Effects of the pandemic crisis on entrepreneurship and sustainable development

Miguel-Ángel Galindo-Martín [a], María-Soledad Castaño-Martínez [b],
María-Teresa Méndez-Picazo [c,*]

[a] Facultad de Derecho y Ciencias Sociales, Universidad de Castilla-La Mancha, Ronda de Toledo, s/n, 13071 Ciudad Real, Spain
[b] Facultad de Ciencias Económicas y Empresariales, Universidad de Castilla-La Mancha, Ed. Jurídico-Empresarial "Melchor de Macanaz", Plaza de la Universidad 1, 02071 Albacete, Spain
[c] Facultad de Ciencias Económicas y Empresariales, Universidad Complutense de Madrid, Campus de Somosaguas, 28223 Madrid, Spain

A B S T R A C T

The COVID-19 pandemic has caused an economic crisis in advanced economies greater than the 2008 economic crisis, as the latest Organisation for Economic Co-operation and Development (OECD) forecasts indicate. Entrepreneurship activity is an important factor to be considered to reduce this negative. The objective of this paper is to analyze the factors that favor entrepreneurship in the COVID-19 pandemic situation and explore the relationship between entrepreneurship and sustainable development. Monetary, fiscal, competitiveness, and business expectations are factors to consider. To achieve this objective, we reviewed the specialized literature and proposed an economic model to verify the relationships between the relevant variables. The estimation of this model uses the Partial Least Squares (PLS) method. This study looks at select OECD countries where data on entrepreneurial activity are available and there are calculations by the OECD for the economic projections for 2020.

1. Introduction

The COVID-19 pandemic has generated, among other issues, a negative effect on the economic situation of countries overcoming the adverse effects of the crisis that began at the end of the last decade, mainly reducing their respective economic growths and having negative effects on employment and welfare levels. Due to these negative effects on social welfare, policymakers have tried to adopt measures that, on the one hand, address the health problem causing COVID (through the creation of vaccines) and, on the other, to stop the decline in economic growth and reactivate the economy to reach pre-COVID levels as soon as possible.

From a strictly economic point of view, the question is how to design measures that stimulate economic growth to reduce the negative effects of the economy generated by the pandemic. To achieve this objective is necessary to enhance the factors that positively affect growth. In this sense, the specialized literature considers entrepreneurship as one of the factors that can help to achieve this objective (Acs et al., 2012; Aghion, 2017; Audretsch, 2005; Audretsch, et al., 2006; Galindo-Martín et al.,

2021; Galindo & Méndez, 2014; Petrakis et al., 2020).

The consideration of the environmental problems generated in the economies and the intention not to harm the situation of future generations has led to the replacement of the traditional objective of economic growth for sustainable development objective. This implies the inclusion of environmental aspects in the analysis. Therefore, instead of the traditional objective of growth, this paper considers the objective of sustainable development. In achieving this objective, entrepreneurship is also a factor to consider since actions aimed at improving the environment represent a business opportunity (Galindo-Martín et al., 2020a; Hall et al., 2010; Öykü İyigün, 2015).

As has happened in other economic factors, entrepreneurship has been very negatively affected by COVID. Many businesses have not survived after the significant drop in demand caused by confinement and other significant restrictions on mobility that countries imposed to try to stop contagion. Those businesses that maintain their activity do so at a lower yield due to the lower demand, and many of them worry about the future given the appearance of new coronavirus outbreaks from the new virulence of the disease. These expectations improve given the

instated vaccination processes. Contrarily, however, in some cases, this situation has led to new lines of business that some entrepreneurs take advantage of, such as home delivery, products to protect from contagion, etc.

For this reason, it is appropriate to analyze the factors that may influence entrepreneurs who were carrying out their activity before the onset of the pandemic to maintain or stimulate their activity, based on the behavioral estimates of the main economic variables in the next future. In this sense, the actions of the government and central banks play an important role, since their policies can stimulate entrepreneurship directly or indirectly through domestic demand.

This paper analyzes the factors that favor entrepreneurship by considering entrepreneur activity from the Venture facilitation approach (Jana, 2020), carrying out a theoretical and empirical analysis, and considering the case of the OECD. To achieve this objective, after the introduction, Section 2 exposes the theoretical framework, section 3 empirical analysis is carried out using Partial Least Squares (PLS and a sample of 30 OECD countries in 2020. The 30 OECD countries selected as a sample in the empirical analysis show comparable economic development and have available data on entrepreneurship. The OECD calculated data corresponding to 2020 by carrying out economic projections and opinion surveys of companies and consumers. Section 4 considers the policy implications, and, finally, Section 5 presents the main conclusions and future research.

2. Theoretical analysis

The economic crisis caused by COVID-19 forced policymakers to design measures to avoid the negative effects of the pandemic on employment and economic growth. As has happened in previous crises, they act to stimulate the factors that promote growth. The specialized literature considers entrepreneurship as one of the factors that would stimulate growth (Acs et al., 2012; Aghion, 2017; Audretsch, 2005; Audretsch, et al., 2006; Galindo-Martín et al., 2021; Galindo & Méndez, 2014; Petrakis et al., 2020).

The environmental situation of the economies has led to the need to include this problem in the analysis of economic growth. In this sense, there are two opposite approaches: approaches that consider that environmental restrictions do not affect growth and those that, on the contrary, affirm that the lack of natural resources will end up impeding economic growth (Acs et al., 2018; Demirel & Kesidou, 2019; Galindo-Martín et al., 2020a). Those in accordance with the second position should rethink the objective of economic growth to try to carry out an economic activity that does not compromise the situation of future generations. This means changing the objective of economic growth to that of sustainable development, which includes environmental issues. Sustainable development seeks to change environmentally damaging business for non-damaging activities. From this perspective, entrepreneurship would be a factor to consider (Hall et al., 2010; Öykü İyigün, 2015). The business opportunity that this entails would incentivize entrepreneurs to carry out this transformation (Méndez-Picazo et al., 2021) by differentiating their products, improving their images, and accessing new markets that demand green products.

A recent comparison has been made between the two economic crises, an economic crisis caused by the pandemic and climate crisis. In this sense, people have raised the possibility that the response to the economic recession caused by COVID-19 and the response to the climate emergency are interrelated and reinforced each other. This is because the coronavirus outbreak presents opportunities to advance the climate agenda along with broader sustainability transitions in production and consumption (Cohen 2020; Markard & Rosenbloom, 2020). Thus, for example, the European Union is betting that the exit from the current economic crisis relates to the longer-term goal of the energy transition. Considering this idea, members of the European Union (EU) launched an instrument known as Next Generation EU. The idea behind this approach is that the innovation necessary to undertake the energy transition would generate economic growth and employment, leading us out of the economic crisis caused by the pandemic (Aktar et al., 2021; Galbraith & Otto, 2020). Therefore, the following hypothesis can be formulated:

> H1: The economic opportunities that arise from the demand for green products and the energy transition would create a positive relationship between entrepreneurship and sustainable development.

