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Abstract: Developed entrepreneurial activity is often not directly related to the development of the economy. Therefore, the question of the role of entrepreneurship in the economy remains important. This study aims to assess and understand the interrelationship among conditions for the development of entrepreneurship and economic indicators in selected countries with different types of orientation of their economies: efficiency-oriented and innovation-oriented economies. Data include indicators of international entrepreneurial and economy indexes with a common sample of 18 countries from 2011 to 2020. The results confirmed previous studies that entrepreneurship has no direct effects on economic development. However, the study showed that the conditions of entrepreneurship in the country are strongly associated with economic growth in both groups of countries. Generally, early entrepreneurship is more important for efficiency-oriented countries than for innovative ones, whereas the conditions of entrepreneurship are better in innovation-oriented countries.

Keywords: entrepreneurship; entrepreneurial activity; entrepreneurship context; efficiency-oriented economies; innovation-oriented economies; GEM; economy; economic growth.

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1 Introduction

Entrepreneurship is a process of creativity where there is a potential to add value to products, create job opportunities (Liñán et al., 2005), raise productivity, revitalise and diversify markets, increase competitiveness, improve social welfare and further economic development (Urbano et al., 2017; Esfandiar et al., 2019) particularly because of entrepreneurs' innovative nature (Fuellhart and Glasmeier, 2003; Maxwell and Stone, 2004). Economic development and poverty reduction are usually the main benefits of entrepreneurship (Willis, 2011).

The conditions for the development of entrepreneurship can therefore be an influential factor affecting economic growth, especially in unpredictable external environments Dana (1993). As we can see, national governments face the challenge of ensuring sustainable socio-economic development, which is characterised by accelerating scientific and technological changes (Batrancea et al., 2019, 2022). Stimulating entrepreneurship as a source of economic development can play an instrumental role in countries' success in navigating contradictory processes of globalisation, protecting national interests and increasing their competitiveness among world economies.

However, these links are complex, and countries are not equal in terms of conditions and factors affecting the development of entrepreneurship and economic growth. On the one hand, researchers report the positive impact of entrepreneurship on macroeconomic growth (Van Stel et al., 2005; Hessels and Van Stel, 2011). On the other hand, some research indicates that entrepreneurship and entrepreneurial activity are not directly related to economic development. For example, the Latin American paradox is a situation, in which the high level of entrepreneurial development is combined with low rates of economic growth (Larroulet and Couyoumdjian, 2009). So, it is important to identify the differences in these interrelationships for different types of countries.

As we can see, experts distinguish three types of countries, analysing the orientation of the economy. In the first type of countries with resource-oriented (factor-driven) economies, resource exploitation and extensive development are at the heart of economic growth (Kurtishi-Kastrati et al., 2016). Hence, entrepreneurship cannot be considered as a key driver of development. The other two types of countries are focused on efficiency and innovation, and entrepreneurship is important for these economies. Following the experts of GEM and the World Bank Organisation, we propose to consider the development of entrepreneurship and the impact on economic growth in these countries with innovative and efficient economies.

In light of the discussion about the role of entrepreneurship in the economic and innovative development of various countries (Van Stel et al., 2005; Hessels and Van Stel, 2011), our aim is to assess and understand the interrelationship among conditions for the development of entrepreneurship, entrepreneurial activity and economic growth indicators in groups of countries with different types of orientation of their economies.

Paper structure includes following sections: (1) Introduction, (2) Literature review, (3) Research question, (4) Hypothesis, (5) Data and Methods, (6) Results, (7) Discussion, (8) Conclusion, (9) Implications of the findings and (10) Limitations of this research.

2 Literature review

Entrepreneurial activity is generally seen as an important aspect of the organisation of industries that are conducive to innovation and unrestrained competition. As a human endeavour, it emphasises undertaking economic activities that create value. Entrepreneurship is viewed as an effective way of broadening people's competitive advantages (Amiri and Marimaei, 2013), especially in preparing them for the harsh competition of the global economy. According to the definition used by the Organisation for Economic Cooperation and Development, entrepreneurship is highly variable in activities and generates varying results, which are not necessarily related to wealth creation. Entrepreneurship refers to individuals' ability to create new products and services for their businesses.

Without formalised metrics for measuring entrepreneurship, it has been difficult to operationalise it until the last decade. Owing to the data collection provided by GEM and other global sources, many scholars have investigated the effects of entrepreneurship empirically. They have studied spillovers (Carlsson et al., 2009), the Schumpeterian view (Wennekers and Thurik 1999), innovation (Wong et al., 2005), capital (Urbano and Aparicio, 2016), motivation and risk (Hampel-Milagrosa et al., 2015), as well as economic, social, political and psychological interconnected factors of entrepreneurial development (Amat, 2019).

