

BAB 5

KESIMPULAN DAN SARAN

Penelitian ini menyuguhkan bukti empiris terkait korelasi antara pertumbuhan ekonomi hijau (GEG) dan pertumbuhan Produk Domestik Bruto (GDPG) di 13 negara, dengan fokus perbandingan antara kelompok negara BRICS dan G7. Secara umum, hasil penelitian menunjukkan adanya keterkaitan positif antara GEG dan GDPG, namun tingkat keterkaitannya bervariasi dalam kekuatan dan arahnya di setiap negara dan kelompok negara. Dampak dari pandemi juga memberikan pengaruh terhadap pertumbuhan ekonomi hijau. Metode penelitian yang digunakan melibatkan uji *Wilcoxon signed-rank* dan koefisien korelasi *Spearman*, menghasilkan temuan bahwa perbedaan signifikan terdapat antara GEG dan GDPG di berbagai negara, dengan Indonesia menonjol sebagai pemimpin pertumbuhan ekonomi hijau. Keseluruhan temuan penelitian ini memberikan kontribusi yang penting dalam literatur ekonomi hijau, memberikan jawaban terhadap pertanyaan korelasi antara GEG dan GDPG, serta membuka peluang untuk pemahaman lebih mendalam mengenai dinamika ini dalam konteks global.

Penelitian ini menunjukkan bahwa keterkaitan antara GEG dan GDPG bervariasi di berbagai negara dan kelompok. Hal ini mengindikasikan perlunya pendekatan yang kontekstual dalam merancang kebijakan ekonomi hijau, dengan mempertimbangkan faktor ekonomi dan kebijakan nasional yang mempengaruhi dinamika ini. Temuan bahwa Indonesia, Brazil, dan Afrika Selatan menonjol sebagai pemimpin pertumbuhan ekonomi hijau memberikan inspirasi positif dan menyoroti potensi negara-negara berkembang dalam memimpin transformasi ekonomi hijau, meskipun sempat terdampak oleh pandemi COVID-19. Kendati demikian, beberapa negara maju seperti Rusia Dampak pandemi dan perang terhadap pertumbuhan ekonomi hijau menegaskan perlunya upaya global dalam mengatasi krisis kesehatan dan konflik bersenjata, sebagai bagian integral dari agenda pembangunan ekonomi hijau. Penelitian ini memberikan kontribusi berharga pada literatur ekonomi hijau, mendukung perancangan kebijakan yang mendorong pertumbuhan ekonomi sejalan dengan keberlanjutan. Menggunakan model pertumbuhan hijau yang diusulkan oleh [Lin dan Ullah \(2023\)](#), penelitian ini mendorong pengembangan dan inovasi lebih lanjut, dengan mempertimbangkan secara komprehensif aspek sosial, seperti indeks pembangunan manusia dan lingkungan, seperti total konsumsi sumber daya alam, untuk mengejar kinerja pertumbuhan ekonomi konvensional.

