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The Relationship Between Exchange Rates and Sustainable Development: A Literatur Review

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Abstract: The relationship between exchange rates and sustainable development has increasingly gained attention in global economic studies. Exchange rate fluctuations significantly impact foreign direct investment (FDI) and international trade, key drivers of sustainable development. Exchange rate stability contributes to the adoption of renewable energy in developing countries. This article presents a literature review using bibliometric analysis based on data from 59 academic articles from Scopus. The study identifies five key clusters that depict the interaction between exchange rates, FDI, carbon emissions, energy consumption, food security, and climate change. The analysis reveals that exchange rate stability is crucial in promoting sustainable development by encouraging green investments and reducing carbon emissions. These findings emphasize the importance of economic policies that support exchange rate stability to achieve sustainable development goals (SDGs). The novelty of this research is that it explains the relationship between monetary economic phenomena and environmental issues. This article offers new insights and recommendations for future research in this field.

Keywords: Uncertainty; Sustainability; Fluctuations; Green Economy
JEL Classification: B49; F2; O11; O190

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Introduction

Sustainable development has emerged as one of the most pressing global issues, addressing challenges such as climate change, social inequality, and the need for inclusive economic growth. In this context, exchange rates play a critical role as a macroeconomic variable that influences a country's economic stability and growth (Appiah et al., 2023; Sosvilla-Rivero & Ramos-Herrera, 2014). Research on monetary economic phenomena, namely currency fluctuations, is an interesting thing to research because monetary economic fluctuations indicate the existence of economic activity and how it affects environmental aspects.

Exchange rates not only affect international trade flows but also impact foreign direct investment (FDI), carbon emissions, energy consumption, and food security (Ashour & Chen Yong, 2018; Sarkodie & Owusu, 2021). A stable exchange rate fosters economic confidence, encouraging foreign investors and promoting trade, which are essential for achieving sustainability (Mentis & Moonsammy, 2022). Conversely, high exchange

rate volatility can create economic uncertainties, reducing investor trust and hindering long-term developmental goals (Genevieve et al., 2023).

The linkage between exchange rates and sustainable development is further emphasized by their impact on renewable energy adoption and carbon emissions. According to Climate Policy in the research of Gupta et al. (2020), stable exchange rates support investments in low-carbon technologies by mitigating currency risks for international investors. Additionally, exchange rate stability plays a pivotal role in food security by influencing import prices and the affordability of essential goods (Aghapour Sabbaghi & Naeimifar, 2022; Hashim et al., 2019; Sholoiko et al., 2022).

This study aims to provide a comprehensive literature review on the relationship between exchange rates and sustainable development, focusing on patterns, trends, and connections among these variables. Using bibliometric analysis of 80 academic articles from Scopus, this research highlights critical insights and offers policy recommendations. By leveraging VOSviewer tools, the study identifies thematic clusters that bridge economic stability with sustainable practices, contributing to a broader understanding of how exchange rates can drive global progress toward sustainability (Phillips & Perron, 1988).

Exchange rates affect international trade flows, foreign direct investment (FDI), carbon emissions, energy consumption, and food security (Ashour & Chen Yong, 2018; Gupta et al., 2020; Löscher & Kaltenbrunner, 2023). A stable exchange rate fosters economic confidence, encourages foreign investors, and promotes trade, which is essential for achieving sustainability. Conversely, high exchange rate volatility can create economic uncertainties, reducing investor trust and hindering long-term developmental goals.

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Exchange rates affect international trade flows, foreign direct investment (FDI), carbon emissions, energy consumption, and food security (Ashour & Chen Yong, 2018; Gupta et al., 2020). The relationship between exchange rates and sustainable development reflects how economic stability can support achieving sustainable development goals (SDGs),

particularly in fostering inclusive economic growth, clean energy, climate change mitigation, and food security.

This study aims to provide a literature review on the relationship between exchange rates and sustainable development based on 80 academic articles sourced from Scopus. The analysis employs bibliometric methods and VOSviewer tools to identify patterns, clusters, and connections among variables. This article offers insights into the dynamics of exchange rate stability and its role in sustainable development.

