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The Relationship between Green Innovation, Social Entrepreneurship, and Sustainable Development

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Abstract: Economic growth is one of the important objectives of economic policy due to the beneficial effects it has on employment and economic well-being. The work carried out in the last few decades has highlighted the roles that entrepreneurship and innovation play in promoting this objective. However, the environmental deterioration resulting from policies implemented to stimulate growth has led to considerations of other objectives that are more compatible with the defense of the environment, such as sustainable development. Therefore, it is important to determine the factors that stimulate them. This paper considers traditional and social entrepreneurship and innovations and green innovation. The effect of institutions as generators of legal and economic environments on both types of entrepreneurship is contemplated. On the other hand, considering the possibility of "bidirectional causality", the relationship between both types of entrepreneurship and institutions is also analyzed. This will allow us to design measures aimed at stimulating sustainable development. The objective of this paper is to analyze these relationships through two estimates: first, an analysis of the relationship between both types of entrepreneurship and innovations and sustainable development and second, the relationship between social and traditional entrepreneurship and institutions. In both cases, the path coefficient of each of them is compared with respect to the final objective, which would be useful when designing economic policies. Empirical analysis is carried out, producing an estimation of the structural equation modeling (SEM) model using the partial least squares (PLS) technique in the case of 20 Organization for Economic Co-operation and Development (OECD) countries.

Keywords: sustainable development; green innovation; social entrepreneurship; institutions

1. Introduction

An economic recession generally means less employment and huge social tensions, and its effects on the economic situation of countries have led to an interest in defining the variables that affect economic prosperity. In general terms, this economic prosperity has been considered in terms of economic growth due to its benefits for employment and social welfare, and it is one of the essential objectives that needs to be achieved by policy makers. For this reason, different analyses have been carried out to determine the factors that stimulate economic growth, including innovations [1–3], human capital [4,5], entrepreneurship [6–10], etc. As statistical information has expanded, the analyses have incorporated new countries and more qualitative variables in empirical studies. Of all the possible variables, the literature has especially focused on innovations and entrepreneurship, sometimes

including the role of institutions. In general terms, the existence of a direct relationship between the variables is pointed out.

The inclusion of sustainability opens the way for two radically opposite approaches, which Giampietro et al. [11] have called "Cornucopians" and the "Prophets of Doom" [12]. From the point of view of the first perspective, environmental restrictions would not be a problem for growth since technological progress can lead with them. This perspective has been considering innovation to play an outstanding role in terms of generating growth and prosperity in a country, as well as favoring business success and providing a competitive advantage for those companies that introduce innovations in their production processes. For this reason, several authors have considered innovation as one of the essential variables for increasing national prosperity. On the contrary, the second perspective states that natural limits and a lack of resources will entail the end of economic growth.

Increased interest in the environmental damage that is occurring in countries and not compromising the situation of future generations has led to rethinking the economic objective to pursue (economic growth) and, therefore, to determining the factors that can stimulate it (entrepreneurship and innovations from the perspective of this paper). This has meant the inclusion of environmental aspects in the analysis, so in spite of economic growth, sustainable development can be considered as the objective to achieve in order to avoid unsustainable business practices that have traditionally been carried out by switching them for other, non-damaging activities. Likewise, the role played by social entrepreneurship and green innovation is included in the analysis. Considering that green innovation involves all new processes, techniques, and products which consist of reducing or avoiding environmental damage [13,14], both variables could benefit sustainable development as an alternative (or complementary) to entrepreneurship and traditional innovations.

Therefore, from this new perspective, sustainable development becomes the essential objective to be achieved in order to satisfy present needs without compromising the situation of future generations. The measures designed by political decision-makers should be aimed at stimulating such sustainable development, and for this, as in the case of the analysis of economic growth, it is important to determine the factors that would further stimulate this objective. From the perspective pursued in this paper, two factors can be considered, following the trajectory of the works carried out in recent years regarding economic growth, entrepreneurship, and innovations but considering environmental aspects.

For this reason, in this paper, the traditional economic growth objective is changed by the sustainable development goal. In this sense, there are two variables that can be considered: innovations and entrepreneurship. Innovations involve making production processes more competitive and accessing new markets. They supposedly satisfy the present needs to a greater extent, but it is worth asking if they favor sustainable development. In this sense, the role that green innovation plays in stimulating this objective is incorporated. Therefore, it is relevant to determine the relationship between green innovation and sustainable development and compare it with that shown by traditional innovation with this objective, demonstrating which type of innovation would have the greatest effect on sustainable development.

Regarding the second variable—entrepreneurship—it is necessary to take into account not only the role played by the traditional entrepreneur (following the term used in Acs et al. [15]), but also that of the social entrepreneur. Thanks to entrepreneurship activity, resources are generated to satisfy the needs of economic agents. Both types of entrepreneurship would be interested in promoting sustainable development for differentiating their products and promoting their image among external stakeholders. As in the previous case, when designing the actions aimed at promoting sustainable development, it is important to determine the relationship between both types of entrepreneurship and the objective to be pursued in order to show which has a greater impact on sustainable development.