DAFTAR PUSTAKA

- ADB. (2012). *Green growth: 12 things to know*.
- Ahmed, F., Kousar, S., Pervaiz, A., & Shabbir, A. (2022). Do institutional quality and financial development affect sustainable economic growth? Evidence from South Asian countries. *Borsa Istanbul Review*, 22(1), 189–196. <https://doi.org/10.1016/j.bir.2021.03.005>
- Aisbett, J. (2023). Interpreting tests of a hypothesis at multiple alpha levels within a Neyman–Pearson framework. *Statistics & Probability Letters*, 201, 109899. <https://doi.org/10.1016/j.spl.2023.109899>
- Aldabbas, H., & Oberholzer, N. (2024). The influence of transformational and learning through R&D capabilities on the competitive advantage of firms. *Arab Gulf Journal of Scientific Research*, 42(1), 85–102. <https://doi.org/10.1108/AGJSR-08-2022-0141>
- Budiasa, I. W. (2020). Green financing for supporting sustainable agriculture in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 518(1), 012042. <https://doi.org/10.1088/1755-1315/518/1/012042>
- CBI. (2024). *Climate Bonds Initiative Market Data*. Market . <https://www.climatebonds.net/market/data/>
- Chen, N., Li, S., & Lu, S. (2023). The extreme risk connectedness of the global financial system: G7 and BRICS evidence. *Journal of Multinational Financial Management*, 69, 100812. <https://doi.org/10.1016/j.mulfin.2023.100812>
- Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed method approaches* (6th ed.). Sage Publications, Inc.
- Degbedji, D. F., Akpa, A. F., Chabossou, A. F., & Osabohien, R. (2024). Institutional quality and green economic growth in West African economic and monetary union. *Innovation and Green Development*, 3(1), 100108. <https://doi.org/10.1016/j.igd.2023.100108>
- Djokoto, J. G. (2023). Food manufacturing foreign divestment and domestic investment in developed countries. *Heliyon*, 9(5), e15642. <https://doi.org/10.1016/j.heliyon.2023.e15642>
- ElBannan, M. A., & Löffler, G. (2024). How effectively do green bonds help the environment? *Journal of Banking & Finance*, 158, 107051. <https://doi.org/10.1016/j.jbankfin.2023.107051>
- Fathollahi-Fard, A. M., Ahmadi, A., & Karimi, B. (2022). Sustainable and robust home healthcare logistics: A response to the COVID-19 pandemic. *Symmetry*, 14(2), 193. <https://doi.org/10.3390/sym14020193>
- Fatica, S., Panzica, R., & Rancan, M. (2021). The pricing of green bonds: Are financial institutions special? *Journal of Financial Stability*, 54, 100873. <https://doi.org/10.1016/j.jfs.2021.100873>
- Gao, W., Zhang, H., Zhang, H., & Yang, S. (2024). The role of G7 and BRICS country risks on critical metals: Evidence from time- and frequency-domain approach. *Resources Policy*, 88, 104257. <https://doi.org/10.1016/j.resourpol.2023.104257>
- Gao, Y., Chen, H., Tauni, M. Z., Alnafrh, I., & Yu, J. (2024). Unpacking the impact of financialization and globalization on environmental degradation in BRICS economies. *Resources Policy*, 88, 104497. <https://doi.org/10.1016/j.resourpol.2023.104497>
- Grabowski, R., & Self, S. (2023). Agricultural productivity growth and the development of manufacturing in developing Asia. *Economic Systems*, 47(2), 101075. <https://doi.org/10.1016/j.ecosys.2023.101075>

