levels and carries out research from different angles. Although there has been rich research, the impact of Chinese traditional culture on economy and society is more complex and controversial, so it is necessary to study further.

Second, according to the above literature review, the existing research on the influencing factors of corporate environmental responsibility is discussed from its external and internal factors, and there are many related studies. However, at present, only a few scholars consider the combination of Chinese traditional culture and corporate environmental responsibility. The only two studies considering the relationship between the two also have some limitations. First of all, as mentioned above, they did not fully consider the impact of culture, but only considered religion. Secondly, the data and samples are small, which can not fully reflect the variable of religion. Finally, most of the existing studies focus on developed countries. Due to the different systems of different countries, the conclusions may not be suitable for developing countries, so it is still necessary to further expand the relevant research.

Third, in the measurement of traditional Chinese culture, there are currently two measurement methods: the collation of historical data and the questionnaire. Although the traditional Chinese culture

can be directly measured through questionnaires, there are also problems such as difficulty in controlling the quality of data. At the same time, due to factors like the constraint of survey conditions, the existing literature usually only obtains one year's cross-sectional data, and the lack of dynamic sample information will have a certain impact on the reliability of the research results.

Fourth, future empirical research on the relationship between Chinese traditional culture and corporate environmental responsibility should be carried out from the perspective of the intensity, effect, the heterogeneity of the impact of Chinese traditional culture on enterprises' fulfillment of environmental responsibility, as well as the moderating factors of the relationship between them.

Acknowledgments

This research was funded by Humanities and Social Sciences Fund of Hunan Institute of Technology, 2020HY019.

Conflict of interest

All authors declare no conflicts of interest in this paper.

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