In both cases, innovations play an important role for entrepreneurs when developing their activity, so it is also important to analyze the relationship between them. In this case, not only traditional innovations but also green innovations can be used, in an effort to show stakeholders the benefits of not harming the environment or compromising the situation of future generations. Therefore, as in the

previous case, it is convenient to analyze the relationship between both innovations and the two types of entrepreneurship and determine the weight of each one.

Taking these relationships into account, a first estimation will be carried out in which the relationship between both types of entrepreneurship and innovations and sustainable development will be analyzed. To complete the analysis, institutions will be included as an additional variable, and their relationship with the two types of entrepreneurship considered in the analysis will be established. This will be conducted because, through these institutions, the legal and economic environment is generated in which traditional and social entrepreneurship carry out their activity, facilitating or harming, depending on the type of institution, the generation or expansion of said activity [16–20]. From this perspective, it will be possible to establish the effect that the institutions have on each of the two types of entrepreneurship considered and if the actions carried out have a greater influence on the activity of traditional or social entrepreneurship.

Due to the important role that institutions play, it is convenient to consider what some authors have called "bidirectional causality" between institutions and entrepreneurship [21,22]. From this perspective, it is considered that entrepreneurs, through the activities they carry out in the environment generated by institutions, create new opportunities and conditions that institutions must face. It is relevant to determine which activity of the two types of entrepreneurship considered has a greater effect on the institutions, since this would mean that the institutions could regulate and act taking into account, to a greater extent, the activity of said type of entrepreneur. For this reason, a second estimation will be made in which the relationship between both types of entrepreneurship and institutions will be considered.

The objective of this paper is to analyze the relation between both general and social entrepreneurship and traditional and green innovation on sustainable development by comparing their effects on the target variable and including the role of institutions and the bidirectional causality between institutions and both entrepreneurships in the analysis. The second section presents a theoretical analysis of the established relationships. The third section includes an empirical analysis in the case of 20 OECD countries, estimating the structural equation modeling (SEM) model using the partial least squares (PLS) technique in both estimations. Finally, the fourth section provides the conclusions of the paper.

2. Theoretical Aspects

Economic growth has been an important macroeconomic objective due to it being considered an essential means of development [23]. For this reason, different analyses have been performed in order to define the variables that can stimulate economic growth. One of the most important variables is innovation, since products are more competitive thanks to their contributions and companies can access new markets [24]. When fostering economic growth, market extension and innovations have a significant role [25]. Therefore, innovation is one of the most important factors in business activity, which, in turn, has positive direct and indirect effects on a country's economic growth [4,26,27].

Entrepreneurship is another of the variables that can stimulate economic growth. In this sense, there is a large body of literature analyzing the relation between entrepreneurship and economic growth pointing out a direct relation between both variables [6–8,10,28,29]. By virtue of entrepreneurs' activity, a greater amount of product is generated and employment increases, resulting in a greater demand that leads to greater economic growth.

The relationship between entrepreneurs and innovations must also be taken into account, since they are the ones that introduce innovations in the production process. For this reason, the literature has paid attention to the relation between innovation and entrepreneurship. Schumpeter [30,31] is one of the economists who have highlighted this relation, considering that entrepreneurship activity involves innovating during the introduction of a new product, organization, or process. The creation of new industries, which involves significant structural changes in the economy [32–34], is one of the most relevant results of this process. In the same way, Drucker [35] has highlighted this relation by

showing that innovation is at the heart of entrepreneurship activity and that, thanks to innovation, many entrepreneurs can develop their activity but will have to assume the inherent risk of incorporating new technology in the firm, taking into account the positive and negative effects of that choice [36].

On the other hand, institutions represent an additional variable that has been considered as a factor that stimulates economic growth. This is essentially due to the fact that, according to Acemoglu [37], institutions have to fulfill three characteristics to facilitate this task and have beneficial effects on economic growth. First, they must enforce the property rights for a broad section of society. Second, they must restrict the actions of some lobbyists and avoid actions that could damage property rights. Third, they must generate equal opportunities for broad segments of society so that a greater number of people can develop productive economic activities. One way to achieve the latter would be to facilitate access to a better formation of human capital.

Just as in the case of innovations, institutions also relate to entrepreneurs, since they provide them with appropriate incentives so that they can continue developing and expanding their activity [38–40]. It is in the special and economic environments created by institutions that entrepreneurs make their decisions and carry out their activity in. For all these reasons, studies that show the direct relationship between entrepreneurs, innovations, institutions, and economic growth have also been carried out [41,42].

Therefore, according to the studies carried out, it has been pointed out that institutions, innovations, and entrepreneurship are factors to consider when designing measures aimed at stimulating economic growth and, through this, generating beneficial effects on employment and social welfare.

In this context and in view of the environmental problems that have been caused by policies designed to generate greater growth, the need to incorporate the environmental problem into the analysis has been highlighted. This has led to the appearance of two antagonistic positions: the first considers that contemplating environmental restrictions would have no effect on growth, and the second, on the contrary, affirms that natural limits and a lack of resources will entail the end of economic growth [43–46].