- Guliyev, H. (2023). Nexus between renewable energy and economic growth in G7 countries: New insight from nonlinear time series and panel cointegration analysis. *Journal of Cleaner Production*, 424, 138853. <https://doi.org/10.1016/j.jclepro.2023.138853>
- Guo, W., Yang, B., Ji, J., & Liu, X. (2023). Abundance of natural resources, government scale and green economic growth: An empirical study on urban resource curse. *Resources Policy*, 87. <https://doi.org/10.1016/j.resourpol.2023.104303>
- Hahs-Vaughn, D. L. (2023). Foundational methods: descriptive statistics: bivariate and multivariate data (correlations, associations). In *International Encyclopedia of Education(Fourth Edition)* (pp. 734–750). Elsevier. <https://doi.org/10.1016/B978-0-12-818630-5.10084-3>
- Han, B., Li, H., Tang, C., Ren, W., Lv, Z., & Xue, B. (2023). Developing indicators for promoting provincial-level ecological economics in China. *Heliyon*, 9(11), e22471. <https://doi.org/10.1016/j.heliyon.2023.e22471>
- Hendiani, S., & Walther, G. (2023). TOPSISort-L: An extended likelihood-based interval-valued intuitionistic fuzzy TOPSIS-sort method and its application to multi-criteria group decision-making. *Expert Systems with Applications*, 233, 121005. <https://doi.org/10.1016/j.eswa.2023.121005>
- Hickel, J., & Kallis, G. (2020). Is green growth possible? *New Political Economy*, 25(4), 469–486. <https://doi.org/10.1080/13563467.2019.1598964>
- Huang, G., Xiao, L., & Zhang, G. (2023). An integrated design concept evaluation method based on best–worst entropy and generalized TODIM considering multiple factors of uncertainty. *Applied Soft Computing*, 140, 110165. <https://doi.org/10.1016/j.asoc.2023.110165>
- IEA. (2021). *World Energy Balances: Overview*. IEA, Paris. <https://www.iea.org/reports/world-energy-balances-overview/world>
- Islam, Md. M., Sohag, K., Berezin, A., & Sergi, B. S. (2024). Factor proportions model for Russian mineral supply-driven global energy transition: Does externality matter? *Energy Economics*, 129, 107242. <https://doi.org/10.1016/j.eneco.2023.107242>
- Jacobs, M. (2012). *Green growth: Economic theory and political discourse* (92).
- Jin, Y., Zhou, B., Zhang, P., & Li, T. (2024). How education expenditures, natural resources, and GDP interact with load capacity factor in the presence of trade diversity index under COVID-19 perception: Evidence from G-7 nations. *Resources Policy*, 88, 104532. <https://doi.org/10.1016/j.resourpol.2023.104532>
- Kasuya, E. (2010). Wilcoxon signed-ranks test: symmetry should be confirmed before the test. *Animal Behaviour*, 79(3), 765–767. <https://doi.org/10.1016/j.anbehav.2009.11.019>
- Kilintzis, P., Samara, E., Topaloglou, L., Avlogiaris, G., & Kafetzopoulos, D. (2023). The role of Green Public Procurements in energy transition: the case of Western Macedonia. *Journal of Innovation and Entrepreneurship*, 12(1), 87. <https://doi.org/10.1186/s13731-023-00354-4>
- Kozicki, B., Jaśkiewicz, P., Włoch, A., & Zieliński, J. (2023). The impact of the Covid-19 pandemic and the war between Russia and Ukraine on electricity prices in selected european countries in 2022 in terms of economic security. *Journal of Security and Sustainability Issues*, 13(1), 75–84. <https://doi.org/10.47459/jssi.2023.13.7>
- Kumar, M. (2023). From pandemic to war: Dynamics of volatility spillover between BRICS exchange and stock markets. *Journal of Economic Studies*. <https://doi.org/10.1108/JES-02-2023-0064>

