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The Impact of Green Finance on High Quality Economic Development in China

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Abstract: *This paper focuses on the significant issue of green finance and its impact on high-quality economic development. It aims to explain the real problems of inadequate support from green finance for high-quality economic development, as well as the theoretical issues regarding the limited research on the impact of green finance on high-quality economic development. The article proposes that new research should focus on the economic question about what the impact of green finance on high-quality economic development is. The findings of this research aim to establish a comprehensive index evaluation system for green finance and high-quality economic development, and explore whether the relationship between them is only linear. This research can provide valuable reference points for the formulation of relevant policies. For the research design, this paper uses quantitative method by combining China's national conditions, use scientific and reasonable knowledge framework, collect panel data and apply entropy method to establish a comprehensive index evaluation system for green finance and high-quality economic development, measure the role degree of green finance and high-quality economic development, and then find out the influence relationship between green finance and high-quality economic development. In addition, by proposing a mediation effect model, this paper proposes that the specific mechanisms by which green finance influences high-quality economic development, and the consequent outcomes could reveal that green finance can facilitates overall economic growth via enhancing the ecological level of industrial structure and promoting green technological innovation. Finally, this paper proposes the moderating role of marketization and government intervention, which not only provides a research direction for future studies but also offers a theoretical basis for policymakers in formulating relevant policies. This paper has important theoretical and practical implications. In terms of theoretical implications, this paper has enriched the existing research content of green finance theory, improved the current research deficiencies in green finance, and provided new theoretical ideas for economic growth. In a realistic sense, the conclusions and suggestions of this paper are valuable for China to promote the improvement and development of the green finance system, improve the adjustment of industrial structure and the green transformation of the economy, and foster the high-quality growth of China's economy.*

Keywords: Green Finance, High Quality Economic Development, Comprehensive Index Evaluation System, Impact, China

1. Introduction

China's economy has experienced tremendous growth following the implementation of reform and opening up policies. However, this has led to significant environmental issues, including

excessive depletion of natural resources and worsening pollution. These concerns pose a substantial obstacle to the long-term sustainability of China's economy. Green finance (GF) facilitates the redirection of capital from energy-intensive businesses into environmentally friendly industries, so addressing the issue of high pollution caused by these operations. This approach helps reduce the strain on the environment and mitigates environmental pollution.

Many researchers have acknowledged that GF may facilitate high-quality economic development (HQED). Nevertheless, the majority of recent studies confirm the impact of GF on the advancement of superior economic development, primarily via theoretical research. However, there is a scarcity of literature that investigates the relationship between the two through empirical study. Hence, it is crucial to examine the correlation between them by empirical investigation.

In order to achieve this objective, this study examines the existing literature on the correlation between GF and high-quality economic development. It also establishes a measurement index and regression model to analyze the relationship between GF and high-quality economic growth. An empirical analysis was conducted to examine the influence of GF on high-quality development at the national level, and the variations in this impact were explored at the regional level. The result is derived from the empirical test, and appropriate policy recommendations are proposed.

2. Literature Review

2.1 Theoretical Foundation

2.1.1 The Theory of Externalities

The theory of externalities, central to environmental and welfare economics, addresses how the actions of individuals or firms impact third parties without appropriate compensation. This theory becomes especially relevant in the context of environmental issues, where negative externalities such as pollution are prevalent. Green finance, which involves investments aimed at promoting environmental sustainability, offers a practical approach to addressing these externalities. This review explores the theoretical foundations of externalities, examines their interplay with green finance, and discusses the implications for policy and practice.

Green finance has emerged as a critical tool for addressing environmental externalities by directing capital toward projects and investments that have positive environmental impacts. This concept encompasses various financial instruments, including green bonds, sustainable investments, and environmental, social, and governance (ESG) criteria. Green finance aims to align financial flows with sustainable development goals and mitigate negative externalities.