In this context, a chain of concepts arises, and they incorporate the question of environmental sustainability into the design of measures in economic policy (objectives, economic actors, and instrumental variables). In this way, three variables can be considered: sustainable development as an alternative to the objective of economic growth, social entrepreneurship as complementary/an alternative to traditional entrepreneurship (following the term used in Acs et al. [15]), and green innovation as an alternative to innovations. The role of institutions and their effects on each of these variables must also be considered in order to complete this analysis, since, as has already been said, they establish the environment in which the activity will be carried out and they can encourage the use of procedures that are harmful to the environment, favor the activity of social entrepreneurs, etc.

Regarding sustainable development, this concept indicates the need to modify traditional unsustainable business practices to reduce environmental damage and its impact on society. The term "sustainable development" refers to the achievement of economic development that satisfies current needs without jeopardizing the situation of future generations [47].

Therefore, this concept assumes that non-renewable resources must be managed in an appropriate manner in order to ensure their viability and durability for future generations. According to the above, sustainable development focuses on ensuring that social and environmental objectives are equally considered as economic targets in the analysis. In this process, the entrepreneur plays an important role [48,49]. It is also considered that entrepreneurs, both social and traditional, will be interested in promoting the sustainable development objective, since environmental responsibility represents a business opportunity and could increase their income. This is because it allows them to access new markets, differentiate their products, sell green innovations, improve their image with regards to external stake holders, and reduce the cost of services and energy [50].

In terms of social entrepreneurship, there are different definitions for this term [51–54]. In a broad sense, it can be considered as a process that seeks out innovate solutions to solve social and

environmental problems [55,56], which basically involves the search for opportunities by entrepreneurs that allow them to adopt solutions in a continuous process of adaptation and learning [57,58]. The literature has pointed out two inherent aspects of social entrepreneurship considering this broad definition. First, its tendency to innovate and, second, its risk aversion [59–61].

Both types of entrepreneurship—social and traditional—positively relate to sustainable development. Additionally, both are interested in helping society progress in a sustainable way, since, among other issues, it allows them to differentiate their products and enter new markets, as indicated above. In this sense, it is interesting to know which of the two would have a more positive effect on sustainable development. Presumably, it would be sustainable entrepreneurship, since it would be more concerned with social and environmental issues than with profit achievement.

Another variable to be considered that has a positive effect on sustainable development is green innovation, which is considered a crucial driver of business competitiveness. In general terms, green innovation can be considered as new processes, techniques, and products aiming to reduce or avoid environmental damage [13,14]. Continuous environmental deterioration has led to considerations of innovation's role in achieving sustainable development, introducing the concept of "green innovation".

Recently, work analyzing the effects of green innovation on economic development has emerged [62–68]. According to Rennings [69], the interest in differentiating environmental innovation from innovation in general is due to the fact that the former has a "double externality", because, together with the positive technological effects typically associated with investments in research and development (R&D), green innovation also produces other positive externalities by reducing external environmental costs. Therefore, the positive externalities of environmental innovation must be greater than the externalities of conventional innovation. However, the drivers of both types of innovation can coincide [70].

In fact, companies can incorporate green innovation to promote and maintain business competitiveness by addressing environmental impacts before their rivals at the same time as improving their product and/or processes related to such environmental impacts, as well as obtaining the advantage of offering their products of low pollution and low energy consumption in international markets [71,72]. In this way, the situation of future generations would not be compromised. However, like the case of entrepreneurship, it is convenient to know the effect of each of these innovations on sustainable development.

Regarding social entrepreneurship, as in the case of traditional entrepreneurship, innovations play a relevant role when entrepreneurs implement and develop their activity. As indicated above, both types of entrepreneurship would be interested in promoting sustainable development for differentiating their products and promoting their image among external stakeholders, and to enhance both circumstances they would also be interested in introducing green innovation in their production processes, especially traditional entrepreneurs. For this reason, it is convenient to determine the use of both types of innovations for each type of entrepreneurship.

Finally, a third factor must be considered in order to complete the analysis. This factor is institutions, because the decisions adopted by entrepreneurs and their activity are carried out in an environment in which the institutions play a relevant role. Through institutions, the resources that support the production of economic results are distributed [73,74] and determine the incentives and restrictions that affect economic agents' decisions which impact the development of their activity. All these processes would finally have effects on economic growth [75–78].

In addition, institutions must ensure environmental protection through regulations so that the present business activity does not compromise the future of coming generations. In this sense, companies can have a reactive or proactive behavior. In the first case, entrepreneurs introduce green innovation to comply with environmental regulations. In the second case, they take advantage of the business opportunities of the new context in which there is a greater concern for protection of the environment [43–46].

Therefore, innovations and entrepreneurship play an essential role in stimulating sustainable development. In this sense, we must consider whether green innovation would have a less positive effect on this objective. That is why, in the empirical analysis that is carried out in the following section, the effects of entrepreneurs and social entrepreneurs on sustainable development are considered. The same distinction is made in the case of innovations, and we analyze whether green innovation has a more positive effect on sustainable development than innovations in general. The role of institutions, whose decisions and evolution affect both entrepreneurs in general and social entrepreneurship, is also included, in order to complete this analysis.

