



The Impact of Environmental Entrepreneurship on Green Growth

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Abstract. Although economy grew violently and extensively and the life standard raised, there are still concerns that the industrial age has had a great negative impact on the natural environment, which have caused damages of the economy's vitality. In order to find potential candidates to reduce the rate of environmental damage and drive the long-term sustainable development of the green economy, many environmentalists and empirics have begun to explore new areas of research. Under such circumstances, environmental entrepreneurship as an emerging field has come into the view of scholars. Synthesizing theories from environmental economy and entrepreneurship literatures, five dimensions are listed in the article: market theory and environmental entrepreneurship, transition of green growth, innovation created by green entrepreneurs, shift of investment orientation to illustrate how green entrepreneurial activities and environmental-friendly operation principle developed by green entrepreneurs affect long-term sustainable green growth. And after analysis, the article put forward some problems that need prompt solutions and summarized the mechanism of action of environmental entrepreneurship for green economic growth.

Keywords: Environmental entrepreneurship, Green growth, Renewable energy, Green transition, Green investment

1 Introduction

Environmental degradation, climate change, and unsustainable economic constraints are three main issues for every economy in achieving the sustainable development goals. Although industrial activity and the natural environment seemed hard to reconcile, enterprise is considered as the major polluters and resource consumers, but the current trend is to make sure the green economic transition: green entrepreneurship, green jobs, green growth, all of which suggests that the special attention to the innovation and environment. The shift from the mass industrial giants to individual entrepreneurs, from consumers to policy makers, has increasingly contributed to a paradigm shift that recognizes that the well-being for a long term can only be achieved with respect for the environment [1].

In order to find potential candidates for the solution of environmental degradation and boost green economic growth, according to the researches concerned, evidence shows that small and medium-sized enterprises (SMEs) are regarded as the "backbone" for their impulsive driving force for economic growth, especially the enterprises established or operated by green entrepreneurs. Environmental entrepreneurship, has been proved to be a significant impulse of green economic growth for its innovative nature and novel entrepreneurial mindset. Some researchers examined the performance of 46 countries that participate in the 2009 OECD Declaration on Green Growth. The study shows that after the obvious progress made in the 2000s, in the environmental sector, there is a downward trend in innovation activity. The main providers of green technology are still OECD countries, but there are some emerging countries in Asia performed saliently, like India and China. Overall, emerging countries have made progress in developing markets for the provision of green goods and services. However, regulations are required to sustain these markets through green procurement, environmental policies, eco-labelling, and the most importantly — prices [3].

More recently, environmental entrepreneurship has played a significant role in achieving the Sustainable Development Goals. The way that entrepreneurs think has become more diverse and they have become concerned about the environmental impact of their entrepreneurial actions [4]. As a result, the focus has switched to environmentally focused entrepreneurship, which can not only address environmental degradation and climate change, but also contribute to long-term green economic growth [5]. Environmental entrepreneurship is therefore multifaceted in the protection of nature and its resources and in the solution of other environmentally concerned problems.

The main purpose of this research is to delve into the role of environmental entrepreneurship in green growth by investigating several facets of the impact mechanism. First, market failure exists broadly in imperfectly competitive market. Because some of the environmental resources have peculiar characteristics, they are often not readily amenable to market allocation. Environmental entrepreneurs make corresponding markets for those resources by launching their entrepreneurial activities, thereby boosting the development of property rights and economic institutions, the spread of information, and incentives for policymaking. Therefore, the mechanism of action about how green entrepreneurial behaviour mediate the resource distribution and provide opportunities for innovation is discussed in theoretical development. Next, there mentioned that green entrepreneurs' business is considered a significant force of green growth, especially the renewable energy expenditure created by green entrepreneurial activity is taken for the strongest driver of green transition. Afterwards, it is notable that the products and services provided by environment-friendly business activities are important incentives for innovation with respect to environment conservation. Similarly, as the environmental entrepreneurship spring up, the orientation of investment switches to some new areas, the enterprise operators tend to channel resources to research and development of renewable energy and some more greener fields.

2 Theoretical perspectives

2.1 Market theory and environmental entrepreneurship

2.1.1. Market failure.

The theory of market was put forward more than 120 years, which provided the basis for most modern economic reasoning. Inevitably, market failure broadly inherently exists in most conditions of insufficient markets. From the view of a welfare economist, market failure can be translated into the concept of “markets fail to implement all the gains that can be achieved through trade” [6]. If some severe market failures are not regulated, long-term sustainable economic growth will be hard to achieve. The field of environmental economics is mainly based on the theory of market failure, which reveals how the rich types of market failure cause damage to the environment. The adaptability of various environmental assets or natural resources to market allocation decreases, climate change caused by greenhouse gas emissions and pollution of other traditional resources lead to long-term loss of global market benefits and reduced environmental sustainability.