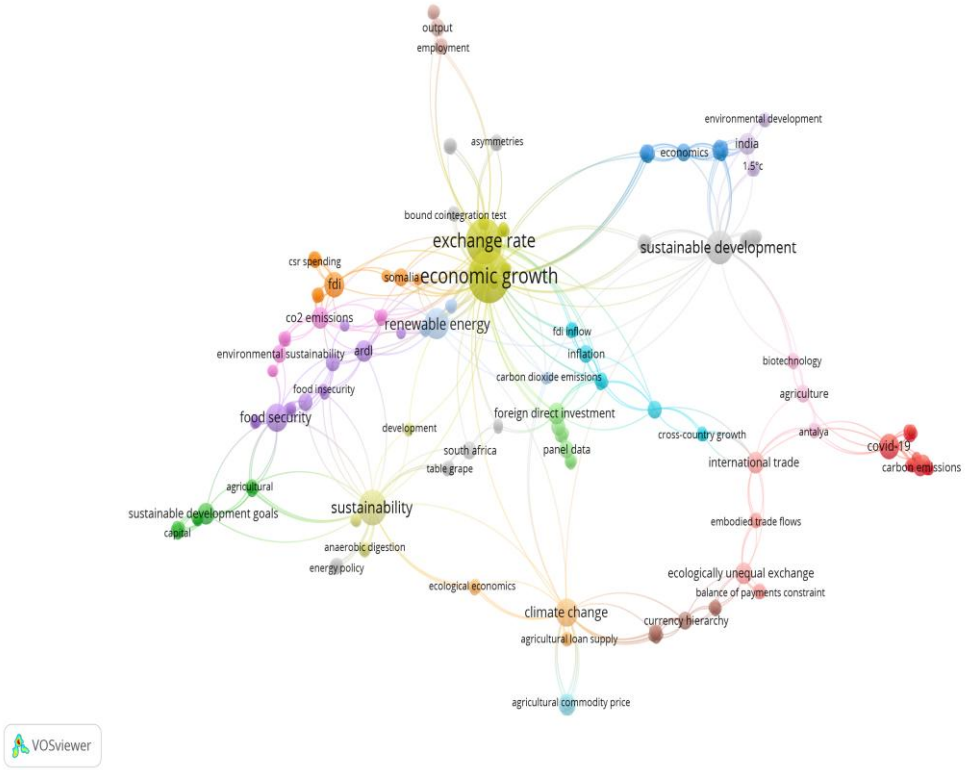
Research Method

This article adopts a literature review methodology using bibliometric analysis, comprehensively identifying research patterns, keyword relationships, and trends within a specific field (Johansen, 1988; Pesaran et al., 2001). This method provides deeper insights into the structure and focus of studies on exchange rates and sustainable development. The research process includes the following steps:

1. **Data Collection:** Relevant academic articles were retrieved from the Scopus database using the query TITLE-ABS-KEY
2. **Data Analysis:** Data were analyzed using VOSviewer software to generate visual maps of keyword relationships and clusters (Appiah et al., 2023; Hasan & Adnan, 2023).
3. **Inclusion and Exclusion Criteria:** The articles included were publications from 1988-2025 relevant to exchange rates and sustainable development.
4. **Result Interpretation:** The visualization results were categorized into key themes identified from the clusters in the VOSviewer map (Adjei-Mantey et al., 2023; Levine & Renelt, 1992).

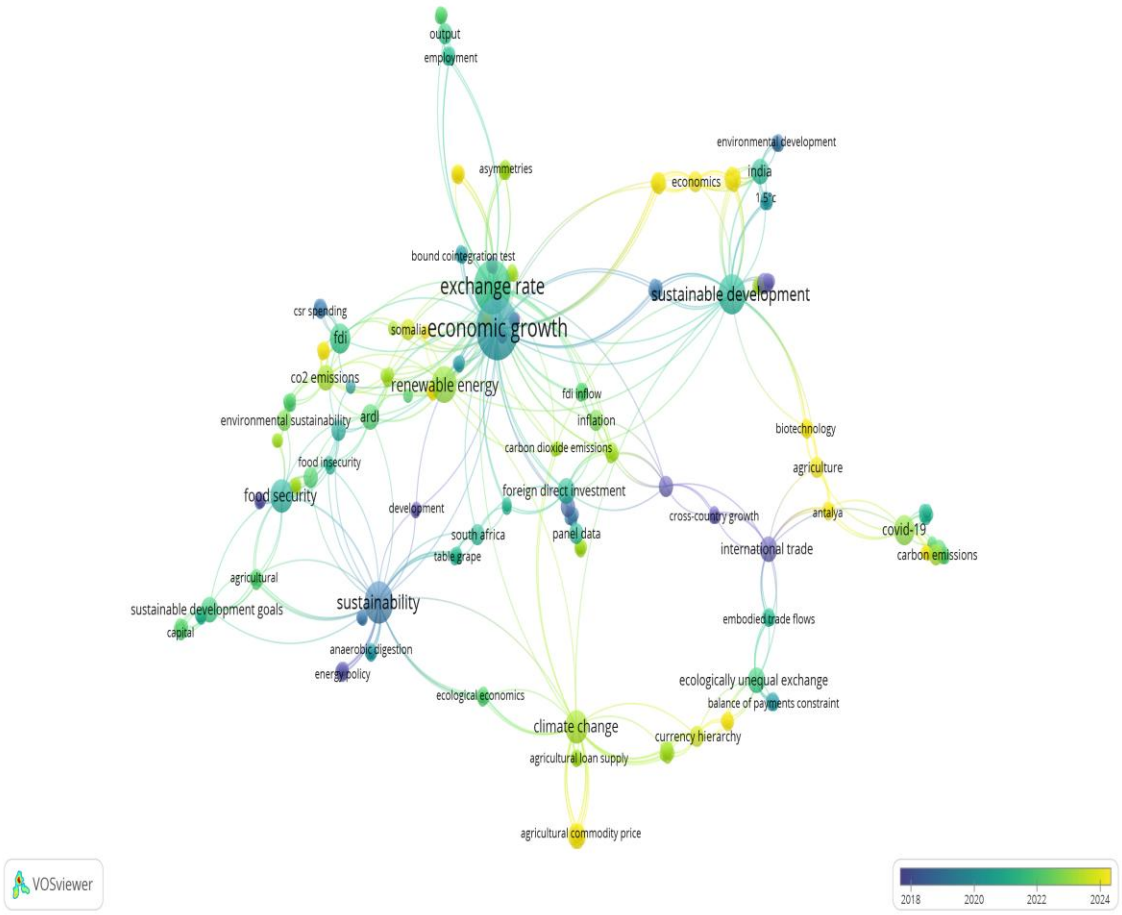
Result and Discussion

The latest visualization results from the updated VOSviewer analysis reveal key insights into the interconnectedness of exchange rates, economic growth, and sustainable development. The clusters, color-coded for clarity, represent thematic groupings of research keywords and their relationships.