- Lin, B., & Ullah, S. (2023). Towards the goal of going green: Do green growth and innovation matter for environmental sustainability in Pakistan. *Energy*, 285, 129263. <https://doi.org/10.1016/j.energy.2023.129263>
- Lin, B., & Zhou, Y. (2022). Measuring the green economic growth in China: Influencing factors and policy perspectives. *Energy*, 241, 122518. <https://doi.org/10.1016/j.energy.2021.122518>
- Liu, D., & Yang, Z. (2024). Asymmetric linkages among fintech, oil prices, governance, and growth in Southeast Asian economies. *Resources Policy*, 88, 104517. <https://doi.org/10.1016/j.resourpol.2023.104517>
- Liu, Y., Ali, M. S. e, & Cong, P. T. (2023). Nexus between economic policy uncertainty and green growth in BRICS countries: evidence from panel quantile regression. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-023-26785-w>
- Mao, N., Song, M., & Deng, S. (2016). Application of TOPSIS method in evaluating the effects of supply vane angle of a task/ambient air conditioning system on energy utilization and thermal comfort. *Applied Energy*, 180, 536–545. <https://doi.org/10.1016/j.apenergy.2016.08.011>
- Marwan, A. M., Adlan, M. A., & Himmati, R. (2023). The role of Islamic banking through green investment in increasing economic growth in Indonesia. *Journal of Business Management and Islamic Banking*, 211–224. <https://doi.org/10.14421/jbmib.v2i3.2081>
- Merem, E. (2020). Environmental accounting for oil and natural gas: A North American case study of Canada and the Southeast of the United States. *Environmental Science*.
- Pang, S. L., Liu, H., & Hua, G. H. (2024). How does digital finance drive the green economic growth? New discoveries of spatial threshold effect and attenuation possibility boundary. *International Review of Economics and Finance*, 89, 561–581. <https://doi.org/10.1016/j.iref.2023.07.014>
- Prabowo, B. H., & Drean, B. (2022). Green finance and green economic trade off economic and environment in Indonesia. *ASIAN Economic and Business Development*, 4(1), 7–13. <https://doi.org/10.54204/AEBD/Vol4No1July2022002>
- Putra, I. S., Adinugraha, D., Endrawati, Y., & Handayani, M. (2023). Indonesia's energy policy dynamics: A substance of commitment and challenge. *Wit Transactions on Ecology and The Environment*, 3–12. <https://doi.org/10.2495/ESUS230011>
- Qian, Y., Liu, J., & Forrest, J. Y.-L. (2022). Impact of financial agglomeration on regional green economic growth: evidence from China. *Journal of Environmental Planning and Management*, 65(9), 1611–1636. <https://doi.org/10.1080/09640568.2021.1941811>
- Rahman, M. M., & Alam, K. (2021). Exploring the driving factors of economic growth in the world's largest economies. *Heliyon*, 7(5), e07109. <https://doi.org/10.1016/j.heliyon.2021.e07109>
- Rasoulinezhad, E., & Ghomi, N. M. (2022). How can financial development affect sustainable economic development? Evidence from Asian countries with different income levels. *Iranian Economic Review*. <https://doi.org/10.22059/ier.2022.88397>
- Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), S71–S102.
- Saplıoğlu, K., & Güçlü, Y. S. (2022). Combination of Wilcoxon test and scatter diagram for trend analysis of hydrological data. *Journal of Hydrology*, 612, 128132. <https://doi.org/10.1016/j.jhydrol.2022.128132>

- Shang, Y., Lian, Y., Chen, H., & Qian, F. (2023). The impacts of energy resource and tourism on green growth: Evidence from Asian economies. *Resources Policy*, *81*, 103359. <https://doi.org/10.1016/j.resourpol.2023.103359>
- Shkura, I. S., & Fedulova, S. O. (2023). SRI and energy transformation on the way to sustainable competitiveness. *Academic Review*, *1*(58), 96–109. <https://doi.org/10.32342/2074-5354-2023-1-58-7>
- Singh, V., & Mishra, N. (2022). Impact of green finance on national economic growth during the COVID-19 pandemic. *Energy RESEARCH LETTERS*, *3*(3). <https://doi.org/10.46557/001c.29975>
- Sohag, K., Taşkın, F. D., & Malik, M. N. (2019). Green economic growth, cleaner energy and militarization: Evidence from Turkey. *Resources Policy*, *63*, 101407. <https://doi.org/10.1016/j.resourpol.2019.101407>
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, *70*(1), 65. <https://doi.org/10.2307/1884513>
- Sun, L., Miao, C., & Yang, L. (2017). Ecological-economic efficiency evaluation of green technology innovation in strategic emerging industries based on entropy weighted TOPSIS method. *Ecological Indicators*, *73*, 554–558. <https://doi.org/10.1016/j.ecolind.2016.10.018>
- Tang, J., & Wang, W. (2015). Economic growth in Canada and the United States: Supply-push or demand-pull? *Review of Income and Wealth*, *61*(4), 773–798. <https://doi.org/10.1111/roiw.12139>
- Tansel Tugcu, C., & Menegaki, A. N. (2024). The impact of renewable energy generation on energy security: Evidence from the G7 countries. *Gondwana Research*, *125*, 253–265. <https://doi.org/10.1016/j.gr.2023.08.018>
- van den Bergh, J. (2023). Climate policy versus growth concerns: Suggestions for economic research and communication. *Journal of Behavioral and Experimental Economics*, *107*, 102125. <https://doi.org/10.1016/j.socec.2023.102125>
- Vierra, A., Razzaq, A., & Andreadis, A. (2023). Continuous variable analyses. In *Translational Surgery* (pp. 165–170). Elsevier. <https://doi.org/10.1016/B978-0-323-90300-4.00045-8>
- Wang, B., Zhao, W., & Yang, X. (2023). Do economic complexity and trade diversification promote green growth in the BRICTS region? Evidence from advanced panel estimations. *Economic Research-Ekonomska Istraživanja*, *36*(2). <https://doi.org/10.1080/1331677X.2022.2142148>
- Wang, H., Peng, G., Luo, Y., & Du, H. (2023). Asymmetric influence of renewable energy, ecological governance, and human development on green growth of BRICS countries. *Renewable Energy*, *206*, 1007–1019. <https://doi.org/10.1016/j.renene.2022.12.125>
- Wang, J., Wang, W., Ran, Q., Irfan, M., Ren, S., Yang, X., Wu, H., & Ahmad, M. (2022). Analysis of the mechanism of the impact of internet development on green economic growth: evidence from 269 prefecture cities in China. *Environmental Science and Pollution Research*, *29*(7), 9990–10004. <https://doi.org/10.1007/s11356-021-16381-1>
- WDI. (2023). *World Development Indicators Data*.
- Wilcoxon, F. (1945). Individual Comparisons by Ranking Methods. *Biometrics Bulletin*, *1*(6), 80. <https://doi.org/10.2307/3001968>
- Xie, P., Li, H., Sun, F., & Tian, H. (2021). Analysis of the dependence of economic growth on electric power input and its influencing factors in China. *Energy Policy*, *158*, 112528. <https://doi.org/10.1016/j.enpol.2021.112528>

