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Sustainable Economic Development in China: Balancing Growth and Environmental Concerns

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Abstract

Purpose: Over the last three decades, China's economy has grown remarkably, ranking second in the world among all countries. China's market-oriented policies, which give priority to economic development, are credited with the country's economic boom. China's remarkable economic growth in recent years has had a significant effect on the environmental balance of the nation. Presently, Chinese authorities must address environmental issues without impeding the nation's progress. Even though China's economy has expanded quickly since reforms and the opening up, the country's environmental degradation issue has gotten more serious.Examine China's current strategies for economic development and their effects on environmental sustainability and economic growth.The dynamic connects between the highlighted factors (renewable consumption of energy, economic expansion, oil rent, and resources of all kinds) and the increase in greenhouse gas emissions—a proxy for environmental sustainability—is examined in this article using China as an example.The findings of an empirical study using every year data from 2018 to 2022 and the auto-regressive distribution lag limits technique point to the existence of a long-run equilibrium link between each of the variables highlighted and greenhouse gas emissions. Specifically, since they have a negative impact on greenhouse gas emissions, the usage of renewable energy sources and petroleum rents contribute to ecological sustainability.In conclusion, China's commitment to sustainability may benefit from some of the remedies this paper's results suggest. This study demonstrates the useful use of New Structure Economy in a crucial industrial area in China, adding to the body of knowledge on sustainability in the environment and economic development.

Keywords: *Industrial Region, Environmental Sustainability, Structural Economics, Greenhouse Gas Emissions.*

INTRODUCTION

China has experienced unparalleled economic growth over the past few decades, significantly impacting the nation's natural balance, as well as its social, cultural, and economic fabric. Chinese authorities are now grappling with the challenge of addressing environmental issues without hindering economic progress. The Communist Party of China (CPC) posits that the concept of "ecological civilization" offers a balance between these seemingly conflicting goals [1]. This concept, which is linked to the objective of creating a xiaokang society, or an all-around prosperous society, is becoming an increasingly important element of China's development strategy, alongside advancements in economics, politics, culture, and social work [1, 2]. The term "ecological civilization" was first mentioned by then-President Hu Jintao in his 2007 report to the 17th National Congress of the CPC. In subsequent official documents, the term has also been rendered as "ecological progress" or "conservation culture." Hu emphasized that "promoting ecological progress is an overtime task of crucial significance to the people's wellbeing and China's future" in his report to the 18th National Congress five years later [2, 3]. Due to its importance, the concept of Ecological Civilization is now enshrined in the CPC Constitution. Many of the most complex environmental issues in China and globally are directly or indirectly caused by everyday choices and actions. While manufacturing processes are significant contributors, individual consumption habits and decisions also have a substantial impact, influencing quality of life and societal well-being [3, 4]. As the world's most populous country, China is now showing classic signs of a "consumer society," particularly in its bustling urban areas where a new middle class is eager to adopt Western lifestyles. The nation's economy must now address the needs of its 1.3 billion citizens while continuing to serve as the "factory of the world." This shift towards a consumer society, driven by middle-class growth, places additional strain on China's ecosystem [4, 5].

China's prosperity is on the rise, with its GDP growing dramatically from CNY 245.69 billion in 1971 to CNY 100,878.25 billion in 2020, averaging a yearly expansion of around 8.19%, according to the National Bureau of

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Statistics. This economic growth, alongside improved technology, stricter environmental regulations, and a structural shift from pollution-intensive industries to service sectors, has led to a reduction in environmental pollution. However, increased resource use associated with economic expansion has caused significant environmental issues, such as deforestation, water scarcity, over-exploitation of oil, and climate change, with greenhouse gas emissions being particularly problematic [3, 5]. Experts suggest various methods to reduce these emissions, including promoting renewable energy sources over non-renewable ones, enhancing energy conservation, and leveraging globalization's role in reducing greenhouse gases. The United Nations Framework Convention on Climate Change's fourth assessment report outlines potential solutions like transitioning from fossil fuels, developing renewable energy, nuclear power, and carbon capture and storage [6]. The concept of sustainable development, popularized by the Brundtland Commission, integrates environmental, social, and economic factors. "Greening development" represents a paradigm shift towards endogenous development, emphasizing social justice, self-reliance, ecological balance, and culturally rooted community growth. This approach, once niche, is now widely recognized in professional settings, online discussions, and governmental planning due to extensive research [7, 8].