As has happened with other economic factors, the pandemic has negatively affected entrepreneurship because of the reduction in demand caused by confinements and other restrictions on mobility trying to reduce the contagions.

To carry out this analysis, we must consider the contemplated approach to entrepreneurship. Of the nine approaches identified by Jana (2020), this paper considers the Venture facilitation approach. This approach states that entrepreneurship develops in a social environment that favors its activity, for which there must be an accommodative banking system, proper government policies, a large market, etc. (Jana, 2020, p. 34). In this area, it is necessary to take into account two situations: first, the measures that increase demand and facilitate the firms' financing and second, the role of expectations.

In this sense, various factors that affect entrepreneurship can be considered. The first is monetary factors. Financial resources are necessary to start and, in many cases, to develop a business. For this reason, they are important determinants of business activity (Alam et al., 2019; Hall et al., 2016; Hottenrott & Peters, 2012). Therefore, a central bank expansionary monetary policy that avoids the lack of liquidity and credit would facilitate potential entrepreneurs in obtaining the financial resources they need to carry out or expand their activity. Thus, the expansionary monetary policy that facilitates access to financing is key in promoting business creation (Cole & Sokolyk, 2018; Ma et al., 2019), having a positive effect on entrepreneurship. Consequently, the second hypothesis to verify is:

> H2: Expansionary monetary policy with increased disposable credit enhances entrepreneurship.

Monetary policy also affects economic activity by determining interest rates (Ciccarelli et al., 2015; Galindo-Martín et al., 2020b; Gertler & Karadi, 2015). Higher interest rates would discourage entrepreneurship from requesting financial resources since they would have to make a greater effort to cope with this greater burden, especially in times of crisis and low demand. Likewise, it is necessary to differentiate between short-term interest rates and long-term interest rates since short-term interest rates influence the current financial cost, but long-term interest rates influence the formulation of expectations about firms' future costs. The monetary policy of developed countries has been expansionary in recent years and more markedly since the beginning of the pandemic (European Central Bank (ECB), 2020; Federal Reserve, 2021; Fleming, 2020) to facilitate credit to households and companies (Aguilar et al., 2020). It means low short-term interest rates and an expectation of low long-term interest rates. For this reason, we include interest rate in

our empirical study. So:

> H3: Short-term and long-term interest rate reductions favor entrepreneurship.

Government policies are the second factor that influences entrepreneurial activity. This effect could be direct or indirect. The direct influence would occur through the increase in demand generated through an expansive fiscal policy because of higher public spending or reductions in taxes. The increase in disposable income of economic agents would translate into greater consumption, thus stimulating business activity. This expansionary fiscal policy would also positively effect business expectations because entrepreneurs may think that the greater public expenditure will maintain demand over time. These positive expectations will encourage new entrepreneurs to create businesses and former entrepreneurs to maintain or expand their business. Therefore, we propose the following hypothesis:

> H4: An expansionary fiscal policy that increases demand at short-term has positive effects on entrepreneurship.

The third factor to consider is global competitiveness. Issues related to global or international competition, such as the rise of globalization and the need for business sustainability, began appearing in 1986 (Porter, 1986). Global competitiveness has become a common measure to indicate how well ventures maintain sustainability and improve their performance, indicating the level of economic development of a country (Porter et al., 2000).

Since 2005, the World Economic Forum (WEF) has based its competitiveness analysis on the Global Competitiveness Index (GCI), a very comprehensive index to measure national competitiveness, which captures the microeconomic and macroeconomic foundations of national competitiveness (Sala-i-Martin et al., 2008). WEF defines competitiveness as the set of institutions, policies, and factors that determine a country's level of productivity. As a result, the most competitive economies tend to produce higher levels of income for their populations. Likewise, the level of productivity is the main factor that determines the return rates obtained by physical, human, and technological investments in an economy. The Global Entrepreneurship Monitor observatory considers the indicators that WEF uses to measure global competitiveness as entrepreneurial framework conditions (Coduras & Autio, 2013).

It is to be expected that countries with greater economic competitiveness will have greater entrepreneurial activity due to the fact that they have more infrastructures, developed educational systems, adequate institutional systems, and abundant labor. Regarding the labor force, it is an important variable to explain the number of small companies. Assumedly entrepreneurs would settle in areas with adequate labor forces either because these workers attract them or because these workers may be potential entrepreneur groups who could offer inputs and services to larger companies (Doms et al., 2010; Florida et al., 2020). Also, entrepreneurship by opportunity is higher in highly populated urban areas where skilled workers predominate (Bosma & Sternberg, 2014). Derived from this approach of the literature, our next hypothesis is:

> H5: Countries with higher economic competitiveness show higher entrepreneur activity.

Finally, business expectations are an additional factor to consider. As already indicated, if the economic outlooks are positive, there will be an incentive to entrepreneurship. In this sense, in addition to the health perspectives, vaccination would generate a positive effect in the short term, with a lower number of infections and the corresponding less confinement, leading to an increase in demand. The study must account for the role that fiscal policy plays in generating expectations. An expansive fiscal policy will increase demand, generating positive expectations and stimulating entrepreneurial activity. Therefore, we propose the two following hypotheses:

> H6: Favorable expectations are positively related to entrepreneurship.
> H7: Expansive fiscal policy by increasing demand would generate favorable business expectations in the short term.

3. Empirical analysis

3.1. Methods and data

As indicated earlier, the objective of this study is to empirically test how the current economic crisis affects entrepreneurial activity, focusing fundamentally on monetary factors, government policies, and factors on the supply side. For this, we propose a structural equation model. This methodology, chosen for being highly efficient in the case of complex causal models with small samples (Wong, 2013), allows for relationships between multiple variables, both measurable and latent, and estimates direct and indirect effects (Henseler et al., 2009). It combines a priori theoretical knowledge and assumptions with empirical data, facilitating the statistical confirmation of theories so such models are confirmatory rather than exploratory, and it can combine formative and reflexive variables (Hair et al. 2019).

The partial least squares method, using the application SmartPLS 3 by Ringle et al. (2015), estimates the structural model proposed before the theoretical relationship. The figure of the model estimation shows observable indicators with rectangles and unobservable latent variables with ovals (Bacon, 1999). The arrows indicate regression relationships,

Table 1
Latent variables and indicators.

