forests

Article

Can Forest Resource Endowment Drive Green Economic Growth in the Context of the Low-Carbon Economy in China?

Junlan Tan [1] and Rong Wang [2,*]

[1] School of Economics and Management, Jiangsu University of Science and Technology, Zhenjiang 212100, China
[2] Business School, Nanjing Xiaozhuang University, Nanjing 211171, China
* Correspondence: wxr920@163.com

Abstract: Continuous climate change has become one of the challenges faced by the world, drawing much attention from governments. The forest industry is the main focus of strategic initiatives to realize a circular and green economy and achieve low emissions. In order to explore the relationship between forest resource endowment and green economic growth, this study represents the first attempt to verify how forest resource endowment affects green economic growth (GEG), with a theoretical analysis and an explanation of the effects of both. The following results were obtained: (1) The GEG of the lagging period can improve the GEG of the current period in all regions, which verifies the sustainability of GEG in China. (2) The regression coefficient of forest resource endowment is a negative primary term (except for the eastern region) and a positive quadratic term, indicating that there is a U-shaped nonlinear relationship between forest resource endowment and GEG in the national, central, and western regions. (3) Forest resource endowments inhibit green economic growth by crowding out human capital from high-tech industries and through such effects as "Dutch disease". The elasticity coefficient of the eastern region is positive but insignificant, while the forest resource inhibition effect is larger in the central and western regions, but the elasticity coefficient is significantly lower for the central region than the western region. (4) Human capital significantly contributes to GEG in the east and has a negative effect on GEG in the nation and the central and western regions. A possible reason for this is that there are more highly qualified people in the east than in the central and western regions; environmental regulation inhibits GEG in the nation and the east and has a negative but insignificant effect on GEG in the central and western regions, whereas green finance can promote GEG in all regions, and its promotion effect is highest in the east and lowest in the west, where it does not pass the significance test.

Keywords: low-carbon economy; forest resource endowment; green economic growth; sustainable development

check for updates

Citation: Tan, J.; Wang, R. Can Forest Resource Endowment Drive Green Economic Growth in the Context of the Low-Carbon Economy in China? *Forests* **2023**, *14*, 1380. https://doi.org/10.3390/f14071380

Academic Editors: Liang Liu, Xudong Chen, Guangxu Li, Baoguo Du, Xiaoying Lai and Yingwei Ai

Received: 29 May 2023
Revised: 1 July 2023
Accepted: 4 July 2023
Published: 5 July 2023

1. Introduction

Low-carbon economy refers to a form of economic development guided by the concept of sustainable development through technological innovation, institutional innovation, industrial transformation, new energy development, and other means of minimizing the consumption of high-carbon energy such as coal and oil, reducing greenhouse gas emissions, and achieving a win–win situation for economic and social development and ecological environmental protection [1]. The development of the forest industry is the main strategic initiative to realize a circular and green economy and achieve low emissions, increasing forest area through scientific planning and by using scientific management to improve forest quality and enhance the carbon sink function to establish a long-term mechanism for afforestation and renewal by dealing with the relationship between ecological and economic benefits. This is to ensure that the management body maintains an established long-term mechanism for afforestation and regeneration, a relationship between ecological and economic benefits, and enthusiasm, such that forest management and forest farmers can be closely integrated to achieve sustainable carbon sinks. Forest resources are an important component of natural resources, and forestry development is one of the main factors affecting the green development of the economy in countries around the world [2,3]. However, there is bound to be a contradiction between the limited resources and the unlimited demand for economic growth. Therefore, governments are becoming increasingly concerned about the scarcity of forest resources, and academics have begun to explore the relationship between forest resource endowment and economic growth [4]. In China, the economic growth rate of forest resource-intensive areas does not exceed that of arable land-scarce areas [5,6]. Many scholars have observed the inhibitive effect of resources and developed economic models, applying cross-country interface data to verify the existence of this proposition [7,8]. After studying their relationship in China using cross-sectional data at the provincial level, Xu and Shao [9] found that this proposition also holds in different regions within a country.

Soundarrajan and Vivek [10] pointed out that green economic growth (GEG) is a new model of economic growth that takes into account natural resources and the ecological environment while achieving economic growth. The core idea of achieving GEG is that China needs both a steadily growing economy and a beautiful ecological environment, and both environmental and economic benefits should be considered in socialist development. However, in the process of actual provincial or regional economic development, we have observed that provinces or regions with abundant forest resources are often those with slow economic growth rates [11,12]. The existence of this effect in GEG is thus relevant to the issue of medium and sustainable green development. There are several potential causes leading to differences in the achievement of green growth with different levels of forest endowment. First, the endowment of forest resources will neglect the improvement of resource utilization efficiency, resulting in the crude development of resources, which is not conducive to the realization of green economic growth [13]; second, over-reliance on the development of forest resources crowds out the level of investment in other industries, resulting in insufficient innovation in high-tech industries and tertiary industries, and then, the inhibition of green economic growth [14]. These situations are not conducive to green growth in regions with abundant forest resources, thus inhibiting the GEG transition [15]. Utilizing the positive effects of forest resource endowment is of great practical significance to promote the effective use of forest resources and accelerate the economic development of resource-rich regions. The main purpose of this paper is to verify how forest resource endowment affects green economic growth and whether it has different characteristics in different regions, by constructing a theoretical model. The objectives of this paper are to clarify the relationship between forest resource endowment and green economic growth in different regions through empirical analysis, to propose measures to coordinate the relationship between forest resource endowment and green economic growth in China, and to propose major policy recommendations to achieve a green economy transformation.

Therefore, based on the measurement of regional GEG, this work explores and compares the GEG of different regions in China in horizontal and vertical dimensions; that is, we compare the trends in green economic growth in terms of time series, as well as the differences between different regions. For this work, panel data on the forest resource endowment of different regions in China from 2005 to 2021 are used; then, a systematic GMM model is selected to verify the relationship between forest resource endowment and regional GEG and study the differences in regions from both temporal and spatial perspectives, which is of great practical significance for accelerating the economic development of resource-rich regions.

The main contributions of this paper are as follows: (1) Previous studies are mainly in the field of economic growth, and no relevant studies have been found on the effect on green economic growth, so this paper can fill the gap in existing studies. (2) Moreover, due to variations in economic development levels and forest resource endowment, different characteristics may manifest, and this study can clarify the reasons for regional differences, and thus, provide a theoretical reference for the formulation of differentiated strategies. (3) Relevant policy suggestions are made from the perspective of GEG, which can serve as a reference for the relevant sections of the government.

2. Literature Review

2.1. The Impact of Resource Endowment on Economic Growth

Auty [16] believed that the endowment of natural resources does not have a catalytic effect on economic development, but rather, an inhibitory effect; that is, excessive dependence on resource endowment will mainly bring about the "Dutch disease effect". If the proportion of resource industries is too high, the industrial structure of a single problem, but also the industrial structure as a whole, will reduce the regional economic capacity, thereby increasing instability and late development, and even result in resource depletion and eventual economic decline. Subsequently, Sachs and Warner [17] showed that the more natural resources are owned, the slower the economic growth after controlling for variables that affect economic growth, such as initial investment rate, government efficiency, trade policy, and per capita income. Apergis and Katsaiti [18] also found a negative correlation between natural resources and economic growth. Davis and Tilton [12] find that primary products produced by the natural resource sector tend to be inelastic, leading to high price volatility, which affects domestic demand and government revenues, impacts foreign trade, and has a negative impact on long-term economic development planning. Kim and Lin [19] found that resource-rich economies tend to rely excessively on natural resource exploitation for profits; these sectors are characterized by low human capital requirements, weak innovation capacity, and poor technology spillover effects, which may lead governments and firms to neglect human capital accumulation and investment in technological innovation to a certain extent. Domestic scholars Shao et al. [20] confirmed the inhibitive effect between them, mainly at the provincial and city levels, in China. Guo et al. [21] found that resources hindered structural transformation and upgrading of the western economy. Qiu and Tao [22] found that the endowment of resources affected green technology choices in enterprise innovation and technology choice.