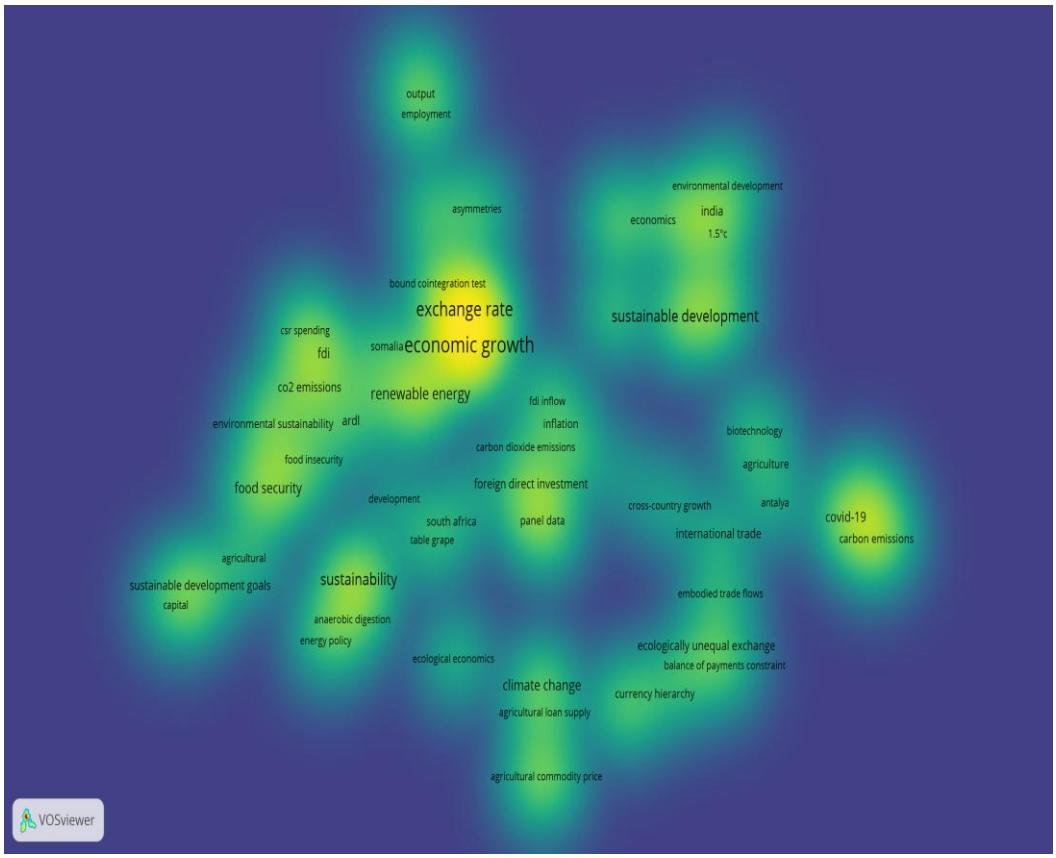
The **Green Cluster (Sustainability & Climate Change)** highlights themes such as sustainability, climate change, and food security. This cluster underscores the importance of linking sustainability with environmental impacts, particularly in addressing global challenges like climate change (Pham & Nguyen, 2010; Sarkodie & Owusu, 2021; Shebanin et al., 2024; Xue et al., 2023; Yadav et al., 2024).

The **Yellow Cluster (Economic Growth & Exchange Rates)** is central to this study, focusing on the interplay between exchange rates, economic growth, foreign direct investment (FDI), and carbon emissions. The visualization underscores how stable exchange rates can enhance economic stability, facilitate trade, and attract FDI into renewable energy sectors (Aman et al., 2017; Sosvilla-Rivero & Ramos-Herrera, 2014). It further demonstrates the critical role of exchange rate stability in achieving SDGs by enabling green investments and reducing carbon dependency (Appiah et al., 2023; Asiama & Nell, 2024; Levine & Renelt, 1992; Meylani & Prasetyo, 2023; Reivan-Ortiz et al., 2023).



The **Orange Cluster (Renewable Energy & FDI)** delves into the role of foreign investment in promoting renewable energy adoption, with a direct impact on reducing carbon emissions and fostering sustainability (Althouse et al., 2020; Bijarchiyan et al., 2020; Gbadeyan et al., 2024; Hossain, 2024; Kgathi et al., 2017; Mohamud et al., 2024; Rastogi et al., 2023).

The **Blue Cluster (Sustainable Development & Environmental Policy)** captures the connection between sustainable development policies and natural resource management, emphasizing strategies for mitigating climate change (Adom, 2014; Aghapour Sabbaghi & Naeimifar, 2022; Batmunkh et al., 2022; Gbejewoh et al., 2021; Tsioptsia et al., 2022; Zhang et al., 2023).