LATENT VARIABLE	INDICATORS
Entrepreneurship	**GEI:** Global entrepreneurship Index (Acs et al., 2020).
	ABT: Entrepreneurial Abilities Sub-Index (Acs et al., 2020).
	ASP: Entrepreneurial Aspirations Sub-Index (Acs et al., 2020).
	ATT: Entrepreneurial Attitudes Sub-Index (Acs et al., 2020).
Sustainable Development	**EPI:** Environmental Performance Index (EPI, 2021).
	GDPpc: GDP per capita (current $) (OECD, 2020a).
Money Supply Growth	**RM3:** Rate of Change of Broad Money (M3) (OECD, 2020a).
Interest rate	**IRL:** Short-term interest rate (OECD, 2020a).
	IRC: Short-term interest rate (OECD, 2020a).
Fiscal Factor	**PD:** Total Public Deficit in percentage of GDP (OECD, 2020a).
Business Expectations	**BEC:** Business Expectation of Construction Sector (OECD, 2020b).
	BEM: Business Expectation of Manufacture Sector (OECD, 2020b).
	BES: Business Expectation of Service Sector (OECD, 2020b).
Competitiveness	**GCI:** Global Competitiveness Index (Schwab, 2019).
	Labor force: Ratio of Labor force (OECD, 2020a).

Source: own elaboration.

showing the relationships of items with latent factors (measurement model) and between latent factors (structural model). The space next to the arrows indicate corresponding partial regression coefficients and inside the ovals correspond to endogenous variables, the coefficient of determination for the corresponding regression (Henseler et al., 2009, 2015).

This empirical analysis has been developed using 13 indicators grouped in six constructs, and Table 1 shows the assignment of the indicators to the constructs.

In this empirical analysis, we propose two models, A and B, to carry out the empirical estimation considering the endogenous variable entrepreneurship. In model A, the indicator used was the Global Entrepreneurship Index (GEI), and in model B, the desegregated GEI sub-index analyzes the weight of each of them.

GEI is the indicator of entrepreneurship used in Model A. This index measures the situation of the entrepreneurship system in 137 countries, capturing the essence of the contextual characteristics of the entrepreneurship, offering a measure of the quality and quantity of the business, and showing how each country performs both in the national and international context (Acs et al., 2018). The GEI methodology captures the contextual characteristic of entrepreneurship by focusing on entrepreneurial attitudes, activities, and aspirations. Structured in 14 pillars, the index incorporates the following aspects: perception of opportunities; start-up skills; acceptance of risk; networks; cultural support; launch of opportunities; technology absorption; human capital; competition; product innovation; innovation process; high growth companies; internationalization; venture capital (Acs et al., 2019). Likewise, note that the GEI indicator does not consider entrepreneurs out of necessity, focusing only on entrepreneurs who undertake business opportunities for their advantage, and this indicator allows a better observation of the relationship between entrepreneurship and economic growth (Acs & Szerb, 2009).

In Model B, the GEI indicator uses its three dimensions to see the weight of each one of the entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations (Acs et al., 2019; Song et al., 2020). Thus, in this model, the latent variable disaggregates in the following three indicators:

- Entrepreneurial abilities (ABT) describes to the characteristics of the entrepreneurs and their businesses, comprising opportunity startup, technology absorption, human capital, and competition.
- Entrepreneurial aspirations (ASP) show the quality aspects of start-ups and new businesses. They involve the introduction of new products and/or services, the development of new production processes, the introduction of foreign markets, increases in company staffing levels, and the use of formal or informal venture capital to finance businesses.
- Entrepreneurial attitudes (ATT) consider people's general feelings with regard to recognizing opportunities, knowing entrepreneurs personally, providing entrepreneurs with high status, and accepting the risks associated with business startups.

Two indicators measure latent variable "sustainable development": The Environmental Performance Index (EPI, 2021) and the GDP per capita (current $) was obtained from the economic projection calculated by (OECD, 2020a).

The EPI scores 180 countries and tries to cover two aspects: environmental health and ecosystem vitality. These metrics provide a national scale measure 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 that allows comparisons of different policies developed in different countries.

The EPI is a composite index ranked on a scale of 0 to 100. The index is determined from 24 individual metrics of environmental performance. Specifically, these metrics 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 pooled into two policy objectives, environmental health and ecosystem vitality, and then finally consolidated to form the overall EPI (Wendling et al., 2018).

To analyze the monetary factors that affect entrepreneurship, we must consider two latent variables. The first factor is "money supply growth," measured by the rate of change of the broad money (M3) indicator. The second is interest rate considering two indicators, the short-term and long-term interest rates on the government bonds indicator as a proxy variable for long interest rates, following the European Central Bank (2012) approach.

In order to see the effect of government policies, the indicator "total public deficit in percentage of GDP" has been used.

The latent variable "business expectations" includes three indicators from the "Business Tendency and Consumer Opinion Surveys" carried out by the OECD. The chosen items that cover the opinion of the economic sectors are manufacturing, construction, and services. This survey asks entrepreneurs: "How do you expect your business activity (sales) to change over the next 3 months?" The data from this survey are published monthly. In our analysis, we calculate the average of the last three months available (August, September, and October), and these months also coincide with the second outbreak of the COVID pandemic.

In order to measure competitiveness, two different indicators were used: the ratio of labor force (LF) that was obtained from the quotient between total labor force and the population between the ages of 15 and 64 and the Global Competitiveness Index (GCI), published by the World Economic Forum.

The GCI index measures how a country uses its available resources and its capacity to provide its inhabitants with a high level of prosperity. To classify countries according to their competitiveness, it analyzes 12 variables of economic prosperity: institutions; infrastructures; Macroeconomic environment; health and primary education; higher education and training; efficiency of the goods market; efficiency of the labor market; financial market development; technological preparation; size of the market; business sophistication; innovation (Schwab, 2019).

The sample is formed by 30 OECD countries: Austria; Belgium; Canada; Chile; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Israel; Italy; Japan; Latvia; Luxembourg; Netherlands; Norway; Poland; Portugal; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey; United Kingdom; United States.