In terms of growth models, the relationship between entrepreneurship and endogenous growth can be summarised in the conceptualisation of entrepreneurship as a specific form of human capital (Lucas, 1988; Romer, 1986). Neoclassical growth theory focused on capital and labour as productivity factors of industrial development. According to Kirzner (1978), entrepreneurship can also promote growth by providing opportunities for profit. Later, the new economic theory of growth supported these ideas, creating opportunities to include entrepreneurship in growth models.

Entrepreneurial development has a variety of effects on economic growth (Van Stel et al., 2005; Acs and Szerb, 2011; Coulibaly et al., 2018; Almodovar-Gonzalez et al., 2020; Stoica et al., 2020; Davari et al., 2022; Gomes and Ferreira, 2022; Tahir and Burki, 2023). For example, totally early-stage Entrepreneurial Activity (TEA, GEM) negatively impacts Gross Domestic Product (GDP) growth for relatively poor countries, and positively impacts GDP in the case of wealthy economies. Naudé (2011) and Sautet (2013) claim some distance between entrepreneurial activity and economic growth in developing economies. A large part of entrepreneurial initiatives in these countries is driven by necessity, because of a lack of favourable job opportunities (Anokhin and Wincent, 2012), and characterised by lower quality (Shane and Venkataraman, 2000). So, it does not boost economic growth (Valliere and Peterson, 2009). In countries with advanced economies, entrepreneurs proactively seize business opportunities to gain economic benefits (Ribeiro-Soriano, 2017; Doran et al., 2018). In this case entrepreneurial activity significantly contributes to economic growth because of innovative potential and motivation to create new ventures and employment opportunities (Capelleras et al., 2010). It helps to enhance productivity and a country's competitiveness (Amaghouss and Ibourk, 2012).

As we can see, the impact of entrepreneurial activity on the economic growth of countries substantially differs depending on the stage of their economic development (Ferreira et al., 2017), and the orientation of their economies. It should be noted that efficient economies have the highest TEA indicators compared to the other two groups. This fully corresponds to the policy aimed at supporting entrepreneurship in society for

stimulating economic growth. Entrepreneurial activity in these economies is diverse and developed, due to higher education, well-functioning labour markets, efficient commodity and developed financial markets, the ability to take advantage of existing technologies and large internal or external markets (Schwab, 2017, p.319). Countries with innovation-oriented economies have a lower level of TEA, because they tend to have a high concentration of large enterprises and competition, so there are fewer opportunities for the emergence of completely new enterprises. Countries with resource-based economies compete based on their availability of production resources, primarily unskilled labour and natural resources. Maintaining competitiveness at this stage of development depends on well-functioning institutions, developed infrastructure, a stable macroeconomic environment and a workforce with basic education. In response, it is important to include in our study the first two groups of countries. Thus, we can see the effects in two different models of development. For the third group entrepreneurial activity is not directly involved in economic growth.

Finally, it remains a challenge to distinguish the variables contributing to the relationship among entrepreneurship, entrepreneurial activity and economic growth (Carree et al., 2007; Valliere and Peterson, 2009). Prieger et al. (2016) shown the lack of conclusive evidence related to these links. Our contribution to this discussion is to explain the impact of conditions for the development of entrepreneurship and entrepreneurial activity on economic growth indicators and clarify the key factors for countries with innovation-oriented and efficiency-oriented economies.

Considering the previous studies and results, we focused on the relationship between entrepreneurship, entrepreneurial activity and economic growth in selected countries. Therefore, we posed the following research question.

3 Research question

How are conditions for the development of entrepreneurship and entrepreneurial activity related to economic growth in countries with different types of orientation of their economies?

4 Hypothesis

There are similarities and differences in the relationship between conditions for the development of entrepreneurship, and entrepreneurial activity, with economic growth indicators in countries with innovation- and efficiency-oriented economies (Bosma et al., 2021; Faghih et al., 2019):

1 Countries with efficiency- and innovation-oriented economies are characterised by strong direct links between conditions of entrepreneurial development and economic growth indicators.

2 The key factor of economic growth depends on the type of orientation of economies. This is entrepreneurial activity for countries with efficiency-oriented economies, and innovation – for innovation-oriented economies.

5 Data and methods

We use data of GEM, GCI, Global Entrepreneurship Index (GEI) and Global Innovation Index (GII), as well as the World Economic Forum report (WEF) and GDP data from the World Bank (WB) with a common sample of 18 countries from 2011 to 2020 (2011–2016 countries).

