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# The Impacts of the Entrepreneurial Conditions on Economic Growth: Evidence from OECD Countries

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**Abstract:** This study aims to assess the impacts of entrepreneurial framework conditions on economic growth based on the level of economic development in transition-driven economies and innovation-driven economies. The data were organised into a panel (2000–2019) and obtained from the National Expert Survey (NES), the Global Monitor Entrepreneurship (GEM), and the World Bank. By applying the generalised method of moments (GMM) estimation, we found that R&D transfer has a negative impact on economic growth that is innovation-driven, but positively impacts transition-driven economies. The results further highlighted that regardless of the level of development of the country, business and professional infrastructure do not positively impact economic growth. However, taxes and bureaucracy and physical and service infrastructure were shown to positively impact only innovation-driven economies, as in transition-driven economies, they were shown to have negative impacts on economic growth. The present study contributes to a better understanding of the link between economic growth and the conditions for entrepreneurship in economies with different degrees of economic growth. This study can serve as a basis for policy makers to adjust or develop new policies to accelerate economic growth.

**Keywords:** entrepreneurship; framework conditions; Global Entrepreneurship Monitor (GEM); transition economies; transition-driven economies; innovation-driven economies; economic growth



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## 1. Introduction

Entrepreneurship is currently widely recognised as a source of national and regional economic growth and is being increasingly studied by academics (Acs 2006; Carree and Thurik 2010; Lopes et al. 2018a).

In this context, entrepreneurship has contributed to regions' development and economic growth (Urbano and Aparicio 2016; Acs et al. 2012; Audretsch and Keilbach 2004). It is a topic under constant discussion and accepted as pertinent study due to the constant changes resulting from globalization.

The results of studies vary with regard to the impact entrepreneurship has on economic growth. This is because there are different types of entrepreneurships, and the characteristics of the macroeconomic environment in which economic growth occurs are also different (Stoica et al. 2020; Stam and Van Stel 2011). Economies show constant variations in entrepreneurial activity rates, and it is important to study the reasons why this happens (Díez-Martín et al. 2016).

The constant variations in entrepreneurial activity rates can be influenced by the individual attitudes of current and future entrepreneurs, and by the contextual factors of

their economic environment (Acs et al. 2018). The combination of the contextual factors of the economic environment is called the entrepreneurship ecosystem (Lopes and Franco 2019; Sitaridis and Kitsios 2020; Steigertahl and Mauer 2021). Entrepreneurial ecosystems are defined as unique sets of contextual and individual actors that stimulate the exploration and discovery of entrepreneurial market opportunities through competitiveness and innovation to achieve economic growth (Cavallo et al. 2019).

In this context, the Global Entrepreneurship Monitor (GEM) project presents a set of structural conditions of entrepreneurial activity that are called entrepreneurial framework conditions (EFC) (Farinha et al. 2020; Amorós et al. 2013). According to Bosma et al. (2008), the variables present in the EFC are the vital oxygen of incentives, resources, markets, and institutions to support the growth of new enterprises, and as such, catalysts of economic growth. Thus, regions and countries are expected to have dissimilar 'rules of the game' or EFCs, which may positively or negatively affect entrepreneurial activity's inputs and outputs (Amorós et al. 2013). However, the literature points to the need for more studies that have larger samples and examine the effect of entrepreneurship on economic growth at the national level (Farinha et al. 2020; Stoica et al. 2020). There is a lack of studies comparing transition and innovation-driven economies (Crowley and McCann 2018). According to Crowley and McCann (2018), it is important to distinguish between economies because the processes associated with entrepreneurial innovation in richer developed economies compared to transition-driven economies are different; they operate in very different competitive, innovative, and institutional environments.

In this sense, this study aims to contribute to reduce this gap by assessing the impact of EFC on economic growth in OECD countries, distinguishing transition and innovation-driven economies. The sample of this study includes 37 OECD countries that were selected according to the data available online at GEM (2021b) and World Bank (2021).

The empirical evidence showed that the impacts of entrepreneurial framework conditions on economic growth depend on the type of economy a country belongs to (innovation-driven economy or transition-driven economy). More specifically, the results showed that different factors drive the growth of innovation-driven economies and transition economies. For example, while taxes and bureaucracy have negative impacts on the economic growth of transition-driven economies, in innovation-driven economies they have positive impacts. R&D transfer positively affects the economic growth of transition-driven economies and negatively affects innovation-driven economies.

This study contributes to the literature on economic growth and entrepreneurship. Additionally, it brings new insights into the impacts that entrepreneurial framework conditions variables collected by GEM's National Expert Survey (NES) have on economic growth in OECD countries according to their levels of development (transition and innovation-driven economies). This study can serve as a basis for policymakers to adjust or develop new policies that promote entrepreneurship as an accelerator of economic growth. This study is original in that it examines the connection between economic growth and entrepreneurship incentives over an extended time period (2000–2019) and in a large sample of countries.

## 2. Literature Review and Hypotheses

### *2.1. Entrepreneurship and Economic Growth*

Scientific consensus agrees that entrepreneurial activity is related to economic growth. However, the role of entrepreneurship in economic growth can be strongly influenced by the quality of governance or the business environment in which economic growth occurs (Khyareh and Amini 2021; Gu et al. 2021).

Marshall (1961) and Krüger and Meyer (2021) see entrepreneurship as the spirit of adventure, the refoundation of the entrepreneur, giving him the capacity for the innovation necessary to maximize profits through identifying new market opportunities, surrounded by an inevitable level of risk and uncertainty.

The relationship between entrepreneurship and regional economic growth has always been a hot topic among academics. However, the conclusions of this intense debate do

not always converge in the same direction. Entrepreneurship often has a direct positive contribution to economic growth, but in some geographic areas, it may not necessarily be positive, as in the cases of some lagging or peripheral regions (Xu et al. 2021).

Wennekers and Thurik (1999), in their article entitled 'Linking Entrepreneurship and Economic Growth', argued that economic growth is a key issue both in economic policy-making and economic research. In their study, they investigated the relationship between entrepreneurship and economic growth, summarising that both creating innovation and increasing competition are important for economic growth. This economic growth will be more robust the greater the network of entrepreneurial activity and business density. This mosaic is the state of growth and competitiveness in regions and nations (Stoica et al. 2020).

In modern, open economies, entrepreneurship matters, and it is more important for economic growth than it has ever been (Audretsch and Thurik 1998).

The performances of regional economies vary, particularly in terms of wages, salary growth, employment growth, and the ability to protect and commercialise industrial property rights associated with innovation, namely, through patents (Porter 2003; Lopes et al. 2022).

In traditional location theory, there is a distinction between factors of production for which costs differ significantly between locations, on the one hand, and production inputs that are, in practice, available everywhere more or less at the same cost (Peris-Ortiz et al. 2018; Valliere and Peterson 2009). According to Shane (1993), and Liñán et al. (2013), the social and cultural norms influence the performance of entrepreneurial activity, resulting in wealth creation and economic growth.

**Hypothesis 1 (H1).** *Cultural and social norms have positive impacts on the economic growth of OECD economies regardless of their levels of development.*

Shared trust and localised capability are present today in the so-called 'learning regions', where inter-organisational cooperation and the formation of sectoral clusters predominate, allowing synergy in terms of supply, production, promotion, and market response capacity (Farinha et al. 2020; Porter 2000). According to Martínez-Fierro et al. (2016), it is in less developed or less competitive countries that government policies and internal market dynamics are more impactful.

**Hypothesis 2 (H2).** *Internal market dynamics have a positive impact on the economic growth of OECD economies regardless of their degrees of development.*

In these regions, the emergence of complex networks between regional economic agents is more intense, not only at the level of inter-company relations, but in higher education institutions, RD&I laboratories, technological interface centres, collaborative laboratories, and digital innovation hubs, among others (Maskell and Malmberg 1999; Queiroz et al. 2020).

Data analysis using the GEM and the Global Competitiveness Report (GCR) highlighted significant differences in the factors contributing to economic growth between emerging and advanced economies (Valliere and Peterson 2009; Farinha et al. 2018). According to Farinha et al. (2018) and Falciola et al. (2020), competitiveness can be defined as the ability of an economy to compete in the global market, its aptitude to attract capital, its ability to generate wealth, its job creation, and its social welfare, thereby depending on its capacity to produce and market high value-added solutions. As a key to success, competitiveness based on innovation factors represents a new impulse built based on the knowledge economy. The transition to the so-called 'advanced economies' stage implies the presence of 'opportunity-driven' entrepreneurship, capable of generating stable and successful companies, which pay good salaries and have solid contributions to the GDP per capita (Farinha et al. 2017; Civera et al. 2021). The authors argue that in countries in Asia and Oceania, the 'factors of innovation and sophistication' stand out in the 'conditions of national framework'. In turn, 'taxes and bureaucracy' stand out in the context of 'conditions

to support entrepreneurship'. In Europe, 'innovation and sophistication factors' are also the most significant item of the 'National Framework Conditions', and 'physical and service infrastructure' and 'funding for entrepreneurs' are important aspects of 'conditions to support the entrepreneurship'.