Taking into account the relationships described previously, a first empirical estimation will be developed in the following section, in which the relationships between both types of entrepreneurship and innovations and sustainable development will be presented, including the relationship between institutions and traditional and social entrepreneurship.

Finally, it is also important to consider, in the relationship between institutions and entrepreneurship, what some authors have called the "bidirectional causality" between both factors [21,22], which has important implications for designing appropriate measures to stimulate sustainable development. From this perspective, it is considered that not only can a direct relationship be established between institutions and entrepreneurship, as indicated above, but that entrepreneurs, by developing their activity within the established institutional framework, generate a series of new opportunities and conditions that can lead institutions to take them into account and act by modifying their regulations to contemplate new circumstances. For this reason, a direct relationship between entrepreneurship and institutions can also be considered.

This possibility must be considered in the analysis carried out in this paper, since, once the type of entrepreneur that advocates sustainable development is most favored by their activity, there may be a tendency to develop an institutional framework that stimulates the activity of that group of entrepreneurs. As some authors have pointed out [79–81], sustainable development would facilitate the emergence of entrepreneurship, since it generates a series of market failures that create new opportunities for the appearance of new productive activities and, through them, entrepreneurs can reduce those market failures. Therefore, we can also consider the existence of a direct relationship between sustainable development and entrepreneurship. For example, if this relationship is higher in the case of traditional entrepreneurship and this entrepreneurship in turn exerts a greater weight on the institutional framework, there may be a lack of measures and actions that facilitate the development of social entrepreneurship, despite the fact that it is seen that it should play an increasingly relevant role in stimulating sustainable development.

Taking these circumstances into account, a second estimation will be carried out in which the relationships between sustainable development and both types of entrepreneurship and the relationship between these and institutions will be unveiled.

3. Empirical Analyses

3.1. Data and Methods

In contrast to the previous theoretical relationship presented, a latent variables model was developed with data from 20 OECD countries (Australia, Belgium, Estonia, Finland, Germany, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, and the United States) for the period 2014–2016. The sample included 60 records, although a small sample is suitable for a partial least square estimate [82]. Despite the recent economic crisis, some OECD countries have been chosen because they have opted for a "green growth" strategy based on the introduction of more environmentally friendly technologies and the more efficient use of available resources [83].
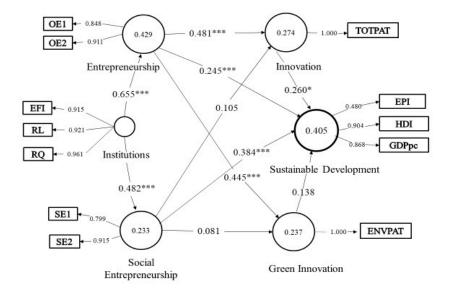
The SEM model was developed using the partial least squares (PLS) technique with SmartPLS software 3. This method is especially recommended if the analysis is concerned with testing a
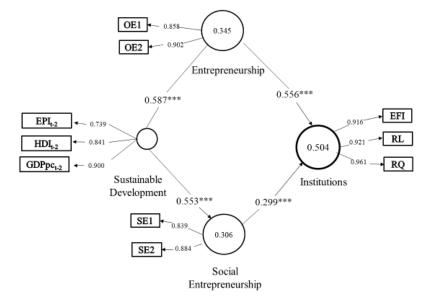
theoretical framework from a prediction perspective; in the case that the structural model is complex and includes many constructs, indicators, and/or model relationships; when the research objective is to better understand increasing complexity by exploring theoretical extensions of established theories (exploratory research for theory development); if the research is based on secondary/archival data; or in the case that a small population restricts the sample size [84–87].

The structural equation model consists of two elements [88,89]: (a) the structural model or inner model representing constructs (circles) or latent variables and the relationship between exogenous and endogenous variables, and (b) measurement models or outer models of the constructs and the indicator variables (rectangles) [82,90].

The two models proposed are reflective (Figures 1 and 2). A reflective model is usually employed in the social sciences and is directly based on classical test theory. According to Nunnally and Bernstein [91], a measurement model represents the effects (or manifestations) of an underlying construct. Moreover, if the indicators are interchangeable and correlated, then this model is reflective [92].

Figure 1. Estimated model for Organization for Economic Co-operation and Development (OECD) countries. Note: *p*-value * $p \leq 10\%$; *** $p \leq 1\%$. Source: own elaboration.

Figure 2. Bidirectional causality. Source: own elaboration. Note: *p*-value *** $p \leq 1\%$.

Table 1 shows the indicators that have been assigned to each of the latent variables. Latent variables permit working with theoretical concepts and sometimes include abstract concepts that are not observable. These constructs were measured using various indicators by the structural equation modeling (SEM) technique.

Table 1. Definition of variables.