The indicators in indexes for the measurement of variables are:

- *Entrepreneurship and Conditions for Entrepreneurial Development (GEM) –*
  - GEI (Global Entrepreneurship Index);
  - NECI (National Entrepreneurship Context Index) and sub-indexes:
    - GSP (Governmental Support and Policies);
    - GP (Governmental Programs);
    - FFE (Financing for Entrepreneur);
    - TB (Taxes and Bureaucracy);
    - BEET (Basic School Entrepreneurial Education and Training);
    - PEET (Post School Entrepreneurial Education and Training);
    - IMD (Internal Market Dynamics);
    - CIF (Commercial and Professional Infrastructure);
    - IMO (Internal Market Openness);
    - R&D transfer.
- *Entrepreneurial Activity (EA, GEM) –*
  - TEA (Total Early-Stage Entrepreneurial Activity);
  - EBO (Established Business Ownership).
- *Entrepreneurial Intentions (GEM) –*
  - EI (Entrepreneurial Intentions).
- *GAP index (GEM) –*
  - EI-TEA (Index of the gap between EI and EA).
- *Innovation (GII) –*
  - GII (Global Innovation Index);
  - R&D (Research & Development).
- *Economic development (economic growth) –*
  - GDP (GDP per capita, Gross Domestic Product, WB);
  - GCI (Global Competitiveness Index).

Considering the availability of data, three groups of countries (GEM, 2011–2017, The Global Competitiveness Report, 2002–2017) are included in this study and categorised as resource-oriented (e.g., Iran), efficiency-oriented (Brazil, Chile, Colombia, Croatia, Panama, Poland and Slovakia) and innovation-oriented (Germany, Greece, Netherlands, Slovenia, Spain, Sweden, Switzerland, the UK and the USA) economies.

Descriptive statistics are used to estimate the distribution of data; correlation analysis (Spearman criterion) – to analyse the relationship between variables (the conditions for the development of entrepreneurship, entrepreneurial activity and economic growth); comparative analysis – to assess differences between countries in terms of the level of entrepreneurial activity, conditions for the development of entrepreneurship, factor and regression analyses – to investigate the effects of entrepreneurial activity and conditions for the development of entrepreneurship on economic growth. Calculations were made in R Studio.

6 Results

6.1 Descriptive statistics

First, we analyse the statistics of data distribution among each group of countries. Based on a sample of countries with efficiency-oriented economies, Table 1 shows statistics on variable distributions.

Table 1 Descriptive statistics of variables, efficiency-oriented economies, average

Descriptive statistics	*Variables in Indexes*								
	TEA	*EBO*	*NECI*	*EI*	*GEI*	*GII*	*R&D*	*GDP*	*GCI*
Min	3.1	1.9	2.04	4.7	16.1	29.04	0.4	12400	4.04
Max	36.7	20.3	5.2	57.6	59.69	43.4	39.9	33100	70.5
Sum	1139.5	554.31	208.12	1963.8	2704.047	2627	1288.5	16300	1473.52
Median	15.1	6.5	2.537	21.25	38.536	37.95	16.55	2490000	4.47
Mean	16.2	7.91	2.973	28.05	38.62	37.529	18.40	23300	21.05
SE.mean	0.88	0.53	0.106	1.848	1.4865	0.4509	1.167	746	3.112

Source: Compiled by author.

As we can see the median and mean values of TEA and NECI variables are high. In terms of its maximum and average values, GDP measures are moderate.

Table 2 contains statistics on the distribution of variables in the sample of countries with innovation-oriented economies.

Table 2 Descriptive statistics of variables, innovation-oriented economies and average

Descriptive statistics	*Variables in indexes*								
	TEA	*EBO*	*NECI*	*EI*	*GEI*	*GII*	*R&D*	*GDP*	*GCI*
Min	3.7	4.2	2.1	5.1	34.6	26.1	20.9	27200	3.86
Max	17.4	15.8	6.5	15.3	86.80	68.40	81.3	68400	87.00
Sum	700.2	716.15	308.082	818.70	5661.6	4909.1	5177.9	42000	2358.6
Median	7.3	7.1	2.83	8.8	67.38	58.40	63.6	4960000	5.53
Mean	7.86	8.04	3.461	9.198	63.61	55.158	58.17	47200	26.5
SE.mean	0.28	0.28	0.129	0.25	1.592	1.015	1.824	1220	3.49

Source: Compiled by author.

According to the statistical description, the median and mean values of the TEA variable are low. The maximum and average GDP and NECI values are at a high level.