3.2. Results

Figs. 1 and 2 show the graphic representation of the model considered. These models follow the theoretical framework set out in the previous section. Besides, as shown in Figs. 1 and 2, the proposed models are reflective. The reflective measurement model is usually in the social sciences and is directly based on classical test theory. According to this theory, measure represents the effects (or manifestations) of an underlying construct (Nunnally & Bernstein, 1994). Besides, when the indicators are very interchangeable and correlated, then these are reflective (Diamantopoulos et al., 2008).
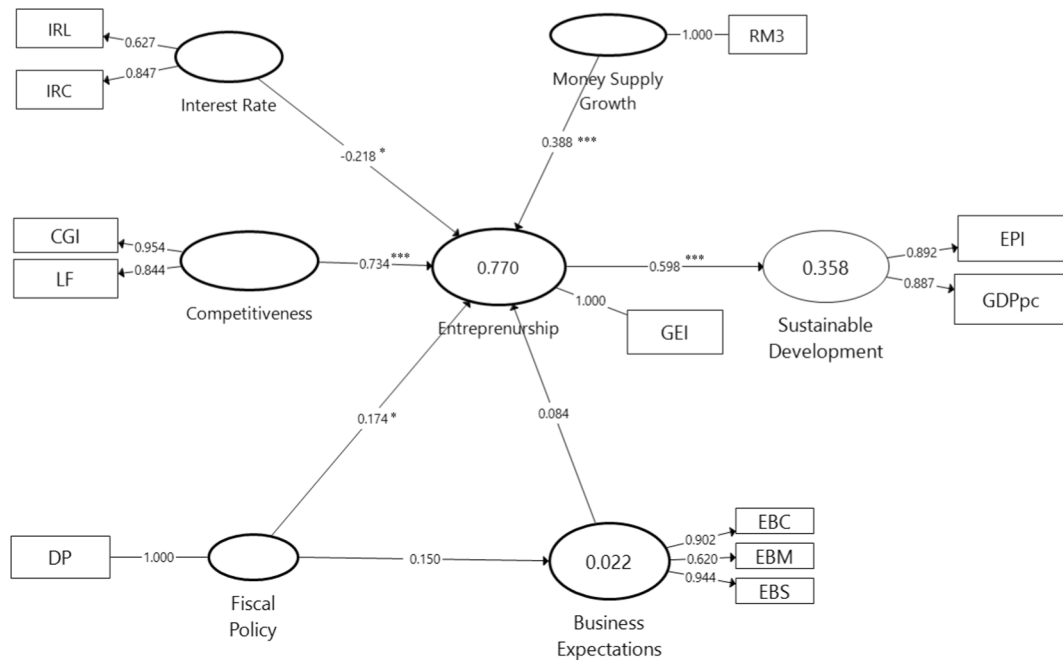
Fig. 1. Estimated Model A: GEI. Note: p-value * p ≤ 10%; *** p ≤ 1%. Source: own elaboration.

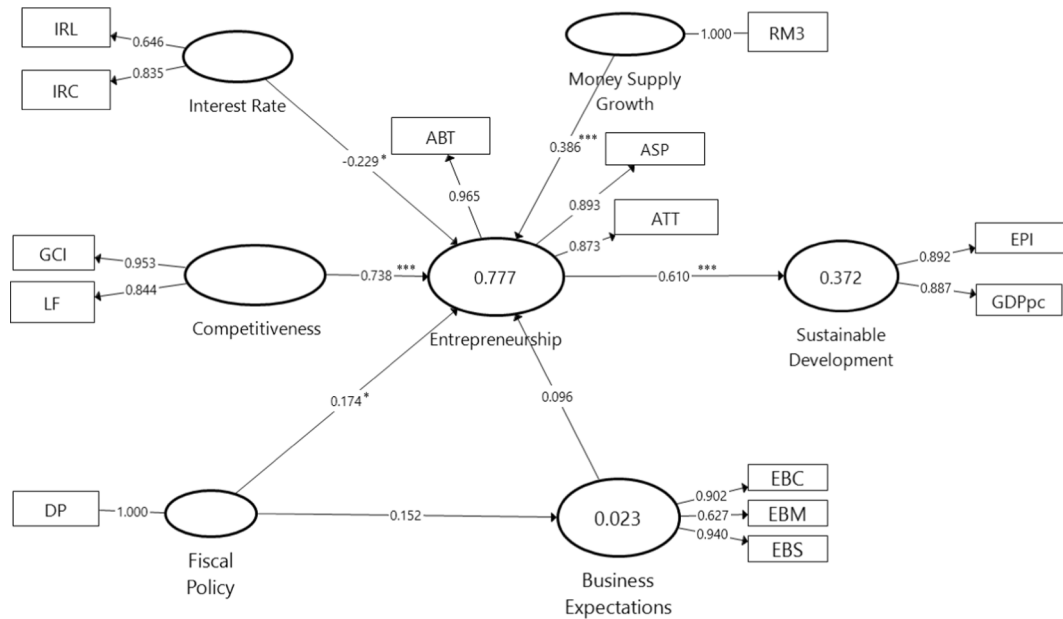**Fig. 2. Estimated Model B: disaggregate GEI subindex.** Note: p-value * p ≤ 10%; *** p ≤ 1%. Source: own elaboration.

Table 2 shows that the cross-loads are always greater for the latent variables on which the respective items are loaded. Cross-loading items represent prime candidates for removal from subsequent analysis with the goal of improving model fit (Hair et al., 2016). However, these indicators are well designated to the latent variables in the estimated model, considering previous theoretical analysis.

The quality of the PLS modeling requires the analysis of the two submodels. Table 3 lists the reliability and goodness of fit of the model. The evaluation of the measurement model analyzes if the indicators adequately measure the theoretical concepts and constructs.

If we focus on the internal consistency, Jöreskog's composite reliability (1971) measures reliability. Higher values generally indicate higher levels of reliability (Barclay et al., 1995). Another measure of internal consistency reliability between each item and its respective

construct is Cronbach's alpha value (Diamantopoulos et al., 2008). Cronbach's alpha shows the internal coherence of the indicators they form. Values greater than 0.7 indicate the existence of internal coherence. Nevertheless, Cronbach's alpha is a less accurate 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 (Hair et al., 2019). Therefore, if we consider the composite reliability measure, all the latent variables would meet the minimum internal consistency.

R^2 measures the adjustment of the models, its value reflected in the ovals the endogenous constructs. R^2 indicates the construct's variance explained by the model. All the endogenous latent variables are reliable and of adequate goodness of fit with values greater than 0.1. Exploratory

Table 2
Cross-loads for convergent validity.

Model A	Business Expectations	Competitiveness	Entrepreneurship	Fiscal Policy	Interest Rate	Money Supply Growth	Sustainable development
CGI	−0.185	0.954	0.828	−0.138	−0.383	0.079	0.722
DP	0.150	−0.285	0.038	1.000	0.469	0.419	−0.464
EBC	0.902	−0.170	−0.023	0.198	0.545	0.186	−0.182
EBM	0.620	−0.086	0.002	0.121	0.265	0.191	−0.165
EBS	0.944	−0.304	−0.209	0.058	0.574	0.196	−0.324
EPI	−0.445	0.742	0.538	−0.477	−0.633	−0.322	0.892
GDPpc	−0.032	0.457	0.526	−0.347	−0.212	−0.045	0.887
GEI	−0.103	0.763	1.000	0.038	−0.280	0.388	0.598
IRC	0.805	−0.469	−0.244	0.419	0.847	0.315	−0.484
IRL	−0.101	−0.189	−0.166	0.262	0.627	0.272	−0.183
LF	−0.271	0.844	0.465	−0.479	−0.510	−0.165	0.431
RM3	0.223	−0.009	0.388	0.419	0.393	1.000	−0.208
Model B	**Business Expectations**	**Competitiveness**	**Entrepreneurship**	**Fiscal Policy**	**Interest Rate**	**Money Supply Growth**	**Sustainable development**
ABT	−0.164	0.797	0.965	−0.067	−0.324	0.302	0.698
ASP	0.058	0.662	0.893	0.154	−0.225	0.361	0.522
ATT	−0.140	0.626	0.873	0.016	−0.219	0.401	0.416
DP	0.152	−0.285	0.033	1.000	0.468	0.419	−0.464
EBC	0.902	−0.170	−0.013	0.198	0.530	0.186	−0.182
EBM	0.627	−0.086	0.004	0.121	0.259	0.191	−0.165
EBS	0.940	−0.304	−0.205	0.058	0.561	0.196	−0.324
EPI	−0.444	0.742	0.548	−0.477	−0.627	−0.322	0.892
GCI	−0.181	0.953	0.833	−0.138	−0.381	0.079	0.722
GDPpc	−0.030	0.456	0.536	−0.347	−0.211	−0.045	0.887
IRC	0.803	−0.469	−0.244	0.419	0.835	0.315	−0.484
IRL	−0.102	−0.189	−0.176	0.262	0.646	0.272	−0.183
LF	−0.270	0.844	0.469	−0.479	−0.506	−0.165	0.431
RM3	0.224	−0.009	0.384	0.419	0.393	1.000	−0.208