Latent Variable		Indicators
Sustainable Development	EPI	Environmental Performance Index [93]
	HDI	Human Development Index [94]
	GDPpc	GDP per capita, based on purchasing power parity (PPP) (constant 2011 international $) [95]
Entrepreneurship	OE1	Opportunity-driven (% of total entrepreneurial activity (TEA)) [96]
	OE2	Improvement-driven opportunity early-stage entrepreneur [96]
Social Entrepreneurship	SE1	Involved in nascent and operational social entrepreneurial activity [97]
	SE2	Involved in social goal operational social entrepreneurial activity [97]
Green Innovation	ENVPAT	Total environmental patent per capital [98]
Innovation	TOTPAT	Total patent per capital [98]
Institutions	EFI	Economic Freedom Index [99]
	RL	Rule of Law [100]
	RQ	Regulatory Quality [100]

Three different indicators were used to measure the latent variable "Sustainable Development". The Environmental Performance Index (EPI) [93] and Human Development Index were obtained from the United Nations Development Program database [94], and the GDP per capita based on the purchasing power parity (PPP) (constant 2011 international $) was obtained from the World Development Indicators database [95].

The Environmental Performance Index (EPI) scores 180 countries and tries to cover two aspects: environmental health and ecosystem vitality. These metrics provide a gauge at a national scale of how close countries are to established environmental policy goals. Currently, countries set their environmental and sustainable development goals based on the agreements of the United Nations 2015 Sustainable Development Goals (SDGs) and the Paris Climate Agreement. In addition, these agreements set specific objectives and countries should integrate metric measures of environmental performance and set specific ranges of pollution control and the use of natural resources. Therefore, EPI is a results-oriented index and allows comparisons of different policies developed in different countries.

EPI represents a composite index and is graded on a scale of 0 to 100. The index is calculated from 24 individual metrics of environmental performance. Specifically, these metrics are aggregated into a hierarchy beginning with ten issue categories: air quality, water and sanitation, heavy metals, biodiversity and habitat, forests, fisheries, climate and energy, air pollution, water resources, and agriculture. These issue categories are then combined into two policy objectives, environmental health and ecosystem vitality, and then finally consolidated to form the overall EPI [101].

For its part, the Human Development Index (HDI) is a statistical index that measures a country's overall achievement in terms of its social and economic dimensions. The social and economic dimensions of a country are based on having a long and healthy life, being knowledgeable, and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

The other indicator used to construct the latent variable is the GDP per capita based on the purchasing power parity (PPP). PPP GDP is the gross domestic product converted into international dollars using purchasing power parity rates, and data are provided in constant 2011 international dollars [95].

In order to measure "Entrepreneurship", two different indicators were used for the latent variable from GEM (Global Entrepreneurship Monitor) estimations from Global Individual Level Adult

Population Survey (GEM-APS) (2014–2016) [97]. The GEM observatory considers three reasons for creating a business: opportunity, necessity, and other reasons [102]. In this study, opportunity-driven (OE1, % of total entrepreneurial activity (TEA)) was used, which captures the number of entrepreneurial initiatives whose main motivation is to benefit from an opportunity. Therefore, this kind of entrepreneur claims to be driven by opportunity as opposed to finding no other option for work.

Besides, among entrepreneurs with opportunity-driven motives, a portion of them seek to improve their situation, either through increased independence or through increased income versus maintaining their income. GEM calls these individuals improvement-driven opportunity entrepreneurs (OE2) [38]. In the empirical analysis, the total entrepreneurial activity (TEA) by opportunity was chosen because opportunity entrepreneurs reflect the creation of knowledge and technology, which could positively impact the economic performance [6,103,104]. In addition, certain studies that have considered developed and emerging economies and analyzed the relationship between total entrepreneurial activity (TEA) and economic growth have obtained contradictory results, which are mainly due to the inclusion of entrepreneurship by necessity in the TEA [105,106]. This type of entrepreneurship is motivated by a person creating their own job due to not finding another option for work and is not motivated by taking advantage of business opportunities and the commercialization of innovations, so it was not included in this analysis.

Conversely, social entrepreneurial activity (SE) is defined by GEM as any kind of activity, organization, or initiative that has a particularly social, environmental, or community objective. This might include providing services or training to socially deprived or disabled persons, activities aimed at reducing pollution or food waste, organizing self-help groups for community action, etc. [107].

The latent variable "Social Entrepreneurship" is measured by two indicators of the GEM 2015 Global Individual Level Data Adult Population Survey (GEM-APS) -Social Entrepreneurship Special Topic [97]: SEA1 is the sum of two items of GEM's Survey, including "involved in nascent social entrepreneurial activity" and "involved in operational social entrepreneurial activity", whilst SEA2 is "involved in social goal operational and social entrepreneurial activity".

The latent "Innovation" variable is measured by a single indicator. Similarly, the latent variable "Green Innovation" is measured by the total environmental patent per capital indicator. Both indicators were extracted from the OECD. Stat [98].

The patent statistics presented by OECD are constructed by using data extracted from the Worldwide Patent Statistical Database (PATSTAT) of the European Patent Office (EPO). OECD only publishes applications for "patents of invention", excluding utility models, petty patents, etc. Besides, total environmental patents consider the technologies as relevant to environmental management, water-related adaptation, and climate change mitigation [98].

Finally, the latent variable "Institutions" comprises three indicators: the Economic Freedom Index (EFI) from The Heritage Foundation [99], and the Rule of Law (RL), and Regulatory Quality (RQ) from the World Bank [100].