Assessment of differences in the relationship between conditions for the development of entrepreneurship, entrepreneurial activity and economic growth indicators

We use the Kruskal-Wallis H-test to identify the difference between efficiency-driven and innovation-driven economies in terms of important variables: EA (TEA, EBO) and NECI from 2011 to 2020. The results of this analysis are presented in Table 3.

Table 3 Results of comparative analysis, efficiency-, innovation-oriented economies (GEM, 2011–2020), H – Kruskal-Wallis test

Years	*Variables*					
	TEA		*EBO*		*NECI*	
	H Statistic	*p-value*	*H Statistic*	*p-value*	*H Statistic*	*p-value*
2011	8.7	**0.003****	0.03	0.86	1.92	0.16
2012	5.67	**0.01****	0.71	0.39	2.86	0.09
2013	8.16	**0.004****	1.23	0.26	1.75	0.18
2014	6.72	**0.009****	0.13	0.71	2.69	0.10
2015	9.10	**0.002****	0.33	0.56	5.42	**0.019***
2016	6.725	**0.0095****	0.40	0.52	5.67	**0.01****
2017	7.86	**0.005****	0.63	0.43	5.42	**0.019***
2018	3.83	**0.05***	0.04	0.83	7.28	**0.006****
2019	4.70	**0.03***	0.47	0.49	8.47	**0.003****
2020	4.708	**0.03***	2.04	0.15	8.78	**0.003****

Notes: *$p \leq 0.05$, **$p \leq 0.01$; Compiled by author.

For the TEA variable, there are significant differences in all years, and from 2011 to 2017 these differences are found at a high level of significance ($p \leq 0.01$), while from 2018 it decreased slightly ($p \leq 0.05$). This means that the TEA index is more significant for efficiency-oriented countries than for innovative ones, which is confirmed by the analysis of the mean of the index by country group from 2011 to 2020.

According to the EBO index, there are no significant differences among these groups of countries in any year. This means that established entrepreneurship has the same value in both efficiency-oriented and innovative economies. As for NECI, these groups of countries have no significant differences in this index up to 2015. They were approximately the same in terms of conditions for the development of entrepreneurship. Since 2015, it has been improving in countries with innovation-oriented economies, compared to efficiency-oriented ones.

NECI indicator reveals increases in the differences between groups of countries from 2018: the innovation-oriented countries have a better business environment, although this is not reflected in the differences in economic growth. Improved entrepreneurial conditions may also explain the less acute differences between country groups on TEA in 2018–2020, although they are not reflected in differences in EBO.

To confirm these differences, the U – Mann-Whitney criterion was also used, the results of which are presented in Table 4.

Table 4 Results of comparative analysis, efficiency-, innovation-oriented economies, (GEM, 2011–2020), U – Mann-Whitney test

Years	*Variables*								
	TEA			*EBO*			*NECI*		
	z-score	*p-value*	*U*	*z-score*	*p-value*	*U*	*z-score*	*p-value*	*U*
2011	–1.10	0.27	85	1.14	0.25	84	0.33	0.74	103.5
2012	–0.72	0.47	106.5	–0.18	0.84	120.5	0.32	0.75	117
2013	–2.18	**0.029***	68	–0.15	0.88	121.5	0.22	0.81	119.5
2014	–0.34	0.72	116.5	–0.34	0.73	116.5	0.30	0.76	117.5
2015	–0.70	0.48	107	0.02	0.98	126	0.85	0.39	103
2016	–1.55	0.12	84.5	0.13	0.89	122	0.75	0.45	105.5
2017	–1.19	0.23	94	–0.24	0.80	119	0.74	0.46	106
2018	–0.82	0.41	104	0.34	0.73	116.5	1.08	0.28	97
2019	–1.21	0.22	93.5	0.02	0.98	125	0.70	0.48	107
2020	–1.38	0.16	89	0.15	0.88	121.5	0.62	0.53	109

Notes: *$p \leq 0.05$; Compiled by author.

Based on it TEA differed in 2013 ($p \leq 0.05$) for efficiency-oriented and innovation-oriented economies. For EBO and NECI the results show that from 2011 to 2020 these kinds of countries did not differ in the level of expression of these indicators.

Next, we analyse and compare the GDP of each group of countries (see Table 5).