As previously verified, some literature relates entrepreneurship to economic growth (Xu et al. 2021; Khyareh and Amini 2021; Farinha et al. 2020). Crowley and McCann (2018) examined firm-level productivity and innovation in Europe's transition-driven and innovation-driven economies. The authors pointed to the need to study further the processes associated with entrepreneurial innovation in transition-driven economies and innovation-driven economies. Crowley and McCann (2018) indicated that transition-driven and innovation-driven economies are distinct because they operate in very different competitive, innovative, and institutional environments. The authors pointed to the need to further study the processes associated with entrepreneurial innovation in transition-driven economies and innovation-driven economies. Thus, no studies have simultaneously related entrepreneurial framework conditions with the degrees of development of economies, specifically transition-driven and innovation-driven economies.

Farinha et al. (2020) and Stoica et al. (2020) indicated that they should do more to examine the effects of entrepreneurship on economic growth at the national level. The authors recommend that these new studies have larger and more diverse samples.

### *2.2. Global Entrepreneurship Conditions*

The GEM is a research program that focuses on entrepreneurship as one of any nation's main engines of economic growth. From Porter, based on the Global Competitiveness Index, the GEM Conceptual Framework has had some evolution over time, reinforced by the recent influence of the COVID19 pandemic. Today, the model presents different 'entrepreneurial phases' and GEM entrepreneurship indicators (Reynolds et al. 2005).

The conceptual model is based on a wide range of factors associated with the contextual characteristics of the countries' entrepreneurial activity. At the base of its operationalisation is the carrying out of surveys among the adult population, through unstructured interviews with national experts, questionnaires addressed to national experts, and analysis of relevant measures based on existing transnational datasets (Reynolds et al. 2005; GEM 2021b).

Concerning entrepreneurial framework conditions, the analysis of the main components was performed to derive 12 latent variables: (1) access to entrepreneurial finance; (2) government policy: support and relevance; (3) government policy: taxes and bureaucracy; (4) government entrepreneurship programs; (5) entrepreneurial education at school; (6) entrepreneurial education post-school; (7) research and development transfer; (8) commercial and professional infrastructure; (9) ease of entry: market dynamics; (10) ease of entry: market burdens and regulations; (11) physical infrastructure; (12) social and cultural norms (GEM 2021a).

To encapsulate the degrees of development of countries, formulated from the impact of physical infrastructure, the impact of transferring R&D, and the impact of taxes and bureaucracy, we present the following hypothesis (Nunes and Savosh 2022; Ferreira et al. 2017; Valliere and Peterson 2009; Martínez-Fierro et al. 2020).

**Hypothesis 3 (H3).** *The greater the degree of development of an OECD economy, the greater the positive impacts of (a) physical and services infrastructure, (b) R&D transfers, and (c) taxes and bureaucracy on its economic growth.*

According to Marques et al. (2011) and Sommarström et al. (2020), the school-business cooperation allows for achieving more ambitious goals of entrepreneurial learning, having positive effects at the level of economic development of the economy. Governmental programs aim to foster an innovative spirit, promote entrepreneurship, and give rise to new companies and new business models with added value in the market (Acs and Amorós 2008; Martinez-Fierro et al. 2015; Medrano et al. 2020).

Various studies on entrepreneurship have pointed out that commercial and professional infrastructures are crucial for the success of the entrepreneurial activity, and thus, for countries' economic growth (Reynolds et al. 2005; Peris-Ortiz et al. 2018; Li et al. 2020). According to Sun et al. (2020) and Bertoni and Tykvová (2015), government funding and support for entrepreneurial activity stimulates the development of entrepreneurial activity and the growth of an economy.

**Hypothesis 4 (H4).** *(a) Basic school entrepreneurial education and training, (b) governmental programs, (c) post-school entrepreneurial education and training, (d) commercial and professional infrastructure, and € financing for entrepreneurs have positive impacts on the economic growth of countries regardless of their degrees of development.*

Various studies on entrepreneurship have pointed out that commercial and professional infrastructures are crucial for the success of the entrepreneurial activity, and henceforth, for countries' economic growth (Reynolds et al. 2005; Peris-Ortiz et al. 2018; Li et al. 2020). Lepoutre et al.'s (2013) study interpreted some limitations in its impact on countries' economic growth.

**Hypothesis 5 (H5).** *(a) Internal market openness and (b) governmental support and policies have negative impacts on the economic growth of OECD economies regardless of their degrees of development.*

Figure 1 shows the research model and the hypotheses formulated.

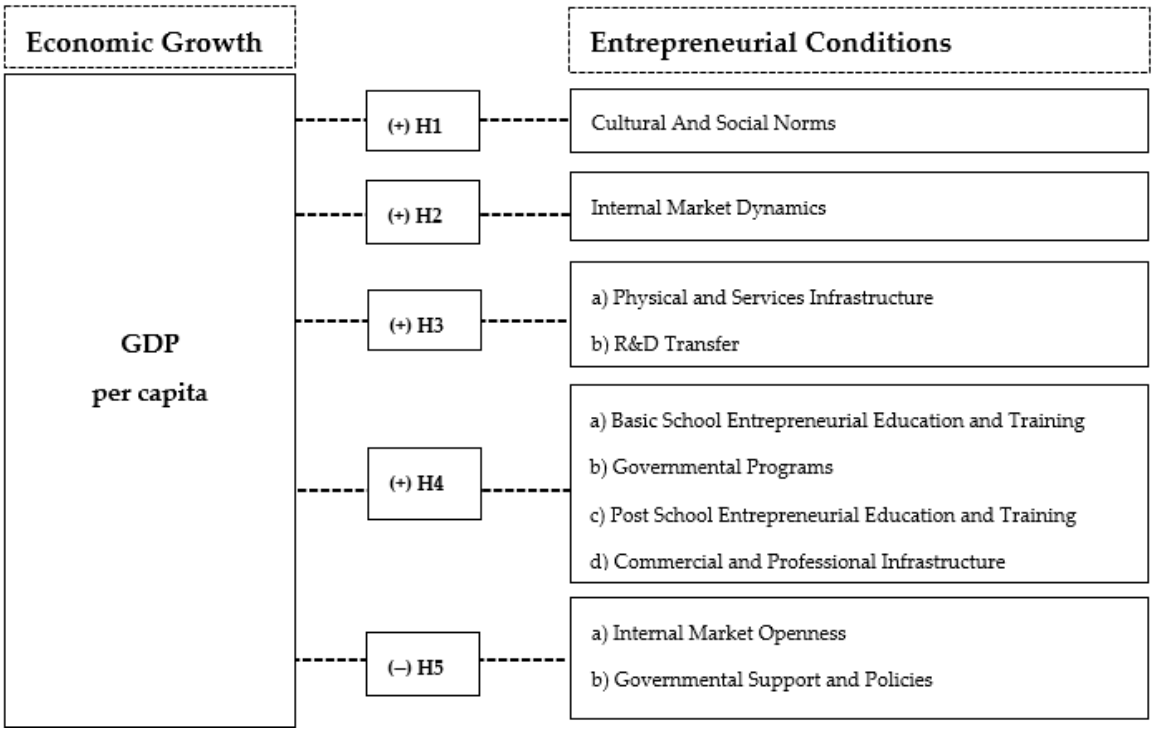


**Figure 1.** Research model.

## 3. Data and Methodology

### *3.1. Sample and Data*

The sample of this study encompasses the 37 OECD countries, integrating Colombia, the newest member, which joined on 28 April 2020. OECD countries were divided into two groups according to their degrees of development, following the criteria established in the Global Competitiveness Reports and already used by other authors (Schwab 2018;

Stoica et al. 2020). This classification is based on the value of GDP per capita. Factor-driven economies have a GDP per capita < $2000 USD; economies in transition from stage 1 to stage 2 have a GDP per capita between $2000 USD and $2999 USD; efficiency-driven economies have a GDP per capita between $3000 USD and $8999 USD; economies in transition-driven economies from stage 3 to stage 4 have a GDP per capita between $9000 USD and $17,000 USD; and finally, innovation-driven economies have a GDP per capita above $17,000 USD.

Thus, the value of GDP per capita, at constant 2010 prices, for the year 2019, was considered to classify countries by level of development. The choice of 2019 resulted from the availability of GDP per capita data made available by the World Bank. World Bank (2021). Colombia was the only OECD country with a GDP per capita in 2019 of less than $9000 USD ($7838.21 USD) and thus would be included in the group of efficiency-driven economies, being its only member. The development classification of OECD countries was adapted to have two groups (Table 1): (G1) transition-driven economies (economies in transition from stage 2 to 3 and from stage 3 to 4; GDP per capita < $9000 USD dollars) and (G2) the innovation-driven economies (GDP per capita > $17,000 USD dollars).