EFI is a complex index that measures economic freedom based on 12 quantitative and qualitative factors grouped into four broad categories, or pillars, of economic freedom: rule of law (property rights, government integrity, and judicial effectiveness), government size (government spending, tax burden, and fiscal health), regulatory efficiency (business freedom, labor freedom, and monetary freedom), and open markets (trade freedom, investment freedom, and financial freedom). Each of the twelve economic freedoms within these categories is graded on a scale of 0 to 100 [99].

RL measures the perceptions of the extent to which agents have confidence in and abide by the rules of society and the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. This indicator ranges from 0 to 100, where 0 corresponds to the lowest rank and 100 to the highest rank [100].

RQ measures the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. This indicator ranges from 0 to 100, where 0 corresponds to the lowest rank and 100 to the highest rank [100].

This reflective latent variable is made up of three indicators that attempt to measure the institutional quality and regulatory efficiency that reduce bureaucratic paperwork, protect property rights, and facilitate entrepreneurship. As mentioned, the latent reflexive variables are difficult to measure with a single indicator and, in addition, the indicators are easily interchangeable. Therefore, it can be seen that the definition of EFI is an indicator that reflects the proper functioning of institutions, especially in aspects that affect business activity.

According to Kaufman, Kray, and Mastruzzi [108], the governance definition places both the rule of law and corruption under the same sub-theoretical definition, being associated with the respect of the citizens and the state for the institutions that govern economic and social interactions among them. For the empirical analysis, RL was considered the most appropriate indicator, since political corruption is a type of dysfunction of the rule of law, while the lack of rule of law implies inadequately protected freedoms and rights, discrimination, a lack of impartiality, and malfunction of the judicial system and excessive bureaucracy [109,110].

Excessive bureaucratic procedures indicate the inadequate functioning of institutions and are one of the main obstacles to entrepreneurial activity, which is why the RQ indicator was chosen. In countries where rules and regulations are adequate, they facilitate the operation of markets and business activity and the entry of new entrepreneurs is higher [111,112].

3.2. Results

A graphic representation of the model considered is shown in Figure 1. This model follows the theoretical framework set out in the previous section. This diagram represents the relation among latent variables and the results of the estimation.

The factor loads in the reflective measurement models must be above 0.70, which is the level at which 50% of the indicator variance can be explained [84]. Figure 1 and Table 2 show that all the indicator loadings are above 0.7 except EPI, but the indicators are appropriately matched to the latent variable, since the highest value matches the corresponding construct and is consistent with the theory previously analyzed.

Table 2. Cross-loads for convergent validity.

	Entrepreneurship	Green Innovation	Innovation	Institutions	Social Entrepreneurship	Sustainable Development
EPI	0.317	0.217	0.139	0.249	0.107	0.480
HDI	0.530	0.641	0.687	0.756	0.387	0.904
GDPpc	0.452	0.386	0.429	0.573	0.689	0.868
OE1	0.848	0.363	0.338	0.489	0.239	0.492
OE2	0.911	0.472	0.544	0.648	0.315	0.506
SE1	0.300	0.011	0.063	0.361	0.799	0.452
SE2	0.262	0.320	0.333	0.457	0.915	0.509
ENVPAT	0.481	1.000	0.912	0.597	0.226	0.577
TOTPAT	0.514	0.912	1.000	0.617	0.258	0.608
EFI	0.605	0.393	0.472	0.915	0.506	0.598
RL	0.626	0.636	0.634	0.921	0.426	0.775
RQ	0.601	0.651	0.626	0.961	0.413	0.684

The reliability and validity of the measurement model are analyzed below (Table 3). The internal consistency reliability is measured by Jöreskog's [113] composite reliability. Higher values generally indicate higher levels of reliability [114,115]. Another measure of internal consistency reliability between each item and its respective construct is Cronbach's alpha value [76,92]. Cronbach's alpha indicates the internal coherence of the indicators they form. Values greater than 0.7 indicate the existence of internal coherence. However, Cronbach's alpha is a less precise measure of reliability as the items are unweighted. In contrast, with composite reliability the items are weighted based on the construct indicators' individual loadings and, hence, this reliability is higher than Cronbach's alpha [84].

Table 3. Reliability and validity of the measurement model.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	R Square
Entrepreneurship	0.712	0.743	0.872	0.774	0.429
Green Innovation	1.000	1.000	1.000	1.000	0.237
Innovation	1.000	1.000	1.000	1.000	0.274
Institutions	0.925	0.926	0.953	0.870	
Social Entrepreneurship	0.655	0.725	0.848	0.737	0.233
Sustainable Development	0.664	0.797	0.809	0.601	0.590

Convergent validity (AVE) reflects the variance extracted from the indicators, including the common variability absorbed by the latent variable. A value greater than 0.5 can be accepted as a good measure of fit [116,117].

Regarding the structural sub-model, it is only possible to measure the R2 coefficients associated with latent variable regressions in the endogenous constructs. R2 indicates the construct's variance explained by the model. All of the endogenous latent variables exhibit reliability and an adequate goodness of fit, with values greater than 0.2. This low level of R2 coefficients is usually accepted in exploratory studies in social sciences [82,118].

