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Economic Expansion and Its Environmental Implications in Asia

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Abstract
In recent times, there has been a significant increase in global awareness regarding the human-centred environmental destruction that has been ongoing for centuries, particularly after the industrial revolution in the United Kingdom and later in the United States of America. Following the industrial revolution, it has been approximated that the atmospheric concentration of CO2 increased threefold. For centuries, humans have been committing anthropocentric atrocities and have given little to no importance to the environment. As a result, the environment has reached a critical checkpoint, with a substantial carbon footprint. While there have been efforts to adopt pro-environment production processes, there is still dissatisfaction among developed, developing, and less developed nations regarding this issue. International organizations, influenced by developed nations, have been pressuring developing and less developed nations to limit their CO2 emissions, even if it means sacrificing economic expansion and development. The research paper takes an investigative approach, exploring the link between the environment and economic growth in the Asian continent through empirical analysis.

Keywords: Environment and economic growth, Asian continent, Environmental Kuznets Curve, Green investment, Carbon-di-Oxide emissions.

The Asian continent is the most expansive one among all the continents in the world. It also has the highest number of countries that are either developing or less developed, compared to other continents. These countries are stuck in a low-level equilibrium trap, which means that they have low income, low savings, low investment, and low productivity. To break free from this trap, they need to achieve growth and development in various aspects, such as human development, gender parity, and other indicators that are globally recognized and accepted. For this purpose, these countries need to attain a high level of economic growth and development that will enable them to reach a higher level of income and living standards. Furthermore, these countries have played an important role in the global economy, either as potential markets for goods and services, or as manufacturing hubs that produce goods for export. This creates a lot of opportunities for the countries of Asia to benefit from trade and integration, but it also exposes them to the risk of environmental hazards, such as pollution, climate change, and biodiversity loss (Sumner, 2015).

India and China, two of the Asian superpowers, have faced a lot of criticism for their high emissions of Carbon-di-Oxide gas, which harms the environment and puts them on the wrong side of the Environmental Kuznets Curve. This curve suggests that environmental degradation increases with economic growth at first, but then decreases after a certain level of income is reached. However, environmental pollution is not just a local problem, but a global one. It affects everyone on the planet, not just the polluters. Therefore, we need to find a way to balance economic growth and environmental protection. They have to go hand in hand to achieve a situation where no one is worse off. The challenge is to make these two goals compatible with each other. In recent years, there has been a growing interest in green investment, green finance, and green accounting, which are all ways of promoting economic activities that are friendly to the environment. There has also been a rise in sustainable corporate responsibility, which means that businesses take into account the social and environmental impacts of their actions. These are all examples of how we can pursue a pro-environment economic growth and development model that will benefit both the present and future generations (Wu et al., 2015).

After the Stockholm Convention in 1972, the first major international gathering on environmental issues, the concept of environmentally friendly economic growth and development was born. The Brundtland Commission's creation in 1983 and the publication of its renowned report, "Our Common Future," in 1987 gave it additional traction. The term "sustainable development," which refers to addressing existing needs without sacrificing the capacity of future generations of people to address their own needs, was introduced in this study. Although the report has been criticized for some academic flaws, such as being based on ordinal preferences and repeating Pigou's externality theory, it is still a landmark document that influenced academic literature and policymakers. According to the latest research, it also had a favorable effect on limiting the rise of carbon dioxide (CO2) released per person. (Banerjee et al., 2022a).

The key issue is whether environmental improvement results from economic expansion. Exists the EKC, is a curve that depicts the connection between economic prosperity and environmental quality. That issue will be addressed in this chapter. It employs an analysis of panel data on a collection of Asian nations, where the dependent variable is per-person carbon dioxide emissions and the independent variable is per-capita income growth. Despite the recommendations in the Brundtland Commission report, the manufacturing process is ecologically benign if the outcome is adverse and statistically significant, and environmentally detrimental if the result is beneficial and statistically significant. The findings will also help to test the stereotype that the developing and less developed countries in Asia have higher per capita CO2 emissions.

