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Entrepreneurship and environment

Masoud Ramezani Vajargah[1], Mehdi Farzpourmachiani[2], Mehrdad Fojlaley[3], Snjezana Baroness Rajacic[4]

[1]PhD. in Biology, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

[2]Academician of the European Academy of Sciences, Assistant Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

[3]Academician of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

[4]Academician & President of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

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Abstract

This research emphasizes the key role of entrepreneurship in facing environmental crises caused by market inefficiencies.
By reviewing the literature related to environmental economics and entrepreneurship, this paper shows that market failures in the field of environment are not only a threat to the sustainability of the planet, but also create unique opportunities for innovation and sustainable businesses.

Entrepreneurs by identifying and exploiting these opportunities, can develop new products, services and business models that both respond to economic needs and help preserve the environment.

The concepts of sustainable and environmental entrepreneurship have been examined in this research and it has been shown how entrepreneurs can contribute to sustainable development by creating common economic, social and environmental values.

Finally, this article presents a comprehensive theoretical framework.
It shows how entrepreneurship can act as a driver of innovation and economic growth in other industries beyond the environment.

This framework can be used as a useful tool for researchers and policy makers to develop policies to support sustainable entrepreneurship.

Keywords: entrepreneurship, environment, market failure, sustainability, innovation, environmental economy, sustainable entrepreneurship

Introduction

The traditional theory about environmental and welfare economics is largely based on the conclusion that market failures in the economic system not only hinder entrepreneurial activity in solving environmental problems, but also provide an incentive for environmentally destructive entrepreneurial behavior (Dorfman, 1993; Pigou, 1932; Tietenberg, 2000; Bator, 1958).

In particular, this literature states that due to the unique characteristics of many environmental resources, there are certain barriers to their efficient allocation in the market system, and as a result, entrepreneurial activities do not protect valuable environmental resources (Dorfman, 1993).

From a practical point of view, this argument has led to policies that focus on regulatory intervention as the main strategy to deal with environment-related market failures and do not provide sufficient knowledge about the tools that entrepreneurs can use to solve environmental challenges. (Pigou, 1932; Dorfman, 1993).

Unfortunately, the entrepreneurship literature has not yet addressed this issue sufficiently. Although the entrepreneurship literature directly examines market exploitation, its inefficiencies and failures (Leibenstein, 1968; Kirzner, 1974, 1985; Shane & Venkataraman, 2000; Dean & McMullen, 2002; Eckhardt & Shane, 2003), more needs to be done on this topic.

Consider how entrepreneurs can overcome market failures related to environmental issues and how exploiting these opportunities may reduce environmental degradation. This research examines the key role of entrepreneurship in dealing with environmental challenges caused by market failures such as externalities, deals with asymmetric information and shared resources.

By complementing the theory of environmental economics and well-being with the entrepreneurship literature, this research shows that by identifying the opportunities hidden in these failures, entrepreneurs can create innovative products, services, and business models that both respond to economic needs and help preserve the environment. do Focusing on the concepts of sustainable and environmental entrepreneurship, this research seeks to provide a framework to better understand how entrepreneurs use tools such as social investment and inter-sectoral collaborations to create shared economic, social and environmental values. Finally, this research shows that entrepreneurship can act as a driving force to achieve sustainable development and create a circular economy.

Such a combination of entrepreneurship literature and environmental economics makes important contributions to the field of entrepreneurship.

First, it shows the presence of entrepreneurial opportunities in the failure of markets related to the environment and matches those opportunities with the amount of environmental problems or at least the amount of lost economic value due to environmental degradation.

Second, it provides specific knowledge about the means by which entrepreneurs overcome the problems of market failure related to the environment and are therefore able to exploit the economic opportunities that present themselves.

Third, understanding the role that market failure plays in relation to the environment provides a theory of sustainable entrepreneurship that shows the role that entrepreneurs can play in creating a more sustainable and social economy. Fourth, it shows the less certain but more active role of entrepreneurs in the development of economic institutions, which is necessary to overcome market failures.

In this regard, our theoretical analysis suggests that entrepreneurial activities are useful in stimulating the development of economic institutions necessary for markets to function, and that limited government intervention may be inferior to symbiotic actions that create property legal systems, or otherwise enable markets for natural resources.