Unquestionably, in recent decades, urban sustainability has risen to the top of the political agenda. The concept of green development has gained popularity, resulting in several related ideas becoming prominent research topics. Sustainable development is defined as societal and economic advancement that provides a productive and enjoyable existence without compromising future generations' ability to meet their own needs. This definition integrates several concepts concerning sustainability and green development, addressing issues related to the economy, resources, the environment, education, equality, health, and other human and natural world areas [8, 9]. Recently, China's economy has shifted from industry-focused to incorporating manufacturing, services, technology, and finance, raising concerns about urban air pollution despite the decreased pollution from traditional sectors. This research aims to explore the environmental impact of digital finance within China's evolving economic landscape, revealing that sophisticated digital finance infrastructure in urban areas may unexpectedly correlate with higher air pollution levels [9, 10]. Climate change's threat to sustainable development has become a global issue, with industrialization and urbanization increasing economic activity. China, experiencing rapid economic growth, serves as a global model but faces significant environmental challenges, notably greenhouse gas emissions [11]. The National Bureau of Statistics reports that China's GDP grew at an average annual rate of 8.19% from 1971 to 2020, contributing to decreased pollution through improved technology, stricter environmental regulations, and a shift to service sectors. However, extensive resource use linked to economic growth has led to issues like deforestation, water scarcity, and climate change [12]. Experts propose methods to reduce greenhouse gas emissions, such as promoting renewable energy, enhancing energy efficiency, and leveraging globalization. The United Nations Framework Convention on Climate Change's fourth assessment report suggests energy conservation, transitioning from fossil fuels, developing renewable energy, nuclear power, and carbon capture and storage as mitigation strategies [10, 11]. Educating the public on the concept of Ecological Civilization and its practical implementation is crucial. This concept emphasizes standards and principles supporting ecological activities, environmentally friendly purchasing patterns, public awareness, citizen action, and lifestyle changes. The China Council for International Cooperation on Development and the Environment's 2018 report underscores the need to promote "respect for nature, reconciliation with nature, and protection of nature" and engage all social forces in building an ecological civilization [9].

To increase public awareness of state policies, laws, and regulations, officials plan media sections dedicated to "sowing the seeds of a green civilization" in industries, businesses, schools, communities, and families [9]. Eco-labels aid households in assessing environmental and financial impacts [9]. Structural and technological impacts on carbon emissions are inconsistent [8]. Technical progress measures initial technology effects, while productivity gauges regional advancements [8]. Dynamic spatial panel models assess technology's role in lowering China's carbon intensity [8]. Regional technology spillovers inhibit carbon emissions, with varied effects [8, 9]. Rebound relationships vary regionally, with dynamic indices indicating technology's dual economic and environmental impacts [8, 9]. Public policies assume rational behavior, but behavioral sciences reveal systematic decision-making variations [10, 11]. Herbert Simon's bounded rationality challenges neoclassical economic views [12, 13]. Behavioral failures show deviations from rationality in human decision-making

There are two additions to the existing literature made by this work. First off, a lot of earlier research has looked at the various dynamic links that exist between China's economic growth & emissions of greenhouse gases. Nevertheless, there is scant evidence demonstrating the dynamic relationship among China's greenhouse gas emissions, natural resource depletion, economic growth, and renewable energy usage [13]. This paper's findings close this gap. Second, environmental degradation will result from China's rapid economic expansion, which is essentially dependent on environmental sacrifice and heavy fossil fuel consumption. Some solutions for their integrated growth are offered in this paper's conclusions.

LITERATURE REVIEW

Research on Renewable Energy Development

Dai and Xie (2016) [14] employed a dynamic Comprehensible Generalised Equilibrium (CGE) model to assess the economic implications and ecological co-benefits of large-scale Renewable Energy (RE) growth in China by 2050. It contrasts a reference scenario with conventional RE growth against a REmax model anticipating extensive RE development based on China's RE potential. Results show that significant RE development imposes no substantial macroeconomic costs but yields substantial environmental co-benefits, reshaping the power sector and fostering eco-friendly growth among upstream industries.