The relationship between externalities and green finance has significant implications for both policy and practice. Effective policy interventions are required to align financial incentives with environmental goals and ensure that externalities are internalized. Governments and financial institutions must collaborate to develop and implement strategies that promote green finance and address market failures.

The integration of externality considerations into financial decision-making highlights the need for ongoing research and innovation in green finance. Understanding the impact of green finance on environmental externalities and financial performance is crucial for developing effective strategies to address climate change and sustainability challenges.

The theory of externalities provides a foundational framework for understanding the market failures associated with environmental impacts. Green finance represents a practical application of this theory, offering tools and mechanisms to internalize external costs and promote sustainable development. As environmental challenges evolve, the relationship between externalities and green finance will continue to shape policy and investment practices, emphasizing the need for continued research and innovation in this field.

2.1.2 Environment Kuznets Curve (EKC)

The Environmental Kuznets Curve (EKC) theory posits a relationship between economic development and environmental quality, suggesting that pollution and environmental degradation initially worsen with economic growth but eventually improve as a country reaches higher levels of income. This review explores the theoretical foundations of the EKC, examines empirical evidence supporting or challenging the theory, and discusses its implications for green finance. Understanding this relationship is crucial for designing effective policies and financial strategies that promote sustainable development.

The Environmental Kuznets Curve theory provides a framework for understanding the relationship between economic development and environmental quality, suggesting that pollution may initially increase with economic growth but improve at higher income levels. However, empirical evidence for the EKC is mixed, and the theory may not apply universally to all environmental issues. Green finance plays a critical role in shaping this relationship by supporting sustainable development and addressing environmental challenges. As the world faces complex environmental issues, integrating green finance with policy measures and technological advancements will be crucial for achieving sustainable economic growth and improving environmental quality.

2.2 Green Finance

Green finance (GF), also known as “Environmental Finance”, “Climate Finance”, “Sustainable Finance”, and other terms, is an important branch of the financial sector today. With continuous practice, the concept of GF has emerged, evolved, improved, and become more precise. Scholars worldwide have defined GF from two main perspectives: one based on its essence and the other based on its functions.

Some scholars primarily define GF based on its essence, which is a specialized financial service aimed at providing dedicated funding for projects that improve the ecological environment. For instance, scholars like Salazar (1998), Labatt and White (2002), all considered GF as a particular financial innovation and a special financial instrument designed to enhance environmental sustainability and achieve ecological conservation. Höhne et al. (2012) believed that the essence of GF lies in promoting financial investments in projects and ecological environmental products that contribute to economic sustainable development. PwC (Price Waterhouse Coopers) Consulting (2013) defined GF as a financial product and service provided by the banking industry to enterprises and projects, where environmental factors are comprehensively considered when offering funding.

Volz et al. (2015) believed that GF refers to investment and financing activities that consider environmental impacts, with the purpose of achieving economic sustainability. Lindenberg (2014) considered GF as green investment activities aimed at preventing, reducing, and compensating for environmental and climate damages, and providing funding for public policies that encourage implementation or mitigation of environmental damages.

Other scholars primarily define GF based on its functions, providing a detailed explanation of GF. An (2008) believed that the essence of GF is, in fact, a macroeconomic policy that achieves coordinated development between the economy and the environment through financial instruments such as credit and securities. Ma (2015) believed that GF is the utilization of financial resource allocation functions to provide funding support for green industries that fostering the transformation of the economic structure towards a greener and more advanced direction. An et al. (2017) also defined GF based on its essence, purpose, and characteristics, stating that the essence of GF lies in using finance as a leverage to drive technological innovation and accelerate industrial structure optimization, thereby promoting regional economic sustainable development.