Perhaps most importantly, the application of environmental economics literature to entrepreneurship expands our understanding of the field of entrepreneurship. Since the Austrian perspective focused exclusively on widespread ignorance as a market barrier that jeopardized opportunities, the Austrian perspective limited the concepts of entrepreneurship to individuals and organizations that absorb opportunities through superior awareness.

They did our market failure perspective extends the Austrian perspective by showing additional market barriers that create additional opportunities and additional entrepreneurial tools to exploit them. At the broadest level, our approach suggests that market failures and sea defects arise from opportunities, and an understanding of the scope of such failures suggests that the literature on entrepreneurial opportunities and activities go beyond those identified.
In the Austrian perspective. At a level specific to environmental issues, the market failure perspective on entrepreneurship indicates that environmental problems do not originate from the natural tendency of humans to abuse the environment, but rather from insufficient understanding of entrepreneurship. Someone who cannot recognize the effectiveness of the entrepreneurial process in developing markets for environmental resources and preserve its value for the present and future generations.

We begin our analysis with the perspective of market theory, the concept of market failure, and the role that market failure plays in environmental degradation. We then examine developments in the entrepreneurship literature that parallel some of this thinking and combine it with market failure theory to arrive at a concept of environmentally sustainable entrepreneurship. Using five categories of market failure that consistently appear in the literature, we discuss the transaction barriers that create market failure and provide opportunities for entrepreneurial activity.

We examine the entrepreneurial actions necessary to overcome these barriers and conclude the paper with applications of this theory.

Theoretical expansion

Market theory and market failure

Market theory emerged more than 120 years ago with the publication of Elements of Pure Economics by Leon Walras (1877), which formed the basis of most modern economic arguments in the form of the general equilibrium model. A mathematical model that allocates resources or goods among all consumption and production units in the economy. The development of the example that culminated with the Arrow-Debreu model (1954) and Debreu's theory of value (1959) showed that under certain market conditions, by directing resources to the highest value used, it leads to the efficient allocation of goods and services. These general equilibrium mathematical models imply that both the individual market and several related markets can produce a Pareto efficient equilibrium (Arrow and Debreu, 1954) or Pareto efficiency.

A market state in which "no redistribution of goods or productive resources can improve one's position without worsening another" (Arrow and Debreu, 1954: 265). Pareto efficiency is largely regarded as the yardstick by which the efficiency of markets is judged, and markets that define a set of assumptions have been mathematically proven to perform as expected.

Furthermore, Pareto efficiency often equates to a state of perfect competition in which prices equal average total costs, and thus economic profit, or rent (the profit on all costs including the risk-related profit on capital), does not exist. (Scherer and Ross, 1990). In practice, perfect competition, if achieved, is considered an ideal state. Conceptually, this means that the ideal state of Pareto efficiency cannot be achieved either (Amirzadeh Vajargah et al., 2024).

Market failure and environmental destruction

Drawing largely on market failure theory, the field of environmental economics focuses on how different types of market failure cause environmental harm (Cropper and Oates, 1992; Dorfman, 1993). Environmental economics looks at pollution as an economic problem. Many environmental assets or natural resources (such as the atmosphere) have characteristics that can make them less prone to market allocation (Dorfman, 1993).

Consequently, air is a poor economic commodity due to its ephemeral and invisible nature (Dorfman, 1993), and climate change caused by greenhouse gas emissions provides a particular illustration of this problem. In a real sense, billions of people around the world are involved in climate change on a daily basis, which is due to the effects of greenhouse gases caused by carbon dioxide emissions (Oreskes, 2004).

From burning manure for cooking to driving cars, the activities of people around the world produce carbon dioxide in the atmosphere. Although people enjoy the benefits of these activities (hot food, easier travel from point A to point B), they bear only a percentage of these costs (the effects of climate change on communities).

In such cases, the nature of the atmosphere has been the market barrier, to ensure accountability for the decline in environmental sustainability. And thus it leads to environmental degradation. As effects such as pollution (its effects on surface water), logging (its effects on forest regeneration), overfishing (its effects on fisheries) are repeated for valuable environmental resources, the market process cannot guarantee the sustainability of natural assets. And the planet's ability to provide it for future generations decreases (Dorfman, 1993, Boulding, 1966, Ehrlich, 1968, Schmidheiny, 1992, United Nations, 1987, 1999, 2004, World Resources Organization, 2004).