Environmental Impact of Economic Growth

Lu and Chen (2017) [15] thought that over the past two decades, China's environmental degradation has worsened alongside rapid economic expansion, posing significant health concerns domestically and internationally. This research pioneers the comprehensive examination of the dynamic links between environmental quality, economic growth, and public health across China, using emissions of sulphur dioxide, wastewater, soot, and dust as environmental indicators. Employing Simultaneous Equation Models (SEM), it addresses endogeneity issues and underscores the imperative for China to prioritize environmental sustainability in its pursuit of economic development.

Role of Green Finance and Technology in Sustainable Development

Zhou and Zhu (2022) [16] found that despite widespread adoption of green growth strategies, there remains a gap in understanding the interplay between technology, sustainable finance, and green economic development. This article proposes a comprehensive index to assess local economic expansion from the fintech perspective, revealing significant regional disparities in the impact of green financing and technological innovations on green growth within China. It highlights the critical role of fintech and green finance in advancing the green economy, particularly emphasizing disparities between eastern and central-western regions.

METHODOLOGY

This study analyses the dynamic link between China's release of greenhouse gases and the emphasised variables—natural resources, utilisation of renewable energy, and economic growth—using a time series analysis. The yearly time-series information from 2018 to 2022 was used since it had been readily available. Compound gases known as greenhouse gases are those that retain heat or radiation with long waves in the earth's atmosphere. The Earth's surface temperature rises as a result of their presence in the atmosphere. Sunlight and shortwave radiation move through these gases and the surrounding environment with ease [17]. This radiation is absorbed by the earth's surface and eventually escapes as heat or long-wave energy. Because of the way molecules are put together, greenhouse gases are able to absorb heat and either retain it in their environment or release it back into space.

The phenomenon of greenhouses that traps heat is known as the "effect of a greenhouse." The increasing amount of greenhouse gases in the atmosphere has accelerated the greenhouse effect since China's reform and opening up, causing environmental destruction. The World Bank provided the greenhouse gas emissions statistics. The use of emission of greenhouse gases as a stand-in for environmental sustainability is supported by two factors.

One is that worldwide car exhaust and the growth of heavy industries account for the majority of the emissions of greenhouse gases. The greenhouse effect, an increase in global temperature, and a hazard to human life occurs when greenhouse gas concentrations rise over the usual atmospheric concentration. As a result, reducing emissions of greenhouse gases has emerged as a crucial issue for all of humanity [17, 18]. Another is that it is a globally comparable, rigorous, and well-respected scientific evaluation of environmental sustainability. Table 1 includes more details on the variables employed in this work.

Table 1 Variables of Environmental Sustainability.

Variables	From	Definitions
Green House gas emissions	Gge	Emissions of greenhouse gases overall (million tonnes)
Renewable energy consumption	Ec	The quantity of green energy used (million tonnes)
Economic Development	Eg	GDP (2016 US dollars constant in billion tonnes)
Oil Rent	Or	Oil Rents as a percentage of GDP
Natural resources	nr	Total rents from natural resources (% GDP)

$$gge_t = f(ec_{t,} eg_t{'} or_{t,} nr_t) \ldots 1 \quad (1)$$

$$\log gge_t = a_0 + a_1 log\ ec_t + a_2 log\ ec_t log\ ec_t\ or_t + a_2 log\ ec_t\ nr_t + \varepsilon_t \ \ldots..2 \quad (2)$$

$$\Delta \log gge_t = b_0 + \sum_{k=1}^{p} b_1 \Delta \log gge_{t-k} + \sum_{k=1}^{p} b_2 \Delta \log ec_{t-k} \sum_{k=1}^{p} b_3 \Delta \log eg_{t-k} + b_4 \Delta \log or_{t-k} + b_5 \Delta \log nr_{t-k} + b_6 \Delta \log gge_{t-1} + b_7 \Delta \log ec_{t-1} + b_8 \Delta \log eg_{t-1} + b_9 \Delta \log or_{t-1} + b_{10} \Delta \log nr_{t-1} + b_{11}\, du + \varepsilon_t \ \ldots..3 \quad (3)$$

$$\log gge_t = c_0 + \sum_{k=1}^{p} C_1 \Delta \log gge_{t-1} + \sum_{k=0}^{p} C_2 \Delta \log ec_{t-k} + \sum_{k=0}^{p} C_3 \Delta \log eg_{t-k} + \sum_{k=0}^{p} C_4 \Delta \log or_{t-k} + \sum_{k=0}^{p} C_5 \Delta \log nr_{t-k} + \sum_{k=0}^{p} C_6 \Delta \log du_{t-k} + c_6 du + \lambda ect_{t-1} + \varepsilon_t \ldots 4 \quad (4)$$

