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Interplay among institutional actors for sustainable economic development—Role of green policies, ecoprenuership, and green technological innovation

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This study conceptualizes the impact of Green Economy Policies, namely, green fiscal policy, green investment, and green jobs, on sustainable economic development through direct and serially mediated paths. Ecopreneurship and Green Technological Innovation have been perceived/recognized as potential mediators linking green economy policies to sustainable economic development. The conceptual model sheds light on the integrated role of two main actors—the government of the state and its market forces in moving toward the goal of sustainability and gains for all. It represents that incorporating "green" into public policy creates a suitable environment for green entrepreneurs to propose innovative green technologies and sustainability-led business models. Theoretically supported by Institutional theory, this article aims to contribute to sustainability transition research by focusing on the collective role of different institutional forces in achieving economic gains through a sustainability lens.

KEYWORDS

green economy, sustainable development, ecopreneurship, green technological innovation, green policies

1 Introduction

The notion of sustainable development outlooks the merger of economic and environmental policies as the ultimate solution to the ever-increasing environmental degradation and societal injustice due to human activities (Khoshnava et al., 2019; Mensah, 2019). The burgeoning concerns regarding unsustainability have resulted in the development of international policies and standards to mitigate the adverse effects of humans and businesses on the environment (Pfeffer, 2010; Klarin, 2018). To counter these

global issues, governments globally have accepted the need for a greener economy to achieve sustainable economic development (Delai and Takahashi, 2011). Sustainable development intents to use natural resources in a controlled and beneficial way to satisfy the needs of the current and succeeding generations (Keeble, 1988). The inception of sustainability is grounded in the notion of the triple bottom line with social, environmental, and economic dimensions. The social aspect of sustainability includes health and safety, equality, and social concerns; the ecological view covers resource conservation, green product development, clean energy, and carbon emission labeling, and the economic dimension includes the development of green businesses to pursue sustained growth (Costanza et al., 2016; Alwakid et al., 2021). As mentioned by Ahmar et al. (2022), it is the need of the hour to shift from conventional energy sources such as fossil fuels to renewable energy technologies (solar system plants) to ensure a clean and low carbon environment along with economic development (Ali et al., 2021). Therefore, economy, environment, and society, the three underpinnings of sustainable development, are the crucial areas for identifying possible shortcomings and developing relevant green policies (Delai and Takahashi, 2011).

Traditional economic models practiced for decades have brought forth an immense increase in social inequalities and environmental degradation focusing merely on a capitalistic perspective, neglecting the social and ecological sides of economies (Khoshnava et al., 2019). Although economic corridors and developmental programs are crucial drivers of stability for states, they also bring concerns about environmental and economic unsustainability because the improper use of resources exhausts the natural environment (Li et al., 2021). For example, economic corridors involve energy projects that require an excessive use of coal and other natural resources resulting in higher levels of carbon emissions, air and water pollution, excessive cutting of trees, and several diseases (Kouser et al., 2020; Munir and Khayyam, 2020). These burning concerns make it necessary to align the notion of sustainability with the old economic practices to achieve economic growth that is harmless to the environment (Khoshnava et al., 2019). Linking economic corridors with green corridors provides opportunities for economies to achieve fiscal stability with sustainability (Al Masri et al., 2019). The evolvement of green corridors is possible by incorporating green into the existing national policy to provide states with opportunity for growth as it enhances societal and environmental welfare and acts as a source of support from the international community (Kasztelan, 2017).

It is evident from the previous literature regarding economic growth and environmental sustainability (Klarin, 2018). Similarly, a report by UNEP (2014a) suggests that green economy policies are essential in achieving sustainability for countries. The green economy not only deals with ecological deficiencies but also seeks economic transformation to provide welfare and justice to society (Söderholm, 2020). The green economy aims to promote policies and practices that help in the consumption and production of eco-friendly goods to improve the environmental condition to provide equitable natural resources for future generations (UNEP, 2011). Implementing green policies encourages the growth of other facilitators and practitioner of sustainability called ecopreneurs (Hörisch, 2016). Ecopreneurs aim to reform the conventional business policies and means of production by inventing eco-friendly technologies and products to reduce the environmental impact, as the notion of green entrepreneurship is based on the philosophy of sustainability (Santini, 2017; Rodríguez et al., 2019).