Market failure and entrepreneurial opportunity

Considering these and other issues of opportunity resources, Eckhardt and Shane (2003) have distinguished two important issues in the literature. The first one focuses on external shocks that change either demand (i.e. tastes and preferences) or supply (i.e. new product or technological process) of the market.

The resulting changes in market type create opportunities for entrepreneurial activity in the form of Penrose (1963) gaps or Lebenstein (1979) gaps. In contrast, the second issue focuses on the asymmetry in the awareness of these market changes due to individual differences such as knowledge (Hayek, 1945) or consciousness (Kirzner, 1973, 1985).

In line with a number of prominent Austrian theories of entrepreneurship (eg Kirzner, 1979), the second argument explains the existence of opportunities and potential superior profits in the form of ignorance of market conditions.
The theoretical problem with the external panic approach is that, without a barrier (i.e. widespread disregard) for immediate exploitation of these loopholes, they exist only momentarily and do not lead to superior profitability for those who discover them. (Rumelt, 1987, Shane & Venkataraman, 2000).

Therefore, a complete theory of the nature of entrepreneurial opportunities must include considerations of barriers to the rapid and extensive exploitation of opportunities that arise from external shocks. To date, discussions on the nature of such barriers have been very limited in the entrepreneurship literature. In most cases, authors have followed Kirzner's approach and focused primarily on information asymmetry in the producer, which is more about the nature of the demand or the supply means (Sarasythy et al. 2003).

This is where environmental and welfare economics and market failure theory can provide insight beyond what Kirzner (1997) has provided, as well as Austrian-based approaches. (Eckhardt and Shane, 2003, Shane and Venkataraman, 2000).

Like the Austrian school, environmental economists believe that the economic system is in equilibrium. However, while the Austrian view sees this equilibrium as the natural order of things that is sometimes modified by economic agents of personal interest, environmental economists tend to focus on situations where market failure despite the potential detection they are insisted upon by those who wish to correct it. It is argued that the persistence of the market failure situation is a result of the obstacles that hinder the exploitation of opportunities.

Market failure, entrepreneurial opportunity, and environmental and sustainable entrepreneurship

The integration of market failure literature from economics with discussions about opportunities in market imperfections and failure from entrepreneurship literature implies the concept of environmental and sustainable entrepreneurship. While environmental economics holds that environmental degradation stems from market failure, the entrepreneurship literature holds that opportunities are linked to market failure, the logical conclusion is that market failure related to the environment represents Opportunities are based on simultaneously achieving profitability while economic behavior reduces environmental degradation.

In other words, some of the market failures that arise from environmental damage present entrepreneurial opportunities whose exploitation brings profit and improvement in social welfare. Assuming that environmental market failure represents a "problem" that people are willing to pay to solve if it has an affordable solution, there is an opportunity for forward-thinking entrepreneurs.
In addition, by reducing market failure, entrepreneurial activity leads to environmental sustainability and social well-being by increasing market efficiency and helps in reducing adverse environmental degradation from an economic point of view. Therefore, based on the concept of Shane and Venkataraman (2000) about entrepreneurship, we have presented the following definitions:

Definition 1A: Environmental entrepreneurship is defined as: the process of discovering, evaluating and exploiting economic opportunities that exist in an environmentally related market failure.

Definition 1B: Sustainable entrepreneurship is defined as: the process of discovering, evaluating, and exploiting economic opportunities that exist in market failures that reduce sustainability, such as those related to the environment.
Therefore, environmental entrepreneurship is presented as a subset of the broader concept of sustainable entrepreneurship, which focuses on the clarity of market failure that leads to environmental degradation. Furthermore, the specification of these definitions allows us to propose entrepreneurial activity that logically follows from the existence of environmental entrepreneurship. Accordingly:

Proposition 1: Eco-entrepreneurs, in their quest to achieve economic returns, have increased ecological sustainability by ameliorating the market failure associated with the environment**.**
The role of entrepreneurs in solving this market failure related to the environment and society's movement towards sustainability has not been investigated. Although Anderson and Leal (1997, 2001) have promoted a free market approach to environmental issues and examined the role of the entrepreneur in solving environmental problems, our research represents another theoretical work that seeks to explain how entrepreneurs affect environmental sustainability. Although they do not directly examine environmental issues, the authors examine the way in which entrepreneurs overcome market failure. For example,

Buchanan and Faith (1981) have explored the role of entrepreneurs in internalizing spillovers as an alternative to political solutions to market failure.