The **Red Cluster (COVID-19 & Trade)** explores the effects of the pandemic on international trade dynamics, food security, and emissions, offering insights into how global disruptions impact sustainability goals (Otubanjo, 2022; Sarkodie & Owusu, 2021; Yaşar Dinçer et al., 2024, Sunaryati, S., & Munandar, A. 2023).

The **Purple Cluster (Food Security & Environmental Sustainability)** bridges the link between agricultural practices, energy policies, and environmental sustainability, emphasizing the need for integrated approaches to address food security challenges in the context of sustainable development (Dorninger et al., 2021; Haque et al., 2022; Hole et al., 2019; Laing & Moonsammy, 2021; Li et al., 2015; Maharani, 2019; Momeni et al., 2019; Olk, 2024; Purba, 2019; Shikur, 2023; Tandogan Aktepe & Kayral, 2024).

Thematic Discussion

Yellow Cluster: Economic Growth & Exchange Rates The Yellow Cluster reveals a strong connection between exchange rates and economic growth, focusing on the role of FDI in facilitating economic development. Exchange rate stability enhances export competitiveness and strengthens investor confidence. Sosvilla-Rivero & Ramos-Herrera (2014) highlighted that stable exchange rates create a more conducive environment for international trade. Additionally, (Appiah et al., 2023) emphasize that FDI inflows are often directed toward strategic sectors such as renewable energy and infrastructure,

supporting sustainable development. In this context, economic policies that maintain exchange rate stability are crucial to ensure that foreign investments support energy transitions and reduce dependence on fossil fuels(Asaleye et al., 2021; Chowdhury, 2017; Mentis & Moonsammy, 2022; Wheeler et al., 2013).

Exchange Rates and Economic Growth Exchange rate fluctuations affect export competitiveness, and foreign investment flows. Stable exchange rates can promote more inclusive economic growth by creating a favorable environment for international trade. Moreover, stability in exchange rates builds greater confidence among foreign investors to invest in developing countries (Appiah et al., 2023; Levine & Renelt, 1992; Niklitschek, 2007).

Exchange Rates and Sustainable Investments Stable exchange rates attract more FDI into renewable energy sectors and green infrastructure. However, exchange rate volatility can create uncertainty for investors, potentially hindering SDG implementation ((Aman et al., 2017; Kgathi et al., 2017).

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Conclusion

The literature review reveals that the relationship between exchange rates and sustainable development is multidimensional. Exchange rates influence FDI flows,

international trade, and carbon emissions. Exchange rate stability is necessary to promote inclusive economic growth and achieve sustainability goals.

This article provides insights into the importance of economic policies that support exchange rate stability and green investments to achieve SDGs. Recommended guidelines include giving fiscal incentives for green investments, implementing regulations that promote renewable energy transitions, and strengthening international cooperation to sustain exchange rate stability. Additionally, governments are encouraged to focus on reducing reliance on fossil fuels and increasing the adoption of low-carbon technologies to holistically achieve sustainable development goals. Future research could focus on empirical analyses of the relationship between exchange rate fluctuations and sustainability indicators across different countries. Future literature research must include secondary data as the primary analysis material to obtain more comprehensive research results.

References

Acar, S., Aşıcı, A. A., & Yeldan, A. E. (2022). Potential effects of the EU's carbon border adjustment mechanism on the Turkish economy. *Environment, Development and Sustainability*, *24*(6), 8162–8194. https://doi.org/10.1007/s10668-021-01779-1

Adjei-Mantey, K., Adusah-Poku, F., & Kwakwa, P. A. (2023). International tourism, exchange rate, and renewable energy: Do they boost or burden efforts towards a low carbon economy in selected African countries? *Cogent Economics and Finance*, *11*(2). https://doi.org/10.1080/23322039.2023.2245258

Adom, P. K. (2014). Determinants of food availability and access in Ghana: What can we learn beyond the regression results? *Studies in Agricultural Economics*, *116*(3), 153–164. https://doi.org/10.7896/j.1423

Aghapour Sabbaghi, M., & Naeimifar, A. (2022). Analysis of import substitution policy with an emphasis on environmental issues based on environmental input–output (EIO) model. *Environment, Development and Sustainability*, *24*(12), 14130–14162. https://doi.org/10.1007/s10668-021-02024-5

Ahmad, M. S., Szczepankiewicz, E. I., Yonghong, D., Ullah, F., Ullah, I., & Loopesco, W. E. (2022). Does Chinese Foreign Direct Investment (FDI) Stimulate Economic Growth in Pakistan? An Application of the Autoregressive Distributed Lag (ARDL Bounds) Testing Approach. *Energies*, *15*(6). https://doi.org/10.3390/en15062050

Alawi, S. (2019). The effect of direct foreign investment on stock price volatility in the Saudi market. *Asian Economic and Financial Review*, *9*(8), 875–887. https://doi.org/10.18488/journal.aefr.2019.98.875.887

Aliyu, U. S., Ozdeser, H., Çavuşoğlu, B., & Usman, M. A. M. (2021). Food security sustainability: A synthesis of the current concepts and empirical approaches for meeting SDGs. *Sustainability (Switzerland)*, *13*(21). https://doi.org/10.3390/su132111728

