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Abstract
This study aims to investigate the perspectives offered by the literature about CO2 Emission on Eco Digitalization, Green Investment, Financial Globalization, and Renewable Energy in China. The available theoretical and empirical literature on the subject is examined and summarized in this work. It identifies the literature by drawing on theoretical and empirical insights from published literature in the second place. This article further clarified theoretical approaches that explain how and why these approaches’ function. Third, this paper suggests three productive areas for more study. This study adds to the body of knowledge on CO2 Emission on Eco Digitalization, Green Investment, Financial Globalization, and Renewable Energy in China by critically examining and combining previous theories and studies in the field.

Keywords: CO2 Emission, Eco Digitalization, Green Investment, Financial Globalization, Renewable Energy

1. Introduction
Reducing environmental pollution is one of the main goals of the modern global civilization, particularly when it comes to carbon emissions that pose a health risk to people. On the other hand, all high-income and growing countries hoping to raise the standard of life for their citizens must likewise prioritize economic expansion (Huang, Rahman, Meo, Ali, & Khan, 2024). (Song, Anees, Rahman, & Ali, 2024). Transitional and intermediate economies like China have seen substantial social and economic structure changes and high growth rates since 1990. Recently, the use of energy-intensive resources like fossil fuels (such as coal, gas, and oil) has expanded in China's economy (Makhdum et al., 2022; Ali et al., 2023).

Their impact on environmental pollution worldwide expanded Zhao, Rahman, Afshan, Ali, Ashfaq, & Idrees, (2023). In the short run, the sustainable development target doesn't appear realistic due to substantial greenhouse gas emissions. The Chinese Communist Party took control in 1949 and started implementing changes in the late 1980s. With a steady growth rate of roughly 9%, China has emerged as the nation with the fastest rate of economic growth in the world. With China being the world's largest exporter and second-largest importer of products, trade openness accounts for about 38% of China's GDP (Makhdum et al., 2022) Ali, Rahman, & Anser, (2020). It is concerning that in the early 1950s, economists discovered that resource-rich countries grew more slowly than resource-poor ones. Development is based on resources. Natural resource-rich countries are better equipped to transform their resources into development, which means that increased output translates into increased exports. Natural resource-rich nations typically have more incentives to steer clear of economic diversification (Dunning, 2005) Rahman, & Bakar, (2019). A few environmental sustainability drivers have also emerged since COP26, with digitization, green technology, and green finance standing out among them (Kanwal, Khalid, & Alam, 2023). In particular, the widespread environmental problems brought on by the increase in greenhouse gas emissions demand for the promotion of service-led growth, with the digital economy playing a central role in this regard (Yang et al., 2022; Ali, 2022). The idea of the "digital economy," which refers to a period of automated economic systems, is thought to have the potential to significantly lower global greenhouse gas emissions by lowering the contribution of human labour to the economy's productive potential (Awan, Rahman, Ali, & Zafar, 2023) Furthermore, there is a strong correlation between the degree of technology (Kanwal, Tayyab, & Idrees, 2023) and the effectiveness and extent of digitalization, indicating the critical role that technology plays in achieving the carbon neutral targets Quadri, Shi, Rahman, Anees, Ali, Brancu, & Nayel, (2023). In particular, through environmental-related technologies, sometimes known as "green technology," technology's role has progressed beyond the growth model to involve significant impacts in maintaining the environment (Lin, Ma, & Change, 2022) ), Rahman, Bakar, & Idrees, (2019), Rahman, & Bakar, (2018).

In this context, the empirical significance of green finance is emphasized by the requirement for climate financing of environmentally favourable projects), Shahzadi, Sheikh, Sadiq, & Rahman, (2023). Due to its role in encouraging investment in renewable energy and carbon mitigation projects, green financing has recently garnered substantial empirical attention (Ali mamun, Boubaker, & Nguyen, 2022; Ibrahim, Adebayo, et al., 2022). Furthermore, the growing interest in green financing is further highlighted by the limited role that financial development plays in fostering a sustainable environment, particularly by increasing investment in renewable energy. Numerous empirical research strands suggest that green finance mitigates environmental degradation drivers in order to enhance environmental sustainability (Bai, Chen, Yan, & Zhang, 2022; Dogan, Madalen, Taskin, & Tzeremes, 2022; Ronaldo & Suryanto, 2022).