Coase (1974) described how private lighthouse keepers solved the public goods problems associated with providing lighthouse services by charging a fee (from port authorities) to pay for their services in nearby ports. Finally, North and Thomas (1970) and Demsetz (1970) examine how entrepreneurs encourage the development of property rights in the system for personal gain and in the process overcome market failure. However, with the exception of Anderson and Leal (1997, 2001), none of these theoretical explanations directly address environmental issues.

Market failure theory not only provides insight into the concept of sustainable entrepreneurship, but also sheds light on the obstacles that eco-entrepreneurs must overcome and thus indicates where to look for opportunities for sustainable entrepreneurship. Historically, environmental and welfare economics identified five categories of market failures, including public goods, spillover effects, monopoly power, inappropriate government intervention, and imperfect information, which were previously recognized as the basis of entrepreneurial opportunities. (Dean and McMullan, 2002).

Although seemingly separate, each category represents the same theoretical distinction between private and social costs. However, given the unique combination of market conditions that led to its emergence, each category represents a slight variation of this difference (Coase, 1960; Randall, 1993).

Below, we use research on market failure to examine the nature of opportunities for sustainable entrepreneurship using the five categories of market failure mentioned earlier, which can be seen as the environmental degradation difference between private and social costs. to be With research devoted to identifying and describing the market conditions that are responsible for the emergence of multiple categories of market failure, we seek to provide opportunities to better understand the structural barriers that lead to each discrepancy, as well as the methods used in Those entrepreneurs overcome these obstacles by achieving their personal profit while simultaneously improving market efficiency and ecology .
New ownership rights have helped preserve the fishery while increasing the economic value of the fishery to the local tourism industry.

Coasian entrepreneurs can enable the private provision of public goods through technological strategies that seek to transform goods from non-excludable to excludable (Goldin, 1977).

In other words, technology can help preserve property rights by removing beneficiaries from the use of public goods by allowing the enforcement of property rights and ensuring their provision (Furubton and Pejovich, 1972).

For example, barbed wire allows large landowners in the western United States to cost-effectively prevent ranchers from encroaching on their land and grazing cattle without paying for or considering the future productivity of their property. Therefore, we suggest:

Definition 2. Coasian entrepreneurship is defined as: the process of creating credence for a public good through the development and enforcement of property rights by economic actors motivated by profit.
The specification of this definition allows us to propose entrepreneurial activity that follows the logical form of existence of the Coasian entrepreneurial process. Accordingly:

Proposition 2A. Public goods indicate an opportunity for entrepreneurial activity. When entrepreneurs are able to expand the credibility of their products.

Proposal 2B. Eco-entrepreneurs have reduced environmental degradation. And by expanding the citation for public environmental resources, they received economic value.

Definition 3. Organizational entrepreneurship as used in the analysis is defined as follows: the process of reducing transaction costs through the development of economic institutions by economic activities with profit motive.
The specification of this definition allows us to define entrepreneurial activity in a way that logically follows the existence of the institutional entrepreneurial process, based on this:

Proposal 3A. Side effects indicate opportunities for entrepreneurial activity when entrepreneurs can reduce interaction costs through the development of economic institutions.

Proposal 3B. Environmental entrepreneurship reduces environmental degradation. And it achieves economic value by reducing the interaction costs associated with environmentally friendly side effects.

Definition 4. Appropriate market entrepreneurship is defined as: the process of breaking the monopoly power (or, in general, market power), of existing companies by economic actors motivated by profit.
The specification of this definition allows us to propose an entrepreneurial activity that logically follows from the existence of an entrepreneurial process suitable for the market.

Proposition 4A. Monopoly power represents the opportunities for entrepreneurial activity when entrepreneurs can overcome the market power of incumbent firms.

Proposal 4B. Eco-entrepreneurs reduce environmental degradation. And they capture the economic value by overcoming the market power of the current companies (Karimi Masouleh et al., 2024).