The inadequacies of the traditional growth and development models led to the concept of sustainable development, as this chapter explains.It will first review the main features and drawbacks of these models, then it will show how sustainable development offers a different perspective that integrates environmental and social aspects. It will also briefly describe the historical background of sustainable development, such as the Stockholm Convention and the Brundtland Commission, and the theoretical framework of the environmental Kuznets curve. After that, a review of previous research looking at the relationship between economic growth and the environment will be presented. Finally, it will use the knowledge gathered from the World Development Indicators to do a panel data analysis on a sample of Asian nations at various stages of development. Per capita, GDP growth, and another variable to account for omitted variables and endogeneity problems will be the independent variables, while per-person carbon dioxide emissions will be the dependent variable.The analysis will use STATA software to estimate the coefficients and their statistical significance.

The chapter aims to explore how economic growth affects the environment in Asia. It wants to find out if economic growth reduces the environmental problems that the Environmental Kuznets Curve predicts. It also wants to see if the Brundtland Commission had any positive impact on the environmental awareness of the production process in the selected Asian countries. In view of the Sustainable Development Goals, which are the objectives that the U.N. has set for 2030, these challenges are crucial (World Bank, 2018). Since the industrial revolution in the United Kingdom and later the United States of America, people all over the world have become more aware of the environmental devastation caused by humans that has been occurring for millennia. It is estimated that the CO2 concentration in the air tripled after the industrial revolution. These centuries of human activities that ignored the environment have brought it to a critical point with a lot of carbon footprint. There has always been a conflict between the developed and the developing or less developed countries over the environmental responsibility of the production process. International organisations headed by affluent nations have frequently cautioned emerging and less developed nations to reduce their carbon dioxide emissions, even at the expense of economic growth. An empirical investigation into the connection between Asian economic growth and the environment is presented in this chapter.

Neoclassical growth models have drawbacks

The neo-classical growth models, such as those of Hicks, Harrod, and Solow, have a common flaw: they ignore the social and environmental factors that affect growth. They only focus on the role of labor and capital and their growth rates that lead to long run equilibrium. For example, Solow's growth model assumes that the long run growth is determined by the population growth. These models, however, are all constrained in one way or

another. A new field of economics called development economics emerged as a result of their disregard for social factors.

Models of Development and Their Drawbacks

The development models are better than the growth models, because they consider the socio-economic variables that affect human well-being, not just the economic ones. They are more flexible, meaningful and suitable for the benefit of humanity. They still have a significant flaw, though, in that they fail to consider how development would affect the environment.

Growth And Development: Resulting Beginning Necessity And Excessive Desire

Economics assumes that demand is unlimited and only limited by the budget. It also assumes that every economic agent is rational. However, in the modern world of digital markets and super malls, the economic agents face a dilemma: their demand can be split into two types: demand for needs and demand for wants. When they demand needs, they are rational and can be explained by conventional economics. But when they demand wants, they are irrational and cannot be understood by conventional economics. Although it might not seem important, the difference between requirements and wants will be important in the part that follows, when we briefly explain how economics made the environment a factor.

Environment's Emergence in Economics and the Environmental Kuznets Curve

The Stockholm Convention of 1972 served as an awakening signal to the globe, highlighting how Mother Nature is on the verge of extinction due to the overuse of natural resources. It was also recognized that this use was driven not only by need but also by greed. Therefore, people needed to act rationally and avoid greed-based economic activities. As a result, the Brundtland Commission was established in 1983, and its report, titled "Our Common Future," was released in 1987. According to the study, sustainable development means addressing current demands without sacrificing the capacity of future generations to address their own requirements. However, the report was later criticized for several reasons, such as repeating Pigouvian externality theory, being based on ordinal preferences, and having no benchmark for environment. The report's primary flaw, however, went unnoticed during this period of "green imperialism," which forced the Environmental Kuznets Curve on developing and less developed nations (Banerjee et al., 2022b), and no economists before did so. The report was overly anthropocentric and neglected to take other living and non-living organisms into account. It disregarded the significance of the food pyramid and food chain. This chapter will provide a quick survey of the literature in this area.

Literature Review

de Sousa Jabbour et al. (2018) explored the link between growth and environment. They discovered that current industrial growth can make manufacturing greener by creating products, processes, and supply chains that are more environmentally friendly. They also suggested eleven key factors that need to be considered when aligning current industrial growth with the environment. These are management commitment and direction, strategic alignment, training and empowerment, collaboration, organizational culture, communication, project management, and attention to national diversity.