Table 5 Results of comparative analysis of GDP, efficiency-, innovation-oriented economies (WB, 2011–2020)

Years	*GDP*				
	Kruskal-Wallis Test		*Mann-Whitney U test (2-tailed)*		
	H Statistic	*p-value*	*z-score*	*p-value*	*U-value*
2011	10.50	**0.0011****	3.18	**0.0014****	0
2012	11.11	**0.0008*****	3.28	**0.001*****	0
2013	11.12	**0.0008*****	3.3	**0.00104****	0
2014	11.11	**0.0008*****	3.28	**0.00104****	0
2015	9.75	**0.0017****	3.07	**0.0021****	2
2016	9.10	**0.002****	2.96	**0.003****	3
2017	9.10	**0.002****	2.96	**0.003****	3
2018	9.10	**0.0025****	2.96	**0.0030****	3
2019	9.10	**0.0025****	2.96	**0.00308****	3
2020	4.90	**0.0267***	3.07	**0.0021****	2

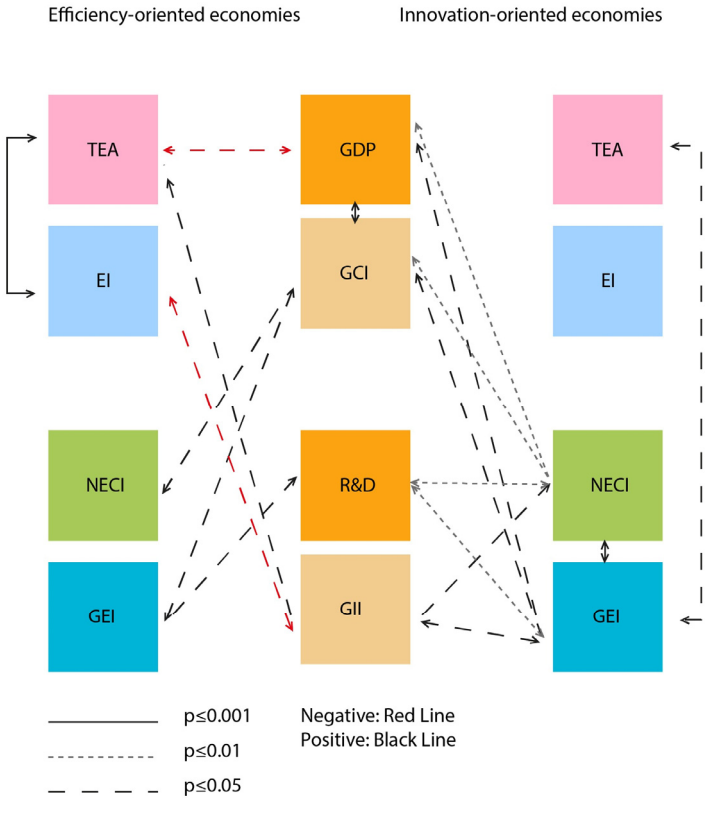
Notes: *$p \leq 0.05$, **$p \leq 0.01$, ***$p \leq 0.001$; Compiled by author.

Both tests show that economic growth differs significantly in countries with efficiency-driven and innovation-driven economies during 2011-2015. After 2015, these differences flatten and become less acute.

6.2 Results of correlation analysis

The key results of correlation analysis are schematically shown in Figure 1.

Figure 1 Overall correlation results, 2011–2020, efficiency-oriented and innovation-oriented economies (see online version for colours)



Source: Designed by author.

There is no significant correlation between GDP with indicators of TEA and EI, related to each other ($p \leq 0.05$), in the group of countries with innovation-oriented economies. However, there is a negative correlation between GDP with TEA and EI ($p \leq 0.05$ and $p \leq 0.001$), and EI with GII ($p \leq 0.05$) in the group of countries with efficiency-oriented economies.

For group of countries with innovation-driven economies, results show a strong positive correlation NECI with GDP, GCI and R&D ($p \leq 0.01$), and not so strong link with GII and GEI ($p \leq 0.05$). Also, a positive correlation is found between GEI and R&D ($p \leq 0.01$); GEI and TEA, GII ($p \leq 0.05$); GDP and GCI ($p \leq 0.001$). There is a positive correlation ($p \leq 0.05$) GCI with NECI and GEI; TEA with GII, and GEI with R&D in group of countries with efficiency-driven economies.

Results over most years show a positive correlation between NECI and GCI ($p \leq 0.01$ is for innovation economies, $p \leq 0.05$ is for efficiency economies), GEI and GCI ($p \leq 0.05$ is for both groups). So, the national entrepreneurship context and entrepreneurial index are important for economic growth and competitiveness, related to each other, in these groups of countries (Dana et al., 2022). Also, the entrepreneurship index is correlated with research and innovation ($p \leq 0.01$ is for innovation economies, $p \leq 0.05$ is for efficiency economies).