The discourse suggests that the concept of green economy, green entrepreneurship, and sustainability is interrelated. Therefore, governments should incorporate eco-friendly policies into regulations and encourage investment in green businesses to provide a cleaner and more sustainable future. The institutional theory supports this study to justify the relationship between green economic policies, ecopreneurship, green technological innovations, and sustainability. The institutional theory states the formal and informal institutions: governmental regulations, culture, family, and community (Tolbert et al., 2011; Zhai and Su, 2019). Governments are in the best place to develop and ensure green and socio-economic cultural norms in businesses and society because it is the responsibility of governments to take immediate actions to tackle the issues of poverty, health, unemployment, and inappropriate infrastructures to pursue sustainable development (Moghimi and Alambeigi, 2012; Zhai and Su, 2019). To attain sustainable economic development, the state should support green entrepreneurship through providing incentives and subsidies to socially conscious businesses and by developing policies related to green investment programs, low carbon developmental policies, pollution prevention strategies, no coal policy, etc. (Aparicio et al., 2016; Alwakid et al., 2021). Concerning the institutional theory, the strong support of governmental institutions and well-built green policies advances green entrepreneurship and sustainable technological innovation that could positively affect the triple bottom line framework of sustainability (Ács et al., 2014).

2 Literature review and hypothesis development

2.1 Direct paths and serial mediation

2.1.1 Green economy policies—Sustainable economic development

The green economy refers to the economy that "improves human wellbeing and social equity while significantly reducing environmental risks and ecological scarcities" (UNEP, 2014a).

The green economy acts as a tool to organize the efficient use of resources through several actors, i.e., governments, industrialists or entrepreneurs, and civil society (Mikhno et al., 2021). To shift from conventional to new sustainability-led policies, state institutions should adopt new practices. The transition from a traditional to a green economy demands a series of reforms such as green investments, green procurement, green technological innovations, eco-friendly international trade, green jobs, and skill building to combine ecological and economic systems (Kasztelan, 2017). Public policymakers can ensure the well-organized use of resources and sustainable development by introducing policies that promote green investments in the country (Pavlyk, 2020). Green investments are one of the most important policy areas to ensure environmental protection because the right investment decisions can reshape an economy (Tran et al., 2020). For example, investing in green infrastructure assists in dealing with climatic challenges and provides cost-efficient means to protect natural habitats. Likewise, governments can use a green fiscal policy to ensure a radical transition toward a green economy leading to sustainable development.

Through fiscal policy, the government regulates the economy by deciding ways to collect and spend money (UNEP, 2014b). Policymakers can influence behavioral changes among the masses by managing the income distribution to achieve the desired social objectives as well as to reduce psychosocial risks (Javaid et al., 2016, 2018, 2019; Meirun et al., 2020). Government initiative to create green jobs enhances the quality of life through the fair distribution of wealth (Kasztelan, 2017). Green economy policies can be used to shift the flow of investments toward environment-friendly projects (Schroeder et al., 2019). Green policies such as environmental subsidies, carbon capture and storage, emission trading, pollution discharge fee, etc., help in reducing emissions and conserving energies (Harrison et al., 2016; Li, 2019). Green economy policies lead to sustainable economic development by following two approaches (Yuan and Zhang, 2020). First, by imposing policies such as pollution discharge fees, governments can force polluting industries to adopt environment-friendly production processes to save costs. Second, green policies act as ecological signals for enterprises to improve their environmental performance. For example, environmental subsidy policy would encourage firms to shift to sustainable economic development practices. Providing subsidies to firms producing sustainable products via sustainable means would serve as a competitive advantage increasing the market share (Yuan and Zhang, 2020). Based on the above discourse, green economy policies are essential for achieving sustained economic development.

2.1.2 Green economy policies—Ecopreneurship

Santini (2017) defines eco-entrepreneurship or ecopreneurship as business activities through an environmental viewpoint. Another study suggests that ecopreneurs are those who create or align businesses with sustainability principles (Kirkwood and Walton, 2010; Galkina and Hultman, 2016). Similarly, ecopreneurship refers to a bridge between economic growth and environmental development to achieve long-term benefits and sustainability for society and economies (Isaak, 2016). Ecopreneurship plays a crucial role in achieving a competitive edge for firms and economies, as the concept of the traditional economic model "take, make, and dispose of" endangers the global economic and environmental sustainability (Ghisellini et al., 2016; Geissdoerfer et al., 2017). According to Usman et al. (2020), the board of an organization is responsible for policymaking that defines the strategic and functional directions for a business model. As ecopreneurs operate on the principle of profit with environmental protection, governments can enhance sustainable economic development by encouraging ecopreneurship. A new paradigm shift is needed to overcome these challenges by developing new regulations and business policies to create a circular economy to promote clean production and responsible consumption, and encourage green awareness at all levels of the state (Geissdoerfer et al., 2017).