1.1. Problem Statement
The complex dynamics of CO2 emissions in China with regard to renewable energy (Awan, Bibi, Bano, & Shoukat, 2023), green investment, eco digitization, and financial globalization are discussed in this study Dawood, Rahman, Majeed, Umair, & Idrees, (2023), Zahra, Nasir, Rahman, & Idrees, (2023). Even with its admirable efforts in green investment and renewable energy, China still has difficulties striking a healthy balance between environmental preservation and economic growth. Shafique, Rahman, Khizar, Zulfiqar, (2021). A thorough analysis is required due to the interplay between these factors, which include potential spikes in energy demand resulting from eco digitization and obstacles to successful green investments. The goal of the study is to pinpoint the weaknesses and obstacles in China's efforts to transition to a low-carbon economy. Ullah, Rehman, Raman, (2023), Hafiza, Rahman, Sadiq, Manzoor, Shoukat, & Ali, (2023). This information will help stakeholders and policymakers create focused plans for sustainable growth in the country (Awan, Bibi, et al., 2023; Awan, ul Hasnain, & Arshad, 2023).

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2. Literature Review

This section summarizes some of the literature in accordance with the declared goal of the study. Therefore, the research is examined in the following subsections: (i) eco digitalization and CO2 emission; (ii) renewable energy CO2 emission; and (iii) financial globalization and CO2 emission.

2.1. Eco Digitalization and CO2 emission

Over the past few decades, different assessments have been made of the growing effects of digitalization in environmental epidemiology Sarwar, Ali, Bhatti, & Rahman, (2021). For example, using a panel regression model, Yang et al. (2022) investigate the effects of digitalization on CO2 emissions in China. Responses indicate that the intensity of CO2 emissions is reduced by regional digitalization improvements. In contrast to its diminished effects in the eastern areas, the mitigating function of digitalization is more significant on a distributive scale when evaluated in the western and central regions Rahman, Chaudhry, Meo, Sheikh, & Idrees, (2021). Based on yearly data for a few Chinese provinces between 2006 and 2017, (Wang, Dong, Sha, Yan, & Change, 2022; Wang, Dong, & Dong, 2022) investigate the relationship between digitalization as measured by the internet economy and the suggested low-carbon society as evaluated by CO2 emissions efficiency Zhu, Fang, Rahman, & Khan, (2021). The well-known instrumental variable-generalized method of moments estimator is the basis of this investigation. Responses reveal that digitalization encourages a society with lower carbon emissions. In addition, the benefits of digitization are visible in human capital, non-coal mix energy sources, and clean technical innovation. The Chinese economy from 2002 to 2018 is the focus of research attention for (Wang, Dong, & Dong, 2022) because of the critical role that the digital industry plays in mitigating CO2 emissions Chaudhary, Nasir, Rahman, & Sheikh, (2023). The investigation shows that the digital industry's production operations effectively reduce CO2 emissions. L. Zhang et al. (2022) look at the tripartite relationships between CO2 emissions, energy efficiency, and the digital economy in 30 Chinese cities between 2012 and 2019. Feedback suggests that CO2 emissions are caused by the digital economy Younas, Idrees, & Rahman, (2021). On the other hand, energy efficiency significantly reduces the former and increases the latter in the relationship between CO2 emissions and the digital economy.