From Table 2, it can be observed that the reliability and validity of the models are adequate because the AVE of all latent variables is greater than 0.5. Moreover, the composite reliability indices are greater than 0.8 in all cases. Regarding the R2 coefficients, the values are higher than 0.2 for all latent variables.

On the other hand, significance cannot be calculated conventionally using PLS, and the bootstrapping technique must thus be used. This technique analyses the significance of the relationships between variables. Figure 1 shows that all relationships among variables are significant (*p*-value * $p \leq 10\%$; *** $p \leq 1\%$). In most settings, researchers choose a significance level of 5%, which implies that the *p* values must be lower than 0.05 in order to render the relationship under consideration significant. When researchers are very conservative or strict in their testing of relationships, the significance level is set to 1%. In studies that are exploratory, however, a significance level of 10% is commonly used [82].

Table 4 shows the total indirect effects between latent variables. These indirect effects can be added to the direct effects that appear in Figure 1.

Table 4. Indirect effects between latent variables.

	Green Innovation	Innovation	Sustainable Development
Entrepreneurship			0.186
Institutions	0.337	0.365	0.486
Social Entrepreneurship			0.038

Therefore, the theories' relations are confirmed. There is a positive relationship (significant with a $p \leq 1\%$) between institutions and both kinds of entrepreneurship according to [10,40], but the effect of the institutions on traditional entrepreneurial activity (0.655) is greater than that on social entrepreneurship (0.482). In addition, the institutions have positive indirect effects on the other latent variables (see Tables 4 and 5), in particular, the effects of green innovation (0.337) and innovation (0.365). Both would increase sustainable development, and these results confirm the approaches of Simón-Moya et al. [42] and Boudreaux et al. [41].

Table 5. Specific indirect effects between latent variables.

Specific Indirect Effects	
Institutions -> Entrepreneurship -> Green Innovation	0.298
Institutions -> Social Entrepreneurship -> Green Innovation	0.039
Institutions -> Entrepreneurship -> Innovation	0.314
Institutions -> Social Entrepreneurship -> Innovation	0.051
Institutions -> Entrepreneurship -> Sustainable Development	0.161
Entrepreneurship -> Green Innovation -> Sustainable Development	0.061
Institutions -> Entrepreneurship -> Green Innovation -> Sustainable Development	0.040
Social Entrepreneurship -> Green Innovation -> Sustainable Development	0.011
Institutions -> Social Entrepreneurship -> Green Innovation -> Sustainable Development	0.005
Entrepreneurship -> Innovation -> Sustainable Development	0.125
Institutions -> Entrepreneurship -> Innovation -> Sustainable Development	0.082
Social Entrepreneurship -> Innovation -> Sustainable Development	0.027
Institutions -> Social Entrepreneurship -> Innovation -> Sustainable Development	0.013
Institutions -> Social Entrepreneurship -> Sustainable Development	0.185

If the results are compared according to the type of entrepreneurs, it can be observed that the two types of entrepreneurial activity have a direct positive relationship with sustainable development, but social entrepreneurs have a greater influence than traditional entrepreneurial activity. Apart from the direct effect, the indirect effects of entrepreneurship on sustainable development can be considered. In this case, it can be observed that the total indirect effects (Table 4) of traditional entrepreneurship (0.186) are greater than those of social entrepreneurship (0.038). Likewise, PLS allows the calculation of specific indirect effects (Table 5). Thus, entrepreneurship positively affects sustainable development, with a coefficient of 0.125 through innovation and 0.061 through green innovation. However, the specific indirect effects of social entrepreneurship are lower; in particular, social entrepreneurship influences sustainable innovation with a coefficient of 0.027 and green innovation with a coefficient of 0.011.

If the effects of entrepreneurial activity on innovation are analyzed [32,34], it can be observed that entrepreneurship has positive and significant coefficients ($p \leq 1\%$) in both types of innovation. In contrast, social entrepreneurship has lower coefficients than traditional entrepreneurship for the two types of innovation considered. Despite the role that social entrepreneurs have in solving environmental issues [55,56], traditional entrepreneurs are betting more to introduce green innovation (0.445) than social entrepreneurs (0.081).

Apart from that, Figure 2 shows the results of bidirectional causality between the latent variables sustainable development and institutions. To calculate this relationship, the constructs are delayed two years to represent that the constructs are delayed, and the subscript (t-2) is added to the constructs in Figure 2. As in previous models, the relationships between latent variables are positive. Moreover, like in previous models, the loadings are greater than 0.7.

According to the measures shown in Table 6, it can be said that the model meets the reliability and validity criteria since the AVEs of the latent variables are above 0.5, the composite reliability values are above 0.8, and the R2 value is higher than 0.2.

The results presented in Figure 2 and Table 6 show a positive bidirectional causality between sustainable development and both kinds of entrepreneurship (significant with $p \leq 1\%$), but the path coefficient of social entrepreneurship is a little higher than the path coefficient of traditional entrepreneurship. In addition, there are significant positive and significant bidirectional causality between the two types of entrepreneurship analyzed and institutions, although, in this case, the path coefficient of traditional entrepreneurship is higher.