**Table 1.** Classification of OECD member countries—economic development scale.

| **Transition-Driven Economies** | | **Innovation-Driven Economies** | | | |
|---|---|---|---|---|---|
| **GDP per Capita (2019) <$17,000** | | **GDP per Capita (2019) >$17,000** | | | |
| Chile | $15,091,45 | Australia | $57,186.62 | Israel | $35,278.92 |
| Colombia | $15,125.39 | Austria | $50,552.91 | Italy | $35,680.16 |
| Latvia | $16,722.10 | Belgium | $47,618.30 | Japan | $49,187.83 |
| Mexico | $10,267.50 | Canada | $51,588.76 | Korea, Rep. | $28,675.03 |
| Turkey | $15,125.39 | Czech Republic | $24,265.99 | Lithuania | $18,609.72 |
| | | Germany | $47,446.73 | Luxembourg | $111,062.34 |
| | | Denmark | $65,820.24 | Netherlands | $55,488.97 |
| | | Spain | $33,392.53 | Norway | $92,556.32 |
| | | Estonia | $20,856.02 | New Zealand | $38,992.97 |
| | | Finland | $49,397.23 | Poland | $17,406.55 |
| | | France | $44,317.39 | Portugal | $24,658.50 |
| | | United Kingdom | $43,711.71 | Slovak Republic | $20,999.13 |
| | | Greece | $24,024.23 | Slovenia | $27,426.79 |
| | | Hungary | $17,572.31 | Sweden | $58,012.96 |
| | | Iceland | $51,332.14 | Switzerland | $79,406.66 |
| | | Ireland | $79,703.41 | United States | $55,753.14 |

Source: Own elaboration with data from the World Bank (2021).

### *3.2. Measurement*

Considering that the main objective was to assess the impacts of entrepreneurial framework conditions (EFC) on economic growth in OECD countries, according to the two levels of development—transition and innovation-driven economies—economic growth was measured by GDP per capita, at constant 2010 prices, collected in the World Bank (2021), as suggested by Stoica et al. (2020) and Farinha et al. (2020). Thus, the authors suggested that GDP per capita is the dependent variable to be used in the logarithm. The CSEs (independent variables) were collected by the National Expert Survey of the Global

Entrepreneurship Monitor (GEM 2021b). We used the 12 indicators provided (Table 2) as used by the authors (Lopes et al. 2018a, 2021a; Borozan and Borozan 2020; Sa and Pinho 2019).

**Table 2.** Dependent and independent variables.

| Acronyms | Variables | Authors |
|---|---|---|
| GDP_Percapita | V. Dependent | |
| | Log (GDP per capita, constant 2010 prices) | (Farinha et al. 2020; Stoica et al. 2020) |
| | V. Independents | |
| FINANC_ENTREP | Financing for Entrepreneurs | (Borozan and Borozan 2020; Lopes et al. 2018a, 2021b; Sa and Pinho 2019) |
| GOVER_SUP | Governmental Support and Policies | |
| TAXES_BUR | Taxes and Bureaucracy | |
| GOVER_PROG | Governmental Programs | |
| BASIC_EDUC | Basic School Entrepreneurial Education and Training | |
| POST_EDUC | Post School Entrepreneurial Education and Training | |
| R_D | R&D Transfer | |
| COM_PROF | Commercial and Professional Infrastructure | |
| INTERNAL_MKT | Internal Market Dynamics | |
| INTERNAL_OPEN | Internal Market Openness | |
| PHYSICAL_SERVICES | Physical and Services Infrastructure | |
| CULT_SOCIALNORMS | Cultural and Social Norms | |

### *3.3. Method*

A panel dataset was constructed with these variables for the period 2000–2019; the sample consisted of a total of 437 observations. The number of observations depends on the data made available by the databases used. The subsample defined for transition-driven economies has 67 observations for countries classified as such, according to Table 1, and the subsample for innovation-driven economies has 370 observations.

First, a statistical analysis of the variables used was carried out, presenting for every OECD country a statistical description of the variables in terms of means, maximum and minimum values, and standard deviation, and then the means of these variables were compared for the transition and innovation-driven OECD economies. Next, a correlation analysis was carried out between the dependent and independent variables to assess the multicollinearity between variables, and a panel data stationary analysis was performed (Greene 2020). Finally, the hypotheses formulated were tested in Eviews10 software, and three multiple linear regression models were estimated using the Generalized Methods of Moments' (GMM) Dynamic Panel Data. For these estimations, we used country fixed effects and time fixed effects. Thus, three econometric models were estimated for the different groups of countries (model 1—all OECD economies, model 2—transition OECD economies, and model 3—innovation-driven OECD economies).

The GMM method is widely used for large samples and allows flexible identification of the data. It is strongly consistent and asymptotically normal over large samples, and requires minimal information about the data generating process. It has no need to specify the distributions of the error terms (Greene 2020). Since the sample of this study is large, composed of panel data, the GMM was the most efficient method (Greene 2020; Hall 2005; Wooldridge 2001). It also allows controlling for unobserved country-specific effects and non-stationary variables.

The impacts of entrepreneurial framework conditions (EFC) on economic growth are defined by Equation (1):

$$Y_{it} = {}_1Y_{it-1} + {}_2Z_{it} + \mu_{it} + e_{it} \quad (1)$$

where $Y_{it}$ is the logarithm of GDP per capita, at constant 2010 prices, representing economic growth; $Y_{it-1}$ is the lagged variable of the logarithm of GDP per capita for the country $i$ in the period $t-1$; $Z$ stands for the independent variables related to the EFC; $\mu$ are the unobserved effects at the country level, and $e$ is the error term. $Y_{it-1}$ is correlated with $\mu_{it}$, leading to heteroscedasticity problems due to unobserved effects at the country level, which were overcome by introducing the first differences of the variables, resulting in Equation (2):

$$Y_{it} - Y_{it-1} = {}_1(Y_{it-1} - Y_{it-2}) + {}_2(Z_{it} - Z_{it-1}) + (e_{it} - e_{it-1}) \quad (2)$$

Once the heteroscedasticity problem is solved, we can have an autocorrelation problem of $Y_{it-1}$ and $e_{it}$ with the independent variables, $Z$, which is solved using instrumental variables. Assuming that the time-varying errors have zero means, there is no correlation between the error terms, and there is no correlation between the lagged independent variables and the future error terms, the independent variables can be used with instrumental variables, overcoming the autocorrelation problem. Thus, the 12 variables that make up the EFC were used as instrumental variables.

## 4. Results

Table 3 shows the descriptive statistical analysis of the dependent and independent variables used in this study.

When comparing the mean values of the variables (dependent and independent) between OECD transition-driven economies and innovation-driven economies (Table 3), we can observe that, on average, the variables have higher values for more developed countries (innovation-driven economies), with the exception of the variables cultural and social norms (2.74 vs. 2.93) and post-school entrepreneurial education and training (2.70 vs. 2.61).

Table 4 shows the matrix of correlations between variables. We can observe that there is no high correction between the variables, so the estimation models should not have multicollinearity problems.

In Table 5, we show a stationarity analysis of panel data. We can conclude that our data are stationary for mean stationarity significance at 1%, 5%, and 10% levels.

The estimation results of the three models (model 1—all OECD economies, model 2—transition OECD economies, and model 3—innovation-driven OECD economies) are presented in Table 6. The three regressions were estimated by the GMM method using country-level fixed effects in order to isolate the effects of country-specific characteristics on GDP growth, and also temporal fixed effects to identify the time effect on GDP growth.

As the AR(1) $p$-values are less than 0.10, we reject the null hypothesis that there is no autocorrelation of the error terms for a significance level of 0.10. The AR(2) test allows detecting levels of autocorrelation (Mileva 2007) and validating the quality of the GMM estimator. The application of the AR(2) test in the three models allowed us to conclude that there is no second-order autocorrelation ($p$ AR(2) > 0.10) as defined by Lahouel et al. (2019). The Hasen test allows assessing the quality of instrumental variables (Hayashi 2000). As the p of the Hansen test is over 0.10, the models are well specified, and there is no evidence to reject the validity of the instrumental variables used in the regressions.

**Table 3.** Statistical descriptions of the variables for all OECD economies.

| | Dependent Variable | Independent Variables | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **GDP PER CAPITA** | **CUL SOCIALNORMS** | **INTERNATIONAL MKT** | **PHYSIC SERVICE** | **RD** | **TAX BUR** | **BASIC EDUC** | **GOVER PROG** | **POST EDUC** | **COM PROF** | **INT OPEN** | **FINANC ENTREP** | **GOVER SUP** |
| **Mean All Economies** | 38,379.22 | 2.85 | 2.88 | 3.93 | 2.56 | 2.49 | 2.10 | 2.81 | 2.85 | 3.17 | 2.73 | 2.69 | 2.67 |
| **Maximum** | 111,062.30 | 4.59 | 4.40 | 4.82 | 3.93 | 4.27 | 3.43 | 3.75 | 3.89 | 4.21 | 3.73 | 4.30 | 3.96 |
| **Minimum** | 5693.27 | 1.74 | 1.83 | 2.10 | 1.84 | 1.47 | 1.34 | 1.72 | 1.89 | 2.00 | 1.89 | 1.65 | 1.50 |
| **Std. Dev.** | 22,056.00 | 0.55 | 0.48 | 0.42 | 0.34 | 0.53 | 0.38 | 0.43 | 0.34 | 0.37 | 0.34 | 0.40 | 0.44 |
| **Obs.** | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 | 437 |
| **Mean Innovation-driven Economies (Obs: 370)** | 41,235.66 | 2.74 | 2.90 | 3.89 | 2.65 | 2.50 | 2.13 | 2.83 | 2.69 | 3.20 | 2.81 | 2.80 | 2.70 |
| **Mean Transition Economies (Obs: 67)** | 10,606.42 | 2.93 | 2.76 | 3.78 | 2.31 | 2.38 | 2.04 | 2.70 | 3.00 | 2.95 | 2.53 | 2.38 | 2.61 |