2.2. Renewable Energy and CO2 emission

Using time series data spanning from 1996 to 2018, Ibrahim, Al-mulali, Ozturk, Bello, and Raimi (2022) examine how the interaction of renewable in CO2 emissions in China. The model specification accounts for the effects of natural resources, human capital, economic complexity, and technological innovation Khan, Rahman, Fiaz, (2023). The new ARDL estimator is used in the study to estimate the short- and long-term effects. Results show that renewable energy sources and technological advancements significantly lower CO2 emissions. Furthermore, empirical evidence supports the critical role that green finance plays in advancing a sustainable environment), Usman, Rahman, Shafique, Sadiq, & Idrees, (2023). Anwar et al. (2022) examine how financial development and renewable energy function in the quest for sustainable development in fifteen Asian economies between 1990 and 2014.

The study's conclusions demonstrate a positive correlation between CO2 emissions and economic growth and financial development. Conversely, there is a clear negative correlation between renewable energy and CO2 emissions Shahid, Gurmani, Rahman, & Saif, (2023). The study conducted by Salazar-Núñez, Venegas-Martinez, Lozano-Diez, and Sustainability (2022) examines the effects of dependency on economic growth Ilyas, Awan, Kanwal, Banaras, Rahman, Ali, (2023), non-renewable energy, renewable energy, and CO2 emissions in Mexico using a time series analysis spanning from 1973 to 2018. An estimated EKC model based on FMOLS is examined in this work. Results show that while non-renewable energy lowers the stock of CO2 emissions, both non-renewable energy and economic expansion increase the emissions. Regarding the Mexican economy, the EKC theory is confirmed. Comparably, from 1996 to 2018, M. Zhang, Ajide, Ridwan, and Sustainability (2021) assessed the deteriorating effects of natural resources and consumption on CO2 emissions in 41 SSA economies. Results show that the use of natural resources and non-renewable energy increases CO2 emissions.

2.3. Financial Globalization and CO2 emission

Recent years have seen an increase in interest in the analysis of how globalization affects environmental degradation; nevertheless, research on this topic has produced conflicting results Awan, Rahman, Ali, & Zafar, (2023), Fatima, Jamshed, Tariq, & Rahman, (2023) For instance, it has been discovered that globalization improves environmental quality, which reduces ecological footprint (Saud et al., 2020). On the other hand, it is claimed that because of negative externalities on environmental welfare, globalization increases ecological footprint Zainab, Qaisra, Hassan, Haris, Rahman, Ali, (2023)According to recent studies(Kanwal, Hassan, & Butt, 2023), there is a positive correlation between CO2 emissions and globalization Shahzadi, Ali, Ghafoor, & Rahman, (2023)Globalization is seen as one of the possible mechanisms of environmental quality from the standpoint of policymakers, according to (Sharif et al., 2020), Hafiza, Manzoor, Fatima, Sheikh, Rahman, Qureshi, (2022), Shahid, Muhammed, Abbasi, Gurmani, & Rahman, (2022).

While few recent studies have sought to examine the relationship between globalization and the environment using distinct sub-components of globalization, there is a growing body of literature exploring the globalization-environment nexus utilizing the overall indicator of globalization. Research indicates, for instance, that financial globalization improves environmental welfare while reducing ecological footprint (Kanwal, Hassan, et al., 2023) Nevertheless, some research indicates that environmental circumstances are worsened by financial globalization(Arslan, Kanwal, Kazmi, & Rahman, 2023).

3. Methods

The author of this study gathered and critically examined the pertinent literature by following the systematic literature review process as outlined by (Lacey, Matheson, & Jesson, 2011). The focus of the paper, bibliographic details, theory used (where applicable), research philosophy (Zikmund, Babin, Carr, & Griffin, 2013), key findings, methodology as used in (Awan, Ali, Rehman, & Idrees, 2023), definition of eco digitalization, green investment, financial globalization, renewable energy and co2 emission, research context, study location, theoretical and practical review, further conclusion, and reported limitations are all examined in detail by the author in a critical review form for a thorough and critical analysis of the prior studies.
In order to conduct a critical assessment of this study, the author reviewed published works from 2017 to 2021. The researcher evaluated the relevant papers downloaded from (1) Economics journals listed in the Clarivate analytics (The Master Journal List 2017 and JCR report 2016); (2) Comprehensive databases (Business Source Premier by Ebsco and Scopus); in order to identify the most relevant papers on eco digitalization, green investment, financial globalization, renewable energy and co2 emission (Altaf, Awan, & Rehman, 2023) as possible. (3) Google Scholar; (4) a comprehensive, multidisciplinary bibliography on eco digitalization, green investment, financial globalization, renewable energy and co2 emission that includes numerous references from several journals.