Source: own elaboration.

Table 3
Reliability and validity of the measurement models.

Model A	Cronbach's Alpha	Composite Reliability	AVE
Business Expectations	0.774	0.870	0.697
Competitiveness	0.782	0.895	0.810
Entrepreneurship	1.000	1.000	1.000
Fiscal Policy	1.000	1.000	1.000
Interest Rate	0.212	0.710	0.556
Money Supply Growth	1.000	1.000	1.000
Sustainable development	0.735	0.883	0.791
Model B	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Business Expectations	0.774	0.870	0.697
Competitiveness	0.782	0.895	0.811
Entrepreneurship	0.897	0.936	0.830
Fiscal Policy	1.000	1.000	1.000
Interest Rate	0.212	0.712	0.557
Money Supply Growth	1.000	1.000	1.000
Sustainable development	0.735	0.883	0.791

Source: own elaboration.

Table 4
Total effects between latent variables.

	Business Expectations	Entrepreneurship	Sustainable development
Model A			
Business Expectations		0.084	0.050
Competitiveness		0.734	0.439
Entrepreneurship			0.598
Fiscal Policy	0.150	0.187	0.112
Interest Rate		−0.218	−0.131
Money Supply Growth		0.388	0.232
Model B			
Business Expectations		0.096	0.058
Competitiveness		0.738	0.450
Entrepreneurship			0.610
Fiscal Policy	0.152	0.189	0.115
Interest Rate		−0.229	−0.139
Money Supply Growth		0.386	0.235

Source: own elaboration.

studies in social sciences usually accept this low level of R^2 coefficients (Falk & Miller, 1992); however, the two estimated models of R^2 inside latent variable "entrepreneurship" is higher than 0.7 (Figs. 1 and 2) and sustainable growth 0.3.

Regarding convergent validity (AVE), this measurement shows the variance of the indicators. AVE tells us the common variability of the latent variable. An AVE of at least 0.5 is a reliable measure of goodness of fit (Fornell, 1982; Fornell & Larcker, 1981). Hence, all constructs are acceptable since all latent variables have values higher than 0.5.

Since the PLS modeling does not offer significant measures, it is necessary to use non-parametric resampling techniques to validate the stability of the obtained estimates. So, the bootstrapping technique is necessary to analyze the significance of the relationships between variables. Figs. 1 and 2 show the relationships among variables and level of significance (p-value * = p ≤ 10%; ***= p ≤ 1%). In most settings, researchers choose a significance level of 5%, which implies that the p-values must be lower than 0.05 to render the relationship under consideration significant. When researchers are very conservative or strict in their testing of relationships, they set the significance level to 1%. Studies that are exploratory, however, commonly use a significance level of 10% (Hair et al., 2016).

PLS calculates both the direct and indirect effects between latent variables. Table 4 shows the total effects between latent variables, observing how expansionary monetary, fiscal policies, and competitiveness favor sustainable development.

The models confirm all the theoretical relationships shown in Section 2. These results demonstrate that monetary factors have positive effects on entrepreneurship. Specifically, the money supply growth has a high and significant correlation with p ≤ 1% in both models. Therefore, Fleming's approach (2020) can confirm Hypothesis 2. Likewise, Hypothesis 3 shows that there is an inverse relationship between interest rates and entrepreneurship (significant with p ≤ 10%), which confirms

the theses of Aguilar et al. (2020), Cole & Sokolyk (2018), and Ma et al., (2019). Also, of the two components of the latent variable "interest rates," short-term interest rates have a greater weight. However, the positive relationship between M3 growth and entrepreneurship is greater than the positive effect of low interest rates, perhaps this is due to the fact that the countries considered in this study show very low interest rates during several years.

Regarding Hypothesis 4, there is a positive correlation between the expansionary fiscal policies carried out by the countries to mitigate the effects of the pandemic and entrepreneurship (significant with $p \leq 10\%$). This policy would also generate positive business expectations in the short term because the increase in public spending would suppose a greater demand, although this relationship does not reach a high level of significance (Hypothesis 7). In addition, favorable expectations due to an increase of demand would stimulate entrepreneurship (Hypothesis 6). This relationship is positive according to the theoretical analysis, but it does not obtain a high level of significance.

There is a high positive relationship and significance with $p \leq 1$ between the latent variables "competitiveness" and entrepreneurship. Therefore, Hypothesis 5 is confirmed according to the approaches of Porter (1986) and Sala-i-Martín et al., (2008). The two indicators have weights greater than 0.7. Thus, countries with high income levels and high active populations would have a greater entrepreneurial activity since, on the one hand, there would be greater consumption, and, on the other hand, the greater active population would be inputs for entrepreneurs either as workers or as new entrepreneurs who sell goods and services to other companies (Florida et al., 2020).

Finally, it is observed that there is a positive relationship and significance with $p \leq 1$ between entrepreneurship and sustainable development in both models. Therefore, Hypothesis 1 is confirmed, so the innovation necessary for the ecological transition and the demand for more respectful actions with the environment would generate opportunities to undertake what would ultimately have positive sustainable development effects (Markard & Rosenbloom, 2020; Méndez-Picazo et al., 2021).

It is also interesting to compare the results obtained in two estimated models. In Model A, the GEI indicator measures the latent variable "entrepreneurship," and Model B uses the sub-index that makes up the GEI. The basic relationships do not change, as shown in Figs. 1 and 2, but the results of Model B are somewhat better since the R^2 and the correlations between the latent variables are somewhat higher. Especially improving is the relationship between entrepreneurship and sustainable development. In Model A, the path coefficient is 0.598, and in Model B, the path coefficient rises to 0.610.

