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Editorial: Health in the Green Economy

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Editorial on the Research Topic
Health in the green economy

The COVID-19 pandemic reminded the global community of the interactions between economic growth and the environment. Health impacts are the most obvious externalities from economic activities, through air pollution and loss of biodiversity, amongst others. While the abrupt disruptions in economic activities resulting from the lockdowns imposed world-wide have had short-term positive impacts, for instance, on greenhouse gases (GhG) emissions, and on air and water quality, these gains will be short-lived as economies open.

Two main challenges facing the global community in the 21st century that require urgent attention are related to climate change, and to the imperative of a growth trajectory that strikes a balance between economic growth, social equity, and protection of the environment. The promise of a green economy aims to address the second challenge of achieving both economic and social development under environmentally sustainable conditions. In view of the growth trajectory over the past centuries, a transition towards a green economy requires, amongst others, "greening" current industrial and production processes. Available evidence from Asia and Africa (Kararach et al., 2018; Shao et al., 2022) indicate that many countries are making progress towards a green economy. The COVID-19 pandemic has demonstrated the centrality of health concerns on the global economy. These concerns have emerged as a major frontier to be considered as alternative growth strategies, like the green economy, are explored.

This Research topic put emphasis on the health implications of the transition to a green economy. Four papers have been published in the context of the Research topic. Xu et al. study the economic, environmental, and social factors affecting Chinese residents' health. Drawing from a panel data covering 7 years (2011–2018), the authors select 17 characteristic variables from three levels: economy, environment, and society. They use machine learning (XG boost algorithm and Random Forest algorithm) to determine the variables with significant impacts on health outcomes. The study found that economic level variables (number of industrial enterprises above designated size, industrial value, population density, and per capita GDP) have greater impact on the health of residents relative to the other economic-level variables (imports and exports as a percentage of GDP, and the level or urbanization). Coal consumption, energy consumption, total

wastewater discharge, and solid waste discharge, variables reflecting the environmental level, also have greater impact on the health of the residents compared to other environmental variables like carbon trading rights, total SO_2 emissions, total NO emissions and total particulate emissions. The study calls for government action at both the economic and environmental levels if China is to realize its Healthy China Strategy.

The paper by Qian and Shang makes a useful contribution to this topic in examining the impact of Regional Economic Growth and factor inputs on the convergence of health tourism industry. The authors draw from data of 31 provinces in China. The paper is based on the concept of industrial convergence. This is defined as a dynamic process in which industries cross and coordinate with each other and gradually blur their boundaries to form a new industry which produces more extensive compound economic effects. Examining five factors (economic growth, talent training, market perfection, technology input and capital investment) and using an input-output method, the authors measure the convergence driving force of the health tourism industry. A key finding of the study is that all the five factors have a positive effect on the convergence of health tourism industry with the tourism industry in China. Furthermore, the study found that the five driving forces play different roles in different types of regions with different degrees of convergence. This study makes a useful contribution on the industrial convergence of the tourism and the health industries.

The impact of household cooking fuel choice on health care expenditure in Ghana is the subject of the contribution by Azorlaide et al. This microlevel analysis investigates the impact of household cooking fuel choice (firewood, charcoal, and liquefied petroleum gas) on healthcare expenditure. Firewood is known to be the foremost source of household air pollution and ranked as the most significant environmental health risk factor globally, responsible for respiratory infections, lung cancer, cardiovascular and ocular diseases. The study also examines the socio-economic and demographic factors that influence households' health expenditure. The authors use data from the sixth and seventh rounds of the Ghana Living Standards Survey conducted in 2012/2013 and in 2016/17, respectively. Azorlaide et al. use a Tobit regression approach for the analysis. The authors found that in 2012/2013, health services expenditure of households using charcoal was lower (by 54.40 percentage points) compared to those using wood as a cooking fuel. For households using liquefied petroleum gas as cooking fuel, their health services expenditure was even much lower (by 115.09 percentage points) in comparison to households using wood. The analysis using the 2016/2017 survey data, showed that the impacts were much smaller. Health expenditures for households using charcoal compared to those using wood were 28.15 percentage points smaller compared to 54.40 percentage points using the 2012/2013 data. For the comparison between households using liquefied petroleum gas and those using wood, the impact also reduced from 115.09 percentage points (2012/2013 data) to 103.25 (2016/2017 data). Overall, the authors suggested that a potential explanation for the drop (2012/2013 *versus* 2016/2017) is the new government's liquefied petroleum gas promotion program that encouraged households to use liquefied petroleum gas as a cooking fuel choice instead of wood and charcoal. The key message is that households that use firewood spend more in health-care expenditure compared to households using charcoal and liquefied petroleum gas as cooking fuel.

Zhang et al.'s paper examines the effect of innovative development on the green economic growth of resource-based cities. The study used data for 108 cities in China covering 15 years (2004–2018) to measure the efficiency of green economic growth and to analyze the impact of innovative development and resource endowment on green economic growth. Using a systematic Generalized Method of Moments (GMM) model, the authors arrived at several key findings. These include: 1) the green economic growth efficiency of resource-based cities exhibited a general trend of fluctuation and rise but the efficiency of different resource-based cities was different in time and space; 2) the impact of different resource-based cities was heterogenous although innovative development promoted the green economic growth of resource-based cities; 3) the non-linear effect of resource endowment on the green economic growth was not significant but resource endowment had a "curse" effect on green economic growth; and 4) resource endowment moderated the impact of innovative development on the green economic growth of resource-based cities. A key message proposed by the authors is that 'resource-based cities should not only constantly increase innovation and improve resource utilization efficiency but also actively promote coordination and cooperation of regional resource-based industries to achieve green and sustainable development'.

In sum, the contributed papers have highlighted some of the sub-themes of the Research topic relevant to the criticality of transition policies in ensuring appropriate health policies (the case of cooking fuel in Ghana); the industrial convergence of the tourism and health industries, highlighting how health outcomes could be affected by tourism activities; the effect of social, economic, and environmental factors on the health of the people; and the importance of coordination and cooperation of regional resource-based industries in achieving sustainable development.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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