6.3 Results of factor analysis 2011–2020

Data were checked for adequacy using the Bartlett test (0.0) and the Kaiser-Meyer-Olkin test, KMO (values for almost all years above 0.5, except for 2017 – 0.45). Therefore, Factor Analysis (EFA) is appropriate in this case. Based on data from 2011 to 2020, Kaiser criteria and a scree plot were used to select the number of factors, which led to the selection of three factors.

On Factor 1, the results show that TEA, EI and GAP have large negative loadings (–0.7 to –0.9). This is one of the most important bases for our research which is related to the aspect of entrepreneurial activities and entrepreneurial intention in countries. This is the opposite of GDP, GCI, PEET, R&D, GII, NECI and GEI, which have large positive loadings on Factor 1 (0.5 to 0.9). Some additional variables that constitute the national entrepreneurship context, such as financing for entrepreneurs, governmental support, policies, and entrepreneurship programs, taxes and bureaucracy, basic school entrepreneurial education and training, research transfer, commercial and professional infrastructure, and internal market openness also have positive loadings on Factor 1 (0.7 to 0.9). In summary, most variables have large loadings on Factor 1, which concerns problems of multicollinearity in regression analysis.

The results show that GSP, TB and PEET have positive loadings on Factor 2 (0.5 to 0.8). Also, GCI, NECI, GEI, GII, CIF and IMO have positive loadings (0.5 to 0.8). Vice versa, there are large negative loadings IMD for Factor 2 and EBO for Factor 3 (0.5 to 0.8).

For the Cumulative Var, it gives the cumulative proportion of variance explained. Across all years, this proportion was greater than 90%.

In general, we defined the following factors:

- *Factor 1*: Entrepreneurship, entrepreneurial activity, and innovation (TEA, EI, EBO, GII).
- *Factor 2*: Entrepreneurship and entrepreneurial environment (NECI, GSP, PEET, R&D).

6.4 Results of regression analysis

We selected and built a regression structure based on the results of factor analysis using the following variables: dependent (GDP and GCI) and independent (EI, TEA, EBO, NECI, GSP, PEET, GII and R&D) variables. Based on the research design for understanding the relationship between entrepreneurial activity, entrepreneurial

intentions, national entrepreneurship context and innovation, affecting economic growth and national competitiveness we developed five regression models that were applied to the variables as follows:

$$\text{Model}\,1: \ln GDP = \beta_0 + \beta_1 * \ln TEA + \beta_2 * \ln EI + \beta_3 * \ln EBO + e$$

$$\text{Model}\,2: \ln GDP = \beta_0 + \beta_1 * \ln NECI + \beta_2 * \ln GII + \beta 3 * \ln PEET + \beta_4 * \ln GSP + \beta_5 * lnRD + e$$

$$\text{Model}\,3: \ln GDP = \beta_0 + \beta_1 * \ln TEA + \beta_2 * \ln EI + \beta_3 * lnEBO + \beta_4 * \ln NECI + \beta_5 * \ln GII + \beta_6 * \ln PEET + \beta_7 * \ln GSP + \beta_8 * \ln R\ \&\ D + e$$

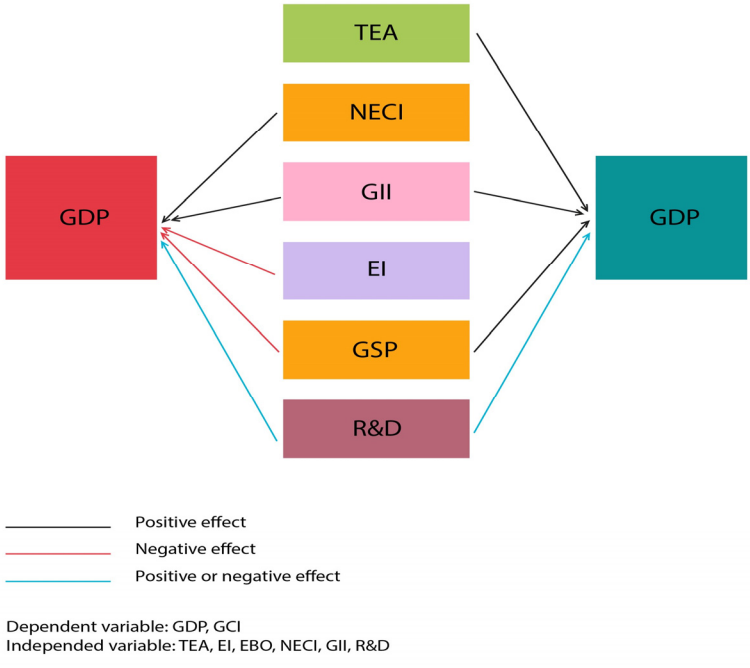
$$\text{Model}\,4: \ln GC = \beta_0 + \beta_1 * \ln TEA + \beta_2 * \ln EI + \beta_3 * \ln EBO + e$$