**Table 4.** Correlation matrix.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. GDP_PER_CAPITA | 1.0000 | | | | | | | | | | | | |
| 2. CULT_SOCIALNORMS | 0.1265 | 1.0000 | | | | | | | | | | | |
| 3. INTERNAL_MKT | (0.1395) | 0.0151 | 1.0000 | | | | | | | | | | |
| 4. PHYSICAL_SERVICES | 0.3153 | 0.2283 | (0.0921) | 1.0000 | | | | | | | | | |
| 5. R_D | 0.4873 | 0.3793 | (0.1276) | 0.4479 | 1.0000 | | | | | | | | |
| 6. TAXES_BUR | 0.4134 | 0.4247 | (0.1027) | 0.4958 | 0.4900 | 1.0000 | | | | | | | |
| 7. BASIC_EDUC | 0.2816 | 0.4712 | (0.1059) | 0.2728 | 0.4106 | 0.4607 | 1.0000 | | | | | | |
| 8. GOVER_PROG | 0.4501 | 0.2436 | (0.1896) | 0.3813 | 0.4550 | 0.4557 | 0.2922 | 1.0000 | | | | | |
| 9. POST_EDUC | (0.0206) | 0.4561 | (0.2324) | 0.2712 | 0.4865 | 0.3750 | 0.4007 | 0.3768 | 1.0000 | | | | |
| 10. COM_PROF | 0.4726 | 0.3145 | (0.4216) | 0.4568 | 0.4412 | 0.3897 | 0.4303 | 0.3585 | 0.3871 | 1.0000 | | | |
| 11. INTERNAL_OPEN | 0.4450 | 0.3089 | (0.2270) | 0.3981 | 0.4376 | 0.4471 | 0.4644 | 0.4515 | 0.3364 | 0.4502 | 1.0000 | | |
| 12. FINANC_ENTREP | 0.4528 | 0.4000 | (0.1125) | 0.4029 | 0.4857 | 0.3272 | 0.4196 | 0.3866 | 0.3003 | 0.4044 | 0.5625 | 1.0000 | |
| 13. GOVER_SUP | 0.2972 | 0.2437 | 0.0364 | 0.3282 | 0.4722 | 0.4411 | 0.2624 | 0.7090 | 0.2868 | 0.1833 | 0.3584 | 0.3950 | 1.0000 |

**Table 5.** Panel unit root tests.

| Tests Variable | Levin et al. (2002) Adjusted t * | Breitung (2000) Lambda (Statistics) | Im et al. (2003) t-Tilde-Bar (Statistics) |
|---|---|---|---|
| 1. GDP_PER_CAPITA | −1.9811 ** | −1.2311 ** | −1.3360 ** |
| 2. CULT_SOCIALNORMS | −1.8662 ** | −1.6654 ** | −1.7634 ** |
| 3. INTERNAL_MKT | −2.1254 *** | −1.8954 * | −1.9609 * |
| 4. PHYSICAL_SERVICES | −1.5456 ** | −1.3445 *** | −1.2306 *** |
| 5. R_D | 8.9863 *** | −1.9985 ** | −1.6532 ** |
| 6. TAXES_BUR | 7.5487 ** | 3.8837 * | −1.8709 * |
| 7. BASIC_EDUC | −2.1204 *** | −1.9964 * | −1.9334 * |
| 8. GOVER_PROG | −3.6570 ** | −3.4989 ** | −1.1143 ** |
| 9. POST_EDUC | −4.6512 ** | −1.9979 ** | −1.4832 ** |
| 10. COM_PROF | −2.7769 ** | −3.3297 * | −1.9909 * |
| 11. INTERNAL_OPEN | −6.4423 ** | −0.7796 ** | −1.5589 * |
| 12. FINANC_ENTREP | −1.9823 ** | −2.6760 ** | −2.3960 ** |
| 13. GOVER_SUP | −3.5523 ** | | |

Note: (i) ***, **, * mean stationarity significant at 1%, 5%, and 10%. (ii) In all tests, the null hypothesis (H0) was that all data panels contain a unit root. (iii) In case of the Levin et al. (2002) test and Breitung (2000) test, we have used a time trend for all variables. In the case of the Im et al. (2003) test, we have used the time trend for all variables. Source: own elaboration.

In model 1 for all OECD countries, all variables were statistically significant for $p < 0.05$ and $p < 0.1$. In model 2, for innovation-driven economies, the basic school entrepreneurial education and training variable did not statistically significantly explain economic growth in these economies. Finally, in model 3, for transition economies, the variables commercial and professional infrastructure and governmental support and policies did not statistically significantly explain economic growth.

**Table 6.** Results of GMM estimation. Dependent variable: GDP per capita.

| | **All OECD Economies** | | **Innovation-Driven OECD Economies** | | **Transition-Driven OECD Economies** | |
|---|---|---|---|---|---|---|
| **Variables** | **Model 1** | | **Model 2** | | **Model 3** | |
| | **Coefficient** | **Std. Error** | **Coefficient** | **Std. Error** | **Coefficient** | **Std. Error** |
| Constant | 8.310 * | 110.656 | 11.987 * | 114.341 | 9.995 * | 35.765 |
| CULT_SOCIALNORMS | 0.093 * | 6.496 | 0.077 * | 4.145 | 0.086 * | 3.956 |
| INTERNAL_MKT | 0.029 * | 2.156 | 0.049 * | 2.657 | 0.056 * | 1.984 |
| PHYSICAL_SERVICES | 0.031 * | 2.198 | 0.050 * | 2.456 | (0.031) ** | (0.987) |
| R_D | (0.029) ** | (1.823) | (0.069) * | (3.459) | 0.142 * | 2.278 |
| TAXES_BUR | 0.016 * | 1.982 | 0.030 * | 2.145 | (0.044) * | (1.678) |
| BASIC_EDUC | (0.067) * | (2.901) | (0.029) | (1.596) | (0.132) * | (3.678) |
| GOVER_PROG | 0.156 * | 7.765 | 0.198 * | 4.901 | 0.176 * | 4.014 |
| POST_EDUC | (0.038) * | (1.945) | (0.037) * | (4.889) | (0.096) ** | (2.894) |
| COM_PROF | (0.082) * | (3.995) | (0.090) * | (4.023) | (0.065) | 1.426 |
| INTERNAL_OPEN | (0.039) * | (2.567) | (0.028) ** | (2.156) | (0.059) ** | (1.621) |
| FINANC_ENTREP | 0.113 * | 6.984 | 0.091 * | 6.645 | 0.105 * | 3.223 |
| GOVER_SUP | (0.039) * | (1.956) | (0.040) * | (2.735) | (0.029) | (0.251) |
| AR(1) | −0.0912 | | −0.0837 | | −0.0528 | |
| *p*-value (AR1) | 0.0000 | | 0.0000 | | 0.0000 | |
| AR(2) | 0.1398 | | 0.1723 | | 0.1458 | |
| *p*-value (AR2) | 0.6132 | | 0.6003 | | 0.6476 | |
| *p*-value (Hansen test) | 0.9465 | | 0.7812 | | 0.6945 | |
| Obs | 437 | | 370 | | 67 | |
| Cross-Sections | 37 | | 32 | | 17 | |
| Period Included | 18 | | 18 | | 5 | |

Note: * $p < 0.05$; ** $p < 0.10$.

In summary, cultural and social norms have a positive impact (all economies: ß = 0.093; innovation-driven economies s: ß = 0.077; transition economies: ß = 0.086) on GDP per capita, and as such, on economic growth in OECD countries, regardless of their degrees of development (i.e., in OECD countries when considered in a single group and in the division between innovation-driven and transition OECD economies), confirming Hypothesis 1 (H1).

Internal market dynamics also have a positive impact (all economies: ß = 0.029; innovation-driven economies: ß = 0.077; transition economies: ß = 0.086) on GDP per capita, and as such, on the economic growth of OECD countries, regardless of their levels of development, confirming Hypothesis 2 (H2).

Physical and services infrastructure positively impacts economic growth in OECD countries in general and in innovation-driven OECD economies (all economies: ß = 0.031; innovation-driven economies: ß = 0.050) and a negative impact in transition economies (ß = −0.031). Thus, Hypothesis 3a (H3a) is confirmed.

R&D transfers have a negative impact (ß = −0.069) on economic growth in innovation-driven economies and a positive impact (ß = 0.142) in transition economies. That is, the lower the degree of development of the country, the greater the positive impact of R&D transfer on its economic growth, confirming Hypothesis 3b (H3b).

Taxes and bureaucracy positively impact economic growth in OECD economies in general (ß = 0.016) and innovation-driven economies (ß = 0.030), confirming Hypothesis 3c (H3c).

Basic school entrepreneurial education and training has a negative impact (all economies: ß = −0.067; innovation-driven economies: ß = −0.029; transition economies: −0.132) on GDP per capita, and thus on economic growth in OECD countries, both when considering OECD countries as a whole and when breaking them down by level of development. On the other hand, basic school entrepreneurial education and training is not statistically significant in innovation-driven economies. Thus, Hypothesis 4a (H4a) is rejected.

Governmental programmes have a positive impact (all economies: ß = 0.156; innovation-driven economies: ß = 0.198; transition economies: 0.176) on GDP per capita and thus on the economic growth of OECD countries regardless of their level of development. Thus, Hypothesis 4b (H4b) was confirmed.