On the other hand, some scholars argue that an inhibitive effect of the resource endowment effect does not exist. One study took the abundant natural gas development in the south-central region of the U.S. and found that continuous development of the mineral resources industry has promoted more employment growth in related industries [23]. Brunnschweiler and Bulte [24] argued that natural resources do not limit the growth potential of developing countries. Fang et al. [25] used cross-sectional data from 95 cities and concluded that an effect of resource endowments on inhibiting economic growth does not exist. Yan [26] empirically analyzed provincial data and concluded that natural resource endowment has a direct effect on economic development, while the indirect effect produces a very different result and, in general, abundant natural resources are not conducive to long-term regional economic development. Sun and Si [27] measured resource endowment impact on economic development and did not find a significant inhibitive effect. This paper describes the application of the research methods and research ideas of these scholars to the field of forest industry to verify how forest resource endowment affects green economic growth, which supplements the existing research and represents certain innovation.

2.2. Research on Forest Resource Endowment's Impact on Economic Growth

There is a large body of domestic and international literature on mineral resources, but the literature on the forest sector is relatively scarce and mainly focuses on domestic studies. Wang and Xie [28] showed that the areas of forest resource endowment that inhibit economic growth in China are mainly concentrated in the northern and western regions, and there is almost no inhibitive effect in the eastern and southern regions. For example, Liu et al. [29] distinguished between forest resource endowment and dependence, using the regional per capita forest stock to represent forest resource endowment and the proportion of forestry system employees to employees in the society to represent forest resource endowment. The dependence of forest resources was empirically tested to determine whether there was a negative effect. Hou and Wang [30] concluded that there was no inhibitive effect of forest resources in Heilongjiang province. Tao [31] empirically showed that there are multiple forms of relationship between changes in forest resources and economic growth. Razafindratsima et al. [32] found that fully exploiting and sustainably managing the ecosystem services of forests can advance the goal of sustainable income increase.

2.3. Research on GEG

In terms of research on the connotation of green economic growth, most scholars have found that, in the future, green economic growth can only be fully realized by harmonizing and advancing economic development with the concept of green environmental protection and focusing on ecological protection while achieving economic growth [33–35]. The OECD [36] suggests that green growth is not limited only to the pursuit of economic growth and development, but is also identified as a way to prevent environmental degradation, declining biological species numbers, and the unsustainable depletion of natural resources, thus facilitating sustainable growth in a cleaner way; Hallegatte and Heal [37] argue, from an efficiency perspective, that GEG is the promotion of industrial productivity and resource use efficiency, while it should promote improvement of the skill level and management experience of human capital. Quaas and Smulders [38] argue that GEG is achieved on the basis of ensuring simultaneous increases in short-term national income and domestic output, while long-term national income increase and output growth should not occur at the cost of environmental damage.

In terms of green economic growth measurement, research on green economic growth measurement can be mainly classified into two categories: the green growth indicator system and green total factor productivity. Li and Xu [39] precisely measured the GEG level of each prefecture-level city from 2003 to 2012 using a nonradial distance function. Based on the idea of the DEA decomposition of economic growth sources, Yang [40] combined the ML productivity index and the inter-period data envelopment analysis method to conduct corresponding empirical analysis of China's regional industrial development experience from 2003 to 2007, where changes in labor productivity were broken down into three components: technical efficiency, technological progress, and capital deepening. Tang et al. [41] chose the DEA–Malmquist model to measure environmental total factor productivity in the case of variable returns to scale, which was decomposed for analysis. Ma et al. [42] used the TOPSIS model and the SBM model to measure GEG and further analyzed their spatial patterns.

In addition, other scholars have used a strategy of constructing a green economic growth index system to measure GEG. For this, representative indicators from both green and development aspects are generally selected, and multiple influencing factors are even considered. Liang and Zhao [43] constructed a green economic growth indicator system from both the energy recovery and the pollution control sectors. Dinda [44] constructed a green growth model including natural resource capital, productive consumption, and other factors. Zhu [45] constructed a green GDP accounting system in China from four aspects: circular economy, green finance, energy savings and emissions, and industrial green development, with the consideration that reducing carbon emissions is the focus of China's GEG strategy. Although green GDP has been changed compared with that under the original framework, it still does not avoid the inherent limitations of GDP, and the cost of measurement and feasibility are still not considered. Xiang and Zheng [46] argue that to establish a comprehensive green economic index system, three major categories—namely, society and economics, environmental resources, and policy orientation—are needed to calculate the final green economic indexes according to the extreme value standard method and certain weights, but this calculation process is too complicated, and a more standard and consistent calculation rule has not been established.

Regarding research on the influencing factors of green economic growth, Wang and Liu [47] found that promoting technological progress, energy savings, and emission reduction performance is beneficial to achieving green total factor productivity growth. Xie and Liu [48] found that green credit has an important positive role in promoting GEG, for which promoting marketization and fiscal decentralization also contribute. Song et al. [49] argued that GEG achieves economic growth and environmental sustainability through investment and innovation. Lin and Zhu [50] studied the roles of financial education expenditure and R&D expenditure on green economic growth.

In summary, first, whether resource endowment inhibiting economic growth is influenced by resource type, regional location, time, and other factors is unknown, and there is still no unified standard for its identification; second, the existing quantitative studies have ignored geographical and spatial differences, resulting in a certain degree of variation in their analysis results; third, no literature has been found to validate the effect in the area of GEG; fourth, the existing objects of resource verification are mainly mineral resources such as coal, oil, and natural gas, and other types of resources are rarely involved. In view of this, the aim of this study is to attempt to verify, for the first time, whether forest resource endowment affects GEG, providing a theoretical analysis and explanation of the effects of both. The results will supplement and improve upon existing studies and, thus, have some theoretical research significance, while the study of forest resource endowment can serve as a reference for regional policies to achieve GEG, thereby having important practical significance.

3. Methods

3.1. Theoretical Framework

The question of whether resources "promote" or "inhibit" economic growth has been widely studied, but the conclusions are not consistent. From the perspective of global development in resource-rich countries, resource abundance is not the only way to achieve economic growth, but may have the opposite effect, i.e., hindering economic growth. Many scholars have studied the "crowding out" effect and concluded that excessive reliance on resource development may crowd out some factors that are beneficial to economic growth; for example, the high profitability of the resource sector attracts a large number of talented people, but the limited innovation in the resource sector crowds out talented people from other high-tech industries and limits innovation in other industries. This limits the innovation of other industries, which is detrimental to economic growth [51,52]. There is also a possibility of causing the "Dutch disease" effect, that is, a country's (especially small and medium-sized countries) economy of a certain primary product sector experiences abnormal prosperity, which leads to the decline of other sectors, especially the manufacturing sector; as the manufacturing sector has a learning, accumulation, and inheritance effect, manufacturing decline will reduce a country's labor productivity and make a country's economy lose vitality. Therefore, this paper takes forest resources as an example and focuses on green economic growth to explore whether forest resource endowment will promote green economic growth. Accordingly, this paper proposes the following:

Hypothesis 1. *Forest resources inhibit green economic growth.*

At the same time, due to the large area of China, there are large differences among regions in terms of economic development, technology level, and resource endowment, and thus, there may be uncertain results regarding whether forest resource endowment will promote green economic growth. Accordingly, this paper proposes the following:

Hypothesis 2. *There are large differences in the effect of forest resource endowment on green economic growth in different regions.*

3.2. Methodology Selection

In economic analysis, we refer to a data arrangement structure containing three dimensions of information (individual, indicator, and time) as "panel data". Panel data models are mostly used in econometric theoretical studies, and this paper used panel data models to analyze the factors influencing GEG in Chinese regions. Compared with other data models, panel data models have the following advantages: first, they create a large number of new data points for scholars to study, which increases the freedom of the data and thus reduces the covariance among different sources of data, thus enhancing the reliability of econometric modeling estimates; second, they allow researchers to construct more complex behavioral patterns and reduce or eliminate some of the variables associated with explanatory variables for which information is missing. Third, panel data can allow researchers to achieve more accurate predictions and descriptions of individual behavior [53].