Althouse, J., Guarini, G., & Gabriel Porcile, J. (2020). Ecological macroeconomics in the open economy: Sustainability, unequal exchange and policy coordination in a center-periphery model. *Ecological Economics*, *172*. https://doi.org/10.1016/j.ecolecon.2020.106628

Aman, Q., Ullah, I., Khan, M. I., & Khan, S. ud D. (2017). Linkages between exchange rate and economic growth in Pakistan (an econometric approach). *European Journal of Law and Economics*, *44*(1), 157–164. https://doi.org/10.1007/s10657-013-9395-y

Appiah, M., Gyamfi, B. A., Usman, O., & Bekun, F. V. (2023). Modeling the Asymmetric Effects of Exchange Rate, Financial Development, and Oil Prices on Economic Growth. *Singapore Economic Review*. https://doi.org/10.1142/S0217590823500595

Asaleye, A. J., Maimako, R. F., Inegbedion, H., Lawal, A. I., & Ogundipe, A. A. (2021). Real exchange rate and manufacturing performance in Nigeria. *Academic Journal of Interdisciplinary Studies*, *10*(2), 279–292. https://doi.org/10.36941/ajis-2021-0058

Ashour, M., & Chen Yong, C. (2018). The impact of exchange rate regimes on economic growth: Empirical study of a set of developing countries during the period 1974–2006. *Journal of International Trade and Economic Development*, *27*(1), 74–90. https://doi.org/10.1080/09638199.2017.1339117

Asiama, R. K. A., & Nell, K. (2024). Can foreign aid influence the level of industrialization in African countries? *Cogent Economics and Finance*, *12*(1). https://doi.org/10.1080/23322039.2024.2331369

Batmunkh, A., Nugroho, A. D., Fekete-Farkas, M., & Lakner, Z. (2022). Global Challenges and Responses: Agriculture, Economic Globalization, and Environmental Sustainability in Central Asia. *Sustainability (Switzerland)*, *14*(4). https://doi.org/10.3390/su14042455

Bijarchiyan, M., Sahebi, H., & Mirzamohammadi, S. (2020). A sustainable biomass network design model for bioenergy production by anaerobic digestion technology: Using agricultural residues and livestock manure. *Energy, Sustainability and Society*, *10*(1). https://doi.org/10.1186/s13705-020-00252-7

Biondo, A. E. (2010). A growth rate for a sustainable economy. *Journal of Applied Economic Sciences*, *5*(2), 8–21. https://www.scopus.com/inward/record.uri?eid=2-s2.0-77957202099&partnerID=40&md5=cce4da06e8a85e321fcf8c8efc2996f2

Chowdhury, A. (2017). Macroeconomic Management and Economic Development. In *International Development Governance* (Vol. 117, pp. 253–268). Taylor and Francis. https://doi.org/10.4324/9781315092577-14

Desalegn, G., Tangl, A., & Fekete-Farkas, M. (2022). From Short-Term Risk to Long-Term Strategic Challenges: Reviewing the Consequences of Geopolitics and COVID-19 on Economic Performance †. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114455

Dorninger, C., Hornborg, A., Abson, D. J., von Wehrden, H., Schaffartzik, A., Giljum, S., Engler, J. O., Feller, R. L., Hubacek, K., & Wieland, H. (2021). Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. *Ecological Economics*, *179*. https://doi.org/10.1016/j.ecolecon.2020.106824

Gbadeyan, O. J., Sibiya, L., Linganiso, L. Z., & Deenadayalu, N. (2024). Waste-to-energy: the recycling and reuse of sugar industry waste for different value-added products such as bioenegy in selected countries – a critical review. *Biofuels, Bioproducts and Biorefining*, *18*(5), 1639–1657. https://doi.org/10.1002/bbb.2579

Gbejewoh, O., Keesstra, S., & Blancquaert, E. (2021). The 3ps (Profit, planet, and people) of sustainability amidst climate change: A south african grape and wine perspective. *Sustainability (Switzerland)*, *13*(5), 1–23. https://doi.org/10.3390/su13052910

Genevieve, G., Frimpong, J. M., & Kwame, M. (2023). Moderating remittance and economic growth relationship with exchange rate: What new can we learn from Africa's economy? *Cogent Economics and Finance*, *11*(1). https://doi.org/10.1080/23322039.2023.2167577

Gupta, D., Ghersi, F., Vishwanathan, S. S., & Garg, A. (2020). Macroeconomic assessment of India's development and mitigation pathways. *Climate Policy*, *20*(7), 779–799. https://doi.org/10.1080/14693062.2019.1648235

Haque, M. A., Raza Shah, S. M., & Arshad, M. U. (2022). Sustainable Economic Growth and FDI Inflow: A Comparative Panel Econometric Analysis of Low-Income and Middle-Income Nations. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114321

Hasan, Md. M., & Adnan, A. T. M. (2023). Nexus between environmental sustainability, energy intensity and food security: evidence from emerging economies. *Journal of Business and Socio-Economic Development*. https://doi.org/10.1108/jbsed-05-2023-0044

Hashim, M., Mohamad, A., & Sifat, I. M. (2019). The sustainable development consequences of IMF debt vs. capital control: Comparing progress in GPI and GDP terms for Korea and Malaysia. *Journal of Cleaner Production*, *234*, 725–742. https://doi.org/10.1016/j.jclepro.2019.06.144