As the focus on the development of GF grows, the definitions of GF have gained more credibility and have shifted away from exclusively relying on its functions and essence. At now, there are two widely accepted and reliable definitions of GF. The G20 Green Finance Study Group defined GF as investment and finance operations that provide favorable environmental outcomes, therefore promoting sustainable development (Ma et al., 2023). Another authorized definition is derived from China's "Guidance on Building China's Green Financial System" (He et al, 2024). This advice offers a more thorough and precise representation of the fundamental nature of GF. GF stands for financial services that are offered to assist economic operations focused on environmental betterment, climate change mitigation, and efficient resource use. This encompasses the management of funding, project operations, and risk in several domains, including environmental preservation, energy efficiency, renewable energy, sustainable transportation, and eco-friendly infrastructure.

2.3 High Quality Economic Development

Internationally, there is no relatively unified concept of the theory of economic development quality. It is only mentioned in some related theories. Some scholars, when using the Gini coefficient to examine the relationship between income inequality and economic development, argue that economic development should promote fair income distribution and reduce wealth disparities, rather than solely pursuing an increase in economic aggregate (Mi et al., 2020; Hailemariam et al., 2020). Scholars, through studying the impact of the Human Development Index (HDI) on economic development, proposed that the HDI integrates indicators such as the population's health level, education level, and living standards to measure a nation's level of development. They argued that economic growth should be combined with human development and well-being (Dasgupta, 2010; Grubaugh, 2015; Migała-Warchoł & Sobolewski, 2020). Researchers studying sustainable development theory usually hold the view that economic progress should satisfy present demands while also ensuring the potential to satisfy the requirements of future generations without any compromise (Sachs et al., 2019). It emphasizes the balance between the economic, environmental, and social aspects to ensure the sustainability of economic development (Vinuesa et al., 2020). Some scholars studying the theory of environmental impact assessment believed that it is possible to provide recommendations and guidance for sustainable development by evaluating the impact of economic activities on natural resources, ecosystems, and environmental quality when measuring the effects of of economic growth on the ecology (Sanyé-Mengual et al., 2019; Ahmad et al., 2021). In conclusion, although there is no established systematic theory of economic development quality in the international academic community, scholars generally emphasize the importance of not only focusing on the quantity of economic growth but also considering the quality of economic growth and its impact on the ecological environment, social welfare, and other aspects when studying economic development.

China has consistently placed economic construction at the center and has chosen a path of rapid economic development that emphasizes quantity-based growth and relies on an extensive growth model (Li, 2019). However, this growth also brought forth challenges such as resource depletion, environmental issues, and imbalanced development. The 19th National Congress Report of the Communist Party of China in 2017 emphasized that the Chinese economy has transitioned from a period of rapid expansion to a period of superior development (Xu, 2023). This event represented the first instance of HQED and also indicated a change in the study emphasis of the academic community from the theory of economic development quality to the theory of HQED (Xu & Liu, 2021). After the proposal of this notion, researchers have carried out thorough study on its meanings. HQED is a state of quality that encompasses a broader range and higher requirements than mere economic growth (Zhang et al., 2021). Some scholars have also made contributions to the study of how to promote high-quality development. In the research on promoting high-quality development, it can generally be divided into three categories: quality transformation, efficiency transformation, and dynamic transformation in promoting economic development.

Looking back at the three ways to promote HQED, we can observe that it has moved beyond mere quantitative economic growth and instead seeks to comprehensively enhance the quality of development across all aspects of society. Consequently, in the context of promoting HQED, traditional financial instruments have become less adaptive, while GF has become indispensable. GF can play a significant role in allocating funds between industries, providing financial support to environmental protection and sustainable development-related sectors. Additionally, GF can actively contribute to facilitating industrial upgrades and promoting innovation development by fostering the research and application of green technologies. By introducing GF instruments, it is possible to effectively steer the economy towards a more environmentally friendly, sustainable, and high-quality development trajectory, thereby achieving synergy between the economy, the environment, and society.