Gouvea et al. (2018) used data from 139 countries to study how human development and information and communication technologies affect environmental sustainability. They found that both factors have a significant direct and indirect impact on the environment.

The manufacturing sector is undergoing a transformation that takes into account the environmental impact of its activities. These changes are not isolated, but rather interconnected and mutually reinforcing, creating a new wave of industrial innovation that will change the way products are made and consumed. Dubey et al. (2019) conducted a study with 205 Indian manufacturing firms and found that emerging technologies can enhance industrial sustainability and contribute to a greener society.
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According to Morrar et al. (2017), the current technological advancements can help overcome the challenges of energy, resources, environment, and social and economic impacts that industrial growth faces. They claimed that putting these technologies to use may offer lasting answers for both the present and the next generation.

The new industrial form enhances the durability of products, integrates cyber-physical systems for more efficient manufacturing, and reduces the environmental impact of resource consumption. This is what Carvalho et al. (2018) emphasized in their study.

The research investigation by Ahmed et al. (2020) looked at how China's carbon footprint changed from 1970 to 2016 as a result of its use of natural resources, human resources, and urbanisation.They used a series of econometric tests to establish causal links between the variables. They discovered that although the rising urban population and economic expansion caused the degradation of the environment, natural resource rent enhanced the carbon footprint.

China’s economic growth has brought benefits to its people’s living standards, but it has also made the country the biggest emitter of carbon dioxide in the world (Guo et al., 2019). This is the trade-off that China faces between development and environment.

As a country’s economic activity grows, so does its need for extracting and using its resources. This can lead to practices that harm the environment, as urbanization and industrialization increase. This is what Langnel et al. (2021) argued in their paper.

Liang and Yang (2019) looked at the connection between economic development, environmental pollution, and urbanisation. They discovered a substantial correlation between urbanisation and pollution of the environment, which led to a U-shaped relationship between environmental quality and economic growth. This means that environmental degradation worsened as the economy grew, until it reached a turning point and started to improve. They observed the same pattern for urbanization and environmental degradation.

The relationship between output, energy, and the environment was investigated by Antonakakis et al. (2017) using panel data and vector autoregression (PVAR) using the impulse response function. They utilized data from 1971 to 2011 for 106 nations with various income levels on energy use, its components, including carbon dioxide (CO2) emissions, and real GDP. They discovered that the impact of various energy uses on economic expansion and emissions differed between nation groupings. The concept that renewable energy sources may foster growth in a more environmentally friendly and effective manner was also refuted by the facts they discovered.

Cao et al. (2022) looked at the effects of financial development on the sustainability of the environment and economic growth in South Asian nations. They examined a panel data set spanning the years 1980 to 2018 using the autoregressive distributed lag (ARDL) approach. They discovered that energy use has a favourable impact on both economic growth and environmental sustainability.
Yang and Khan (2022) used sophisticated econometric models to investigate the connections between economic development, urbanization, and environmental sustainability in 30 IEA-member nations from 1992 to 2016. They discovered that while economic expansion raised carbon footprints in the near term, capital development, and industrial value addition enhanced the sustainability of the environment over the long run.

According to some experts, economic expansion and CO2 emissions are causally related in both directions. They have demonstrated that increased CO2 emissions may both positively and negatively affect economic growth. They have furthermore noted that environmental deterioration rises in tandem with economic expansion but falls down after the average yearly income reaches a particular point (Begum et al., 2015; Omri et al., 2015; Wang et al., 2011).

By causing ripple effects in other industries, which in turn raise the demand for energy and CO2 emissions, industrial expansion stimulates economic growth. Additionally, urbanisation results in increased energy use, which has a detrimental impact on the environment (Al-Mulali & Ozturk, 2015; Elheddad et al., 2020; Sheng et al., 2017; Zhang et al., 2015).

However, urbanisation can also reduce the rate of environmental degradation by fostering innovation and discovery that result in more environmentally friendly technologies and methods for conserving natural resources (Charfeddine & Mrabet, 2017; Murshed et al., 2022).

Anser et al. (2021) examined the link between rising energy consumption, emissions of greenhouse gases, and GDP using the fully modified ordinary least squares (FMOLS) method. They discovered a two-way causal relationship between economic development and energy usage using time series data from 1985 to 2019.