$$\text{Model}\,5: \ln GC = \beta_0 + \beta_1 * \ln NECI + \beta_2 * \ln GII + \beta_3 * \ln PEET + \beta_4 * \ln GSP + \beta_5 * \ln R\ \&\ D + e$$

where ln – natural logarithm of the indicators and indexes (e.g., ln GDP – natural logarithm of the GDP per capita, PPP (constant 2017 international $)) and e – error term.

The summarised results are shown in Figure 2.

Figure 2 General results of the variables' effects in the models from 2011 to 2020 (see online version for colours)



Source: Designed by author.

Regarding the overall result of the dependent variables, we find that there is a significant negative relationship between EI and GDP in all years. It demonstrates that many factors influence economic growth, including education, property rights, saving propensity, the

presence of seaports, etc. This negative impact result can be explained by the fact that entrepreneurship or new business creation does not guarantee enhanced economic performance or faster growth rates. This is consistent with previous findings of the 'refugee' or 'shopkeeper' phenomenon. Next, the regression results do not illustrate the significant impacts of entrepreneurial activity on economic growth.

In terms of GDP, the results show the effects of NECI, and GII on economic growth. For most years in models 2 and 3, we see a positive impact of GII on GDP. NECI's positive impact on economic growth is an important finding. Thus, building the conditions and context for the development of the business environment will play a key role in promoting economic growth in the future.

As for the impact on GCI, the regression results of models 4 and 5 over the years give the following overall results. Firstly, there has been a negative effect of the EI rate on GCI and GDP over the years. We can look at this problem in the context of low human capital levels among entrepreneurs in developing countries. This negative effect likely reflects the presence of many 'marginal' entrepreneurs ('shopkeepers') in small crafts who may be more productive as a wage-earner in a bigger firm. Therefore, national competitiveness will be reduced when such irrational entrepreneurship is promoted.

The regression results show a positive effect of TEA and GII on GCI. It demonstrates that developed entrepreneurial activity can boost a country's competitiveness on the international scene. There are many forms of entrepreneurial activity, including innovative and high-growth start-ups, which are important for making progress in becoming more competitive in the current societal context. In particular, technological innovation is crucial for modern economies. In addition to the growing openness and competitiveness of domestic and foreign markets, companies are being forced to innovate continually in response to new customers' needs and lifestyles and to take advantage of technological advancements (Martin, 1994; Baregheh et al., 2009). Therefore, it is important to investigate alternative explanations for the impact of entrepreneurial activity on the economic development of different countries.

We illustrated the effects of GSP on GCI and GDP (positive and negative impact). Governmental support and policies play a crucial role in improving a country's competitiveness index. Supported participation in international free trade (WTO or other FTAs) may increase enterprises' development. Also, the R&D indices had both positive and negative effects on GDP and GCI over several different years. In this case of contradictory results, countries have to take their own national conditions and economic contexts into account when choosing R&D policies to promote economic growth and societal development.

7 Discussion

So, we found that there is a significant negative relationship between entrepreneurial intentions and GDP. The result is similar to the data of previous authors on the combination of a high level of entrepreneurship with low rates of economic development (Latin American paradox (Larroulet and Couyoumdjian, 2009). This negative effect can be explained by the fact that entrepreneurship or the creation of a new business does not guarantee an improvement in economic indicators or an acceleration in growth rates. This conclusion can also be interpreted as supporting the assumption of Carree et al. (2002).

In addition, the results also showed that GSP has a negative effect on GDP. In other words, supportive policies of all governments imperceptibly hinder economic growth. It is quite possible that this policy is ineffective due to the creation of a monopoly for state-owned enterprises and obstacles to the development of innovation by private enterprises.

For most years, we see a positive impact of GII on GDP. It follows from this that innovation plays a vital role in the economic development of countries. According to Joseph Schumpeter, innovation played an integral role in the success of corporations and economies in the second half of the twentieth century. Since then, entrepreneurs, politicians and scientific researchers have been paying special attention to innovation (Schumpeter, 1934; Brem, 2011). In general, these NECI results indicate that many countries of the world need to create conditions conducive to maximising their opportunities for the promotion and development of entrepreneurship. Given the impact of COVID-19 on employment worldwide and the need to ensure rapid economic recovery, politicians around the world should urgently create the most favourable conditions for 'nurturing the nature' of entrepreneurship in their countries.