Inappropriate government intervention

Government intervention can also be the cause of market failure and has negative effects on environmental resources and can be a source of opportunity for environmental entrepreneurs. Government intervention is considered inappropriate when it leads to Pareto inefficiency in the economic system. The most common environmental examples are subsidies that support the extraction of natural resources. For example, timber production has been subsidized through low rents in the US government and the construction of roads

in federal forests (Stroup and Baden, 1973). Oil extraction is similarly subsidized through tax benefits and regulatory exemptions (Economist, 2001).

Subsidies for oil extraction lead to negative environmental impacts, including increased climate change and regional air pollution. Research argues that inappropriate government intervention originates from politicians and legislators who pursue their own political or economic interests instead of the public interest, or implement programs that do not incur direct costs (Cole, 2000).

Opportunities for entrepreneurship arise from reforms of government subsidies, taxation, and other economic issues through political strategies. Since the subsidies of one industry support that industry at the expense of other industries, changes in the subsidy structure create economic opportunities.

Therefore, we refer to entrepreneurs who are motivated by incentives for subsidies or other government structures in search of their own interests, such as political entrepreneurs. Environmental entrepreneurs can simultaneously create economic opportunities and reduce environmental degradation by reducing subsidies and incentives that lead to environmental damage. In particular, when subsidies or government structures support an industry in the destruction of environmental resources, environmental action in reducing subsidies can reduce environmental degradation and create economic opportunities in alternative industries or technologies.

For example, reducing coal industry subsidies is likely to increase the business prospects for renewable energy investments.
Similarly, eco-entrepreneurs can employ political strategies in incentivizing environmentally beneficial industries or technologies.

Because of the significant externalities associated with such activities, entrepreneurs can encourage government institutions to intervene in society's interests. This typically requires that entrepreneurs not only justify why changes in subsidy policies are socially desirable, but also explain how these changes benefit politicians' self-interest. For example, the use of automobiles creates significant side effects both in terms of emissions on the environment and human health.

This provides an opportunity for entrepreneurs in industries that support public transportation and its relatively low emissions i.e., building buses or trains to apply to the government for subsidies that lead to environmental improvements, increased bus-related jobs, and more. Or it becomes a train and provides necessary and affordable transportation for the poor. Many governments are looking to follow up these subsidies by applying a petroleum tax, which aims to reduce the use of cars and their negative side effects. Accordingly, we suggest:

Definition 5. Political entrepreneurship is defined as: the process of motivating changes in subsidies, taxes or other government incentive structures with profit-seeking economic actors (Aliasghari et al., 2024).

The specification of this definition allows us to propose entrepreneurial activity that logically follows from the existence of a political entrepreneurial process. Accordingly:

Proposition 5A. Government intervention represents opportunities for entrepreneurial activity when entrepreneurs can stimulate the incentive for subsidies, taxes and other government incentive structures.

Proposition 5B. Eco-entrepreneurs reduce environmental degradation. And by changing (through political conflict) the structure of subsidies, taxes and other incentives of the government, they reduce the economic value.

Incomplete information

Conditions of imperfect information may provide significant opportunities for sustainable entrepreneurship. Competitive equilibrium models usually assume that information is complete (Scherer and Ross, 1990). Complete information indicates that sellers and buyers have all possible information (Black, 1997).

This includes the nature of current markets and Ati and sources and production methods. In reality, knowledge is never perfect and incomplete knowledge leads to market failure as described in this article.

We divide this nature of incomplete information into two general categories. The first one refers to the knowledge that producers have about supply and demand conditions. The second one refers to the knowledge that buyers have about the nature of the features of the product or service.

We examine the nature of each of these in turn, the manner in which they can lead to environmental degradation, and discuss the opportunities they present to environmental entrepreneurs.

Producer-oriented information entrepreneurship

Austrian economists and others argue that information is not evenly distributed across potential producers in the economy. In particular, information on the nature of demand conditions (for example, customer needs and preferences) or supply capabilities (for example, product technologies, process technologies and input resources) is not available for all entities. Changes in technology, social tastes, and demographics are changing the competitive landscape, constantly giving people new information to discover and interpret. These textual changes, along with different interpretations, have created market gaps (Leibenstein, 1968, 1979) and imperfections that persist until they are not understood by the astute entrepreneur. This lack of information creates entrepreneurial opportunities because unmet demand conditions or unused production possibilities are not immediately lost to entrepreneurial activity. We refer to the process of exploiting the opportunity.