The following criteria were used by the author to design the literature selection criteria for this review: books, commentaries, summaries of conference summaries, abstracts and keywords, Khan, Afridi, Shad, Rahman, (2022), Rahman, Ali, Idrees, Ali, & Zulfiqar, (2022), Nawaz, Rahman, Zafar, & Ghaffar, (2023) executive abstracts, editorials, literature reviews, and newspaper/magazine articles were among the papers that were excluded because they did not deal with Eco digitalization, green investment, financial globalization, renewable energy and co2 emission or were not empirical or conceptual in nature. After eliminating duplicates, the author found about 100 items in total. Where appropriate, the author looked at the methodology, title, and abstract of each study to establish its applicability Qureshi, Zaman, Rahman, Shahzadi, (2022), Mukhtar, Mukhtar, Mukhtar, Shahid, Razzaq, Rahman, (2023), Hassan, Sheikh, & Rahman, (2022), Zafar, & Ghaffar, (2023), Idrees, Awan, Arslan, Hussain, Razzaq, Haris, & Rahman, (2023).

4. Conclusion
Following a comprehensive analysis of the literature, it is determined that both the positive and negative effects of ecodigitalization, green investment, financial globalization, renewable energy on co2 emission Seeing the two findings stand alone and close the gap in the literature is quite intriguing. Therefore, the influence of eco digitalization, green investment, financial globalization, renewable energy on co2 emission is still up for debate, and numerous studies have been carried out to examine the effects of eco digitalization, green investment, financial globalization, renewable energy on co2 emission. Given the unique economic, financial, and technological circumstances of the host countries, certain studies have found a substantial and positive impact on the growth of the economy,(Awan, Arslan, & Hussain, 2023; Awan, Shahid, Rahman, & Baig, 2023) while others have looked at a negative and significant impact.

This research will add to the body of knowledge on eco digitalization, green investment, financial globalization, renewable energy on co2 emission in China. The current study made an effort to link ideas from the literature with pertinent contributions. Furthermore, this study's examination of the variables is lacking. As a result, the primary goal of the study is to present an understandable and thorough overview of earlier research on ecodigitalization, green investment, financial globalization, renewable energy and co2 emission including contextual methodologies and practices.

4.1. Future Recommendations
Three reasons are raised in this review of the literature that warrant additional investigation. First, the RDL model, OLS regression, and GMM technique are employed in the majority of research conducted to examine Eco digitalization, green investment, financial globalization, renewable energy on co2 emission in China Li, Bai, Yu, Meo, Anees, & Rahman, (2022). It is noted that only a small number of studies are used to conduct the investigation when a dynamic vector error correction model (VCEM) is applied during the literature evaluation. This VCEM process aids in ensuring that the time series dynamics under examination are precisely captured while endogeneity and causality issues are being resolved concurrently.

Furthermore, any potential indirect impacts and feedback are also recorded using the VECM process Khoula, Rahman, Idrees, (2022). It is suggested that more research is necessary to determine how best to execute ecodigitalization, green investment, financial globalization, renewable energy on co2 emission are significant in the host country, as the majority of ecodigitalization, green investment, financial globalization, renewable energy studies conducted in the past have mostly focused on co2 emission of the host country Third, the research has been done in the past and is examined in relation to underdeveloped states as well as southeast Asian nations like Malaysia and the US economy with regard to capital and the expansion of the industrial sector in Japan, France, Germany, and the UK. However, not much research has been done in southern Asia, including Pakistan Zulfiqar, Ansar, Ali, Hassan, Bilal, & Rahman, (2022).

References