Previous studies have interchangeably used the notions of green entrepreneurship with sustainable competitive advantage (Rodríguez et al., 2019). Green entrepreneurship comprises three components, i.e., eco-commitment, eco-innovation, and eco-opportunity (Holger, 2006). The literature suggested that government green policies and regulations, venture investors, corporate social responsibility, and community have a dominant role in encouraging ecopreneurs. Incentivizing ecopreneurs helps promote sustainable business models that lead to sustainable economic development,. for example, to provide subsidies to green-oriented firms (Domańska et al., 2018). By setting pollution control, sustainable technology standards, environmental taxes, renewable energy projects, and waste management targes the governments to ensure eco-friendly ways of doing business (Moghimi and Alambeigi, 2012). Such measures lead to gradual but continuous greening of the organizations that ultimately promote sustainable economic development (Rodríguez et al., 2019).

2.1.3 Ecopreneurship—Green technological innovation

Ecopreneurial businesses aim to achieve environment-friendly economic growth and use innovation to develop sustainable methods for business (Rodríguez-García et al., 2019). Ecopreneurship and green innovation are linked to one another concerning sustainable development. Ecopreneurs value the idea of environmental protection and preservation along with the objective of wealth generation (Rekik and Bergeron, 2017). Previously, government institutions controlled the use of natural resources, but now private institutions and business associations appeared as the key handler of these resources. The capitalist business mindset negatively impacts natural habitats in the form of pollution, global warming, drastic climate change, droughts,

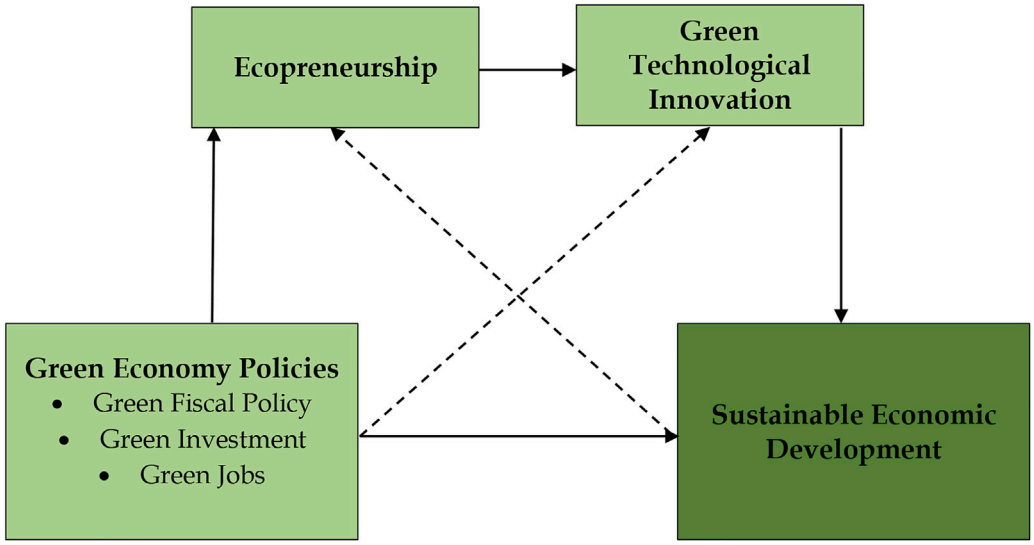

FIGURE 1
Conceptual framework.

severe weather conditions, and forest fires (Domańska et al., 2018). However, contrary to profit-driven businesses, eco-friendly businesses search for potential market opportunities to assist in environmental protection and sustainability (Scales, 2017).