2.4 The Economic Effects of Green Finance

In traditional theoretical analyses, scholars have pointed out that GF can promote green investments and drive economic growth. Taking the “Thirteenth Five-Year Plan” air pollution control activities as an example, Ma (2015) found that in the coming years, the market for products such as the amount of money spent on desulfurization and denitrification equipment, and environmental monitoring devices will be more than 500 billion yuan. As investment scales increase, it will also stimulate economic development. In their research, Wang et al. (2016) showed GF can increase the scale of green investments and, in turn, promote economic growth. Similarly, Wang and Liu (2016) argued that GF, through investment, promotes current and future economic growth. Li (2016) suggested that GF is a long-term trend in financial operations, and actively promoting GF can steadily increase the supply of funds for green industries in different provinces and cities, thereby contributing to regional economic growth. Wang (2019), Ma and Yu (2020) indicated that green investments can provide impetus for economic growth, creating new growth drivers. By fostering the growth of environmentally-friendly sectors, they contribute to the necessary potential for economic development. Similarly, Chai (2018) examined the method by which GF's influence on economic growth occurs, focusing on the aspects of consumption and investment. The analysis reveals a strong correlation between the impact of consumption, investment, and government spending on economic growth. Prior empirical research investigating the impact of government investment on economic development typically offer a positive viewpoint. Zhang et al. (2016) conducted a study in Colombia to examine the influence of GF on economic growth. Researchers have found that the country's GF model has the ability to facilitate both private investment and

environmentally friendly finance processes. This facilitates the advancement of environmentally friendly technology and renewable energy, resulting in a substantial increase in economic expansion. Pei et al. (2018) conducted a study in Huzhou, Zhejiang province to examine the impact of green credit on economic development. The investigation employed a panel VAR model, which revealed a significant positive effect of GF on the economic development in the given locality. A panel autoregressive model was employed by Sun and Chen (2019) to examine the relationship between GF and economic growth. The research revealed that the establishment of GF may significantly stimulate regional economic growth. Xie and Liu (2019) conducted a study using panel data from China's provincial regions and the dynamic panel GMM model. Their findings revealed that green credit had a positive impact on economic development, primarily via its role in enhancing technological innovation. Moreover, several experts argue that the advancement of GF has an intricate influence on economic expansion and may have detrimental consequences throughout certain phases. For instance, Ning and She (2014) highlighted that the advancement of GF might potentially have adverse implications for economic development. Liu and Liu (2019) investigated the influence of GF development on economic growth using input-output data from several regions in northwest China and by constructing an environmental quality index system, and their findings demonstrated that the correlation between GF and economic development typically aligns with the Environmental Kuznets Curve (EKC) theory.

2.5 Green finance and high-quality economic development

GF refers to financial operations, such as loans and securities, that aim to address the integrated growth of the economy, resources, and environment. GF achieves sustainable development of regional economies by efficiently allocating social resources (Li et al., 2015). Establishing an environmentally sustainable financial system and directing investments towards low-carbon and eco-friendly businesses would expedite China's economic transition, foster green development, and advance the concept of HQED (Cao, 2018; Tian, 2018).

Most scholars are positive that GF can promote China's economic development. As for how GF affects HQED, some scholars have conducted relevant research in this direction. In terms of theoretical analysis, Wang et al. (2016) believed that within China, GF can mobilize savings, use savings funds for green investment, and realize economic adjustment through the optimization of resource allocation, in order to facilitate the enhancement of economic structure, stabilize economic growth, and ultimately optimize China's macroeconomic (Wang et al., 2016). Yang and Liu (2019) expounded that HQED can only be achieved by building a green economic system from the four aspects of the goal, power, essence and community of destiny of HQED. By exploring the main path and mechanism of GF affecting HQED, Cai and Xia (2019) believed that the development of green economy is an inevitable trend in the current era. Wei (2020) believes that the western region should promote HQED by building a new GF model, expanding new infrastructure, and increasing financial support for ecological projects. Chen (2020) believes that building GF system, promoting the unification of domestic standards and striving to integrate with international standards can effectively strengthen regional cooperation and promote green development.