Umar et al. (2020) examined China's CO2 emissions and potential factors using data from 1980 to 2017. They discovered that while exploitation of natural resources, economic expansion, and globalisation all contributed to an increase in emissions of carbon dioxide over the long term, primarily economic growth did so in the short term.

Abdouli & Hammami (2020) used simultaneous equation models to investigate the relationships between economic development and environmental quality in Middle Eastern nations between 1980 and 2014. They discovered that rising economic activity increased carbon dioxide emissions. They did, however, discover evidence of a reciprocal link between carbon dioxide emissions and economic expansion.

Conclusion:

Population growth leads to higher consumption and production levels, which inevitably increase the carbon footprint. However, this can be reduced by rationality. The environmental degradation is not caused by the conflict between developed and developing and less developed countries over the change in production mode or the adoption of green technology, as this chapter shows. A cooperative action through knowledge sharing can help not only Asia, but the whole world to achieve environmental resilience and dispel the myth of EKC.

Reference:

1. Abdouli, M., & Hammami, S. (2020). Economic Growth, Environment, FDI Inflows, and Financial Development in Middle East Countries: Fresh Evidence from Simultaneous Equation Models. Journal of the Knowledge Economy, 11(2), 479–511. https://doi.org/10.1007/S13132-018-0546-9/METRICS
2. Ahmed, Z., Asghar, M. M., Malik, M. N., & Nawaz, K. (2020). Moving towards a sustainable environment: The dynamic linkage between natural resources, human capital, urbanization, economic growth, and ecological footprint in China. Resources Policy, 67, 1–11. https://doi.org/10.1016/J.RESOURPOL.2020.101677
3. Al-Mulali, U., & Ozturk, I. (2015). The effect of energy consumption, urbanization, trade openness, industrial output, and the political stability on the environmental degradation in the MENA (Middle East and North African) region. Energy, 84, 382–389. https://doi.org/10.1016/J.ENERGY.2015.03.004
4. Anser, M. K., Usman, M., Godil, D. I., Shabbir, M. S., Sharif, A., Tabash, M. I., & Lopez, L. B. (2021). Does globalization affect the green economy and environment? The relationship between energy consumption, carbon dioxide emissions, and economic growth. Environmental Science and Pollution Research, 28(37), 51105–51118. https://doi.org/10.1007/S11356-021-14243-4/FIGURES/1
5. Antonakakis, N., Chatziantoniou, I., & Filis, G. (2017). Energy consumption, CO2 emissions, and economic growth: An ethical dilemma. Renewable and Sustainable Energy Reviews, 68, 808–824. https://doi.org/10.1016/J.RSER.2016.09.105
6. Baltagi, B. H. (2021). Econometric Analysis of Panel Data. Springer International Publishing. https://doi.org/10.1007/978-3-030-53953-5
7. Banerjee, S. (2017). Revisiting bank mergers: Does size matter? Economic and Political Weekly, 52(8), 41–48. https://scholar.google.com/scholar?hl=en&as_sdt=0,5&cluster=11755901839183430510#d=gs_cit&t=166

9143363739&u=%2Fscholar%3Fq%3Dinfo%3AbsPj8m9aJaMJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26scfhb%3D1%26hl%3Den