In the search for a sustainable-driven business model, ecopreneurs innovate green technologies to reduce the impact of production processes on the planet and conserve natural resources (Moșteanu et al., 2020). For example, to control and monitor diffuse emissions, technological innovation in tracing and tracking materials is used (Söderholm, 2020). Ecopreneurs treat "innovation in general" and "green innovation" as the same because they consider firms' carbon footprints in almost every operation (Alwakid et al., 2021). In addition to sustainable business models, ecopreneurs adopt green innovations commercially as well. For example, in response to increasing flood risks, financial institutions innovated relative financial instruments, e.g., weather derivatives, catastrophe bonds, etc. (Söderholm, 2020). Also, sustainability-led innovations, either product or process, provide new growth opportunities, cost reduction, build corporate image, and shape consumer preferences in the long run (Rodríguez-García et al., 2019). Hence, ecopreneurship leads to green technological innovations given its commercial and environmental logic.

2.1.4 Green technological innovation—Sustainable economic development

Nations need to adopt green technological innovations to protect the environment from potential harm caused by natural resource depletion. Green technologies improve societal and environmental well-being by reducing industries "ecological footprint" (Mantaeva et al., 2021). Green technologies enable businesses to achieve economic objectives but not at the expense of natural resources. For example, green energy technology produces energy through renewable energy sources, protecting the environment from pollution caused by fossil fuels (Wu et al., 2022). Hence, non-polluting energy production leads to environment-friendly or sustainable economic development. Technological know-how is fundamental to ensure the feasible usage of natural resources to protect the environment from the negative impact of energy imbalances leading to sustainable development (Guo et al., 2020). The technological innovation of recycling plastic in the absence of oxygen comes with immense economic and environmental benefits (Samadhiya et al., 2022). Green technologies ensure less damage to the ecosystem to protect it for future generations. Therefore, such inventions should be promoted at national and international levels. Ecopreneurship and green technological innovation serially mediate the relationship between green economy policies and sustainable economic development shown in the conceptual framework in Figure 1.

2.2 Indirect paths

2.2.1 Ecopreneurship—Sustainable economic development

Presently, the issue of environmental unsustainability has affected all aspects of businesses and human lives in both

developed and developing nations, which results in the evolution of the green economy notion (Purvis et al., 2019; Yusliza et al., 2020). Sustainable development aims to protect the environment and safeguard the rights of succeeding generations so they can fulfill their needs from natural resources (Keeble, 1988). Economies and businesses are now shifting from traditional capitalistic mindsets to eco-friendly practices encouraging the establishment of green markets and promoting green entrepreneurship globally (Lotfi et al., 2018). Similarly, consumer preferences have shifted toward environment-friendly products, as humans are now more aware of their impact on the environment (Arora, 2018). To change such old practices, ecopreneurs can produce, operate, and innovate new products and bring a green technological change to associate the firm's monetary benefits with sustainability (Sharma and Kushwaha, 2015). The literature posited ecopreneurship as a facilitator of sustainable economic development (Hörisch, 2016). Because it plays an eminent role in achieving competitiveness, economic growth creates sustainable jobs, promotes accountability, and deals with the issue of environmental pollution and can enable firms to reduce their carbon footprints (İyigün, 2015). Sustainable entrepreneurship paves the way for green corridors by providing a green business framework and green innovations for the wellness of the ecosystem (Prause and Hunke, 2014).

2.2.2 Green economy policies—Green technological innovation

United Nations Sustainable Development Goals (SDGs) aimed at establishing coherence between the world economic system and the ecological system requiring the adoption of a green economy. The ultimate goal of achieving economic prosperity without sidelining the environment requires green policies for sustainable production and consumption patterns (Söderholm, 2020). Government policies significantly contribute to sustainable technological innovations that address climatic challenges with economic challenges (D'Amato et al., 2021). Sustainable technological innovations face many challenges like high costs, lack of funds, skilled labor, etc. (Söderholm, 2020). However, green policies by the government, i.e., green investment and green jobs and skills training, may overcome the hindrances. By providing support through green investments such as offering financial and tax incentives to enterprises, governments enable and promote private firms to innovate sustainable technologies, e.g., carbon neutral products (Wu et al., 2022).

Besides providing the legal framework regarding the licensing procedures, regulation of emissions via taxes, etc., states also work in partnership with the private sector to provide a mix of different policy instruments for sustainable technology innovation (Tran et al., 2020). For example, in the case of waste management, mixing the taxation policy with a recycling subsidy would lessen the number of waste materials as the industries would prefer recycled materials over raw materials (Calcott and Walls, 2005). Furthermore, green policies at the state level increase the demand for sustainable technological innovation through awareness campaigns among the public about green consumption and its positive effects on the environment (Musango et al., 2014). Hence, it is proposed that green economy policies would promote technological innovations to achieve economic gains along with environmental protection.