Lei and Wang (2020) conducted an empirical analysis to examine the influence of environmental pollution and GF on HQED. They utilized a panel regression model and discovered that environmental pollution hinders HQED, but GF can enhance HQED by addressing environmental pollution issues. Zhang et al. (2020) employed a panel regression model to investigate the influence of GF on HQED. They introduced the mediating variable of industrial structure upgrading and discovered that GF has the ability to enhance HQED by

influencing industrial structure upgrading. Zhou et al. (2021) did an empirical research using panel data to examine the relationship between GF and HQED. They discovered that GF enhances HQED by optimizing the economic structure, fostering innovative development, and supporting green development. Wen et al. (2021) developed a balanced model that considers resource and environmental limitations to examine the relationship between green finance (GF) and economic growth. Using panel data, they tested this correlation and discovered that GF can address issues related to resource consumption and environmental harm by optimizing resource allocation, promoting green industries, and ultimately impacting economic growth. In their study, Zhou and Li (2021) utilized big data mining to construct a GF index. They aimed to examine and analyze the correlation between GF and HQED. Their findings revealed that the influence of GF on HQED is not linear, but rather exhibits a "U"-shaped pattern. However, it was observed that GF still plays a substantial role in promoting the growth of HQED.

Through literature review, we can find that GF is a good tool to promote HQED; How GF affects HQED is an important hot topic at present. Therefore, on the basis of referring to existing literature, this study plans to use panel data for empirical analysis to study the relationship between GF and HQED.

2.6 Research Hypotheses

There are five hypotheses have been proposed below:

Sun and Chen (2019) employed a panel autoregressive model to examine the association between GF and economic growth. The research concluded that the establishment of GF may significantly stimulate regional economic growth. Xie and Liu (2019) conducted a study using panel data from China's provincial regions and the dynamic panel GMM model. They found evidence that green credit has a positive impact on economic development, primarily via its role in enhancing technological innovation. Moreover, several academics argue that the advancement of GF has an intricately nuanced influence on economic expansion and might potentially have detrimental consequences at certain phases. Ning and She (2014) highlighted that the advocacy of GF might potentially have adverse repercussions on economic development. In their study, Han et al. (2010) contended that the emergence of GF will have a mitigating effect on economic growth in the immediate future. Liu and Liu (2019) examined the impact of green finance (GF) development on economic growth by analyzing input-output data from many provinces in northwest China and building an index system to measure environmental quality. The results suggested that there is a correlation between green finance (GF) and economic development that generally follows the pattern described by the Environmental Kuznets Curve (EKC). Given the information provided, this study puts up the following hypothesis:

H1: Green finance has an impact on HQED.

Fan et al. (2012) pointed out that marketization involves changes at the economic, social, and legal levels. China's marketization level has continuously improved, leading to a more complete economic order, which helps adapt to new requirements for economic development and enhances the intrinsic driving force for HQED (Chen et al., 2021). When the amount of GF development is low, the market mechanism is not aligned with the GF market, which reduces the efficiency of fund allocation and hinders the motivation for enterprises to pursue green development, thus unable to promote HQED (Chi & Yang, 2023). With the continuous improvement of GF development, a transparent and competitive market environment in China can effectively reduce enterprise financing costs, foster a healthy competitive atmosphere,

promote green technological innovation, enhance enterprise risk management capabilities, and finally enhance the caliber of economic growth (Lyu et al., 2024). Given the information provided above, this study puts up the following hypothesis:

H2: Marketization has positive moderating effects on the economic development impact of GF.