Post-school entrepreneurial education and training has a negative impact (all economies: ß = −0.038; innovation-driven economies: ß = −0.037; transition economies: −0.096) on GDP per capita, and as such, on economic growth in OECD countries, regardless of their levels of development. Therefore, Hypothesis 4c (H4c) was confirmed.

Commercial and professional infrastructure have a negative impact on GDP per capita (all economies: ß = −0.082; innovation-driven economies: ß = −0.090; transition economies: −0.065), and as such, on economic growth in OECD countries, although in transition economies it was not significant. Thus, Hypothesis 4d (H4d) was rejected.

Financing for entrepreneurs also has a positive impact (all economies: ß = 0.113; innovation-driven economies: ß = 0.091; transition economies: 0.105) on GDP per capita and thus on economic growth in OECD countries, regardless of their levels of development. Therefore, Hypothesis 4e (H4e) was confirmed.

Internal market openness had a negative impact on GDP per capita (all economies: ß = −0.039; innovation-driven economies: ß = −0.028; transition economies: −0.059), and therefore, on economic growth in OECD countries. Thus, Hypothesis 5a (H5a) was confirmed.

H5b was partially confirmed, as governmental support and policies have a negative impact (all economies: ß = −0.039 innovation-driven economies: ß = −0.040; transition economies: −0.029) on economic growth in OECD countries, regardless of their levels of development. However, in transition OECD economies, it is not statistically significant to explain economic growth. Thus, Hypothesis 5b (H5b) was partially confirmed.

## 5. Discussion

Entrepreneurship plays an important role in economic growth for regions; however, in some geographical spaces, entrepreneurship may not be positive (Xu et al. 2021; Farinha et al. 2020).

Based on the results obtained, we found that cultural and social norms have a positive impact on the economic growth of OECD economies regardless of their levels of development (H1). Thus, cultural and social norms positively impact the GDP per capita and economic growth of OECD countries in innovation-driven and transition-driven OECD economies. According to several studies by Shane (1993), Davidsson (1995), Hayton et al. (2002), and Liñán et al. (2013), cultural and social norms are relevant for entrepreneurship levels, and consequently for economic growth. However, Hofstede (1980) indicates that the bias of certain cultures does not affect the creation of entrepreneurs. However, external environmental factors affect entrepreneurs' intentions to set up businesses (Bruno and Tyebjee 1982; Kah et al. 2020). The characteristics of the place and time where entrepreneurs live affect entrepreneurial intentions (Hart et al. 1995; Mehtap 2020). Therefore, the skills and behaviour of the entrepreneur need to be learned. Thus, the characteristics of the region where they live influence the creation of enterprises (Filion 1998; Díaz-Casero et al. 2012; Farinha et al. 2020).

We also found that internal market dynamics positively impact GDP per capita, regardless of the country's degree of development (H2). As the market is more dynamic, there is a greater probability of new businesses emerging. By stimulating entrepreneurship, it is possible to increase economic growth. Internal market dynamics are more relevant in less competitive countries (Martínez-Fierro et al. 2016), which is not in line with our results. Internal market dynamics are usually facilitators of entrepreneurship in innovation-oriented countries (Farinha et al. 2020; Zeca 2008). Internal market dynamics have a greater impact on the early stages of entrepreneurship. According to Cherchye et al. (2007), we have witnessed in Europe a progression of the performance of the internal market. That

progress has been due to changes in the overall policy environment, leading to the market becoming more dynamic and better practices.

Physical and services infrastructure have a positive impact on economic growth in innovation-driven countries; however, it has a negative impact in transition-driven economies (H3a). These results show that the higher the degree of development of a country, the greater the impact of physical and services infrastructure on economic growth. The physical and services infrastructure in transition economies has a negative effect on firm productivity. Firms cannot absorb and take advantage of the available infrastructure, which leads to a fall in efficiency (Aralica et al. 2018; Farinha et al. 2020).

R&D transfer has a negative impact on economic growth in innovation-driven economies and a positive impact in transition-driven economies (H3b). Concerning the R&D transfer having a negative impact on economic growth in innovation-driven economies, our results complement those of Sa and Pinho (2019). In innovation-driven economies, entrepreneurship education and training are relevant in the context of government programs for the effectiveness of R&D transfer. Thus, entrepreneurship training and education positively affect the relationship between government programs and R&D transfer to growing and new firms (Sa and Pinho 2019; Lopes et al. 2018b).

Regarding R&D transfer having a positive impact on economic growth in transition-driven economies, our results do not corroborate what was indicated by Aralica et al. (2018). The authors argued that the negative effect of R&D transfer can be explained by the inability of the industry to transform R&D activities into innovation. Therefore, policymakers need to provide policy instruments that stimulate the demand for innovative services and products (Edler and Fagerberg 2017).

We also found that the higher the degree of development of the country, the greater the positive impact of taxes and bureaucracy on economic growth. Taxes and bureaucracy have a positive impact on economic growth in OECD countries. This finding could mean that taxes and bureaucracy reduce the informal economy, increasing economic development. These results are in line with what has been indicated by Khyareh et al. (2019). In general, labour market laws and taxes are two of the obstacles to entrepreneurship, which is already considered a risky activity (Acs et al. 2008). However, business regulations are essential for the market economy to function properly. Nevertheless, it is widely accepted that excessive regulations negatively affect the level of entrepreneurial activity (Mullins and Forlani 2005). However, taxes and bureaucracy have a negative impact on economic growth in transition-driven economies, which is in line with the results of Aralica et al. (2018) and Domańska and Zajkowski (2018).

Basic school entrepreneurial education and training have a negative impact on GDP per capita regardless of its degree of development (H4a). Whenever basic school entrepreneurial education and training present weaknesses in an economy, the labour market is impacted. This impact is unfavourable for entrepreneurial activities. On the other hand, entrepreneurial activities correlate strongly with the number of job vacancies available. In other words, the more job vacancies there are, the less entrepreneurial activity there will be. (Cagarman et al. 2020). As a rule, there will be less economic growth if there is less entrepreneurial activity. For economic growth to occur, policymakers must prioritise entrepreneurship (Lopes et al. 2018a, 2021a).

We also found that government programs positively impact GDP regardless of their degrees of development (H4b). Governmental programs aim to foster the innovative spirit of entrepreneurs, promoting entrepreneurship to create of new companies through new business models emerging in the market (Acs and Amorós 2008; Martinez-Fierro et al. 2015). Governmental programs facilitate the creation of an industry focused on the current needs of cities, that is, on the creation of increasingly intelligent cities. Governmental programmes also assist in the industry's transformation to meet sustainability goals, which in turn will to national economy growth (Kim et al. 2016).

Post-school entrepreneurial education and training has a negative impact on GDP per capita, regardless of the degree of development (H4c). Post-school entrepreneurial

education and training mean more qualified human resources; they have more knowledge. Having more knowledge, potential entrepreneurs may have more doubts about whether their businesses will be successful. With more knowledge, one can increase the perception of the risk that having one's own business entails. The variable post-school entrepreneurial education and training is relevant in the entrepreneurship and economic development of economies, and in the growth and management of firms. Our results are antagonistic to Lopes et al. (2018a) but are in line with those indicated by Fossen and Büttner (2013) and Lopes et al. (2021a). As a rule, the post-school entrepreneurial education and training variable positively affects the production and development of high-tech products (Hayter 2015). In turn, these new high-tech products are often the basis for creating new firms, thereby increasing entrepreneurial activity and economic growth (Farinha et al. 2020; Mair and Martí 2006).

Commercial and professional infrastructure was also found to have a negative impact on GDP per capita in OECD countries in general and innovation-driven economies (H4d). Commercial infrastructure and professional infrastructure are the drivers for entrepreneurial activity. When commercial and professional infrastructure is well implemented in countries, these countries have, for example, a good network of business incubators and/or technology parks. In this way, it is feasible to promote business networks and increase companies' turnover in developing countries' economies (Farinha et al. 2020; Zajkowski and Domańska 2019). However, our results show that the commercial and professional infrastructure is not well structured yet in the economies under analysis.

On the other hand, financing for entrepreneurs also positively impacts GDP per capita in OECD countries, regardless of their degrees of development (H4e). The financing for entrepreneur's variable is typically one of the facilitators of entrepreneurship in innovation-oriented countries (Farinha et al. 2020; Martínez-Fierro et al. 2016). Financing for entrepreneurs has a greater impact on the early stages of entrepreneurship. The lack of financing for entrepreneurs means that many potential entrepreneurs cannot put their ideas into practice. (Allison et al. 2013). The lack of financing for entrepreneurs increases the demand for informal investors (Herrington and Coduras 2019). Potential entrepreneurs must then turn to alternative sources of financing, such as strategic alliances, corporations, or business angels. (Gupta and Sapienza 1992). As entrepreneurs base their initiatives on the existence of opportunities, the lack of access to many of them for a large part of the population, and mainly for young people, strongly conditions many potential entrepreneurs to put their ideas into practice (Borges et al. 2021). Financing for entrepreneurs then becomes a critical condition in this scenario because the financing system for large players in the economy has little to do with the types of needs those modest and independent entrepreneurs generally report. This results in a greater interventions by informal investors, who contribute very discrete amounts which, depending on the capacity and preparedness of the beneficiary and the market demand, can result in a high volatility of the activities, as the GEM data show.