Finally, in Model B, three sub-indexes make up the GEI indicator, entrepreneurial attitudes (ATT), entrepreneurial abilities (ABT), and entrepreneurial aspirations (ASP), measure the latent entrepreneurship variable. Model B introduces these three indicators with the intention of studying which characteristics and/or dimensions are most important in entrepreneurship. Therefore, as shown in Fig. 2, the ABT indicator that measures entrepreneurial characteristics (taking advantage of opportunities, human capital, technology absorption and competition) has the greatest weight (0.965). Secondly, the ASP indicator has a weight of 0.893 and includes quality aspects of the enterprise, such as innovation and internationalization and the use of venture capital. Lastly, we find the ATT indicator measures the feelings and personal characteristics of the entrepreneur, which has a high weight (0.873) but is lower than the previous two.

4. Implications for practice

According to the results obtained, monetary measures would have a positive effect on entrepreneurship. The measures designed to avoid credit restrictions would stimulate those entrepreneurs who wish to create or expand their business because they could obtain the financial resources they need. Therefore, according to the results achieved, the expansionary monetary policies introduced by central banks favor entrepreneurship.

In this area, in principle, reductions in interest rates would also stimulate entrepreneurship from the traditional perspective, so measures aimed at controlling them and stimulating the money supply to keep them low would be advisable to favor entrepreneurship.

An expansionary fiscal policy is also advisable based on the results. Health expenditures aimed at fighting the pandemic and at stimulating the economy would positively influence on demand, also favoring entrepreneurship.

Therefore, expansionary monetary and fiscal policies would have a positive effect, although the consideration of two possibilities should qualify this result.

First is the effect that fiscal policy has on long-term expectations. The greater indebtedness caused by the measures designed to combat the negative effects caused by COVID would lead, according to the Ricardian equivalence theory (Hayo & Neumeier, 2017; İkiz, 2020), to entrepreneurs thinking that taxes will have to increase to face the deficit with the corresponding reduction in demand. If, as an alternative to raising taxes, indebtedness continues to increase with the corresponding expected increase in interest rates, we will continue expecting the corresponding increase in taxes that will be even higher than that which would correspond if the debt had not increased. Ultimately, from this perspective, there would be a negative effect on entrepreneurship, offsetting the positive effects generated by expectations about the possible increase in demand due to vaccination.

For this reason, it is important to analyze the type of implemented fiscal measure. If, from a theoretical point of view, the increase in public spending causes this increase in demand, in practice there are expenses that would be more efficient (for example, investment, R&D expenses, infrastructure improvement, etc.) than others (especially consumptive expenses) when generating resources to finance them.

Secondly, we must be considered that, on occasions, low interest rates stimulate the development of an unmaintainable entrepreneurial activity encouraged by this type of measure, so when the stimuli disappear, the businesses undertaken will cease. This has the additional problem that they can cause changes in the economic cycle since the expansionary phase slows down and drives the economy towards a depressive phase.

5. Conclusions

The economies have had to face the negative effects of the pandemic caused by COVID-19, which, in addition to the serious health problems caused, has led to a significant reduction in economic growth with negative effects on employment and well-being. The consideration of the environmental problems leads to the modification of the traditional objective of economic growth for sustainable development objective. This implies the inclusion of environmental aspects in the analysis. In achieving this objective, entrepreneurship is also a factor to consider since actions aimed at improving the environment represent a business opportunity. Therefore, instead of the traditional objective of growth, this paper considers the objective of sustainable development. In addition, the paper analyzes the effects that the pandemic has generated on entrepreneurship and sustainable development, taking into account the effects generated by the main policies to be implemented by the policy maker. This analysis that has not yet been considered by specialized literature.

Entrepreneurship, a factor that favors sustainable development, has also been negatively affected by the health situation. That is why it is necessary to analyze the factors and measures that could stimulate it. In this sense, this study considers the effects of monetary policies (interest rate and money supply), fiscal effects, competitiveness. and business expectations. To analyze these effects, a study carried out an empirical analysis for the case of 30 OECD in 2020. Two models have been estimated: Model A considers GEI and Model B shows the disaggregate

subindex of GEI. Model B allows us to see which weight of each subindex, specifically, entrepreneurial abilities is that has a greater weight, followed by entrepreneurial aspirations.

The two models show that monetary policy favors entrepreneurship, and a greater volume of credit and a low interest rate would help entrepreneurs in this situation of economic crisis caused by the COVID pandemic. Fiscal policies have a positive, albeit more moderate, effect on entrepreneurship. Likewise, the countries that had greater economic competitiveness before the pandemic also have adequate infrastructures, institutions, and an educational and health system will have more entrepreneurship and greater sustainable development.

Model B considers the characteristics and dimensions of entrepreneurship. The results show the higher weight entrepreneurship characteristics are the use of opportunities, human capital, and absorption of technology, followed by aspects that measure the quality of entrepreneurship such as the introduction of innovation in the market.

The results obtained indicate that expansionary fiscal and monetary measures have a positive effect on entrepreneurship, although we must account two for long term negative effects. First, the high indebtedness because of the public expenditure could generate the expectation of a tax increase that would offset the increase in demand caused by the expansionary fiscal measures. Second, the reductions in interest rates can arouse the interest of potential entrepreneurs who want to take advantage of credit facilities, but who are only going to keep their business for a short period of time. In this case, when they decide to eliminate their activity, they will generate negative effects on the economy and may generate a change in the economic cycle.

6. Limitations of study and future research

The main limitation of this paper is the lack of recent statistical information, especially regarding the post-COVID period, of the different variables that the analysis could consider, both qualitative and quantitative. To carry out the empirical analysis, there have been very little data in the period under study, so it has not been possible to analyze other effects that would also affect entrepreneurship, such as socioeconomic factors such as income distribution, cultural factors, etc.

As this statistical information is provided, the study could be expanded and improved. This could be done from a double perspective.

First, including more factors when statistical information becomes available and classifying the sample countries according to their structural circumstances would help to compare the effects. Second, the study can carry out a cyclical study of entrepreneurship to analyze how the measures adopted can lead to changes in their perspectives on entrepreneurial activities. Finally, this study uses the economic projections calculated by the OECD, so as they publish the definitive data for this year and the following ones, studies can calculate models that allow a better assessment of the scope of the crises and compare it with the economic crisis from the Great Recession of 2008.

Funding

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Acs, Z. J., Audretsch, D. B., Braunerhjelm, P., & Carlsson, B. (2012). Growth and entrepreneurship. *Small Business Economics, 39*(2), 289–300. https://doi.org/10.1007/s11187-010-9307-2.

Acs, Z. J., Estrin, S., Mickiewicz, T., & Szerb, L. (2018). Entrepreneurship, institutional economics, and economic growth: An ecosystem perspective. *Small Business Economics, 51*(2), 501–514. https://doi.org/10.1007/s11187-018-0013-9.