Han [54] found that panel modeling includes variable coefficient panel data models, variable intercept panel data models, and constant coefficient panel data models (mixed models).

(1) Variable coefficient panel data model:

$$y_{it} = \alpha_i + \beta_i x_{it} + \mu_{it}, i = 1, 2, \cdots, n; t = 1, 2, \cdots, T \quad (1)$$

In this model, in addition to individual factors, there is a changing economic structure in the cross-section, so the structural coefficients show different economic connotations in each cross-section.

(2) Variable intercept panel data model:

$$y_{it} = \alpha_i + \beta x_{it} + \mu_{it}, i = 1, 2, \cdots, n; t = 1, 2, \cdots, T \quad (2)$$

In this model, the effect of each individual on the cross-section varies. The effect of individuals is the effect of variables that reflect individual differences, which are ignored in the model. The cross-sectional equations are intercepted in different ways, but the coefficients are the same. It generally includes two types of effect: constant and random.

(3) Constant coefficient panel data model (mixed model):

$$y = \alpha + \beta x_{it} + \mu_{it}, i = 1, 2, \cdots, n; t = 1, 2, \cdots, T \quad (3)$$

The model produces neither individual factors nor structural changes for the cross-section and uses ordinary least squares to provide efficient estimates of α and β. This is equivalent to putting together cross-sectional data from several past epochs into the sample data.

However, the endogeneity problem may lead to biased estimates, causing the parameter estimates to be inconsistent and distorting the economic implications of inference by parameter in these two models [55]. With the widespread use of generalized moment estimators (GMM estimators) in dynamic panel data analysis, the problem of inconsistency in parameter estimation has been solved [56]. Systematic GMMs consist of a difference equation and a level equation as a whole, and generalized moment estimation is then performed. Systematic generalized moment estimation can improve estimation efficiency, but compared with differential generalized moment estimation, it requires the addition of a prerequisite assumption—that the first-order difference term of the lagged term of the dependent variable is not correlated with individual effects. GMM estimation includes one-step and two-step GMMs. Two-step estimation has a downward bias in the weight matrix depending on the estimated parameters, does not confer much improvement in efficiency, and is unreliable, while one-step estimation is consistent despite the decrease in efficiency; thus, one-step GMM estimation is usually used in empirical applications. Theoretically, one-step system generalized moment estimation utilizes more information than one-step difference generalized moment estimation, and the former can solve endogeneity and problems of weak instrumental variables that cannot be solved by the latter, thus making estimates by the former more valid than those of the latter. Using Monte Carlo simulation experiments, Blundell et al. [57] also confirmed that systematic GMM has less bias and higher efficiency than differential GMM estimation with limited samples. Therefore, this paper adopts a one-step systematic GMM estimation approach to analyze the factors influencing green economic growth, and the sample data have the properties of both time series and cross-sectional series. A dynamic GMM panel model is chosen to take into account the dynamic effects of green growth and avoid the endogeneity problem caused by the introduction of lagged terms, thus making the empirical results more reliable in the presence of unit roots. The basic expression of the dynamic panel data model is:

$$Y_{i,t} = \alpha Y_{i,t-1} + \beta X_{i,t} + \mu_i + \varepsilon_{i,t}, i = 1, 2, \cdots, N; t = 1, 2, \cdots, T \quad (4)$$

where $Y_{i,t-1}$ is the lagged term of $Y_{i,t}$, and μ_i is denoted as the fixed effect of individual i. The simultaneous presence of the lagged first-order term $Y_{i,t-1}$ of the dependent variable $Y_{i,t}$ and the fixed effect μ_i together constitutes the specificity of the dynamic panel data. At this point, if the fixed effects are removed, the regression equation is expressed in the following form:

$$Y_{i,t} = \alpha Y_{i,t-1} + \beta X_{i,t} + \varepsilon_{i,t} \quad (5)$$

At this point, OLS or random-effects model regression analysis can be used. If the lagged first-order term $\alpha Y_{i,\ t-1}$ of the dependent variable $Y_{i,t}$ is removed at this point, the regression equation takes the following form:

$$Y_{i,t} = \beta X_{i,t} + \mu_i + \varepsilon_{i,t} \quad (6)$$

For this model, fixed-effects model analysis is sufficient.

3.3. Variable Selection and Data Sources

(1) Explanatory Variables

Green economic growth (GEG): Considering the difficulty of data acquisition and to avoid a situation whereby important data are missing for some provinces, cities, or years, this paper selects the time window of 2005–2021, and the sample involves 30 provinces and cities in China (except Tibet). Since GEG is usually considered to contain both desired and undesired outputs, the former indicates that the expected economic growth is achieved by stimulating the production and consumption of green products and services through the reasonable and continuous input of natural resources, the expansion of the industrial investment area, etc., which leads to an increase in industrial and construction output or the expansion of green investment. The latter implies that certain pollutants will be produced in the process, and this undesirable output, mainly the three industrial wastes, is an essential component for assessing the performance of GEG; it should also be noted that a combination of positivity and negativity should be considered when constructing the indicator system. In this paper, we choose resource consumption, environmental pollution, and economic output as the general directions to create the index system, and under each direction, we choose 3, 5, and 1 single variables, respectively, that can be directly expressed by specific data. According to the green economic growth evaluation index system, the main methods to determine the weights of indicators in the comprehensive evaluation index system are the expert scoring method and the objective assignment method. Based on the objectivity of green economic growth, we exclude the expert scoring method, which is influenced by subjective factors, and choose the entropy method, which is the method most commonly used in objective assignment, to determine the weight of each indicator of green economic growth. This method determines the index weights according to the value of information entropy, which can objectively evaluate the weight of each index of green economic growth and improve the accuracy of green economic growth evaluation. At the same time, this paper carries out a reliability test to test the reliability of the constructed index system. The reliability of statistical data is mainly assessed through the Cronbach's alpha coefficient test. The details of the index design are shown in Table 1, and the results show that the value of the CITC of each question item is greater than 0.5, and the Cronbach's alpha coefficients after the deletion of the items are smaller than the overall Cronbach's alpha; this indicates that the items meet the requirements of the study and that all of the items have high reliability levels and can therefore be retained for further research.

Table 1. Green economic growth evaluation index system and reliability test results.

Primary Indicators	Secondary Indicators	Tertiary Indicators	Attributes	Weights	CITC	Cronbach's Alpha after Removing This Item	Cronbach's Alpha
GEG	Resource consumption	Total water consumption	–	0.0831	0.656	0.873	0.883
		Urban construction land area	+	0.0432	0.712	0.821	
		Total energy consumption	–	0.0944	0.732	0.865	
	Environmental pollution	Carbon dioxide emissions	–	0.0214	0.738	0.874	0.978
		Particulate matter emissions	–	0.0322	0.657	0.911	
		Sulfur dioxide emissions	–	0.0584	0.782	0.883	
		Wastewater emissions	–	0.0773	0.819	0.893	
		Industrial pollution control investment	+	0.2751	0.653	0.881	
	Economic output	Regional GDP	+	0.3149	0.773	0.801	0.829

Note: Data are mainly from the *China Statistical Yearbooks* 2005–2021, the statistical yearbooks of provinces and regions, and the *China Environmental Statistical Yearbook*.