8. Banerjee, S., Gupta, S., & Koner, S. (2022a). Impact of the Brundtland Commission on Select Climate Changing Variables: An Empirical Analysis. In P. O. de Pablos (Ed.), Handbook of Research on Building Greener Economics and Adopting Digital Tools in the Era of Climate Change (pp. 297–305). IGI Global. https://doi.org/10.4018/978-1-6684-4610-2.ch015
9. Banerjee, S., Gupta, S., & Koner, S. (2022b). Sustainability and Consumerism: How Green Are the Green Sectors. In P. Ordóñez de Pablos, X. Zhang, & M. N. Almunwar (Eds.), In Handbook of Research on Green, Circular, and Digital Economies as Tools for Recovery and Sustainability (pp. 186–206). IGI Global. https://doi.org/10.4018/978-1-7998-9664-7.ch010
10. Baum, K. (2009). st: Re: STATA heteroscedasticity test. Statalist: The Stata Listserver. https://www.stata.com/statalist/archive/2009-03/msg00776.html
11. Begum, R. A., Sohag, K., Abdullah, S. M. S., & Jaafar, M. (2015). CO2 emissions, energy consumption, economic and population growth in Malaysia. Renewable and Sustainable Energy Reviews, 41, 594–601. https://doi.org/10.1016/J.RSER.2014.07.205
12. Cameron, A. C., & Trivedi, P. K. (2005). Microeconometrics: Methods and Applications . Cambridge University Press. https://books.google.co.in/books?hl=en&lr=&id=TdlKAgAAQBAJ&oi=fnd&pg=PP1&dq=Microeconometrics:Methods+and+Applications&ots=yKiqJZaAxv&sig=PIxeWYTEiiY8XqVmVkcMM-m0u3k&redir_esc=y#v=onepage&q=Microeconometrics%3AMethods and Applications&f=false
13. Cao, X. H., Kannaiah, D., Ye, L., Khan, J., Shabbir, M. S., Bilal, K., & Tabash, M. I. (2022). Does sustainable environmental agenda matter in the era of globalization? The relationship among financial development, energy consumption, and sustainable environmental-economic growth. Environmental Science and Pollution Research, 29(21), 30808–30818. https://doi.org/10.1007/S11356-022-18772-4/METRICS
14. Carvalho, N., Chaim, O., Cazarini, E., & Gerolamo, M. (2018). Manufacturing in the fourth industrial revolution: A positive prospect in Sustainable Manufacturing. Procedia Manufacturing, 21, 671–678. https://doi.org/10.1016/J.PROMFG.2018.02.170
15. Charfeddine, L., & Mrabet, Z. (2017). The impact of economic development and social-political factors on ecological footprint: A panel data analysis for 15 MENA countries. Renewable and Sustainable Energy Reviews, 76, 138–154. https://doi.org/10.1016/J.RSER.2017.03.031
16. Chudik, A., Pesaran, M. H., & Tosetti, E. (2011). Weak and strong cross-section dependence and estimation of large panels. The Econometrics Journal, 14(1), C45–C90. https://doi.org/10.1111/J.1368-423X.2010.00330.X
17. de Sousa Jabbour, A. B. L., Jabbour, C. J. C., Foropon, C., & Filho, M. G. (2018). When titans meet – Can industry 4.0 revolutionise the environmentally-sustainable manufacturing wave? The role of critical success factors. Technological Forecasting and Social Change, 132, 18–25. https://doi.org/10.1016/J.TECHFORE.2018.01.017
18. Dubey, R., Gunasekaran, A., Childe, S. J., Papadopoulos, T., Luo, Z., Wamba, S. F., & Roubaud, D. (2019). Can big data and predictive analytics improve social and environmental sustainability? Technological Forecasting and Social Change, 144, 534–545. https://doi.org/10.1016/J.TECHFORE.2017.06.020
19. Elheddad, M., Djellouli, N., Tiwari, A. K., & Hammoudeh, S. (2020). The relationship between energy consumption and fiscal decentralization and the importance of urbanization: Evidence from Chinese provinces. Journal of Environmental Management, 264, 1–10. https://doi.org/10.1016/J.JENVMAN.2020.110474
20. Gouvea, R., Kapelianis, D., & Kassicieh, S. (2018). Assessing the nexus of sustainability and information & communications technology. Technological Forecasting and Social Change, 130, 39–44. https://doi.org/10.1016/J.TECHFORE.2017.07.023
21. Greene, W. H. (2000). Econometric Analysis. 4th Prentice Hall. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Greene%2C+W+%282000%29%3A+Econometric+Analysis+%28Upper+Saddle+River%2C+NJ%3A+Prentice–Hall&btnG=