No significant effect of entrepreneurial activity on economic growth has been shown. This result fully corresponds to the conclusions of GEM: entrepreneurial activity has no direct connection with economic development Bosma (2021). And also contradicts the conclusions of some previous authors, for example, that entrepreneurial activity makes a significant contribution to economic growth, as mentioned earlier, precisely due to the innovative nature of entrepreneurs who actively use business opportunities to obtain economic benefits (Ribeiro-Soriano, 2017; Doran et al., 2018). On the other hand, researchers report on the impact of entrepreneurship on economic growth in terms of per capita income (Van Stel et al., 2005), and its positive relationship with macroeconomic growth (Hessels and Van Stel, 2011). Several studies, including those by Liñán et al. (2005), demonstrated a negative association between entrepreneurship (measured by the GEM project TEA variable) and economic growth, while other specific entrepreneurial initiatives (based on opportunities) were associated with higher income. Therefore, when assessing the impact of entrepreneurial activity on economic growth, it is necessary to classify each group of countries and study each separately.

The results showed us that there is a positive effect of TEA on GCI. This partly illustrates that a developed entrepreneurial activity can increase a country's competitiveness in the international arena. There are many forms of entrepreneurship, including innovative startups, fast-growing startups and enterprising workers. In the conditions of uncertainty and complexity of the modern world and its rapid evolution, entrepreneurial activity with its propensity to risk and vision of new opportunities is perceived as the basis of competitiveness and social well-being of society (Schumpeter, 1934). Therefore, the development of entrepreneurship plays an important role in improving the competitiveness of countries.

Comparative analysis shows that economic growth and entrepreneurship activity significantly differ in efficiency-oriented and innovation-oriented countries. After 2015, these differences are somewhat smoothed out and become less acute. At the same time, we see that according to the NECI indicator, on the contrary, differences between groups of countries have been increasing since 2018: in innovation-oriented countries, business conditions are getting better, although this does not affect the differences in economic growth indicators. This result shows that in countries, regardless of the orientation of their economies, conditions are important for entrepreneurial activity, however, both of these factors are not strict predictors of the economic development of countries.

Interestingly, state support as one of the factors of the entrepreneurial context does not always have a positive effect on the development of entrepreneurship. Apparently, the quality of entrepreneurship in combination with innovation and other factors is also important.

8 Conclusions

The results show that the efficiency-oriented economies group has the highest rate of early-stage entrepreneurial activity compared to the Innovation-oriented, Conditions of Entrepreneurship (NECI) are better in efficiency-driven and innovation-driven economies than in countries with factor-driven economies.

The conditions of entrepreneurship and entrepreneurship (GEI) are positively related to economic growth, while early Entrepreneurial Activity (TEA) shows either a negative relationship or no correlation at all with economic growth. So, in the group of innovation-oriented economies, the correlation is insignificant, in the group of efficiency-oriented economies, the correlation is negative.

Early entrepreneurship is more important for efficiency-oriented countries than for innovative ones, and the conditions of entrepreneurship are better in innovation-oriented countries. At the same time, the differences in indicators of entrepreneurial activity and economic growth between countries are gradually decreasing, while the conditions for the development of entrepreneurship are increasing.

In light of answering the research question, we can see a positive role of conditions of entrepreneurship upon the economic development of countries. Despite this, the link between entrepreneurial activity and economic growth remains unclear. Meanwhile, we have identified a positive relationship between entrepreneurial activity and competitiveness. Therefore, the development of entrepreneurship plays an important role in improving the competitiveness of countries.

In general, our research results confirm the role of entrepreneurship in the economic and innovation development of different countries, especially for industries that are most conducive to innovation and unrestrained competition. Also, it shows that the environment and conditions for doing business play a key role in a country's economic performance. However, the impact of entrepreneurial activity on economic growth is unclear. Most likely, it plays the role of a mediator in the possible strengthening of the effects of other factors on economic growth, taking into account the business context and the economic orientation of the country.

9 Implications of the findings

In light of this study, we can conclude that the policy of creating an enabling business environment is crucial for long-term sustainable economic growth. It is important for governments to develop policies to promote a strong start-up movement in the environment of global competition and technological innovation to sustain economic growth.

10 Limitations of this research

Our study is limited because the data set on the group of factor-based economies is not large enough to allow us to conduct a more detailed comparison. Economic growth and economic development in this research included only GDP and competitiveness. In further studies, other parameters should be considered.

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