Acs, Z. J., & Szerb, L. (2009). The Global Entrepreneurship Index (GEINDEX). *Foundations and Trends® in Entrepreneurship, 5*(5), 341–435. https://doi.org/10.1561/0300000027.

Acs, Z., Szerb, L., & Autio, E. (2019). The Global Entrepreneurship Index 2018. The Global Entrepreneurship and Development Institute. Washington, D.C.: US. Retrieved from https://thegedi.org/global-entrepreneurship-and-development-index/. Accessed October 10, 2020.

Acs, Z., Szerb, L., & Autio, E. (2020). The Global Entrepreneurship Index 2019. The Global Entrepreneurship and Development Institute, Washington, D.C., US. Retrieved from https://thegedi.org/global-entrepreneurship-and-development-index/. Accessed October 12, 2020.

Aghion, P. (2017). Entrepreneurship and growth: Lessons from an intellectual journey. *Small Business Economics, 48*(1), 9–24. https://doi.org/10.1007/s11187-016-9812-z.

Aguilar, P., Arce, Ó. J., Hurtado, S., Martínez, J., Nuño, G., & Thomas, C. (2020). The ECB monetary policy response to the Covid-19 crisis. Occasional Paper 2026, Banco de España. https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/20/Files/do2026e.pdf.

Aktar, M. A., Alam, M. M., & Al-Amin, A. Q. (2021). Global economic crisis, energy use, CO2 emissions, and policy roadmap amid COVID-19. *Sustainable Production and Consumption, 26*, 770–781. https://doi.org/10.1016/j.spc.2020.12.029.

Alam, A., Uddin, M., & Yazdifar, H. (2019). Financing behaviour of R&D investment in the emerging markets: The role of alliance and financial system. *R&D Management, 49*(1), 21–32. https://doi.org/10.1111/radm.12303.

Audretsch, D. B. (2005). The knowledge spillover theory of entrepreneurship and economic growth. In G. T. Vinig, & R. C. W. Van Der Voort (Eds.), *The Emergence of Entrepreneurial Economics* (pp. 37–54). Emerald Group Publishing. https://doi.org/10.1016/S0737-1071(05)09003-7.

Audretsch, D. B., Keilbach, M. C., & Lehmann, E. (2006). *Entrepreneurship and Economic Growth.* Oxford University Press.

Bacon, L. D. (1999, February). Using LISREL and PLS to measure customer satisfaction. Paper presented at the Seventh Annual Sawtooth Software Conference. La Jolla, CA. https://pdfs.semanticscholar.org/41ae/3afc7ebec994c7cad7dcafa0deeab1f2f261.pdf.

Barclay, D., Higgins, C., & Thompson, R. (1995). The partial least squares (PLS) approach to causal modeling. Personal computer adoption and use as an illustration. *Technology Studies, Special Issue on Research Methodology, 2*(2), 285–309.

Bosma, N., & Sternberg, R. (2014). Entrepreneurship as an urban event? Empirical evidence from European cities. *Regional Studies, 48*(6), 1016–1033. https://doi.org/10.1080/00343404.2014.904041.

Ciccarelli, M., Maddaloni, A., & Peydro, J. L. (2015). Trusting the bankers: A new look at the credit channel of monetary policy. *Review of Economic Dynamics, 18*(4), 979–1002. https://doi.org/10.1016/j.red.2014.11.002.

Coduras, A., & Autio, E. (2013). Comparing subjective and objective indicators to describe the national entrepreneurial context: The Global Entrepreneurship Monitor and the Global Competitiveness Index contributions. *Investigaciones Regionales-Journal of Regional Research, 26, 47–74.*

Cohen, M. J. (2020). Does the COVID-19 outbreak mark the onset of a sustainable consumption transition? *Sustainability: Science Practice and Policy, 16*(1), 1–3. https://doi.org/10.1080/15487733.2020.1740472.

Cole, R. A., & Sokolyk, T. (2018). Debt financing, survival, and growth of start-up firms. *Journal of Corporate Finance, 50*(C), 609–625. https://doi.org/10.1016/j.jcorpfin.2017.10.013.

Demirel, P., & Kesidou, E. (2019). Sustainability-oriented capabilities for eco-innovation: Meeting the regulatory, technology, and market demands. *Business Strategy and the Environment, 28*(5), 847–857. https://doi.org/10.1002/bse.2286.

Diamantopoulos, A., Riefler, P., & Roth, K. P. (2008). Advancing formative measurement models. *Journal of Business Research, 61*(12), 1203–1218. https://doi.org/10.12691/jbms-1-5-2.

Doms, M., Lewis, E., & Robb, A. (2010). Local labor force education, new business characteristics, and firm performance. *Journal of Urban Economics, 67*(1), 61–77. https://doi.org/10.1016/j.jue.2009.10.002.

Environmental Performance Index (EPI) (2021). 2020 Environmental Performance Index (EPI). Yale Center for Environmental Law and Policy (YCELP). Retrieved from https://epi.yale.edu/epi-results/2020/component/epi. Accessed January 3, 2021.

European Central Bank (2012, April). Analysing government debt sustainability in the euro area, ECB Monthly Bulletin. https://www.ecb.europa.eu/pub/pdf/other/art1_mb201204en_pp55-69en.pdf.

European Central Bank (2020). Pandemic emergency purchase programme (PEPP). Retrieved from https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html. Accessed December 14, 2020.

Falk, R., & Miller, N. (1992). *A primer for soft modeling.* University of Akron Press.

Federal Reserve (2021): Coronavirus Disease 2019 (COVID-19). Retrieved from https://www.federalreserve.gov/covid-19.htm. Accessed January 2, 2021.

Fleming, M. J. (2020, May 29). Treasury Market Liquidity and the Federal Reserve during the COVID-19 Pandemic (No. 20200529a). Liberty Street Economics. Federal Reserve Bank of New York. https://libertystreeteconomics.newyorkfed.org/2020/05/treasury-market-liquidity-and-the-federal-reserve-during-the-covid-19-pandemic.html.

Florida, R., Adler, P., King, K., & Mellander, C. (2020). The city as startup machine: The urban underpinnings of modern entrepreneurship. In M. N. Iftikhar, J. B. Justice, & D. B. Audretsch (Eds.), *Urban Studies and Entrepreneurship* (pp. 19–30). Springer.

Fornell, C. (1982). A second generation of multivariate analysis: An overview. In C. Fornell (Ed.), *A second generation of multivariate analysis* (pp. 1–21). I. Praeger Publishers.

Fornell, C., & Larcker, D. (1981). Evaluating structural equations models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.2307/3151312.

Galbraith, E., & Otto, R. (2020, March 19). Coronavirus response proves the world can act on climate change. The Conversation. https://theconversation.com/coronavirus-response-proves-the-world-can-act-on-climate-change-133999.