RESULT AND DISCUSSION

An adequate amount of time will be invested in this section discussing how to interpret the study's empirical results [19]. We start with a brief synopsis that incorporates the mentioned parameters' core trends and measurements of dispersion.

Basic Statistics Estimation

The analysis of the mean, highest, lowest, and deviation from the mean of every statistic utilised in this work is provided in the basic statistic summary [20]. Table 2 reports the findings.

Table 2 Result of Basic Statistics Determine.

Panel A: Variable Characteristics Description					
Variable and statistics	***Log gge***	***Log ec***	***Log eg***	***Log or***	***Log nr***
Mean	3.965	3.295	3.196	2.096	2.016
Maximum	4.095	2.690	3.965	3.089	3.649
Minimum	3.986	2.018	2.496	0.548	1.148
Standard deviation	0.296	0.548	0.965	0.518	0.396
Observations	48	48	48	48	48

Auto-Regressive Distribute Lag Boundaries Test and Unit Root Testing

Preserving consistency throughout all variables was important while doing empirical research in econometric models. Thus, the purpose of this section is to examine the stationarity characteristics of the variables that were previously described. The unit root test utilised in this study was carried out using both the Phillips–Perron testing (PP-test) and the enhanced Dickey–Fuller testing (ADF-test). In addition, [21, 22], the findings of the ADF and PP tests were complemented by the break-point unit root test since the variables under investigation revealed structural breakdowns. The auto-regressive distribution lag boundaries test was performed based on the unit root test results. These results are summed up in Panels C, D, and E of Table 3.

Table 3 Unit Root and Bounds Test Results.

Panel B: Unit Root Test					
Variable Level	***Log gge***	***Log ec***	***Log eg***	***Log or***	***Log nr***
ADF-test	-1.499	-2.018	-3.169*	-4.897**	-3.897
PP-test	-1.491	-1.198	-1.893**	-5.698***	-3.897
First Difference	***gge***	***ec***	***eg***	***or***	***nr***
ADF-test	-5.695**	-5.894**	-1.891**	-5.965**	-5.964**
PP-test	-5.879**	-4.579**	-4.289**	-5.649**	-5.649**
Panel C: Zivot and Andrews Unit Root Test with structural Breaks					
Variable Level	***Log gge***	***Log ec***	***Log eg***	***Log or***	***Log nr***
Z-A-test	-3.879	-4.109	-4.519	-4.891	-3.148
Break Year	2000	2005	2010	2015	2020
First Difference	***gge***	***ec***	***eg***	***or***	***nr***
Z-A-test	-6.897**	-5.986**	-5.498**	-7.289**	-6.978**
Break Year	2001	2005	2008	2010	2018

Panel ID: Auto –regressive Distributes Lag Bounds Test Models: $gge_t = f(ec_{t,} eg_, or, nr_t)$		
Test Statistics	**Value**	**K**
F- Statistics	6.597**	4
Critical value bounds		
Significant	I (0) Bounds	I (0) Bounds
10%	2.09	3.98
5%	5.49	3.96
1%	3.98	4.89
Section model	Auto-regressive distribution leg (1,0,0,1)	

Auto-Regressive Distribution Lag Models for Research in The Short- And A Long-Term

Examining the magnitude and significance of both long-term and short-term correlations among various factors and emission levels of greenhouse gases is the primary objective of this subsection [23]. Table 4 displays the estimated outcomes of the auto-regressive distribution lag for both the short- and long-term regressions.

Table 4 Results from A Distributed Lag Model with Auto-Regression for Both Long- And Short-Term Analysis.