22. Guo, M., Hu, Y., & Yu, J. (2019). The role of financial development in the process of climate change: Evidence from different panel models in China. Atmospheric Pollution Research, 10(5), 1375–1382. https://doi.org/10.1016/J.APR.2019.03.006
23. Langnel, Z., Amegavi, G. B., Donkor, P., & Mensah, J. K. (2021). Income inequality, human capital, natural resource abundance, and ecological footprint in ECOWAS member countries. Resources Policy, 74, 102255. https://doi.org/10.1016/J.RESOURPOL.2021.102255
24. Liang, W., & Yang, M. (2019). Urbanization, economic growth and environmental pollution: Evidence from China. Sustainable Computing: Informatics and Systems, 21, 1–9. https://doi.org/10.1016/J.SUSCOM.2018.11.007
25. Morrar, R., Arman, H., & Mousa, S. (2017). The fourth industrial revolution (Industry 4.0): A social innovation perspective. Technology Innovation Management Review, 7(11), 12–20. https://pdfs.semanticscholar.org/6d54/724adc2461105a3b37fc1e9bf848c2a0ba97.pdf
26. Murshed, M., Apergis, N., Alam, M. S., Khan, U., & Mahmud, S. (2022). The impacts of renewable energy, financial inclusivity, globalization, economic growth, and urbanization on carbon productivity: Evidence from net moderation and mediation effects of energy efficiency gains. Renewable Energy, 196, 824–838. https://doi.org/10.1016/J.RENENE.2022.07.012
27. Omri, A., Daly, S., Rault, C., & Chaibi, A. (2015). Financial development, environmental quality, trade and economic growth: What causes what in MENA countries. Energy Economics, 48, 242–252. https://doi.org/10.1016/J.ENECO.2015.01.008
28. Schaffer, M. E., & Stillman, S. (2016). XTOVERID: Stata module to calculate tests of overidentifying restrictions after xtreg, xtivreg, xtivreg2, xthtaylor. Statistical Software Components. https://ideas.repec.org/c/boc/bocode/s456779.html
29. Sheng, P., He, Y., & Guo, X. (2017). The impact of urbanization on energy consumption and efficiency. Energy & Environment, 28(7), 673–686. https://doi.org/10.1177/0958305X17723893
30. Sosa-Escudero, W., & Bera, A. K. (2008). Tests for Unbalanced Error-Components Models under Local Misspecification. Https://Doi.Org/10.1177/1536867X0800800105, 8(1), 68–78. https://doi.org/10.1177/1536867X0800800105
31. Sumner, T. (2015, May 17). Carbon dioxide levels rise fast and high. Science News for Students. https://www.snexplores.org/article/carbon-dioxide-levels-rise-fast-and-high
32. Umar, M., Ji, X., Kirikkaleli, D., Shahbaz, M., & Zhou, X. (2020). Environmental cost of natural resources utilization and economic growth: Can China shift some burden through globalization for sustainable development? Sustainable Development, 28(6), 1678–1688. https://doi.org/10.1002/SD.2116
33. Wang, S. S., Zhou, D. Q., Zhou, P., & Wang, Q. W. (2011). CO2 emissions, energy consumption and economic growth in China: A panel data analysis. Energy Policy, 39(9), 4870–4875. https://doi.org/10.1016/J.ENPOL.2011.06.032
34. Wooldridge, J. M. (2002). Econometric Analysis Of Cross Section And Panel Data. MIT Press.
35. Wooldridge, J. M. (2003). Cluster-Sample Methods in Applied Econometrics. American Economic Review, 93(2), 133–138. https://doi.org/10.1257/000282803321946930
36. Wooldridge, J. M. (2006). Cluster-sample methods in applied econometrics: an extended analysis. In Economics Department Working Paper Series, Department of Economics. Michigan State University. https://www.academia.edu/download/31182655/Cluster_Sample_Methods_in_Applied_Econometrics.pdf
37. World, B. (2018). World Bank Group Partnership Fund for the Sustainable Development Goals - Annual report 2019. file:///C:/Users/soure/Downloads/World-Bank-Group-Partnership-Fund-for-the-Sustainable-Development-Goals-Annual-Report-2019.pdf
38. Wu, L., Liu, S., Liu, D., Fang, Z., & Xu, H. (2015). Modelling and forecasting CO2 emissions in the BRICS (Brazil, Russia, India, China, and South Africa) countries using a novel multi-variable grey model. Energy, 79(C), 489–495. https://doi.org/10.1016/J.ENERGY.2014.11.052
39. Yang, X., & Khan, I. (2022). Dynamics among economic growth, urbanization, and environmental sustainability in IEA countries: the role of industry value-added. Environmental Science and Pollution Research, 29(3), 4116–4127. https://doi.org/10.1007/S11356-021-16000-Z/TABLES/9
40. Zhang, Y. J., Yi, W. C., & Li, B. W. (2015). The Impact of Urbanization on Carbon Emission: Empirical Evidence in Beijing. Energy Procedia, 75, 2963–2968. https://doi.org/10.1016/J.EGYPRO.2015.07.601