Internal market openness has a negative impact on GDP per capita in OECD countries regardless of their degrees of development (H5a). As the internal market is more open, it may mean the emergence of more competing companies. More competition can reduce sales to companies already on the market. Companies earning less have to pay less to their employees. The internal market is more open can cause economic growth to slow down.

Another factor that increases entrepreneurial activity is innovation (Lopes et al. 2021b). According to Okrah et al. (2018) and Berger and Berger (2011), internal market openness makes business leaders focus more on creating an environment of constant innovation and development. This, while attracting more competitors, increases competitiveness, which consequently has a positive impact on the economy. Our results show that internal market openness cannot drive continuous innovation environments in developing countries, regardless of their stages of economic development.

Finally, we conclude that governmental support and policies have a negative impact on economic growth in OECD countries, regardless of their levels of development (H5b).

This result may mean that entrepreneurs consider governmental support and policies insufficient and ineffective. On the other hand, it may mean that entrepreneurs do not trust their governments. Lack of trust in the government usually slows down economic growth. Concerning governmental support and policies, there is no consensus among scholars concerning their effects on firms' performances and growth rates (Bagheri Nasrabadi et al. 2021). Government can support firms in different ways, such as helping with scaled-up production or compensating for environmental costs (Hu and Mathews 2008). On the other hand, government subsidies can significantly influence firm performance. However, some academics claim that these subsidies have negative impacts on firms, as they mean that firms are making losses because there are the interests of politicians to deal with. Sometimes, we still witness inefficient and unfair allocation of subsidies by the rulers (Almus and Czarnitzki 2003; Beason and Weinstein 1996; Bergström 2000; Kang and Park 2012; Lee and Om 1996; Tzelepis and Skuras 2004).

That said, excessive government intervention in the economy can have a negative effect on the operating conditions of businesses. Thus, it is essential to ensure a proper balance of government involvement in the economy concerning to government business support programmes, bureaucracies, taxes, and public debt (Domańska and Zajkowski 2018).

## 6. Conclusions and Implications

Entrepreneurship, essentially opportunity-driven entrepreneurship, supported by the innovation capacity of companies and territories, and the density of cooperation networks, is defended by many authors as an impulse for economic growth (Edler and Fagerberg 2017; Farinha et al. 2020; Khyareh and Amini 2021). This study aimed to assess the impacts of EFCs on economic growth in OECD countries in transition and innovation-driven economies.

Teaching entrepreneurship at the level of basic school and higher education also contributes to stimulating a more active and consistent entrepreneurial culture. From another perspective, RD&I and the transfer of knowledge to companies and society converge in value-added products relative to the value proposition delivered in the market. This offer of added value will become more valuable with time, and to protect industrial property, patents, design registration, and other mechanisms are required. At the basis of all these dynamics is the availability of infrastructure to support innovation, entrepreneurship, and the commercialisation of solutions for the market (Reynolds et al. 2005; GEM 2021b).

The results of our study contradict the thesis that commercial and professional infrastructure positively impact the economic growth of OECD economies, regardless of their degrees of development. According to our study, basic schooling, entrepreneurial education, and training have a negative impact on the economic growth of countries, regardless of their degrees of development. Additionally, governmental support and policies have a negative impact on the economic growth of OECD countries, regardless of their degrees of development. It was demonstrated in the study that the cultural and social norms and internal market dynamics positively impact the economic growth of OECD countries, regardless of their levels of development. Our study confirms the theory that the greater the degree of development of a country, the greater the positive impact of physical and services infrastructure on the economic growth. Results state that the lower the degree of development, the greater the positive impact of R&D transfers on the economic growth in an OECD country. We concluded that the greater the degree of development of a country, the greater the positive impacts of taxes and bureaucracy on its economic growth. This study confirmed that governmental programs positively impact the economic growth of OECD countries, regardless of their degrees of development. According to the study, post-school entrepreneurial education and training negatively impact countries' economic growth regardless of their degrees of development. That is also reinforced by the fact that internal market openness has a negative impact on the economic growth of OECD countries, regardless of their degrees of development. Finally, financing for entrepreneurs

positively impacts the economic growth of OECD countries, regardless of their degrees of development.

This study adds a theoretical contribution in the field of economic growth based on entrepreneurship, which can serve as a basis for policymakers and institutional managers to adjust or develop new policies and entrepreneurial framework conditions to support economic growth.

One of the limitations to be pointed out is the dependence on the data made available by the databases used. Another limitation is the fact that the data made available by GEM for the variables that make up the entrepreneurial framework conditions were collected through unstructured interviews with national experts and not based on data with quantitative measurements. In addition, control variables that, in terms of the literature, are used in GDP growth equations, such as knowledge measured by research and development spending, education level, economic openness, unemployment rate, public spending. and inflation, should have been used.

As future lines of research, we can use this sample of countries to analyse the impacts of entrepreneurial framework conditions by types of entrepreneurs, such as nascent and owner-managers and established business entrepreneurs. From the perspective of deductive research reasoning, it is suggested to conduct future studies, based on the variables identified, on poor continents, and on sub-regions of the economies studied here, to investigate in depth the agreement or disagreement with the results obtained globally. The impact of regional innovation on the GDP per capita of the different types of economies can also be studied.

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## References

Acs, Zoltan. 2006. How is entrepreneurship good for economic growth? *Innovations: Technology, Governance, Globalization* 1: 97–107. [CrossRef]

Acs, Zoltan, and José Ernesto Amorós. 2008. Entrepreneurship and competitiveness dynamics in Latin America. *Small Business Economics* 31: 305–22. [CrossRef]

Acs, Zoltan, David Audretsch, Pontus Braunerhjelm, and Bo Carlsson. 2012. Growth and entrepreneurship. *Small Business Economics* 39: 289–300. [CrossRef]

Acs, Zoltan, Sameeksha Desai, and Jolanda Hessels. 2008. Entrepreneurship, economic development and institutions. *Small Business Economics* 31: 219–34. [CrossRef]

Acs, Zoltan, Saul Estrin, Tomasz Mickiewicz, and László Szerb. 2018. Entrepreneurship, institutional economics, and economic growth: An ecosystem perspective. *Small Business Economics* 51: 501–14. [CrossRef]

Allison, Thomas, Aaron McKenny, and Jeremy Short. 2013. The effect of entrepreneurial rhetoric on microlending investment: An examination of the warm-glow effect. *Journal of Business Venturing* 28: 690–707. [CrossRef]

Almus, Matthias, and Dirk Czarnitzki. 2003. The Effects of Public R&D Subsidies on Firms' Innovation Activities. *Journal of Business & Economic Statistics* 21: 226–36. [CrossRef]