Which originates from incomplete producer information on demand or supply conditions as producer-oriented information entrepreneurship. Since this process is parallel to Austrian concepts, we also refer to Austrian entrepreneurship (Kirzner, 1973, 1979, 1997).

Imperfect information among producers and potential producers can lead to environmental degradation when environmentally superior means of supply are unknown or when markets for environmentally superior products are undiscovered. (See Sarasvathy et al. 2003 for a discussion of the role of unexplored demand and supply as entrepreneurial tools). Opportunities exist for eco-entrepreneurs to discover and implement new product or process technologies or other means of supply that are less environmentally vulnerable.

Many manufacturers have discovered that implementing clean technologies can lead to significant savings and advantages over competitors. For example, Depot has reduced carbon emissions by 66% and experienced significant energy efficiency benefits in the process. Wind energy companies are currently experiencing rapid growth as technology has lowered production costs and government taxes have provided additional incentives. Badpa was formed as a venture from Enron Wind (now GE Wind) to invest in opportunities in wind turbine manufacturing and wind project development.

There are also opportunities for environmental entrepreneurs to discover customers who have discovered superior environmental products and services the fringes of environmental markets (Reinhardt, 1999). Although the market for products distinguished by environmental attributes has been small as a percentage of overall demand, the absolute size of such consumers is significant and subject to change over time. A number of companies are already capitalizing on the demand for clean energy from customers who are concerned about the environmental degradation caused by traditional methods of electricity generation. The recent launch of the Renewable Energy Choice Wind Energy Market lends credibility to this altruistic market segment without producing a kilowatt of electricity. The 26-year-old founder thought he could combine door-to-door sales tactics from the bookstore industry with green energy marketing. The result is increased revenue for wind power developers and encouragement of renewable energy projects. Therefore, we suggest:

Definition 6. Producer-oriented (or Austrian) information entrepreneurship is defined as: the process of exploiting opportunities that arise from discovering knowledge about market supply or demand conditions.
The specification of this definition allows us to propose the entrepreneurial activity that logically follows from the existence of a producer-oriented information entrepreneurship process. Accordingly:

Proposition 6A. Imperfect information about supply and demand conditions presents opportunities for entrepreneurial activity when entrepreneurs can discover the nature of supply and demand conditions that are unknown to other potential economic actors.

Proposition 6B. Environmental entrepreneurs reduce environmental degradation. and reduce economic value by discovering production methods that reduce environmental

degradation or with superior environmental products at the margins of the environmentally disadvantaged market.

Discussion and conclusion

By integrating literature from environmental and welfare economics with entrepreneurship literature, we have expressed a concept of sustainable entrepreneurship and shown how entrepreneurial action can overcome obstacles to the efficient functioning of markets. To lead to a more efficient use of environmental and natural resources and the development of a sustainable ecological economy. Environmental entrepreneurs mitigate market failure related to the environment by discovering, evaluating, and exploiting the opportunities presented by market failure.
This concept is based on a number of arguments that may usually be summarized as follows:
(1) Market failure represents a source of entrepreneurial opportunity. That is, unmet market demand exists as a result of differences between private and social costs.
(2) Due to the natural characteristics of environmental resources, they are particularly vulnerable to market failure and degradation. As a result, they represent a significant source of entrepreneurial opportunities.
(3) Since the exploitation of these opportunities requires the reduction of barriers to the efficient functioning of markets, entrepreneurial action to exploit market failures to move the market functions superior.
(4) Exploiting environmental market failure reduces environmental impacts and brings the market closer to sustainability.
(5) Finally, the categories of market failure discussed in the literature provide a basis from which to develop a better understanding of the nature of these barriers and the way in which entrepreneurial action may overcome these economic gains. Our analysis of several categories of market failure suggests that barriers to overcome include lack of sufficient property rights, high transaction costs, government monopoly or Pareto inefficiency, and incomplete information.