The introduction of the strategy for HQED has prompted governments at all levels in China to vigorously promote the construction of relevant policies and regulations, establish a sound environmental regulatory system, continuously enhance the liquidity of the GF market, and increase the enthusiasm of different entities, for instance, enterprises, and individuals (Fan et al., 2012). When the level of GF development is low, the funding sources for GF development may be insufficient if solely relying on market forces, and government intervention may lead to distortions in the financial market and further foster rent-seeking and corrupt behaviors, resulting in a decline in the quality of economic development (Irfan et al., 2022). However, with the continuous improvement of GF development, the "visible hand" of the government can facilitate a more stable and transparent GF market, effectively alleviate the information asymmetry in the GF market, and achieve a scientific and reasonable allocation of GF resources. At this stage, the promotion effect of GF on HQED is further enhanced (Sadiq et al., 2024). Given the information provided above, this study puts up the following hypothesis:

H3: Government intervention has positive moderating effects on the economic development impact of GF.

Currently, the predominant focus of research on the impact of GF on industrial structure primarily centers on the theoretical domain. Weber (2005) contended that GF functions as a catalyst for enhancing industrial structure and enhancing industrial efficiency. Galetti et al. (2006) emphasized that the slow advancement of GF would hinder the growth of the green sector and consequently delay the optimization of the industrial structure. In their study, Qian et al. (2019) employed the gray relational model to ascertain the significant impact of green credit on the development of the tertiary sector. Li et al. (2020) constructed a fixed effects model and found that green credit has a significant influence on enhancing and promoting the industrial structure. Furthermore, the influence of GF policies implemented in the eastern and western regions on the enhancement and improvement of industrial structure differs significantly. In their study, Gao and Zhang (2021) employed a system GMM model to empirically investigate the ecological impacts of green finance on China's industrial structure. Conversely, qualitative reforms in industrial institutions may successfully stimulate economic growth in developing nations' economic development (Parteka, 2009). The study conducted by Dong et al. (2020) demonstrated that investing in the enhancement of industrial structure may stimulate economic development while simultaneously decreasing carbon emissions. According to Yu and Wang (2021), their examination of China's province panel data indicates that the improvement of industrial structure may facilitate the advancement of regional economies. Given the information provided above, this study puts up the following hypothesis:

H4: Industrial structure upgrading plays a mediating role between GF and HQED.

Economic growth theory suggests that technological progress can greatly contribute to economic growth, and a sound financial mechanism can assist in promoting technological advancements and further impact economic growth (Tadesse, 2007; Yao, 2010; Qian & Zhou, 2011; Sun & Li, 2017). Therefore, most scholars believed that GF plays a promoting role in green technological innovation.

Yu (2016) and Zhang & Zhao (2019) pointed out that the presence of technical advancements amplifies the role of GF in optimizing industrial structure via technological development, beyond its direct impact on industrial structure optimization. Yu (2018) proposed that the innovation of green technology relies on the establishment of necessary innovation mechanisms, and in this process, GF has the potential to contribute positively in promoting and driving the establishment of innovation mechanisms. Liu et al. (2019) found that when the scale of green credit is low, it may pose certain obstacles to green technology innovation. However, as the scale gradually increases and surpasses a certain threshold, it will promote the progress of green technology.

Technological innovation is a critical source of sustainable economic development, according to the endogenous growth theory, and the financial system can provide funding support for such innovation, thus injecting lasting momentum into HQED. Considering that the development of green technology involves, high risks, positive externalities, public goods, and information asymmetry, enterprises face strong financial constraints when pursuing green technology innovation. Traditional finance is unable to meet their financing needs, requiring GF to provide matching funding supply. When the level of GF development is low, the efficiency of green technology innovation declines, making it unable to exert its positive effects on environmental protection and hindering HQED. As the level of GF development continues to improve, China vigorously develops the green economy and provides more funding for environmental protection industries, further stimulating enterprises to adopt green technology innovation, thus accomplishing a mutually beneficial development of the economy and the environment. The swift advancement of GF contributes to the mitigation of financial limitations faced by enterprises and enhances investments in research and development, hence enhancing the level of technical innovation. Given the information provided above, this study puts up the following hypothesis:

H5: Green technology innovation plays a mediating role between GF and HQED.According to the above content, the present study proposes theoretical framework depicted in Figure 1.