Hassan, Q., Al-Jiboory, A. K., Sameen, A. Z., Barakat, M., Abdalrahman, K. Y. M., & Algburi, S. (2025). Transitioning to sustainable economic resilience through renewable energy and green hydrogen: The case of Iraq. *Unconventional Resources*, *5*. https://doi.org/10.1016/j.uncres.2024.100124

Hatmanu, M., Cautisanu, C., & Ifrim, M. (2020). The impact of interest rate, exchange rate and european business climate on economic growth in Romania: An ARDL approach with structural breaks. *Sustainability (Switzerland)*, *12*(7). https://doi.org/10.3390/su12072798

Hole, Y., Khedkar, E. B., & Pawar, S. (2019). The significance of pilgrimage tourism to sustainable development with special reference to the Indian context. *African Journal of Hospitality, Tourism and Leisure*, *8*(3). https://www.scopus.com/inward/record.uri?eid=2-s2.0-85067964315&partnerID=40&md5=eff39799c2fb6b6863c7df1e012461d7

Hossain, M. R. (2024). Killing billions to save millions? Analyzing the double jeopardy of fossil-fuel-led economic development in Bangladesh. *Environment, Development and Sustainability*, *26*(8), 20679–20710. https://doi.org/10.1007/s10668-023-03497-2

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, *12*(2–3), 231–254. https://doi.org/10.1016/0165-1889(88)90041-3

Kgathi, D. L., Mmopelwa, G., Chanda, R., Kashe, K., & Murray-Hudson, M. (2017). A review of the sustainability of Jatropha cultivation projects for biodiesel production in southern Africa: Implications for energy policy in Botswana. *Agriculture, Ecosystems and Environment*, *246*, 314–324. https://doi.org/10.1016/j.agee.2017.06.014

Laing, T., & Moonsammy, S. (2021). Evaluating the impact of small-scale mining on the achievement of the sustainable development goals in Guyana. *Environmental Science and Policy*, *116*, 147–159. https://doi.org/10.1016/j.envsci.2020.11.010

Lauvsnes, S. O., & Ingulfsvann, A. S. (2023). Dutch disease and agriculture in Norway revisited: The oil price, food imports, resource and sustainability nexus. *Journal of Cleaner Production*, *425*. https://doi.org/10.1016/j.jclepro.2023.138934

Levine, R., & Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. *American Economic Review*, *82*(4), 942–963. https://www.scopus.com/inward/record.uri?eid=2-s2.0-0026959873&partnerID=40&md5=b3c1a7655e6ac72131f1f3bdfd1d6b5a

Li, N., Zhang, T., Qi, J., & Huang, Y. (2015). Using multiple tools to analyze resource exchange in China. *Sustainability (Switzerland)*, *7*(9), 12372–12385. https://doi.org/10.3390/su70912372

Logan, C. S., Manasseh, C. O., & Ede, K. K. (2025). Trade Liberalization, Foreign Investment and Economic Growth: Experience from Non-Oil Producing Countries in Africa. *International Journal of Economics and Financial Issues* , *15*(1), 101–112. https://doi.org/10.32479/ijefi.16912

Löscher, A., & Kaltenbrunner, A. (2023). Climate change and macroeconomic policy space in developing and emerging economies. *Journal of Post Keynesian Economics*, *46*(1), 113–141. https://doi.org/10.1080/01603477.2022.2084630

Maharani, M. D. D. (2019). Model of agro-eco-village by using interpretative structural modeling for improving sustainable development. *IOP Conference Series: Earth and Environmental Science*, *355*(1). https://doi.org/10.1088/1755-1315/355/1/012099

Majumdar, S., & Paris, C. M. (2022). Environmental Impact of Urbanization, Bank Credits, and Energy Use in the UAE—A Tourism-Induced EKC Model. *Sustainability (Switzerland)*, *14*(13). https://doi.org/10.3390/su14137834

Mentis, A., & Moonsammy, S. (2022). A critical assessment of Guyana's sustainability pathway: Perspectives from a developing extractive economy. *Resources Policy*, *76*. https://doi.org/10.1016/j.resourpol.2022.102554

Meyer, D. F., & Mothibi, L. (2021). The Effect of Risk Rating Agencies Decisions on Economic Growth and Investment in a Developing Country: The Case of South Africa. *Journal of Risk and Financial Management*, *14*(7). https://doi.org/10.3390/jrfm14070288

Meylani, B. C., & Prasetyo, P. E. (2023). The Impact of International Crude Oil Prices on the Monetary Sector in Indonesia. *International Journal of Sustainable Development and Planning*, *18*(6), 1707–1714. https://doi.org/10.18280/ijsdp.180606

Mohamed, A. N., & Abdulle, A. Y. (2023). the Asymmetric Effects of Foreign Direct Investment Inflow on Economic Growth: Fresh Evidence From Somalia. *Journal of Law and Sustainable Development*, *11*(7). https://doi.org/10.55908/sdgs.v11i7.416

Mohamud, I. H., Warsame, Z. A., Mohamud, A. A., Hassan, A. M., & Mohamud, I. H. (2024). Renewable Energy Consumption in Somalia: Assessing Its Impact on Currency Exchange Rates. *International Journal of Energy Economics and Policy*, *14*(6), 222–229. https://doi.org/10.32479/ijeep.15699