Galindo, M. A., & Méndez, M. T. (2014). Entrepreneurship, economic growth, and innovation: Are feedback effects at work? *Journal of Business Research, 67*(5), 825–829. https://doi.org/10.1016/j.jbusres.2013.11.052.

Galindo-Martín, M. A., Castaño-Martínez, M. S., & Méndez-Picazo, M. T. (2020a). The relationship between green innovation, social entrepreneurship, and sustainable development. *Sustainability, 12*(11). https://doi.org/10.3390/su12114467.

Galindo-Martín, M. A., Castaño-Martínez, M. S., & Méndez-Picazo, M. T. (2020b). Relationship between cash flow, bank credit, taxes, and innovation. *Journal of Business Accounting and Finance Perspectives, 2*(1), 3. https://doi.org/10.35995/jbafp2010003.

Galindo-Martín, M. A., Castaño-Martínez, M. S., & Méndez-Picazo, M. T. (2021). The role of entrepreneurship in different economic phases. *Journal of Business Research, 122*, 171–179. https://doi.org/10.1016/j.jbusres.2020.08.050.

Gertler, M., & Karadi, P. (2015). Monetary policy surprises, credit costs, and economic activity. *American Economic Journal. Macroeconomics, 7*(1), 44–76. https://doi.org/10.1257/mac.20130329.

Hair, F. J., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203.

Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing, 25*(5), 439–448. https://doi.org/10.1016/j.jbusvent.2010.01.002.

Hall, B. H., Moncada-Paternò-Castello, P., Montresor, S., & Vezzani, A. (2016). Financing constraints, R&D investments and innovative performances: New empirical evidence at the firm level for Europe. *Economics of Innovation and New Technology, 25*(3), 183–196. https://doi.org/10.1080/10438599.2015.1076194.

Hayo, B., & Neumeier, F. (2017). The (in)validity of the Ricardian equivalence theorem–findings from a representative German population survey. *Journal of Macroeconomics, 51*(C), 162–174. https://doi.org/10.1016/j.jmacro.2017.01.003.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academic Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modelling in international marketing. *Advances in International Marketing, 20*, 277–320. https://doi.org/10.1108/S1474-7979(2009)0000020014.

Hottenrott, H., & Peters, B. (2012). Innovative capability and financing constraints for innovation: More money, more innovation? *Review of Economics and Statistics, 94*(4), 1126–1142.

İkiz, A. S. (2020). Testing the Ricardian equivalence theorem: Time series evidence from Turkey. *Economies, 8*(3), 69. https://doi.org/10.3390/economies8030069.

Jana, L. P. (2020). Approaches to entrepreneurship development: A literature survey". *Entrepreneurship Review, 1*(1), 22–48.

Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. *Psychometrika, 36*(4), 409–426. https://doi.org/10.1007/BF02291366.

Ma, S., Wu, X., & Gan, L. (2019). Credit accessibility, institutional deficiency and entrepreneurship in China. *China Economic Review, 54*, 160–175. https://doi.org/10.1016/j.chieco.2018.10.015.

Markard, J., & Rosenbloom, D. (2020). A tale of two crises: COVID-19 and climate. *Sustainability: Science, Practice and Policy, 16*(1), 53–60. https://doi.org/10.1080/15487733.2020.1765679.

Méndez-Picazo, M. T., Galindo-Martín, M. A., & Castaño-Martínez, M. S. (2021). Effects of sociocultural and economic factors on social entrepreneurship and sustainable development. *Journal of Innovation & Knowledge, 6*(2), 69–77. https://doi.org/10.1016/j.jik.2020.06.001.

Nunnally, J. C., & Bernstein, I. H. (1994). The assessment of reliability. *Psychometric Theory, 3*, 248–292.

Organisation for Economic Co-operation and Development (OECD) (2020a): OECD Economic Outlook https://stats.oecd.org/index.aspx?lang=en.

Organisation for Economic Co-operation and Development (OECD) (2020b): Business Tendency and Consumer Opinion Surveys (MEI) https://stats.oecd.org/index.aspx?lang=en.

Öykü İyigün, N. (2015). What could entrepreneurship do for sustainable development? A corporate social responsibility-based approach. *Procedia - Social and Behavioral Sciences, 195*(3), 1226–1231. https://doi.org/10.1016/j.sbspro.2015.06.253.

Petrakis, P. E., Valsamis, D. G., & Kafka, K. I. (2020). *Economic growth and development policy*. Springer Books.

Porter, M. (1986). *Competition in global industries*. Harvard Business School Press.

Porter, M. E., Sachs, J. D., Forum, W. E., Schwab, K., Warner, A. M., Cornelius, P. K., & Levinson, M. (2000). *The Global Competitiveness Report 2000*. Oxford University Press.

Ringle, C. M., Wende, S., & Becker, J.M. (2015). SmartPLS 3. Bönningstedt: SmartPLS. Retrieved from http://www.smartpls.com. Accessed December 8, 2020.

Sala-i-Martin, X., Blanke, J., Hanouz, M. D., Geiger, T., Mia, I., & Paua, F. (2008). The Global Competitiveness Index: Measuring the productive potential of nations. In M. E. Porter, & K. Schwab (Eds.), *The Global COMPETITIVENESS report* (pp. 3–50). World Economic Forum.

Schwab, K. (2019). The global competitiveness report 2019. World Economic Forum. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

Song, L., Lai, K. K., Tso, K. F. G., & Yen, J. (2020). Entrepreneurship measurement and comparison: Holistic acceptability Global Entrepreneurship Index. *Journal of Systems Science and Complexity, 33*(6), 1959–1979. https://doi.org/10.1007/s11424-020-8240-y.

Wendling, Z. A., Emerson, J. W., Esty, D. C., Levy, M. A., & de Sherbinin, A. (2018). 2018 Environmental Performance Index. Yale Center for Environmental Law & Policy. https://epi.yale.edu/.

Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin, 24*(1), 1–32.

Miguel-Ángel Galindo-Martín is Professor of Applied Economics at University of Castilla-La Mancha (Spain). His research areas are Economic Growth, Fiscal and Monetary Policies, Entrepreneurship and Ethics. He has published several articles on these topics in international specialised journals. He is also reviewer of several international journals and he has edited books for several publishers.

María–Soledad Castaño-Martínez is Associate Professor of Applied Economics at the University of Castilla-La Mancha (Spain) where she teaches courses of Fiscal and Monetary Policy and International Economic Policy. Her research areas are Economic Growth, Economic Policy, Entrepreneurship and Innovation. She has published several articles in international specialised journals and books. She is also a reviewer and an Editorial Board Member of international journals.

María-Teresa Méndez-Picazo is Associate Professor of Accounting and Finance at the University Complutense of Madrid (Spain). Her research areas are Entrepreneurship, International Accounting, Financial Analysis and Accounting Statements. She has published several articles on these topics in international specialised journals and books. She is editor and member of Editorial Review Board of different international journals. She is also reviewer of various international journals.