- Xin, L., Zhang, J., Wan, Z., Li, X., Wang, F., & Shi, C. (2023). A practical approach to train-bridge system performance evaluation with consideration of random uncertainty and weighted evaluation indexes. *Engineering Structures*, 291, 116413. <https://doi.org/10.1016/j.engstruct.2023.116413>
- Yang, W., Xu, K., Lian, J., Ma, C., & Bin, L. (2018). Integrated flood vulnerability assessment approach based on TOPSIS and Shannon entropy methods. *Ecological Indicators*, 89, 269–280. <https://doi.org/10.1016/j.ecolind.2018.02.015>
- Yu, S., Wan, K., Cai, C., Xu, L., & Zhao, T. (2023). Resource curse and green growth in China: Role of energy transitions under COP26 declarations. *Resources Policy*, 85, 103768. <https://doi.org/10.1016/j.resourpol.2023.103768>
- Yuan, S., Musibau, H. O., Genç, S. Y., Shaheen, R., Ameen, A., & Tan, Z. (2021). Digitalization of economy is the key factor behind fourth industrial revolution: How G7 countries are overcoming with the financing issues? *Technological Forecasting and Social Change*, 165, 120533. <https://doi.org/10.1016/j.techfore.2020.120533>
- Yunus, L., Iswandi, M., Baco, L., Zani, M., Limi, M. A., & Sujono, S. (2023). How does sustainable energy system, creativity, and green finance affect environment efficiency and sustainable economic growth: Evidence from highest emitting economies. *International Journal of Energy Economics and Policy*, 13(1), 261–270. <https://doi.org/10.32479/ijeep.13924>
- Zhang, M., Wei, X., & Xu, A. (2023). Impact of investment in quality language education on green economic growth: case study of 23 Chinese provinces. *Humanities and Social Sciences Communications*, 10(1), 452. <https://doi.org/10.1057/s41599-023-01976-5>
- Zhao, L., & Rasoulinezhad, E. (2022). Role of natural resources utilization efficiency in achieving green economic recovery: Evidence from BRICS countries. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4231217>