(2) Core explanatory variables

Forest resource endowment (FRE): Previous studies measuring forest resources have covered indicators such as forest land area, forest cover, and forestry production value, where each forest resource endowment indicator does not have the same scope of application and has its own advantages and disadvantages when considering different research purposes. For example, although it is easy to obtain data for this indicator spanning consecutive years, it is difficult to accurately measure the endowment of forest resources due to false reporting and the low preservation rate of afforestation [58]. Moreover, the choice of forest cover is also controversial, mainly because the technical standard of forest cover was modified in the fifth national forest inventory in China, resulting in several forest resource inventories. The comparability of forest cover before and after the inventories is not strong. The purpose of this study is mainly to examine forest resources endowment's impact on GEG, and the forestry output value is an embedded indicator of regional economic development and, therefore, not suitable for directly analyzing its interaction with economic development. In addition, with this indicator, it is also difficult to objectively describe the degree of endowment and scarcity of regional forest resources. Combined with the selection criteria of resource endowment in the study of mineral resources, this paper uses regional per capita forest stock to fit the forest resource endowment index.

(3) Control variables

Human capital stock level (HC). The endogenous growth model considers human capital as one of the important factors influencing GEG. Higher human capital can promote technological progress and efficiency, thus promoting GEG. In this paper, we refer to Yin et al. [59], who used the ratio of the number of people with secondary and higher education to the total employed population to measure human capital, which is expected to be positive.

Degree of external openness (FDI): Currently, there are two contrasting views on the impact of external openness on sustainable green economic growth. On the one hand, foreign openness may become a "pollution refuge" for other countries, i.e., the country bears environmental costs that may be brought about by the transfer of factories of foreign high-polluting enterprises, which increases environmental pollution in the country and is not conducive to GEG. On the other hand, opening up to the outside world may bring benefits to the country, which may enable it to obtain foreign advanced technology for product transformation and optimization and facilitate the "pollution halo" effect, thus improving GEG. In this work, we refer to the method of Dickson Zhao et al. [60] to express the degree of openness of each region in terms of the share of foreign direct investment in the GDP of the year.

Green finance (GF). This study refers to the method of Zeng et al. [61] to construct an index system for evaluating the development level of green finance, and the entropy value method is used to measure weight, where the index includes green credit, green investment, green insurance, and carbon finance. The entropy method above is also used to measure the green finance development index. Among the components, no unified measurement index has yet been formed for carbon finance due to its short development time, so this paper measures carbon finance using carbon intensity according to the objectives of carbon financial services and data availability, with the index system shown in Table 2. A reliability test was also conducted to test the reliability of index system construction, where the reliability of statistical data was determined mainly through the Cronbach's alpha coefficient test, and the details of the index design are shown in Table 2. The results show that the CITC value of each question item is greater than 0.5, and the Cronbach's alpha coefficient value after deleting this item is smaller than the overall Cronbach's alpha. This indicates that each measurement item meets the requirements of the study, and the reliability level of all measurement items is high, so they can be retained and used for the next study.

Table 2. Green finance index system and reliability test results.

Primary Indicators	Secondary Indicators	Indicator Definition	Weights	CITC	Cronbach's Alpha after Removing This Item	Cronbach's Alpha
Green Credit	Green credit loan balance/financial institution loan balance	+	0.4152	0.663	0.878	0.891
Green Investment	Investment in environmental pollution control/GDP	+	0.1123	0.598	0.812	0.885
Green Insurance	Agricultural insurance income/total agricultural output	−	0.1088	0.726	0.901	0.956
Green Securities	Market capitalization of six high-energy-consuming industries/total A-share market capitalization	−	0.1424	0.679	0.811	0.889
Carbon Finance	Carbon dioxide emissions/GDP	−	0.2213	0.612	0.735	0.813

Note: The data of green credit, green investment, green insurance, and carbon finance were obtained from the EPS database, the data of green securities were obtained from the Wind database, and the missing components were supplemented using an interpolation method.

Environmental regulation (ER). Drawing on the indicator construction method of Huang et al. [62], a comprehensive index was constructed to characterize environmental regulation by applying the entropy value method based on three indicators: industrial sulfur dioxide removal rate, domestic sewage treatment rate, and comprehensive industrial solid waste utilization rate, with a larger (smaller) index value implying the less (more) pollutant emissions.

Based on the variable selection above, the system GMM dynamic panel data model is constructed as follows.

$$GEG_{it} = C + \beta_0 GEG_{i,t-1} + \beta_1 FRE_{it} + \beta_2 HC_{it} + \beta_3 ER_{it} + \beta_4 GF_{it} + \beta_4 FDI_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (7)$$

GEG_{it} represents the GEG indicator; $GEG_{i,t-1}$ is the lagged period of GEG; FRE_{it}, HC_{it}, ER_{it} GF_{it}, and FDI_{it} are forest resource endowment, human capital stock, environmental regulation, green finance, and openness, respectively; β_i is the regression coefficient of each variable; μ_i denotes the individual effect; λ_t denotes time utility; and ε_{it} is the random disturbance term. All data were obtained from the *China Statistical Yearbooks* 2005–2021, the provincial and regional statistical yearbooks, the *China Forestry Statistical Yearbook*, and the fourth to eighth national forest resources inventories.

4. Results

4.1. Correlation Tests for the Econometric Analysis

4.1.1. Multicollinearity Test

Since macroeconomic variables are included in this study, the existence of multicollinearity between variables or two correlations will affect the degree and strength of the individual effect; in order to avoid such a situation, this paper tested for multiple correlations of variables, for which the variance inflation factor (VIF) method was selected for testing. The results are shown in Table 3 below.

Table 3. Results of the multicollinearity test.

Variable	FRE	HC	ER	GF	FDI
VIF	2.47	4.11	2.44	2.78	4.17
1/VIF	0.23	0.26	0.72	0.29	0.31
Mean VIF			3.194		

From the above table, it can be seen that the values obtained for each variable after passing the VIF test are less than 10, i.e., less than the maximum tolerance, which indicates that there is no multicollinearity among the five explanatory variables used in the model.

4.1.2. Cross-Sectional Dependence Test

Cross-sectional dependence is a key issue when examining the relationship between all selected variables in a panel data model, and ignoring it can lead to serious estimation bias and size distortion [63]. Therefore, before analyzing the smoothness of the variables, we first tested for the presence of cross-sectional dependence in the panel using the Pesaran CD test. According to the test result, $p = 0.234$, so the original hypothesis that there is no autocorrelation should be accepted; thus, there is no autocorrelation. The test results are shown in Table 4.

Table 4. Cross-sectional dependence test result.

Test	Statistics	Prob.
Pesaran	1.112	0.234

4.1.3. Smoothness Test

If the regression analysis is conducted directly without the smoothness test, pseudo-regression will occur when the data are not smooth. The original hypothesis of the LLC test is that all individuals contain unit roots, and the alternative hypothesis is that all individuals exhibit smoothness. The *p*-value of all variables is less than 0.1, and as such, all the variables are smooth, as shown in Table 5.

Table 5. The results of the smoothness test.