Amorós, José Ernesto, Christian Felzensztein, and Eli Gimmon. 2013. Entrepreneurial opportunities in peripheral versus core regions in Chile. *Small Business Economics* 40: 119–39. [CrossRef]
Aralica, Zoran, Tonci Svilokos, and Katarina Bacic. 2018. Institutions and Firms' Performance in Transition Countries: The Case of Selected Cesee Countries. *South East European Journal of Economics and Business* 13: 68–80. [CrossRef]
Audretsch, David, and Max Keilbach. 2004. Entrepreneurship Capital and Economic Performance. *Regional Studies* 38: 949–59. [CrossRef]
Audretsch, David, and Roy Thurik. 1998. *The Knowledge Society, Entrepreneurship, and Unemployment*. Champaign: University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship (SSRN Electronic Library).
Bagheri Nasrabadi, Abdullah Jassbi, Ali Bonyadi Naeini, and Saeid Shavvalpour. 2021. Optimal government support policy towards technology development considering the challenges of conflict of interests, ethical and structural problems. *RAIRO—Operations Research* 55: 1153–69. [CrossRef]
Beason, Richard, and David Weinstein. 1996. Growth, economies of scale, and targeting in Japan (1955–1990). *The Review of Economics and Statistics* 78: 286–95. [CrossRef]
Berger, Lance, and Dorothy Berger. 2011. *The Talent Management Handbook: Creating a Sustainable Competitive Advantage by Selecting, Developing, and Promoting the Best People*. New York: McGraw-Hill, vol. 2.
Bergström, Fredrik. 2000. Capital Subsidies and the Performance of Firms. *Small Business Economics* 14: 183–93. [CrossRef]
Bertoni, Fabio, and Tereza Tykvová. 2015. Does governmental venture capital spur invention and innovation? Evidence from young European biotech companies. *Research Policy* 44: 925–35. [CrossRef]
Borges, Ana Pinto, João Morais Lopes, Catarina Carvalho, Bruno Miguel Vieira, and Jorge Lopes. 2021. Education as a key to provide the growth of entrepreneurial intentions. *Education + Training* 63: 809–32. [CrossRef]
Borozan, Djula, and Luka Borozan. 2020. Examining the Industrial Energy Consumption Determinants: A Panel Bayesian Model Averaging Approach. *Energies* 13: 70. [CrossRef]
Bosma, Niels, Zoltan Acs, Erkko Autio, Alicia Coduras, and Jonathan Levie. 2008. *2008 Executive Report*. London: Global Entrepreneurship Monitor.
Breitung, Jörg. 2000. The local power of some unit root tests for panel data. In *Nonstationary Panels, Panel Cointegration, and Dynamic Panels*. Edited by Badi Baltagi, Thomas Fomby and Carter Hill. Bingley: Emerald Group Publishing Limited, pp. 161–78.
Bruno, Albert, and Tyzoon Tyebjee. 1982. The environment for entrepreneurship. In *Encyclopedia of Entrepreneurship*. Edited by Calvin Kent, Donald Sexton and Karl Vesper. Englewood Cliffs: Prentice Hall, pp. 288–307.
Cagarman, Karina, Jan Kratzer, Laura Helen von Arnim, Kristina Fajga, and Michaela Jacqueline Gieseke. 2020. Social Entrepreneurship on Its Way to Significance: The Case of Germany. *Sustainability* 12: 8954. [CrossRef]
Carree, Martin, and Roy Thurik. 2010. The Impact of Entrepreneurship on Economic Growth. In *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. Edited by Zoltan Acs and David Audretsch. New York: Springer, pp. 557–94.
Cavallo, Angelo, Antonio Ghezzi, and Raffaello Balocco. 2019. Entrepreneurial ecosystem research: Present debates and future directions. *International Entrepreneurship and Management Journal* 15: 1291–321. [CrossRef]
Cherchye, Laurens, Knox Lovell, Wim Moesen, and Tom Van Puyenbroeck. 2007. One market, one number? A composite indicator assessment of EU internal market dynamics. *European Economic Review* 51: 749–79. [CrossRef]
Civera, Josefina, Mabel Pisá Bó, and José Fernando López-Muñoz. 2021. Do contextual factors influence entrepreneurship? Spain's regional evidences. *International Entrepreneurship and Management Journal* 17: 105–29. [CrossRef]
Crowley, Frank, and Philip McCann. 2018. Firm innovation and productivity in Europe: Evidence from innovation-driven and transition-driven economies. *Applied Economics* 50: 1203–21. [CrossRef]
Davidsson, Per. 1995. Culture, structure and regional levels of entrepreneurship. *Entrepreneurship & Regional Development* 7: 41–62. [CrossRef]
Díaz-Casero, Carlos, Ricardo Hernández-Mogollón, and José Roldán. 2012. A structural model of the antecedents to entrepreneurial capacity. *International Small Business Journal* 30: 850–72. [CrossRef]
Díez-Martín, Francisco, Alicia Blanco-González, and Camilo Prado-Román. 2016. Explaining nation-wide differences in entrepreneurial activity: A legitimacy perspective. *International Entrepreneurship and Management Journal* 12: 1079–102. [CrossRef]
Domańska, Ada, and Robert Zajkowski. 2018. Influence of state participation on business conditions and entrepreneurship in the EU countries of the former eastern bloc. *e-Finanse* 14: 9–17. [CrossRef]
Edler, Jakob, and Jan Fagerberg. 2017. Innovation policy: What, why, and how. *Oxford Review of Economic Policy* 33: 2–23. [CrossRef]
Falciola, Justine, Marion Jasen, and Valentina Rollo. 2020. Defining firm competitiveness: A multidimensional framework. *World Development* 129: 104857. [CrossRef]
Farinha, Luís, Joao Ferreira, and Sara Nunes. 2018. Linking innovation and entrepreneurship to economic growth. *Competitiveness Review* 28: 451–75. [CrossRef]
Farinha, Luís, Joao Ferreira, Sara Nunes, and Vanessa Ratten. 2017. Conditions supporting entrepreneurship and sustainable growth. *International Journal of Social Ecology and Sustainable Development* 8: 67–86. [CrossRef]
Farinha, Luís, João Lopes, Sharmistha Bagchi-Sen, João Renato Sebastião, and José Oliveira. 2020. Entrepreneurial dynamics and government policies to boost entrepreneurship performance. *Socio-Economic Planning Sciences* 72: 100950. [CrossRef]

Ferreira, João, Alain Fayolle, Cristina Fernandes, and Mário Raposo. 2017. Effects of Schumpeterian and Kirznerian entrepreneurship on economic growth: Panel data evidence. *Entrepreneurship & Regional Development* 29: 27–50. [CrossRef]
Filion, Louis Jacques. 1998. From entrepreneurship to entreprenology: The emergence of a new discipline. *Journal of Enterprising Culture* 6: 1–23. [CrossRef]
Fossen, Frank, and Tobias Büttner. 2013. The returns to education for opportunity entrepreneurs, necessity entrepreneurs, and paid employees. *Economics of Education Review* 37: 66–84. [CrossRef]
GEM. 2021a. Global Entrepreneurship Monitor. Available online: https://www.gemconsortium.org/data/key-nes (accessed on 26 May 2021).
GEM. 2021b. Entrepreneurial Framework Conditions (EFCs). Available online: https://www.gemconsortium.org/wiki/1154 (accessed on 11 June 2021).
Greene, William. 2020. *Econometric Analysis*, 8th ed. London: Pearson-Prentice Hall.
Gu, Wentao, Jiaye Wang, Xiyuan Huan, and Zhongdi Liu. 2021. Entrepreneurship and high-quality economic development: Based on the triple bottom line of sustainable development. *International Entrepreneurship and Management Jounal* 17: 1–27. [CrossRef]
Gupta, Anil, and Harry Sapienza. 1992. Determinants of venture capital firms' preferences regarding the industry diversity and geographic scope of their investments. *Journal of Business Venturing* 7: 347–62. [CrossRef]
Hall, Alastair. 2005. *Generalized Method of Moments*. Oxford: Oxford University Press.
Hart, Myra, Howard Stevenson, and Jay Dial. 1995. Entrepreneurship: A definition revisited. In *Frontiers of Entrepreneurship Research*. Edited by William Bygrave. Wellesley: Wellesley College, pp. 75–89.
Hayashi, Fumio. 2000. *Econometrics*. Princeton: Princeton University Press.
Hayter, Christopher. 2015. Public or private entrepreneurship? Revisiting motivations and definitions of success among academic entrepreneurs. *The Journal of Technology Transfer* 40: 1003–15. [CrossRef]
Hayton, James, Gerard George, and Shaker Zahra. 2002. National Culture and Entrepreneurship: A Review of Behavioral Research. *Entrepreneurship Theory and Practice* 26: 33–52. [CrossRef]
Herrington, Mike, and Alicia Coduras. 2019. The national entrepreneurship framework conditions in sub-Saharan Africa: A comparative study of GEM data/National Expert Surveys for South Africa, Angola, Mozambique and Madagascar. *Journal of Global Entrepreneurship Research* 9: 60. [CrossRef]
Hofstede, Geert. 1980. *Culture's Consequences: International Differences in Work-Related Values*. London and Beverly Hils: Sage Publications.
Hu, Mei-Chih, and John Mathews. 2008. China's national innovative capacity. *Research Policy* 37: 1465–79. [CrossRef]
Im, Kyung So, Hashem Pesaran, and Yongcheol Shin. 2003. Testing for unit roots in heterogeneous panels. *Journal of Econometrics* 115: 53–74. [CrossRef]
Kah, Sally, Seamus O'Brien, Seng Kiat Kok, and Emer Gallagher. 2020. Entrepreneurial Motivations, Opportunities, and Challenges: An International Perspective. *Journal of African Business*, 1–20. [CrossRef]
Kang, Kyung-Nam, and Hayoung Park. 2012. Influence of government R&D support and inter-firm collaborations on innovation in Korean biotechnology SMEs. *Technovation* 32: 68–78. [CrossRef]
Khyareh, Mohsen Mohammadi, and Hadi Amini. 2021. Governance quality, entrepreneurship and economic growth. *Journal of Competitiveness* 13: 41–64. [CrossRef]
Khyareh, Mohsen Mohammadi, Masoud Khairandish, and Hossein Torabi. 2019. Macroeconomic Effects of Entrepreneurship: Evidences from Factor, Efficiency and Innovation Driven Countries. *International Journal of Entrepreneurship* 23: 1–21.
Kim, Kyunam, Jung-Kyu Jung, and Jae Young Choi. 2016. Impact of the smart city industry on the Korean national economy: Input-output analysis. *Sustainability* 8: 649. [CrossRef]
Krüger, Niel Almero, and Natanya Meyer. 2021. The Development of a Small and Medium-Sized Business Risk Management Intervention Tool. *Journal of Risk and Financial Management* 14: 310. [CrossRef]
Lahouel, Ben Béchir, Brahim Gaies, Younes Ben Zaied, and Abderrahman Jahmane. 2019. Accounting for endogeneity and the dynamics of corporate social—Corporate financial performance relationship. *Journal of Cleaner Production*, 230. [CrossRef]
Lee, Mushin, and Kiyong Om. 1996. Different factors considered in project selection at public and private R&D institutes. *Technovation* 16: 271–75. [CrossRef]
Lepoutre, Jan, Rachida Justo, Siri Terjesen, and Niels Bosma. 2013. Designing a global standardized methodology for measuring social entrepreneurship activity: The Global Entrepreneurship Monitor social entrepreneurship study. *Small Business Economics* 40: 693–714. [CrossRef]
Levin, Andrew, Chien-Fu Lin, and Chia-Shang James Chu. 2002. Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics* 108: 1–24. [CrossRef]
Li, Cai, Naveed Ahmed, Sikandar A. Qalati, Asadullah Khan, and Shumaila Naz. 2020. Role of Business Incubators as a Tool for Entrepreneurship Development: The Mediating and Moderating Role of Business Start-Up and Government Regulations. *Sustainability* 12: 1822. [CrossRef]
Liñán, Francisco, Isidoro Romero Luna, and José Fernández Serrano. 2013. Necessity and opportunity entrepreneurship: The mediating effect of culture. *Revista de Economía Mundial* 33: 21–47.
Lopes, João, and Mário Franco. 2019. Review About Regional Development Networks: An Ecosystem Model Proposal. *Journal of the Knowledge Economy* 10: 275–97. [CrossRef]