Eco-entrepreneurs who provide more efficient property rights for environmental resources benefit from the transfer of a public good to a private good or from reducing side effects. Those who reduce transaction costs related to a potential or existing market make it possible to obtain profits that exist due to externalities. Others may create opportunities for themselves by finding ways to reduce the legal protection of competing industries or firms. Finally, eco-entrepreneurs may find ways to retain information in a way that creates or expands the market or allows the entrepreneur to identify new markets or superior tools to serve them. In each of these cases, where obstacles to the functioning of market efficiency cause environmental degradation, the act of productivity has the property of reducing environmental damage and increasing ecological sustainability.
Our understanding of environmental entrepreneurship has similarities with the Austrian perspective on entrepreneurship (Shane and Venkataraman, 2000, Kirzner, 1973). Although exposed to the interpretation of individual activists, opportunities are assumed to exist objectively in the economic or social system. We also examine the market in steady states of equilibrium with constant changes from external shocks as discussed by Eckhardt and Shane (2003) and others. Although external shocks cause the market to even exceed equilibrium,

exploitation by entrepreneurs tends to push the system toward equilibrium. Finally, since we consider entrepreneurship as the process of exploiting market opportunities, we include both the formation of new organizations and the activities of existing organizations in our understanding.

Table 1: Market failure, environmental degradation, and opportunities for environmental entrepreneurship

Entrepreneurship category	Opportunity for environmental entrepreneurship	Concepts for environmental degradation	market barriers	Market failure category
Coasian entrepreneurship Institutional entrepreneurship Market takeover entrepreneurship Political entrepreneurship Information entrepreneurship A. Producer-oriented information entrepreneurship (Austria) B. Customer-centric	Development of property rights to create exclusivity (that is, development of the right to harvest and market Montana caviar(Reducing transaction costs through the creation of economic institutions ie), Chicago's climate change (Breaking the monopolistic position of required companies, i.e). the PURPA Act, which requires the purchase of power from small-scale electricity producers and encourages the entrepreneurial development of renewable energy Changing the nature of government subsidies and	Tragedy of common cases (objective reduction of international fisheries Lack of market equilibrium for environmental resources (i.e. harmful effects of pollutants) Combined effects: positive reduction output in the pollution industry, negative industry in the implementation of useful technologies and products (electrical applications). Inappropriate support for polluting intensive industries i.e.) subsidies for oil extraction/refining A. The superior environmental	Non-excludability of resources Expensive exchange costs Exclusive power: a. legal b. related to scale Public policy: subsidies and other structural incentives Asymmetry of information: A. In producers related to the nature of	General goods External effects Exclusive power Inappropriate government intervention Incomplete information

information entrepreneurship	other incentives through the political process (i.e. oil tax in Europe) A. A new eco-friendly tool for a supply or customer segment with environmental preferences B. Increasing customer information about the environmental characteristics of products and processes (i.e. LEEDS green building certification program)	tool from the environmental supply or market B. A lack of customer information about environmental impacts hinders expression of preferences	supply and demand B. Between manufacturers and customers related to product features	

Based on our analysis, such investigations should be based on the nature of the barriers to efficient market functioning because it is these barriers that allow opportunities to persist long enough to generate profits. For example, knowing that public goods arise from non-excludability creates more insight into these types of resources and strategies to equip a person to overcome these obstacles and exploit the opportunities they create.

Each type of entrepreneurship may present significant differences in processes, skills and competencies required, risks and consequences.
Therefore, by integrating ideas from institutional economics, our approach differs somewhat from the traditional Austrian approach (North and Thomas, 1970) and environmental and welfare economics.

First, we focus more on the ability of entrepreneurship to influence the social and economic system and through the organization and overcome the obstacles that create market failure.

Second, economic systems are largely evolutionary in terms of fundamental institutions. (Which includes property rights) that motivate social behavior and are always subject to change. But this is not always the case, this evolution tends to be consistent with social goals and private motivations, or differently, social and private costs are expressed. Therefore, at least in part as a result of entrepreneurial action, economic systems develop over time to

solve environmental and social problems. This shows an additional movement from the Austrian point of view.

For the most part, the Austrian perspective considers disequilibrium as a result of new or relatively new external shocks that are not immediately discovered by the alert entrepreneur. Our institutional perspective recognizes the importance of such exogenous changes and also emphasizes the fact that the economic system is continuously changing the set of institutions found to correct market failures.
This concept of environmental entrepreneurship and the role of entrepreneurial action in reducing market failure related to the environment also represents an alternative to the view of many scholars that market failure is an important case for government regulation.