Variable	LLC Test Value	*p*-Value	Smoothness
FRE	−12.453	0.0000	Smooth
HC	−7.445	0.0000	Smooth
ER	−14.671	0.0000	Smooth
GF	−9.474	0.0000	Smooth
FDI	−11.288	0.0001	Smooth

4.1.4. Model Selection

The data in this paper relate to 30 regions of China, which are "big N and small T" panel data in the short panel data, so a static panel data model was selected in this work to study forest resource endowment's impact on GEG. The static panel data model consists of three models, namely, a mixed-effects model, a fixed-effects model, and a random-effects model. Since each of these three models has its own advantages and disadvantages, in order to determine which is the most suitable model for the data in this research, correlation tests were required. In the selection of static panel data models, the F-test is often used to decide whether to choose a fixed-effects model or a mixed-effects model; the LM test is used to compare the mixed OLS and random-effects models; and the Hausman test is selected to verify the fixed-effects model and the random-effects model. Since the total sample was categorically regressed later, the optimal model for a total of three samples needed to be tested. The test results are shown in Table 6.

Table 6. Model selection test results.

Test Method	Statistical Value	*p*-Value
F-test	7.094	0.0000
LM test	25.853	0.0000
Hausman test	98.566	0.0000

From the above test results, we can see that the p-value of the F-test is 0.0000, meaning that the fixed-effects model should be selected; this is followed by the LM test, with p = 0.0000, meaning that the random-effects model should be selected, and finally the Hausman test, with p = 0.0000, meaning the fixed-effects model should be selected. Therefore, combining the results of the three tests, the fixed-effects model was finally chosen.

4.2. Results of Forest Resource Endowment's Impact on GEG

4.2.1. Total Sample Perspective

Based on the previous analysis, the first-order lagged term of the explanatory variable GEG was used as an instrumental variable to study the effect of forest resource endowment on GEG using a systematic GMM dynamic panel model, while the squared term of forest resource endowment was introduced in this study to verify the nonlinear relationship. The obtained estimation results are shown in Table 7.

Table 7. Full sample regression results.

Variable	(1)	(2)	(3)	(4)	(5)
$GEG_{i,t-1}$	0.121 ***	0.132 ***	0.093 ***	0.153 ***	0.123 ***
FRE	−0.312 **	−0.347 ***	−0.366 ***	−0.309 ***	−0.268 ***
$(FRE)^2$	0.134 **	0.213 **	0.156 ***	0.177 ***	0. 231 **
HC		−0.0943 ***	−0.1123 ***	−0.2213 ***	−0.1099 ***
ER			−0.1023 ***	−0.1344 ***	−0.1213 ***
FDI				0.1232 ***	0.1118 ***
GF					−0.1109 ***
Sargan			0.996		
AR (1)			−3.453 *** (p = 0.000)		
AR (2)			0.392 (p = 0.239)		

Note: ** and *** means $p < 0.05$ and $p < 0.01$.

In Table 7, the *p*-value of AR (1) is 0.000, so the original hypothesis is rejected; the *p*-value of AR (2) is 0.239, indicating that there is autocorrelation in the first-order difference of the perturbation term and no autocorrelation in the second-order difference of the perturbation term, which passes the serial autocorrelation check. The Sargan test result is equal to 0.996, for which the null hypothesis is not rejected; therefore, the instrumental variable setting chosen in this paper is acceptable, and the model does not have the problem of over-identification.

(1) The positive effect of GEG in the lagged period on GEG in the current period is significant, indicating that there is a clear transmission effect between the current green economic growth and the previous green economic growth. This means that the green economic growth that accumulated in the previous period will form a demonstration effect and a virtuous circle, constituting a continuous "green push effect".

(2) The regression coefficient of forest resource endowment has a negative primary term and a positive quadratic term, indicating a U-shaped nonlinear relationship between forest resource endowment and regional GEG. In the initial stage of green economy development, the more abundant the forest resources are, the more green economic growth will be hindered, while when GEG exceeds the inflection point, the abundant forest resources will improve GEG. The economic benefits of forest resources can only be realized in a specific economic period. This is mainly because with the progress of technology, the improvement of living standards, and the change in people's ideologies, forest resources' inhibitive effect will gradually result in the creation of a forest resource gospel as the level of GEG increases.

(3) Forest resource endowment has a negative effect on regional GEG, and the significance and positive and negative signs between them do not change after gradually adding control variables; that this negative relationship remains significant demonstrates the strong robustness of the model. The results indicate that forest resource dependence has a significant hindering effect on GEG, which verifies that forest resource endowment inhibits green economic growth in the country, which verifies Hypothesis 1. The specific analysis is as follows:

Column 1 in Table 6 presents the results from the analysis of the relationship between forest resource endowment and GEG without considering the influence of other factors, with the finding that the coefficient of forest resource endowment is −0.312, which indicates that there is indeed a significant inhibitive effect between forest resource endowment and GEG. Column 2 adds the human capital input level (HC) variable, and the forest resource endowment coefficient decreases to −0.257 with a significance level of 1%, indicating that the forest industry is a resource-intensive industry. Moreover, the concentration of human capital in the forest industry affects the human capital of other high-tech industries and crowds out the talent of other high-tech industries; thus, it cannot improve the green innovation level, and it is therefore understandable that the level of regional human capital input has a negative impact on GEG. Adding the environmental regulation variable in column 3, the absolute value of the coefficient of forest resource endowment continues to increase to −0.317 with a significance level of 1%, while the absolute value of the coefficient of human capital input level (HC) increases, indicating that environmental regulation has an impact on human capital input level, and both together lead to the aggravation of forest resource endowment's inhibitive effect in the region. The forest resource endowment coefficient decreases to −0.309 with a significance level of 1% upon adding the FDI variable in column 4, indicating that increasing FDI can effectively mitigate forest resources' inhibitive effect in the region. With the addition of the green finance variable in column 5, the forest resource endowment coefficient further decreases to −0.268 with a significance level of 1%, indicating that the addition of this variable reduces the inhibitive effect of forest resource endowment, and green finance can encourage enterprises to improve their production methods, change their energy consumption structure, and promote GEG.

4.2.2. Regional Heterogeneity Analysis

In this study, regression was conducted according to the national division of China's regions to explore how forest resource endowment affects GEG in different regions based on the eastern, central, and western data. The results are shown in Table 8 below.

Table 8. Regional heterogeneity results.

Variable	East	Central	West
$GEG_{i,t-1}$	0.098 ***	0.122 ***	0.134 ***
FRE	0.098	−0.249 ***	−0.443 ***
$(FRE)^2$	0.113 ***	0.245 ***	0.167 ***
HC	0.056 ***	−0.165 ***	−0.245 ***
ER	−0.134 ***	−0.098	−0.122
FDI	0.187 **	0.123 *	0.108 *
GF	0.478 ***	0.322 **	0.092
AR (1)	−3.227 ***	−3.559 ***	−2.657 ***
AR (2)	1.226	1.114	1.457
Sargan	4.443	2.459	3.277

Note: *, ** and *** means $p < 0.1$, $p < 0.05$ and $p < 0.01$.

(1) There is a significant positive effect of GEG in the lagging period on GEG in the current period in the different regions, indicating that GEG in China is sustainable.

(2) Except for the eastern region, the primary term of the regression coefficient of forest resource endowment is negative and the secondary term is positive, indicating that there is a U-shaped nonlinear relationship between forest resource endowment and GEG in different regions in central and western China, which verifies Hypothesis 2.

(3) The inhibitive effect of forest resource endowment is more significant in less economically developed regions, and there are large differences among different regions, while for more economically developed provinces, the inhibitive effect is more convergent; therefore, Hypothesis 2 is verified. The elasticity coefficient of the eastern region is positive but insignificant, indicating that forest resource endowment in the eastern region promotes GEG, but the effect is not too obvious, probably because industry in the eastern region tends to leap toward capital-intensive and technology-intensive operations, gradually easing the dependence on the resource endowment, and thus, the inhibitive effect of forest resource endowment does not appear; thus, it is beneficial and conducive to the improvement of GEG. In contrast, the inhibitive effect is larger in the central and western regions, probably because regional economic development is dependent on the development of forest resources and is over-reliant on resource industries, thus squeezing out investment in high-tech industries and tertiary industries. The over-exploitation and use of resources has caused a decline in GEG, but the elasticity coefficient in the central region is significantly lower than that in the western region.