The environmental economics approach to climate change indicates that eliminating or correcting market failures increases the efficiency of markets by shrinking pollution impacts [7]. For instance, given that the manufacturers are requested to internalize the costs of many kinds of pollution, their mindset of making decision will be altered and the production function tends to be different toward minimizing environment-related detriments. Thus, environmental economists are primarily concerned with ways to eliminate market failures, as they consider that this may lessen environmental degradation and improve ecological sustainability. As a matter of fact, environmental relevant market failures deserve exclusive attention for that environmental resources are susceptible to overuse and abuse [8]. A series of problems are triggered by environment-related market failure because those problems reduce the sustainability of economic systems and make the degradation of natural assets irreplaceable to create future economic value [9].

2.1.2. Opportunity

Similarly, huge amounts of research about entrepreneurship highlight the important meaning of market failure. Several studies have revealed that the opportunities for entrepreneurial behavior and economic profits is implied in imperfectly competitive markets. For example, Rebenstein's theory of X-efficiency proposed that market gaps and imperfections that deviate from the ideal state of perfect competition and relates the expected amount of entrepreneurial activity to the amount that deviates from the ideal state of perfect competition [10]. Apart from that, Kirzner talks about market errors and inefficiencies are attributive factors to dynamic market processes and the general ignorance of market participants [11]. Penrose supposes that “interstices in the economy” are generated by transformations inherent in every growing economy [12].

Therefore, in order to pursue long-run benefit, more and more entrepreneurs started to realize the role of environmental entrepreneurship in making sustainable profit.

Simultaneously, researchers noticed that green entrepreneurial activities are potential candidates in resolving environmentally concerned market failures. Anderson and Leal illustrate a free-market method to environmental problems and stress the role of entrepreneurs in exploring the solutions for environmental issues [13]. Buchanan and Faith proposed that entrepreneurs—as a great contributor in internalizing externalities, can be considered to be an eligible alternative to the solutions of market failure and policy making [7]. Coase describes how individual lighthouse keepers can solve the public good problem exists in the providing lighthouse services by acquiring the title to collect service fees at nearby ports [14]. Finally, Dean and McMullen illuminates the obstruction of the way that entrepreneurial actions affect environmental market failure by classifying the reaction mechanisms into five categories and giving basic explanation of each category [15]. This theory is suggested to be the foundation of typology in entrepreneurial opportunity in early times.

2.2 Market theory and environmental entrepreneurship

Since 2015, the sustainable development goals (SDGs) were proposed by the United Nations (UN), a great deal of discussions and debates have been swirled around the topic. Therefore, the transition from non-renewable to renewable sources might be an important way to reach sustainable economic growth rates and address environmental concerns. More importantly, factors such as the hidden costs of non-renewable energy, energy security issues for energy importing countries, the high volatility and extinction risk of traditional energy prices, and government commitments to reduce carbon emissions make this transition inevitable for most countries.

Green entrepreneurs are individuals who conduct business on the basis of their own understanding of green values and green principles, who sell green products or services that create extra profits to have a huge positive effect on the society and natural environment. Their business action may also have the potential to scale up, thereby contributing to the green transition of the whole industry in which they operate. In order to achieve Sustainable development Goals and achieve long-term green economic growth, energy consumption is considered to be the most powerful driver of economic growth. In the past development model, economic activities were carried out with high energy expenditure, particularly fossil energy. However, with the introduction of renewable energy, the consumption of energy will be largely reduced after a long adjustment. Literatures shed light on the relationship between clean energy and green growth, and also stressed the significance of promoting clean energy adoption, which means that green entrepreneurs' businesses have the potential to scale up, thereby contributing to the sustainable transformation of the entire industry in which they operate. They can be seen as agents of change and drivers of sustainability and social change.

2.3 Innovation created by green entrepreneurs

Currently, green entrepreneurs play an important role for economic development on account of their contribution in creating new jobs by generating technological innova-

tions in the market and responding to the need for social change. Also, they can be very hands-on and relevant to the development of the business, because they back environmental values and are socially conscious prior to the profitable perspective of business activities. In other words, green entrepreneurs steer their businesses down the way of adopting clean and green technologies, reducing environmental burdens without hampering the growth of the green economy [16].

And there are observations made by researchers that entrepreneurship promotes the green infrastructure and acts very importantly in the green transition in each economy [17]. According to OECD, green SMEs—as a part of green entrepreneurs, are representative in contributing to protecting natural environment, slowing down the rate of climate change, and preserving biodiversity by releasing products, services and business practices, SMEs can be: eco-innovators and eco-entrepreneurs, who maintain the traditional entrepreneurial attitude of pursuing profits, while eco-adopters only envision consistency of green laws and policies [18]. Most SMEs carrying out entrepreneurial actions with environmental context are definitely eco-innovators, a study using statistics collected from a large group of SMEs shows that there are a large proportion of their environmental action overlapped compared with the action of conducted by innovative SMEs [19].