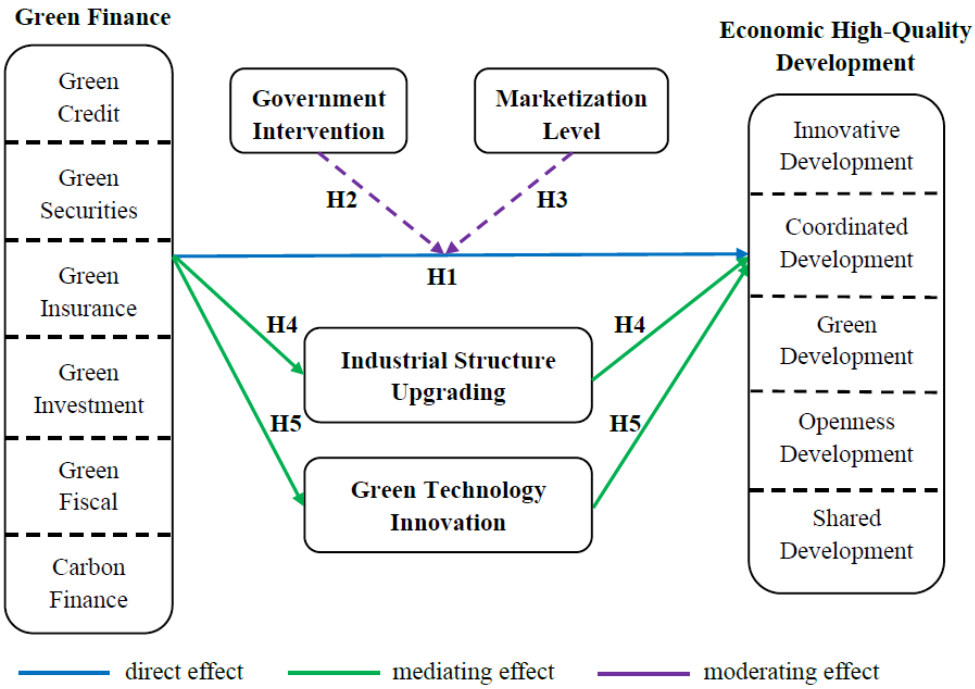

Figure 1: Conceptual Framework Illustrating the Effects of Green Finance on Economic High-Quality Development in China.

3. Method

The objective of the paper is to acquire empirical responses to the research inquiries via the analysis of pre-existing data. This thesis used a quantitative methodology. According to Creswell and Creswell (2017), the study design includes all the procedures and tactics used in conducting the research, as well as the methodologies used to gather and assess the data. The objective of this study is to examine the correlations between GF and HQED in China. Therefore, it is crucial to take into account the present circumstances to do a feature analysis or establish correlations between variables. According to Queirós et al. (2017), this study's approach does not include any intentional manipulation or control of variables. Asamoah (2014) stated that quantitative researchers gather numerical data and analyze it using statistical methods based on mathematics. Creswell and Creswell (2017) and Queirós et al. (2017) stated that quantitative research often employs a correlational study design, along with descriptive, quasi-experimental, and experimental techniques of examination.