(4) Human capital can significantly promote GEG in the east and has a significant negative effect on GEG in the central and western regions, probably because the eastern region has a more developed economy, a better business environment, and more development opportunities, which attracts a large amount of high-quality talent; meanwhile the central and western regions have a shortage of talent, on the one hand, and a lack of high-quality talent, on the other, and the existing labor force cannot meet the needs of enterprises. Therefore, to a certain extent, it affects the technological innovation and industrial structure upgrading of enterprises, which does not have a significant impact on regional GEG and, on the other hand, is not conducive to the improvement of GEG due to the crowding out of talent from resource industries to other industries.

The environmental regulations in the east and the central and western regions also show significant differences. Specifically, there is a significant inhibitory effect on GEG in the eastern region, while the effect on GEG in the central and western regions is also negative, but does not pass the significance level in testing. This may be due to the fact that the eastern region increases the cost burden of companies by investing heavily in pollution prevention and control, which may crowd out part of the investment in innovation, and companies are likely to be unable to upgrade their technology in a shorter period of time due to the reduction in R&D investment. Therefore, on balance, environmental regulations may not be conducive to achieving GEG in the short term.

FDI can significantly contribute to regional GEG in all three regions. The comparison reveals that the effect of FDI on GEG passes the significance level of 5% in the eastern region, while it is only significant at the 10% level for the central and western regions. This means that FDI has a stronger effect on GEG in the eastern region compared to the central and western regions. This may be because the infrastructure in the central and western regions is relatively undeveloped and cannot match the high-quality FDI absorbed, thus failing to generate effective technology spillover effects and have a stronger contribution to GEG.

The impact of green financial development on green economic growth in the eastern region is 0.478, indicating that green financial development in the eastern region can significantly contribute to green economic growth. The reasons for this are as follows: Firstly, in the eastern region, there is a relatively more developed economy and a better urban economic structure and industrial model, the benefits brought by green finance are obvious, the marginal output of input factors is higher, and the impact on green economic growth is significant. Secondly, the government, banks, and enterprises in the eastern region attach importance to green financial policies, and the government's green financial implementation is stronger, strictly following a policy of imposing financial constraints on offending enterprises; moreover, enterprises can also respond consciously, pursuing green and low-carbon development of the economy while pursuing economic growth in a single approach and attaching importance to the coordinated development of economy and ecology. Green financial development in the central region fails to significantly promote green economic growth, with an impact coefficient of 0.322, and green finance in the western region fails to significantly promote green economic growth, with an impact coefficient of 0.092 that fails to pass the significance test, indicating that green financial development in the central and western regions has not yet been able to significantly promote green economic growth. This may be due to the following reasons: On the one hand, there is relatively little economic development in the central and western regions, resistance to adjusting the economic structure through the development of green finance is greater, and the effect is not obvious, so the impact on green economic growth is not significant; on the other hand, the central and western regions are mostly resource provinces, and the response to the green finance policy is insufficient, so a benign interaction between green finance and green economic growth has not been achieved.

4.3. Discussion

This paper verifies how forest resource endowment affects green economic growth, and concludes that forest resource endowment has a negative effect on regional green economic growth at the national level, which verifies the existence of a negative effect of forest resources at the national level; related results have also been obtained by other scholars. For example, Xie et al. [64] conducted statistical observations and econometric analysis with a panel data set of established villages with different forest resource endowment from 1986 to 2004, and the results showed that forestry resources' inhibitive effect holds true for rural forestry development in different regions of China. Scholars Liu et al. [29] also found that forest resource dependence presents an obvious inhibitive effect, and on the path to alleviating this inhibitive effect, the efficiency of the forestry industry should be improved, efforts should be made to turn the comparative advantage of forest resources into a competitive advantage, efforts should be made to transform the regional industrial structure, the level of human capital should be accelerated, etc.

Meanwhile, regarding research in different regions, this paper concludes that the impact of forest resource endowment on green economic growth has significantly differentiated characteristics, and there is no inhibitive effect in the eastern region, while there is a significant inhibitive effect in the central and western regions, which is consistent with most scholars' research; for example, Tao [31]'s empirical research shows multiple forms of relationship between changes in forest resources and economic growth. Scholars Wang and Xie [28] also found that the areas in China that experience an inhibitive effect are mainly concentrated in the northern and western regions, while the eastern and southern regions have almost no evidence of this phenomenon. In addition, foreign scholar Gibson [65] pointed out that in some countries with more abundant forest resources, such as the Solomon Islands, nearly half of the foreign exchange and one-sixth of the government revenue is from the logging of forests to increase exports, and thus, income; however, with the withdrawal of other countries from the tropical log trade, the countries that originally relied on log exports to survive will face a great impact to foreign aid, which will further widen the gap between the rich and the poor and bring about an imbalance in economic development. However, the existing literature has rarely studied the impact on different regions of China, reflecting the innovation of this paper's research, which further complements and improves the existing studies.

5. Conclusions and Recommendations

5.1. Conclusions

This study attempts to verify, for the first time, how forest resource endowment affects GEG, conducting a theoretical analysis and providing an explanation for the effects of both, and the results are as follows.

(1) The positive effect of lagged GEG in all regions on current GEG is significant, indicating that the green economic growth that accumulated in the previous period will form a demonstration effect and a virtuous circle, constituting a continuous "green push effect".

(2) Forest resource endowment has a negative effect on regional green economic growth at the national level, and the significance and positive and negative signs between them do not change after gradually adding control variables, indicating that forest resource dependence has a significant hindering effect on green economic growth at the national level. In addition, the regression coefficient of forest resource endowment has a negative primary term (except for the eastern region) and a positive quadratic term, indicating a U-shaped nonlinear relationship between forest resource endowment and green economic growth at the national level.

From the perspective of different regions, the inhibitive effect is more significant in less economically developed regions, and there is large variation among different regions, where forest resource endowment in the eastern region promotes GEG there. The negative effect of forest resource endowment on GEG is larger in the central and western regions; however, the elasticity coefficient is significantly lower in the central region than in the western region, indicating that the inhibitive effect is significantly present in the central and western regions, and the effect is stronger in the western region than in the central region.

(3) Human capital can significantly promote GEG in the east but hinder GEG in the national and central and western regions. Environmental regulation hinders GEG in the national and eastern regions, with a negative but insignificant effect on GEG in the central and western regions. Green finance can improve GEG in all regions, with the promotion effect highest in the east and smallest in western region, where it does not pass the significance test.

5.2. Suggestions

(1) We should increase investment in infrastructure and science and technology innovation, and strengthen the introduction of talent and investment in education. We should develop preferential policies for talent and improve the education level in the region; drive forestry development with science and technology, and rely on the gradual maturation of science and technology and the innovation of related systems to stimulate the steady growth of the economy on the basis of quality and quantity.

(2) We should increase the proportion of resources and the environment in the assessment system of local governments, so as to increase the incentive for local governments to devote themselves to improving the performance of resources and the environment, and guide enterprises to improve the efficiency of resource use and reduce pollutant emissions by increasing the research and development of green technology, so as to obtain output and profit with less resource consumption and environmental impact, such that there will be endogenous motivation for the green transformation of the economy.