Furthermore, there are positive specific indirect effects; specifically, "sustainable development -> entrepreneurship -> institution" has an effect of 0.327 and "sustainable development -> social entrepreneurship -> institution" has an effect of 0.165. Therefore, the indirect effect of sustainable development in institutions obtained through traditional entrepreneurship is greater.

Table 6. Reliability and validity of the measurement bidirectional causality model.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	R Square
Entrepreneurship	0.712	0.726	0.873	0.775	0.345
Institutions	0.925	0.926	0.953	0.870	0.506
Social Entrepreneurship	0.655	0.665	0.852	0.743	0.306
Sustainable Development	0.774	0.820	0.868	0.687	

4. Conclusions and Discussion

The awkward environmental situation of countries has led to a consideration of environmental aspects in studies related to analyzing the factors that empower the prosperity of a country. In this sense, the objective of sustainable development has gained greater prominence compared to the traditional economic growth goal, considering that it can generate social welfare without jeopardizing the situation of future generations.

Consequently, it is important to design appropriate policies to stimulate such sustainable development, which means determining the factors that influence said objective. There are two factors that have been considered in this work: entrepreneurship and innovations. However, as has happened with economic growth, there have also been behavioral changes in these factors that tend to consider more sustainability and environmental aspects. Therefore, together with traditional entrepreneurs, who are interested in sustainable development because of the possibilities that they offer them to differentiate their products and improve their image among stakeholders, we can also find social entrepreneurship. According to the estimate made for the case of 20 OECD countries, both types of entrepreneurship have a positive relationship with sustainable development, with a greater path coefficient in the case of social entrepreneurship.

Limitations and Future Research

Regarding innovations, innovations in general and green innovation have been considered. In this case, the effect they have on the established objective and on both types of entrepreneurship has been analyzed. In the case of innovations, both positively affect the objective considered but, in this case, the impact of green innovation is lower. It is also important to note that social entrepreneurs have a lower impact on green innovation than on traditional innovations, while, in general terms, entrepreneurs' impact is very similar, although somewhat greater for traditional innovations.

Taking these results into account, the implications of studies carried out on the design of policies aimed at promoting sustainable development would focus on social entrepreneurship. In this sense, three large groups of actions could be considered. The first is those focused on financing. This implies that social entrepreneurs can access traditional sources of financing from banks through guarantees provided by the public sector to credit institutions for loans granted to these entrepreneurs [119]. Some types of tax advantages can also be established for those systems to obtain financial resources through sectors complementary to the traditional ones, such as crowdfunding, business angels, etc. The second group involves actions aimed at facilitating the access of these entrepreneurs to markets, providing advisory services, information on market niches, etc. Finally, the third group consists of measures related to legal aspects. This implies, among other issues, specifying the scope of action of social entrepreneurship in order to establish an adequate legal and fiscal framework for these entrepreneurs that takes into account their characteristics and peculiarities [119].

In addition to the above, according to the OECD [120], it would also be convenient to promote a culture of social entrepreneurship that could start in the educational system and facilitate the integration of young people in the social economy. From a market perspective, the creation of platforms and structures through which social entrepreneurs could share their experiences, facilitate access to private

markets, and facilitate the visibility of activities carried out by these companies could be encouraged. Finally, business skills could be improved through education.

In this sense, institutions play an important role but, as the estimation results show, the greatest path coefficient was obtained for traditional entrepreneurship. Therefore, it would be advisable to establish improvements regarding the rule of law and regulatory quality so that they increase said incidence for social entrepreneurship in line with that indicated in the third group of measures indicated above.

Regarding the second estimate, we found that sustainable development has a similar path coefficient in both types of entrepreneurship, although it is somewhat higher in the case of social entrepreneurship. This would indicate to us that the opportunities created by said variable are more frequently used by this type of businessmen. In contrast, the coefficient of the traditional entrepreneur over institutions is much greater than that of social entrepreneurship. This would imply that the actions carried out by traditional entrepreneurship would have a much greater influence on the institutional environment than social entrepreneurship. If true, we would find that there would be less stimuli to introduce the measures mentioned above to stimulate this type of entrepreneurship, so a factor—social entrepreneurship that has more of an effect on sustainable development than traditional entrepreneurship—would be under-used.

Regarding the limitations of the study carried out, the main limitation is the number of factors considered in the analysis. Although the variables considered are the ones that are given the most relevance in existing literature, there are others that would also be interesting to incorporate. In this sense, we could have used financial variables that would show what weight the possibilities of access to credit have had in each of the two types of entrepreneurship. According to the results obtained, it would indicate whether there is a need to implement the financial measures that have been indicated to stimulate social entrepreneurship. On the other hand, it would be convenient to introduce the actions taken by the government through its R&D policies and how they have affected each of the types of entrepreneurship. Finally, such an analysis could also incorporate qualitative variables that would include aspects related to the social climate, according to the Schumpeterian perspective.

On the other hand, the structural differences presented by the countries could be considered in order to design measures in accordance with these circumstances. This would mean expanding the sample, and this will only be possible as data on social entrepreneurship become available for a greater number of countries.

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