The choice of quantitative methods is grounded in their ability to test hypotheses or theories, gather data in an objective, authoritative, and comprehensive manner, make predictions based on the data, assess cause-and-effect relationships, enhance the objectivity of the results, access a large sample size, and replicate and generalize the findings (Johnson & Onwuegbuzie, 2004). Furthermore, this study contends that panel studies are the optimal approach for data collecting since they align with the research aims, which aim to assess the predicted relationships. Panel data collection has many advantages, albeit it is more demanding and time-consuming compared to cross-sectional surveys (Mohajan, 2020). Due to the larger sample size and additional information provided by panel data, the probability of multicollinearity between variables is decreased, statistical tests have a higher number of degrees of freedom, and the estimates are generated with better accuracy. Panel data often include a temporal element beside the usual cross-sectional dimension. Greaves (2017) and Mohajan (2020) suggested that this allows for dynamic analysis and the study of impact patterns across time. Furthermore, this study utilizes pre-existing data to examine the correlation between GF and HQED from a macroeconomic perspective. Researchers may use larger datasets of higher quality for empirical study when they have access to dependable and authoritative data sources. Consequently, the study findings get more credibility.

Han et al. (2023) argued that there is a lack of study on China's ecologically sustainable economy. Based on their statements, there is an urgent need for more empirical investigation into the transmission routes and the rationale for the connection between green funding and the advancement of high-quality economic growth. The research's quantitative empirical results may be advantageous to Chinese policymakers, economists, and academics. The purpose of quantitative research is to mitigate bias in order to get an unbiased understanding of the events, processes, and facts under investigation (Choy, 2014). Due to the benefits provided by the quantitative research design, it is a very suitable option for this specific study, and it also corresponds with the research goals.

4. Findings

This paper conducts a comprehensive review of the relevant literature on GF and economic growth. It focuses on the external benefits of GF and examines its fundamental roles and the mechanism via which it influences economic growth. Data analysis software is utilized to conduct an empirical analysis of the influence of GF on HQED by measuring their respective levels. At the level of analysis, it primarily examines the influence of GF on economic growth

by focusing on two pathways: the optimization of industrial structure and the innovation of green technology. Meanwhile, it systematically examines the regulatory function of government intervention and the level of marketization introduced by GF in the process of HQED. The study presents countermeasures and proposals for encouraging economic growth by GF based on empirical research. These methods are proposed at four levels: national, local government, financial institutions, and firms.

The expected research results are as follows :1, The effect of green finance on high-quality economic development is U-shaped, that is, the "crowding out" effect in the early stage of green finance development is not conducive to high-quality economic development, and when it reaches a certain level, green finance will promote high-quality economic development. 2, Marketization can positively regulate the nonlinear effect of green finance on high-quality economic development. 3, Government intervention can positively regulate the nonlinear effect of green finance on high-quality economic development. 4, Green technology innovation plays an intermediary role in the relationship between green finance and high-quality economic development. 5, The upgrading of industrial institutions plays an intermediary role in the relationship between green finance and high-quality economic development.

5. Conclusion

To sum up, this paper tries to put forward three new propositions, the first is the relationship between GF and HQED, the second is GF promotes HQED through industrial structure upgrading, the third is GF promotes HQED through green technology innovation. As a consensus regarding the precise definition of GF and HQED has yet to be established within the academic community, this paper helps to scientifically understand the research concepts related to GF and HQED, and single indicators such as GDP, green credit, green bonds. Based on the national conditions of China and the integration of relevant literature, the present paper will establish a complete index system the Green Finance Development Index that can be utilized to assess the progress and advancement of GF, using a scientifically rational knowledge framework, via the entropy method. In addition, this paper proposes the moderating role of marketization and government intervention, which not only provides a research direction for future studies but also offers a theoretical basis for policymakers in formulating relevant policies. Through new proposed inquiry with the panel data, the following conjectures are discussed: the development of eco-friendly industries and green technological innovation of environmentally friendly industries and the gradual contraction of heavily polluting industries could elevate the ecological level of industrial structure in China; and a dynamic panel model to examine the correlation between GF and HQED indicate whether a significant positive influence of GF on HQED exist. By proposing a mediation effect model, this paper proposes that the specific mechanisms by which GF influences HQED, and the consequent outcomes could reveal that GF can facilitates overall economic growth via improving the environmental sustainability of the industrial framework and fostering advancements in eco-friendly technology innovation.

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