(3) We should firstly abandon the traditional concept and pay attention to the production efficiency of forest products, the forestry input–output ratio, and ecological environment issues rather than only economic development. Secondly, we should reasonably plan the transformation of the primary forestry industry to drive the innovative development of secondary and tertiary forestry industries while coordinating the development of secondary and tertiary forestry industries, broadening the development space of secondary and tertiary forestry industries, improving the manufacturing level of regional forestry, realizing forest resource recycling, avoiding the waste of forest resources, and improving the economic value of forest resources. Again, with the improvement of people's living standards, the economic value of forest resources can be realized in various forms, such as through cultivating ornamental trees and flowers, which can not only develop the subsidiary economic value of forest resources but can also improve the ecological environment. Finally, in the process of forestry-based economic development, government departments should continuously learn and innovate forestry-based economic development forms that meet actual local development, gradually adjust and improve the forestry industrial structure, focus on promoting the deep processing of forest products, and improve the added value of forest products and industrial competitiveness.

(4) We should enhance the coordination and interaction between forest resource protection and green development. Different regions should develop coordinated development measures in line with their own according to the endowment and potential of forest resources, as well as the basis and strategy of economic development. Regions with higher green development should further promote sustainable development. The central region, which is at a middle level of green development, should vigorously promote green development while increasing the protection of forest resources on the premise of maintaining the protection level of forest resources. The western region, which is at a lower level, should simultaneously increase the protection of forest resources and vigorously promote green development, thereby promoting the simultaneous improvement of both.

5.3. Shortcomings and Prospects

(1) There are limitations to the data processing in this paper's empirical component. Similar to many contemporary studies, this study was limited by the availability of data for measuring green economic growth, and only provincial regions were selected for the study, without focusing on smaller regions. The obtained conclusions can thus only be representative of provincial regions.

(2) This study did not consider the spatial effect between variables and ignored the mutual influence of neighboring regions, affecting the accuracy of the results. In future research, we will construct a spatial econometric model to verify the spatial effect, and we expect to come up with more valuable suggestions.

(3) Institutional variables not only directly affect green economic growth, but also guarantee the successful implementation of other measures to promote green economic growth. However, there is not yet a good domestic variable that is generally accepted by the academic community for measuring institutional factors, which is the main shortcoming of this paper and represents a major task that must be undertaken in the future.

Author Contributions: Conceptualization, J.T.; methodology, J.T.; data curation, J.T.; writing—original draft preparation, R.W.; writing—review and editing, R.W.; visualization, R.W.; supervision, J.T.; project administration, J.T.; funding acquisition, R.W. All authors have read and agreed to the published version of the manuscript.

Funding: The paper was supported by the Social Science Foundation of Jiangsu Province (21GLD010).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Bao, J.Q.; Miao, Y.; Chen, F. Low carbon economy: A new change of human economic development. *China Ind. Econ.* **2008**, *4*, 153–160.
2. Tadesse, T.; Teklay, G.; Mulatu, D.W. Forest benefits and willingness to pay for sustainable forest management. *For. Policy Econ.* **2022**, *138*, 102721. [CrossRef]
3. Ali, A.; Ramakrishnan, S. Financial development and natural resources. Is there a stock market resource curse? *Resour. Policy* **2022**, *75*, 102457. [CrossRef]
4. Leonard, A.; Ahsan, A.; Charbonnier, F. The Resource Curse in Renewable Energy: A framework for risk assessment. *Energy Strategy Rev.* **2022**, *41*, 100841. [CrossRef]
5. Miamo, C.W.; Achuo, E.D. Can the resource curse be avoided? An empirical examination of the nexus between crude oil price and economic growth. *SN Bus. Econ.* **2022**, *2*, 5. [CrossRef]
6. Chachu, D.O.; Nketiah-Amponsah, E. The Fiscal resource curse: What's China's natural resource appetite got to do with it? *Int. Rev. Appl. Econ.* **2022**, *36*, 129–146. [CrossRef]
7. Ajide, K.B. Is natural resource curse thesis an empirical regularity for economic complexity in Africa? *Resour. Policy* **2022**, *76*, 102755. [CrossRef]
8. Gutiérrez, D.S.; Paz, M.J.; Vite, A.M. Industrialization of natural resources as a strategy to avoid the natural resource curse: Case of Chilean copper. *Extr. Ind. Soc.* **2022**, *11*, 101133. [CrossRef]
9. Xu, C.N.; Shao, J. Natural endowments and economic growth: A reexamination of the resource curse proposition. *World Econ.* **2006**, *29*, 38–47.
10. Soundarrajan, P.; Vivek, N. Green finance for sustainable green economic growth in India. *Agric. Econ.* **2016**, *62*, 35–44. [CrossRef]
11. Tynkkynen, V.P. Resource curse contested—Environmental constructions in the Russian periphery and sustainable development. *Eur. Plan. Stud.* **2007**, *15*, 853–870. [CrossRef]
12. Davis, G.A.; Tilton, J.E. *The Resource Curse. Natural Resources Forum*; Blackwell Publishing, Ltd.: Oxford, UK, 2005; Volume 29, pp. 233–242.
13. Haseeb, M.; Kot, S.; Hussain, H.I. The natural resources curse-economic growth hypotheses: Quantile–on–Quantile evidence from top Asian economies. *J. Clean. Prod.* **2021**, *279*, 123596. [CrossRef]
14. Lee, C.C.; He, Z.W. Natural resources and green economic growth: An analysis based on heterogeneous growth paths. *Resour. Policy* **2022**, *79*, 103006. [CrossRef]
15. Porfiryev, B.N. The green factor of economic growth in Russia and the world. *Stud. Russ. Econ. Dev.* **2018**, *29*, 455–461. [CrossRef]
16. Auty, R.M. *Sustaining Development in Mineral Economies: The Resource Curse Thesis*; Routledge: Lodon, UK, 1993.
17. Sachs, J.D.; Warner, A.M. *Natural Resource Abundance and Economic Growth*; NBER Working Paper No. 5398; Harvard University: Cambridge, MA, USA, 1995.
18. Apergis, N.; Katsaiti, M.S. Poverty and the resource curse: Evidence from a global panel of countries. *Res. Econ.* **2018**, *72*, 211–223. [CrossRef]
19. Kim, D.H.; Lin, S.C. Human Capital and Natural Resource Dependence. *Struct. Chang. Econ. Dyn.* **2017**, *1*, 92–102. [CrossRef]
20. Shao, S.; Fan, M.T.; Yang, L.L. How does resource industry dependence affect the efficiency of economic development?—A test of the conditional resource curse hypothesis and explanation. *Manag. World* **2013**, *2*, 32–63.
21. Guo, Q.G.; Zhang, X.G.; Wang, W. Resource curse and economic structural transformation and upgrading in the western region. *Ind. Organ. Rev.* **2021**, *15*, 64–91.
22. Qiu, Y.D.; Tao, F. A micro mechanism explanation of the resource curse effect based on the perspective of enterprise innovation and technology choice. *J. Xi'an Jiaotong Univ. Soc. Sci. Ed.* **2020**, *40*, 99–110.
23. Wang, Y.; Chen, X. Natural resource endowment and ecological efficiency in China: Revisiting resource curse in the context of ecological efficiency. *Resour. Policy* **2020**, *66*, 101610. [CrossRef]
24. Brunnschweiler, C.N.; Bulte, E.H. The Resource Curse Revisited and Revised: A Tale of Paradoxes and Red Herrings. *J. Environ. Econ. Manag.* **2008**, *55*, 248–264. [CrossRef]
25. Fang, Y.; Ji, Y.; Zhao, Y. Is there a resource curse in China. *World Econ.* **2011**, *4*, 144–160.
26. Yan, F. Re-examination of the relationship between natural resource abundance and regional economic growth. *Stat. Decis. Mak.* **2014**, *5*, 131–134.
27. Sun, D.C.; Si, M. Abundance of natural resources and regional economic growth in China: Questioning the resource curse hypothesis. *J. Zhongnan Univ. Econ. Law* **2012**, *1*, 84–89.