Momeni, M., Zakeri, Z., Esfandiari, M., Behzadian, K., Zahedi, S., & Razavi, V. (2019). Comparative analysis of agricultural water pricing between Azarbaijan Provinces in Iran and the state of California in the US: A hydro-economic approach. *Agricultural Water Management*, *223*. https://doi.org/10.1016/j.agwat.2019.105724

Mukhtarov, S. (2022). The impact of carbon pricing on international competitiveness in the case of Azerbaijan. *Environmental Science and Pollution Research*, *29*(22), 33587–33594. https://doi.org/10.1007/s11356-022-18606-3

Mushi, H. M. (2024). Analyzing the impact of remittance inflows on Tanzania's social development and economic growth. *Cogent Economics and Finance*, *12*(1). https://doi.org/10.1080/23322039.2024.2345298

Nepal, R., Yadav, M. P., Katoch, R., Gupta, H., & Kumar, A. (2024). Co-movement between carbon emissions and forex market: A tale of COVID-19 outbreak and Russia-Ukraine invasion. *Resources Policy*, *90*. https://doi.org/10.1016/j.resourpol.2024.104853

Niklitschek, M. E. (2007). Trade liberalization and land use changes: Explaining the expansion of afforested land in Chile. *Forest Science*, *53*(3), 385–394. https://doi.org/10.1093/forestscience/53.3.385

Obekpa, H. O., Frimpong, E., & Ayuba, A. (2020). Influence of foreign direct investment and exchange rate on fisheries in Nigeria. *Studies in Agricultural Economics*, *122*(3), 153–161. https://doi.org/10.7896/j.2084

Olasehinde-Williams, G. (2024). Carbon pricing and aggregate macroeconomic performance in the Eurozone: a contribution to the climate policy debate using the EU ETS and Macroeconomic Performance Index. *Environmental Science and Pollution Research*, *31*(19), 28290–28305. https://doi.org/10.1007/s11356-024-32676-5

Olk, C. (2024). How much a dollar cost: Currency hierarchy as a driver of ecologically unequal exchange. *World Development*, *180*. https://doi.org/10.1016/j.worlddev.2024.106649

Otubanjo, O. A. (2022). Public health, tourism, and the emergence of pandemics. *Nigerian Journal of Parasitology*, *43*(1), 168–196. https://doi.org/10.4314/njpar.v43i1.21

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289–326. https://doi.org/10.1002/jae.616

Pham, T. hong hanh, & Nguyen, D. thinh. (2010). Does exchange rate policy matter for economic growth? Vietnam evidence from a co-integration approach. *Economics Bulletin*, *30*(1), 169–181. https://www.scopus.com/inward/record.uri?eid=2-s2.0-77953569299&partnerID=40&md5=3d4be5932468847c08f5234b6faa10ed

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, *75*(2), 335–346. https://doi.org/10.1093/biomet/75.2.335

Purba, J. H. V. (2019). Replanting policy of Indonesian palm oil plantation in strengthening the implementation of sustainable development goals. *IOP Conference Series: Earth and Environmental Science*, *336*(1). https://doi.org/10.1088/1755-1315/336/1/012012

Purna, F., Munandar, A., & Bija, R. (2021). An Examination of Exchange Rates on Foreign Tourist Flows into ASEAN-3. *JEJAK: Jurnal Ekonomi dan Kebijakan, 14*(2), 235-243. https://doi.org/10.15294/jejak.v14i2.30417

Rahman, M. R., Rahman, M. M., & Akter, R. (2023). Exploring the link between green energy, CO2 emissions, exchange rate and economic growth: Perspective from emerging South Asian countries. *International Journal of Renewable Energy Development*, *12*(5), 930–941. https://doi.org/10.14710/IJRED.2023.53168

Rastogi, S., Kanoujiya, J., Singh, S. P., Doifode, A., Parashar, N., & Tejasmayee, P. (2023). Fossil Fuel-Based versus Electric Vehicles: A Volatility Spillover Perspective Regarding the Environment. *Journal of Risk and Financial Management*, *16*(12). https://doi.org/10.3390/jrfm16120494

Reivan-Ortiz, G. G., Cong, P. T., Wong, W. K., Ali, A., Thu, H. T. T., & Akhter, S. (2023). Role of geopolitical risk, currency fluctuation, and economic policy on tourist arrivals: temporal analysis of BRICS economies. *Environmental Science and Pollution Research*, *30*(32), 78339–78352. https://doi.org/10.1007/s11356-023-27736-1

Resende, M. F. da C., & Terra, F. H. B. (2018). Developmental macroeconomics: A post-keynesian assessment. *Brazilian Journal of Political Economy*, *38*(1), 76–98. https://doi.org/10.1590/0101-31572018v38n01a05

Resosudarmo, B. P., & Abdurohman. (2018). Is Being Stuck with a Five Percent Growth Rate a New Normal for Indonesia? *Bulletin of Indonesian Economic Studies*, *54*(2), 141–164. https://doi.org/10.1080/00074918.2018.1521776