Lopes, João, Helder Antunes, and Ricardo Rodrigues. 2018a. Comparative Entrepreneurship between Western Europe and Latin America. *Entrepreneurship Research Journal* 8: 1–20. [CrossRef]
Lopes, João, Márcio Oliveira, Paulo Silveira, Luís Farinha, and José Oliveira. 2021a. Business Dynamism and Innovation Capacity, an Entrepreneurship Worldwide Perspective. *Journal of Open Innovation: Technology, Market, and Complexity* 7: 94. [CrossRef]
Lopes, João Morais, Luís Farinha, João Ferreira, and Fernando Ferreira. 2018b. Peeking beyond the wall: Analysing university technology transfer and commercialisation processes. *International Journal of Technology Management* 78: 107–32. [CrossRef]
Lopes, João Morais, Sofia Gomes, José Oliveira, and Márcio Oliveira. 2021b. The Role of Open Innovation, and the Performance of European Union Regions. *Journal of Open Innovation: Technology, Market, and Complexity* 7: 120. [CrossRef]
Lopes, João M., Sofia Gomes, Rosselyn Pacheco, Elizabete Monteiro, and Carolina Santos. 2022. Drivers of Sustainable Innovation Strategies for Increased Competition among Companies. *Sustainability* 14: 5471. [CrossRef]
Mair, Johanna, and Ignasi Martí. 2006. Social entrepreneurship research: A source of explanation, prediction, and delight. *Journal of World Business* 41: 36–44. [CrossRef]
Marques, Carla Susana, João Ferreira, Ricardo Gouveia Rodrigues, and Mariza Ferreira. 2011. The contribution of yoga to the entrepreneurial potential of university students: A SEM approach. *International Entrepreneurship and Management Journal* 7: 255–78. [CrossRef]
Marshall, Alfred. 1961. *Principles of Economics*. London: Macmillan, vol. 1.
Martinez-Fierro, Salustiano, Jose Maria Biedma-Ferrer, and Jose Maria Biedma-Ferrer. 2015. Entrepreneurial Framework Conditions and Economic Development: An Analysis of Gem Countries. *Revista de Economía Mundial*, 181–212.
Martínez-Fierro, Salustiano, José María Biedma-Ferrer, and José Ruiz-Navarro. 2016. Entrepreneurship and strategies for economic development. *Small Business Economics* 47: 835–51. [CrossRef]
Martínez-Fierro, Salustiano, José María Biedma-Ferrer, and José Ruiz-Navarro. 2020. Impact of high-growth start-ups on entrepreneurial environment based on the level of national economic development. *Business Stratetegy and the Environment* 29: 1007–20. [CrossRef]
Maskell, Peter, and Anders Malmberg. 1999. The Competitiveness of Firms and Regions:'Ubiquitification' and the Importance of Localized Learning. *European Urban and Regional Studies* 6: 9–25. [CrossRef]
Medrano, Natalia, María Cornejo-Cañamares, and Cristina Olarte-Pascual. 2020. The impact of marketing innovation on companies' environmental orientation. *Journal of Business & Industrial Marketing* 35: 1–12. [CrossRef]
Mehtap, Isik. 2020. Making Innovation Development Policies Work for MENA: The Need for Entrepreneurship. In *Foreign Direct Investments: Concepts, Methodologies, Tools, and Applications*. Edited by Association Information Resources Management. Hershey: IGI Global, pp. 1733–57.
Mileva, Elitza. 2007. *Using Arellano-Bond Dynamic Panel GMM Estimators in Stata*. New York: Fordham University, pp. 1–10.
Mullins, John W., and David Forlani. 2005. Missing the boat or sinking the boat: A study of new venture decision making. *Journal of Business Venturing* 20: 47–69. [CrossRef]
Nunes, Alcina, and Kateryna Savosh. 2022. Worldwide Effect of Business Environment Factors on Innovation. *Journal of Entrepreneurship: Research & Practice* 2022: 353215. [CrossRef]
Okrah, James, Alexander Nepp, and Ebenezer Agbozo. 2018. Exploring the factors of startup success and growth. *The Business & Management Review* 9: 229–37.
Peris-Ortiz, Marta, João Ferreira, and Cristina Fernandes. 2018. Do Total Early-stage Entrepreneurial Activities (TEAs) foster innovative practices in OECD countries? *Technological Forecasting and Social Change* 129: 176–84. [CrossRef]
Porter, Michael. 2003. The Economic Performance of Regions. *Regional Studies* 37: 549–78. [CrossRef]
Porter, Michael E. 2000. Location, Competition, and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly* 14: 15–34. [CrossRef]
Queiroz, Jonas, Paulo Leitão, Joseane Pontes, André Chaves, Javier Parra-Domínguez, and María Perez-Pons. 2020. A Quality Innovation Strategy for an Inter-regional Digital Innovation Hub. *Adcaij-Advances in Distributed Computing and Artificial Intelligence Journal* 9: 31–45. [CrossRef]
Reynolds, Paul, Niels Bosma, Erkko Autio, Steve Hunt, Natalie De Bono, Isabel Servais, Paloma Lopez-Garcia, and Nancy Chin. 2005. Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business Economics* 24: 205–31. [CrossRef]
Sa, Elisabete, and José Carlos Pinho. 2019. Effect of entrepreneurial framework conditions on R&D transfer to new and growing firms: The case of European Union innovation-driven countries. *Technological Forecasting and Social Change* 141: 47–58. [CrossRef]
Schwab, Klaus. 2018. *The Global Competitiveness Report 2018*. Geneva: World Economic Forum.
Shane, Scott. 1993. Cultural influences on national rates of innovation. *Journal of Business Venturing* 8: 59–73. [CrossRef]
Sitaridis, Ioannis, and Fotis Kitsios. 2020. Competitiveness analysis and evaluation of entrepreneurial ecosystems: A multi-criteria approach. *Annals of Operations Research* 294: 377–99. [CrossRef]
Sommarström, Kaarina, Elena Oikkonen, and Timo Pihkala. 2020. Entrepreneurship Education with Companies: Teachers Organizing School-Company Interaction. *Education Sciences* 10: 268. [CrossRef]
Stam, Erik, and André Van Stel. 2011. Types of entrepreneurship and economic growth. In *Entrepreneurship, Innovation, and Economic Development*. Edited by Adam Szirmai, Wim Naudé and Micheline Goedhuys. New York: Oxford University Press, pp. 78–95.
Steigertahl, Lisa, and René Mauer. 2021. Investigating the success factors of the Nordic entrepreneurial ecosystem—Talent transformation as a key process. *International Journal of Entrepreneurship and Innovation*. [CrossRef]

Stoica, Ovidiu, Angela Roman, and Valentina D. Rusu. 2020. The Nexus between Entrepreneurship and Economic Growth: A Comparative Analysis on Groups of Countries. *Sustainability* 12: 1186. [CrossRef]

Sun, Huaping, Aminatou Kemajou Pofoura, Isaac Adjei Mensah, Liang Li, and Muhammad Mohsin. 2020. The role of environmental entrepreneurship for sustainable development: Evidence from 35 countries in Sub-Saharan Africa. *Science of The Total Environment* 741: 140132. [CrossRef]

Tzelepis, Dimitris, and Dimitris Skuras. 2004. The effects of regional capital subsidies on firm performance: An empirical study. *Journal of Small Business and Enterprise Development* 11: 121–29. [CrossRef]

Urbano, David, and Sebastian Aparicio. 2016. Entrepreneurship capital types and economic growth: International evidence. *Technological Forecasting and Social Change* 102: 34–44. [CrossRef]

Valliere, Dave, and Rein Peterson. 2009. Entrepreneurship and economic growth: Evidence from emerging and developed countries. *Entrepreneurship & Regional Development* 21: 459–80. [CrossRef]

Wennekers, Sander, and Roy Thurik. 1999. Linking Entrepreneurship and Economic Growth. *Small Business Economics* 13: 27–56. [CrossRef]

Wooldridge, Jeffrey. 2001. Applications of Generalized Method of Moments Estimation. *Journal of Economic Perspectives* 15: 87–100. [CrossRef]

World Bank. 2021. The World Bank. Available online: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD (accessed on 26 May 2021).

Xu, Bing, Haijing Yu, and Lili Li. 2021. The impact of entrepreneurship on regional economic growth: A perspective of spatial heterogeneity. *Entrepreneurship and Regional Development* 33: 309–31. [CrossRef]

Zajkowski, Robert, and Ada Domańska. 2019. Differences in perception of regional pro-entrepreneurial policy: Does obtaining support change a prospect? *Oeconomia Copernicana* 10: 359–84. [CrossRef]

Zeca, E. D. 2008. Globalization, retail, wholesale trade and e-commerce. Paper presented at the International Economic Conference on Integrative Relations between the European-Union-Institutions-and-the-Member-States, Sibiu, Romania, May 15–16.