Model: log gge =f(log nr, log ec, log eg, log or)			
Variables	**Long- run effect**	**Variable**	**Short-run effect**
Sectional models	**Auto-regressive distribution leg (1,0,0,1)**		
Log ec	-0.258** (-3.596)	Δ Log ec	-9.879** (-2.891)
Log eg	-3.648** (-3.169)	Δ Log eg	-5.978** (-3.492)
Log or	0.978** (-5.698)	Δ Log or	0.698** (3.895
Log nr	2.649** (-6.691)	Δ Log nr	-0.495** (6.361)
C	2.098** (6.951)	Ect_1	-0.595** (-2.649)

Diagnostic tests	**F-statistics**	***P*-Value**
Normally test	1.978	0.049
X^2 Serial	0.795	0.698
X^2 white	0.966	0.976
X^2 Ramsey	2.265	0.249
CUSUM test	**Stable**	
CUSUM of Squares test	**Stable**	

Test for Robustness

As a robustness test, the impact of the indicated variables on greenhouse gas emissions was examined using a combination of the Fully Modified Ordinary Least Squares (FMOLS) method and the Dynamic Ordinary Least Squares (DOLS) approach [24]. Table 5 displays the robustness outcomes of the tests.

Table 5 Robustness Results of Tests.

Dependent Variables: Greenhouse gas Emissions		
Approach	FMOLS	DOLS
Log ec	-0.795** (-8.978)	-6.891** (-5.595)
Log eg	0.896** (-0.893)	-0.289** (5.641)
Log or	-0.149** (-3.897)	-0.795** (6.892)
Log nr	-5.984** (-7.892)	-8.849** (7.498)
D_{U2018}	0.089** (2.795)	0.179** (4.189)

CONCLUSION

This study revealed a paradox where regions with advanced digital financial infrastructure sometimes exhibit higher levels of air pollution. This unexpected finding is largely attributed to the concurrent urban industrial growth in these areas.

This study has three conclusions: (1) Our econometric analysis showed a long-term equilibrium relationship between the highlighted factors and greenhouse gas emissions. (2) A 1% increase in renewable energy usage results in a 0.292% long-term reduction and a 0.984% short-term reduction in greenhouse gas emissions. (3) Economic expansion contributes to environmental degradation, with a 0.458% increase in the short term and a 0.519% increase in the medium term. (4) The robustness of our findings was confirmed through dynamic ordinary least squares and fully modified ordinary least squares methods, corroborating the long-term equilibrium relationship between the studied factors.

Implications for Future Research

This study has four implications for future research. Future studies should explore demographic factors like democratization and population in the energy-income-oil-environment nexus using disaggregated data. Expanding the scope to include other countries, such as Japan or the United States, could provide comparative insights.Utilizing panel data analysis may reveal additional nuances not captured in time-series data. Considering China's regional disparities, future research could segment the country into eastern, central, and western regions for more localized analysis.

REFERENCES

Cai, H.; Chen, Y.; Gong, Q. Polluting Thy Neighbor: Unintended Consequences of China's Pollution Reduction Mandates. J. Environ. Econ. Manag. 2016, 76, 86–104.

Aragón, F.M.; Rud, J.P. Polluting Industries and Agricultural Productivity: Evidence from Mining in Ghana. Econ. J. 2016, 126, 1980–2011.

Lin, J.Y.; Cai, J.; Xia, J. Industrial Development Policy with Comparative Advantages and Firm Pollution Reduction: Based on the Perspective of New Structural Economics. Reform 2023, 5, 1–17.

He, G.; Wang, S.; Zhang, B. Watering Down Environmental Regulation in China. Q. J. Econ. 2020, 135, 2135–2185.

Ongan, S.; Işık, C.; Amin, A.; Bulut, U.; Rehman, A.; Alvarado, R.; Ahmad, M.; Karakaya, S. Are Economic Growth and Environmental Pollution a Dilemma? Environ. Sci. Pollut. Res. 2023, 30, 49591–49604.

Ahmad, M.; Ahmed, Z.; Khan, S.A.; Alvarado, R. towards Environmental Sustainability in E−7 Countries: Assessing the Roles of Natural Resources, Economic Growth, Country Risk, and Energy Transition. Resour. Policy 2023, 82, 103486.