Our position coincides with that of institutional economists who propose that market systems and the institutions that define them evolve over time in ways that can solve social problems. Therefore, it is a role that entrepreneurs can play in overcoming obstacles to the efficient functioning of markets and the clarity of environmental issues.

However, this approach requires intelligent cooperation and service to others in the field of government environmental activists. Rather than suggesting that the government plays a role in helping to solve environmental problems, our analysis suggests that the government plays an important role in creating appropriate institutions that reward environmentally friendly and entrepreneurial behavior, and that are compatible with environmental insults .
Therefore, the appropriate public policy is that property rights and other economic institutions for environmental and public resources in a way that ensures their proper management for future generations.

It also includes removing subsidies for environmentally vulnerable behavior and perhaps developing policies that support more sustainable ones. Accordingly, it appears that at least effective government policies include limited environmental regulations, especially those that directly recommend the use of certain technologies or limit emissions without the right to exchange emissions. Perhaps most importantly, the proposed concept of environmental entrepreneurship recognizes the role of profit-seeking entrepreneurs in motivating the development of property rights in a way that reduces environmental degradation. Finally, the view that entrepreneurs play a role in instigating changes in public policies and classifying those roles as entrepreneurial action is somewhat unique, but it does not conflict with the existing concepts of entrepreneurship.

To the extent that the exploitation of opportunities is considered as part of the entrepreneurial process (i.e. Shane and Venkatarman (2000) who defined entrepreneurship as the process of discovering, evaluating, and exploiting opportunities). The motivation of government action may be considered as entrepreneurial action.

Our intention is not to show that all entrepreneurial behavior leads to increased environmental well-being. Quite the opposite, entrepreneurial behavior in a system that prohibits environmental entrepreneurship as we understand it naturally tends toward environmental degradation and exploitation of natural resources.

Entrepreneurs who externalize costs due to public goods not protected or, worse, created by the government, environmental degradation differences between social and private costs will continue to contribute to the destruction of our ecological sustainability and ecology. Furthermore, the suggestion that entrepreneurs can help solve market failures does not imply that all market failures can be solved by entrepreneurial action or that all markets can work to the benefit of society or the environment. Instead, we want to show the possibility and behavior in which entrepreneurial action can reduce market failure and environmental degradation.
Based on this, we see our concept of sustainable entrepreneurship as a subset of the general concept of entrepreneurship and environmental entrepreneurship as a subset of the broader concept of sustainable entrepreneurship.

First, we identify that many entrepreneurial actions can actually increase market failure and lead to additional environmental degradation. While these actions may be considered as entrepreneurial cases, it is placed in the field of sustainable entrepreneurship. Examples of such market-destroying actions include attempts by entrepreneurs to monopolize industries or externalize costs by polluting waterways.

Second, since not all market failures are related to environmental resources, there is a set of opportunities to reduce market failures that are classified as sustainable entrepreneurship not related to the environment. In short, sustainable entrepreneurship represents a special class of entrepreneurship that, among other areas, refers to the opportunity presented in the failure of the market related to the environment.

In which exploitation of opportunities improves market failure and reduces environmental degradation. Nevertheless, the concept of sustainability also refers to issues such as inequality, poverty and disease. Although we choose to interpret the efficiency of the framework as it refers to the reduction of environmentally related differences between private and social costs, there is reason to believe that the proposed theoretical framework should provide theoretical insight into sustainability issues
.
As a result, we believe that understanding the role of entrepreneurs plays a role in moving the economy towards a sustainable environmental future.

By viewing economic systems as dynamic adaptability in the emergence of environmental challenges, we see that entrepreneurs play a role in breaking barriers to the efficient functioning of markets and reducing market failure that creates environmental degradation and sustainability. With smart public policy leadership that enables sustainable entrepreneurship, it appears that the innovative power of entrepreneurship can be harnessed to create a sustainable world. Considering the persistent challenges that the global environment is facing, we agree with the Economist's observation that the environment offers a significant opportunity for enterprise and invention.

And it suggests that it may in fact be time to both recognize the importance of sustainable entrepreneurship and empower entrepreneurs to achieve this vision.

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