Sarkodie, S. A., & Owusu, P. A. (2021). Global assessment of environment, health and economic impact of the novel coronavirus (COVID-19). *Environment, Development and Sustainability*, *23*(4), 5005–5015. https://doi.org/10.1007/s10668-020-00801-2

Shebanin, V., Shebanina, O., Kormyshkin, I., Drobitko, A., & Potryvaieva, N. (2024). Circular economy of the agricultural sector: Strategies and challenges in the context of globalisation. *Scientific Horizons*, *27*(9), 148–161. https://doi.org/10.48077/scihor9.2024.148

Shikur, Z. H. (2023). Credit market development and agricultural production in selected African countries: Climate change perspective. *Region*, *10*(3), 1–18. https://doi.org/10.18335/region.v10i3.417

Sholoiko, A., Matsybora, T., & Shevchenko, L. (2022). Instruments and Resources for Sustainable Development Acceleration of Agribusiness in Ukraine. *Ekonomika APK*, *29*(5), 57–65. https://doi.org/10.32317/2221-1055.202205057

Sosvilla-Rivero, S., & Ramos-Herrera, M. del C. (2014). Exchange-rate regimes and economic growth: An empirical evaluation. *Applied Economics Letters*, *21*(12), 870–873. https://doi.org/10.1080/13504851.2014.894625

Sunaryati, S., & Munandar, A. (2023). The COVID-19 pandemic and the exchange rate: a lesson learned from Indonesia. *Jurnal Ekonomi &Amp; Studi Pembangunan*, *24*(1), 1–13. https://doi.org/10.18196/jesp.v24i1.16110

Tandogan Aktepe, N. S., & Kayral, İ. E. (2024). Unraveling the Major Determinants behind Price Changes in Four Selected Representative Agricultural Products †. *Agriculture (Switzerland)*, *14*(5). https://doi.org/10.3390/agriculture14050782

Tsioptsia, K. A., Zafeiriou, E., Niklis, D., Sariannidis, N., & Zopounidis, C. (2022). The Corporate Economic Performance of Environmentally Eligible Firms Nexus Climate Change: An Empirical Research in a Bayesian VAR Framework. *Energies*, *15*(19). https://doi.org/10.3390/en15197266

Tugcu, C. T., Menegaki, A. N., & Ozturk, I. (2020). Renewable vs non-renewable energy consumption as a driver of government deficit in net energy importing countries. *Asian Economic and Financial Review*, *10*(10), 1100–1114. https://doi.org/10.18488/journal.aefr.2020.1010.1100.1114

Uddin, G. S., Yahya, M., Ahmed, A., Park, D., & Tian, S. (2024). In search of light in the darkness: What can we learn from ethical, sustainable and green investments? *International Journal of Finance and Economics*, *29*(2), 1451–1495. https://doi.org/10.1002/ijfe.2742

Wang, C. N., & Le, A. P. (2019). Application of multi-criteria decision-making model and GM (1,1) theory for evaluating efficiency of FDI on economic growth: A case study in developing countries. *Sustainability (Switzerland)*, *11*(8). https://doi.org/10.3390/su11082389

Wheeler, D., Hammer, D., Kraft, R., Dasgupta, S., & Blankespoor, B. (2013). Economic dynamics and forest clearing: A spatial econometric analysis for Indonesia. *Ecological Economics*, *85*, 85–96. https://doi.org/10.1016/j.ecolecon.2012.11.005

Xue, C., Tu, Y. Te, Ananzeh, M., Aljumah, A. I., Trung, L. M., & Ngo, T. Q. (2023). The role of economic conditions and sustainable rural development on the sustainability of tourism development: evidence from China. *Environmental Science and Pollution Research*, *30*(11), 30588–30602. https://doi.org/10.1007/s11356-022-24062-w

Yadav, S., Samadhiya, A., Kumar, A., Luthra, S., & Pandey, K. K. (2024). Nexus between fintech, green finance and natural resources management: Transition of BRICS nation industries from resource curse to resource blessed sustainable economies. *Resources Policy*, *91*. https://doi.org/10.1016/j.resourpol.2024.104903

Yaşar Dinçer, F. C., Yirmibeşoğlu, G., Narin, M., & Saraç, F. E. (2024). Evaluating the Impact of the COVID-19 Pandemic on the Sustainability of International Trade in Agricultural Products in the Context of Crisis Management: An Assessment of the Agricultural Product Exporting Sectors in Antalya, Türkiye. *Sustainability (Switzerland)* , *16*(13). https://doi.org/10.3390/su16135684

Yigezu, Y. A., Moustafa, M. A., Mohiy, M. M., Ibrahim, S. E., Ghanem, W. M., Niane, A. A., Abbas, E., Sabry, S. R. S., & Halila, H. (2021). Food losses and wastage along the wheat value chain in egypt and their implications on food and energy security, natural

resources, and the environment. *Sustainability (Switzerland)*, *13*(18). https://doi.org/10.3390/su131810011

Zhang, H., Liang, Q., Li, Y., & Gao, P. (2023). Promoting eco-tourism for the green economic recovery in ASEAN. *Economic Change and Restructuring*, *56*(3), 2021–2036. https://doi.org/10.1007/s10644-023-09492-x

Zivot, E., & Andrews, D. W. K. (1992). Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business and Economic Statistics*, *10*(3), 251–270. https://doi.org/10.1080/07350015.1992.10509904