3 Discussion

This article used institutional theory to highlight the impact of state institutions on sustainable economic development in the light of green economy policies. It also discusses the indirect effect of green economy policies on sustainable economic development via ecopreneurship and green technological innovation, as shown in Figure 1.

3.1 Theoretical and practical contributions

Despite the burgeoning debates on sustainable development and environmental protection, developing economies, in particular, lack green policy frameworks. One of the key reasons is the lack of political will to consider the severity of environmental concerns (Khan et al., 2019). Another possible reason is the little authority given to the local tier of government that is majorly responsible for policy implementation (Dupont and Oberthür, 2012). Therefore, the objective of this article was to highlight the role of green economy policies in promoting the notion of "green" in business models and technological advancements to ensure sustainability-led economic development. Green initiatives by the government in the form of green policies support ecopreneurs that result in sustainable business models based on green technologies. Hence, the collective effort of state and market forces could result in economic development safe for the environment. This conceptual article aims to clarify that the constitution of environment-friendly policies will positively impact green entrepreneurship and sustainability. Due to the increased attention of government, policymakers, businesses, and societies toward environmental protection, the need for sustainable policies and ecopreneurs has increased for the protection of natural resources. To ensure the implementation of green policies, developing economies require the adoption of cross-sector and multi-level integration that involves addressing environmental issues at all three tiers of government: federal, state/provincial, and local authorities (Aall et al., 2015). The effective enforcement of green policies at all three government tiers requires two steps. First, the government signals specific environmental concerns to the federal and provincial ministries, and second, the ministries issue policy signals for dealing with the specific environmental issue to the local authorities. This study also responds to the questions raised by Galkina and Hultman

(2016) regarding the driving force behind ecopreneurship. Green regulatory policies serve as the driving force behind green entrepreneurship. Governments should devise and communicate a clear pollution discharge fee policy. The charges based on the number of pollutants discharged would force the emitters to reduce the social cost. Hence, adopting green policies is essential for sustainable economic development (Bitat, 2018; Shi et al., 2019) Additionally, governments need to implement energy efficiency policies to reduce the impact of emissions on the environment. According to Li et al. (2022), high energy consumption leads to increased carbon dioxide (CO_2) emissions and environmental degradation. In the emission trading system, a government decides the maximum emissions allowed to manufacturing firms and provides permits for per-unit emissions (Lyu et al., 2020). In the case of relatively high price for allowances, firms may consider adopting sustainably led business practices as a cheaper option. Moreover, policies such as green fiscal reforms, linking government expenditures with environmental goals, green funding to projects or businesses using renewable energy and sustainable production methods, and green jobs act as driving forces for ecopreneurs. According to Alwakid et al. (2021), the idea of ecopreneurship is in its developmental stage and requires more focus from researchers, practitioners, and policymakers. Additionally, educational institutions should also teach the concept of sustainability to produce more and more ecopreneurs in the generations to come (Gao et al., 2019).

4 Conclusion

The objective of this article was to highlight and integrate the role of different institutional actors in achieving the goal of environmental and economic development. The first part discussed the importance and impact of green economy policies on sustainable economic development. The second part covered the mediation path of ecopreneurship and green technological innovation in green economy policy—sustainable economic development relationship. Hence, the conceptual model sheds light on the integrated role of two main actors, government of the state and its market forces in moving toward the goal of sustainability and gains for all. Several policy suggestions are proposed in the study. States should provide policy support to the firms using sustainable means of production. Emission trading policy should be implemented to reduce CO_2 and other hazardous emissions. Policies such as environmental subsidies should be used to encourage ecopreneurs and green technological innovations. Innovations such as low-carbon technologies require policy support in the form of government fundings. Therefore, in combination with policy instruments, financial support should be given to sustainability-led firms in the form of reduced taxes. In compliance with the institutional theory, green economy policies aimed at introducing and improving sustainable business practices promote ecopreneurship and green technological innovation and improve institutional quality, ultimately leading to sustainable economic development. However, in future, we need empirical work in the form of real-life case studies or national-level research for understanding the complex processes through which green policies advance ecopreneurship and to identify the hindrances in achieving sustainable economic development through the proposed path.

Author contributions

XW, SB, MUJ, HY, and AJ conceptualizes the manuscript. XW, HY, and AAS proof read and helped in revisions.

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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.

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