Eco-innovation SMEs appear to be the most important category of green entrepreneurs to achieve the SDGS, as literatures investigated the determinants of eco-innovation in three forms: eco-organizational innovation, eco-product innovation or eco-process innovation. Among the most frequently mentioned factors affecting eco-innovation, it is necessary to underline: the elements of internal, including the enterprise's age, size, activity sector, industry life cycle stage, active management, the elements of external, including demand, competition, other market characteristics and environmental policies [20]. Analysis shows that the competitive pressure for adopting eco-innovation is a direction of entrepreneurs' behavior [21].

2.4 Shift of investment orientation

To solve the climate problem, it is inevitable for every single economy to finish the shift of investment, more capital and fund are needed for sustainable areas, the projects using traditional energy and cause a mass of CO₂ emission should be replaced by the production activities adopting renewable source of energy.

Studies have shown that there is a connection between the reduction of CO₂ levels and green investment, the change of investment orientation plays an important role in achieving green growth [22]. On a macro level, green investment refers to investment that are not only essential for environmental protection, but also includes effective measures to reduce carbon dioxide. The literature shows that with the emergence of environmental entrepreneurship, the direction of investment has partially shifted towards the participation of multiple environmentally friendly regions with the support of the government. Wind power, for example, was found in previous studies analyzing investments in renewable energy. Wind power activities, which contribute to the decarbonization of electricity through low-risk, proven technologies, initially received significant policy support while allowing power companies to leverage some of their

existing capabilities and experience [23]. Renewable energy investment raised continuously in recent years through the rise of environmental entrepreneurship.

Based on other literature, previous studies have also found that investments are responsible and in line with environmental ethics, like green energy, carbon reduction, green technology). The research shows that green investment plays a significant role in financial performance and sustainable performance [24]. The reason is that the cost of disclosing green investments is lower than for enterprises without environmental performance disclosure.

3 Discussion

Working closely with the literatures concerned, this research has shown that multiple dimensions of the impact of environmental entrepreneurship on green economic growth, at least in terms of the usual conception, are in effect furthered through the normal pursuit of sustainable development. Although it is impossible to generalize that environmental entrepreneurship is the most important driver of green economic growth, the role of environmental entrepreneurship on promoting sustainable growth is irreplicable. However, there are also some potential questions discovered during the investigation need to be settled or provided with solutions. It is clear that the green entrepreneurship provides many ways and directions of transformation and upgrading. However, the entrepreneurs who engaged in the environment-friendly production markets still take up a small proportion compared with the wise traditional industry. It is also the case in even in the early representative region of green entrepreneurship. In Europe, there are 25 million SMEs, which generate more than half of Europe's GDP, offer over 70% jobs from all walks of lives, and over 50% carry out innovative activities [25]. However, going green and digitizing seems to be much more difficult for SMEs than for large enterprises. As a result, only a quarter of SMEs offer green products or services and only less than one in five of them choose to use digital technologies when conducting business activities. Though a useful boost to environmental protection and a creation of new economic growth point, the driver force is not enough for the perpetual sustainable development.

Another reason for the underdevelopment of environmental entrepreneurship around the world is that in emerging countries, the policymakers and government are not eligible in promulgating policies and enacting regulations. There is evidence that entrepreneurs in emerging countries are not yet ready to take the risk of investing in green businesses, which also led to a shrinking role for environmental entrepreneurship. The definition of SMEs is ambiguous in some countries, and there is a lack of measures to promote SMEs' access to professional advice, targeted finance and the single market. There is a great need of government and organization support such as: environmental legislations, prices, green procurement and eco-labelling [3]. Therefore, there is plenty more work to be done to understand how best to settle these problems, making SMEs and the enterprises operated by green entrepreneurs a better place to align with sustainability imperatives more closely.

4 Conclusion

This research has investigated the impact of environmental entrepreneurship on green growth, and discussed 5 dimensions of the influences that green entrepreneurial action has caused according to the previous literatures. The findings show that green entrepreneurs' business action indeed regulated the market failure of industrial production in early stages. It can also be seen that environmental entrepreneurship guides the green transition in many countries, and green entrepreneurs have the potential to scale up their businesses, thereby contributing to the sustainable transformation of the entire industries in which they operate. Moreover, with the adoption of renewable green technologies brought by environment-friendly entrepreneurial activities, the burden on the environment is prone to be reduced without slowing down the rate of green economic growth. At last, evidences suggest that environmental entrepreneurship has a positive guiding effect on green investment in many ways, such as adding green products to the market and boosting green consumptions. Despite the environmental entrepreneurship in promoting economic growth and promote the sustainable development of green aspects there are still many deficiencies and needs to be perfect, potential problem calls for the joint efforts of government and the social various aspects to solve and improve, environmental entrepreneurship is still a potential candidate to solve the problem of global warming and an important driving force of protecting ecological environment.

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