28. Wang, Y.L.; Xie, Y. Analysis of spatial and temporal variation and transmission mechanism of the curse effect of inter-provincial forest resources in China. *J. Nanjing For. Univ. Humanit. Soc. Sci. Ed.* **2020**, *20*, 103–113.
29. Liu, Z.F.; Yao, S.B.; Liu, Y. A study of forest 'resource curse' based on spatial panel model. *Resour. Sci.* **2015**, *37*, 379–390.
30. Hou, W.P.; Wang, L.Q. Exploration of the relationship between forest resource changes and economic growth in Heilongjiang. *For. Eng.* **2011**, *27*, 82–88.
31. Tao, K. Analysis of the relationship between forest resources and economic development level. *Bus. Her.* **2012**, *11*, 5–6.
32. Razafindratsima, O.H.; Kamoto, J.F.M.; Sills, E.O. Reviewing the evidence on the roles of forests and tree-based systems in poverty dynamics. *For. Policy Econ.* **2021**, *131*, 102576. [CrossRef]
33. Andronie, M.; Lăzăroiu, G.; Ștefănescu, R.; Uță, C.; Dijmărescu, I. Sustainable, Smart, and Sensing Technologies for Cyber-Physical Manufacturing Systems: A Systematic Literature Review. *Sustainability* **2021**, *13*, 5495. [CrossRef]
34. Pop, R.A.; Dabija, D.C.; Pelău, C.; Dinu, V. Usage Intentions, Attitudes, and Behaviors towards Energy-Efficient Applications during the COVID-19 Pandemic. *J. Bus. Econ. Manag.* **2022**, *23*, 668–689. [CrossRef]
35. Andronie, M.; Lăzăroiu, G.; Iatagan, M.; Hurloiu, I.; Dijmărescu, I. Sustainable Cyber-Physical Production Systems in Big Data-Driven Smart Urban Economy: A Systematic Literature Review. *Sustainability* **2021**, *13*, 751. [CrossRef]
36. OECD. *OECD and Green Growth*; OECD Meeting of the Council: Paris, France, 2009.
37. Hallegatte, S.; Heal, G.; Fay, M. *From Growth to Green Growth—A Framework*; National Bureau of Economic Research: Washington, DC, USA, 2012.
38. Quaas, M.F.; Smulders, S. Brown growth, green growth, and the efficiency of urbanization. *Environ. Resour. Econ.* **2018**, *71*, 529–549. [CrossRef]
39. Li, J.L.; Xu, B. "Curse" or "gospel": How does resource abundance affect China's green economic growth? *Econ. Res.* **2018**, *53*, 151–167.
40. Yang, W.J. DEA-based green economic growth accounting: The case of Chinese regional industries. *Quant. Econ. Tech. Econ. Res.* **2011**, *28*, 19–34.
41. Tang, D.C.; Tang, J.X.; Ma, T.Y. Environmental regulation efficiency and total factor efficiency in China. Environmental regulation efficiency and total factor productivity in China: An explanation based on SBM-Undesirable and DEA-Malmquist models. *Arid. Zone Resour. Environ.* **2016**, *30*, 7–12.
42. Ma, L.; Long, H.; Chen, K. Green Growth Efficiency of Chinese Cities and its Spatio temporal Pattern. *Resour. Conserv. Recycl.* **2019**, *146*, 441–451. [CrossRef]
43. Liang, K.L.; Zhao, K.J. An empirical study on the relationship between energy consumption and green economic growth in China—And the impact of environmental pollution. *J. Shihezi Univ. Philos. Soc. Sci. Ed.* **2018**, *32*, 58–64.
44. Dinda, S. A Theoretical Basis for Green Growth. *Mpra Pap.* **2013**, *8*, 177–189. [CrossRef]
45. Zhu, H.L. The construction of green economy evaluation index system. *Stat. Decis. Mak.* **2017**, *5*, 27–30.
46. Xiang, S.J.; Zheng, R.K. Research on green economy development index in China. *Stat. Res.* **2013**, *3*, 72–77.
47. Wang, B.; Liu, G.T. Energy conservation and emission reduction and green economic growth in China: A perspective based on total factor productivity. *China Ind. Econ.* **2015**, *5*, 57–69.
48. Xie, T.; Liu, J.H. How does green credit affect the growth of China's green economy? *China Popul. Resour. Environ.* **2019**, *29*, 83–90.
49. Song, M.; Zhu, S.; Wang, J. Share green growth: Regional evaluation of green output performance in China. *Int. J. Prod. Econ.* **2020**, *219*, 152–163. [CrossRef]
50. Lin, B.; Zhu, J. Fiscal spending and green economic growth: Evidence from China. *Energy Econ.* **2019**, *83*, 264–271. [CrossRef]
51. Sachs, J.D.; Warner, A.M. The Curse of Natural Resources. *Eur. Econ. Rev.* **2001**, *45*, 827–838. [CrossRef]
52. Shao, S.; Qi, Z.Y. Energy Development and Economic Growth in the Western Region: An Empirical Analysis Based on the "Resource Curse" Hypothesis". *Econ. Res.* **2008**, *4*, 147–160.
53. Bond, S.R. Dynamic panel data models: A guide to micro data methods and practice. *Port. Econ. J.* **2002**, *1*, 141–162. [CrossRef]
54. Han, B.S.; Xu, F.; Li, S. A study of cross-sectional correlation test for panel data model. *Stat. Res.* **2011**, *28*, 83–88.
55. Lian, Y.J.; Peng, F.P.; Su, Z. Financing constraints and liquidity management behavior. *Financ. Res.* **2010**, *10*, 158–171.
56. Koçak, E.; Çelik, B. The nexus between access to energy, poverty reduction and $PM_{2.5}$ in Sub-Saharan Africa: New evidence from the generalized method of the nexus between access to energy, poverty reduction and $PM_{2.5}$ in Sub-Saharan Africa: New evidence from the generalized method of moments estimators. *Sci. Total Environ.* **2022**, *827*, 154377.
57. Blundell, R.; Bond, S.; Windmeijer, F. Estimation in dynamic panel data models: Improving on the performance of the standard GMM estimator. *IFS Work. Pap.* **2000**, *15*, 53–91.
58. Mamo, G.; Sjaastad, E.; Vedeld, P. Economic dependence on forest resources: A case from Dendi District, Ethiopia. *For. Policy Econ.* **2007**, *9*, 916–927. [CrossRef]
59. Yin, Z.Q.; Sun, X.Q.; Xing, M.Y. The impact of green financial development on green total factor productivity. *Stat. Decis. Mak.* **2021**, *3*, 139–144.
60. Zhao, D.S.; Dou, Y.; Zhang, J.M. Business environment and green economic growth: Mediating and masking effects based on entrepreneurship. *Explor. Econ. Issues* **2021**, *42*, 66–77.
61. Zeng, X.W.; Liu, Y.Q.; Man, M.J. Measurement analysis of the degree of green finance development in China. *J. China Yan'an Cadre Inst.* **2014**, *6*, 112–121.

62. Huang, J.H.; Xie, Y.N.; Yu, Y.T. Urban competition, spatial spillover and eco-efficiency: The effects of high pressure and low suction. *China Popul. Resour. Environ.* **2018**, *28*, 1–12.
63. Pesaran, M.H. Estimation and Inference in Large Heterogeneous Panels with a Multifactor Error Structure. *Econometrica* **2006**, *74*, 967–1012. [CrossRef]
64. Xie, C.; Li, Z.; Zhang, X.H. Forest resource endowment, reform path selection and rural forestry development in China. *For. Econ.* **2007**, *1*, 45–52.
65. Gibson, J. Forest loss and economic inequality in the solomon islands: Using small-area estimation to link environmental change to welfare outcomes. *Ecol. Econ.* **2018**, *148*, 66–76. [CrossRef]