Hua, C.; Wang, K. Multi-Factor Productivity Growth with Natural Capital and Undesirable Output: A Measurement for Oecd and G20 Countries. Innov. Green Dev. 2023, 2, 100039.

Wu, Y.; Chau, K.W.; Lu, W.S.; Shen, L.Y.; Shuai, C.Y.; Chen, J.D. Decoupling relationship between economic output and carbon emission in the Chinese construction industry. Environ. Impact Assess. Rev. 2018, 71, 60–69.

Huang, G.X.; Ouyang, X.L.; Yao, X. Dynamics of China's regional carbon emissions under gradient economic development mode. Ecol. Indic. 2015, 51, 197–204.

Gu, A.; Teng, F.; Lv, Z.Q. Exploring the nexus between water saving and energy conservation: Insights from industry sector during the 12th Five-Year Plan period in China. Renew. Sustain. Energy Rev. 2016, 59, 28–38.

Grossman, G.M.; Krueger, A.B. Environmental Impacts of the North American Free Trade Agreement; Working Paper 3914; NBER: Cambridge, UK, 1991.

Yang, L.; Yao, Y.; Zhang, J.; Zhang, X.; Mcalinden, K.J. A CGE analysis of carbon market impact on CO2 emission reduction in China: A technology-led approach. Nat. Hazards 2016, 81, 1107–1128.

Zhang, S.; Liu, X. The Roles of International Tourism and Renewable Energy in Environment: New Evidence from Asian Countries. Renew. Energy 2019, 139, 385–394.

Dai, H., Xie, X., Xie, Y., Liu, J., & Masui, T. (2016). Green growth: The economic impacts of large-scale renewable energy development in China. Applied energy, 162, 435-449.

Lu, Z. N., Chen, H., Hao, Y., Wang, J., Song, X., & Mok, T. M. (2017). The dynamic relationship between environmental pollution, economic development and public health: Evidence from China. Journal of Cleaner Production, 166, 134-147.

Zhou, G., Zhu, J., & Luo, S. (2022). The impact of fintech innovation on green growth in China: Mediating effect of green finance. Ecological Economics, 193, 107308.

Koondhar, M.A.; Tan, Z.; Alam, G.M.; Khan, Z.A.; Wang, L.; Kong, R. Bioenergy Consumption, Carbon Emissions, and Agricultural Bio economic Growth: A Systematic Approach to Carbon Neutrality in China. J. Environ. Manag. 2021, 296, 113242.

Jiang, Q.; Khattak, S.I.; Rahman, Z.U. Measuring the Simultaneous Effects of Electricity Consumption and Pro duction on Carbon Dioxide Emissions (CO2e) in China: New Evidence from an EKC-Based Assessment. Energy 2021, 229, 120616.

Zhang, L.; Godil, D.I.; Bibi, M.; Khan, M.K.; Sarwat, S.; Anser, M.K. Caring for the Environment: How Human Capital, Natural Resources, and Economic Growth Interact with Environmental Degradation in Pakistan? A Dynamic ARDL Approach. Sci. Total Environ. 2021, 774, 145553.

Yang, L.; Wang, L.; Ren, X. Assessing the Impact of Digital Financial Inclusion on PM2.5 Concentration: Evidence from China. Environ. Sci. Pollut. Res. 2022, 29, 22547–22554.

Gomber, P.; Kauffman, R.J.; Parker, C.; Weber, B.W. On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. J. Manag. Inf. Syst. 2018, 35, 220–265.

Hanna, N.K. (Ed.) Mastering digital transformation: Towards a smarter society, economy, city and nation. In Mastering Digital Transformation: Towards a Smarter Society, Economy, City and Nation; Emerald Group Publishing Limited: Bingley, UK, 2016; pp. i–xxvi.

Bui, T.-D.; Tsai, F.M.; Tseng, M.-L.; Wu, K.-J.; Chiu, A.S. Effective municipal solid waste management capability under uncertainty in Vietnam: Utilizing economic efficiency and technology to foster social mobilization and environmental integrity. J. Clean. Prod. 2020, 259, 120981.

Díaz-Villavicencio, G.; Didonet, S.R.; Dodd, A. Influencing factors of eco-efficient urban waste management: Evidence from Spanish municipalities. J. Clean. Prod. 2017, 164, 1486–1496.