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The impact of entrepreneurship on economic development through government policies and citizens' attitudes

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ABSTRACT

This research aims to investigate the field of entrepreneurship in the context of public sector governance in eight of the largest economies in the world (the G7 countries and Russia). To analyse the composition and evolution of entrepreneurship, data from the Global Entrepreneurship Monitor was collected, while the economic stability was based on GDP data from the World Bank. To understand the relationships between the public sector governance policies and attitudes towards entrepreneurship in terms of economic development, the 2001-2018 period was considered. The relationships studied were observed through correlation and regression analyses, based on indexes obtained through principal component analysis. Results indicate that there are strong positive correlations between GDP and cultural and social norms promoted in society, total early-stage entrepreneurial activity, physical and services infrastructure, and tax and bureaucracy, while the fear of failure affects the GDP. Besides, this research emphasises the fact that individuals' entrepreneurial attitudes and behaviour may reduce the level of GDP, while the entrepreneurial framework developed by the public sector would have an important role in increasing economic stability.

Introduction

Since the recent financial crisis, the global economy faces a series of pressures, such as the recession and rapid decline of national economies, massive reduction in consumption, or increased unemployment. Under these conditions, the policymakers were confronted with emergency measures intended to help in economic recovery. Accordingly, some of the most competitive economies realised that the business environment needs support to enhance productivity and future prosperity, and

focused on fostering entrepreneurship to create jobs, provided better access to finance and more opportunities through education. As entrepreneurship is the heart of many economies and sustains the development of countries, the entrepreneurs also became a key element in securing economic development. Recognising the importance of entrepreneurship policies, governments started to implement general and specific policies that promote entrepreneurial activities. The general policies refer to taxes, labour law, and market regulations, while the specific ones may be focused on sustaining SMEs, innovation, or certain activities or industries (Lin et al., 2010; Oliyide, 2012; Wright et al., 2007). However, the policies' effects on entrepreneurship and economic development are different, as studies proved that government programs may affect entrepreneurship differently, based on its phases.

As long as small and medium companies represent the majority in the business environment, they become important supporters of employment and economic development. Accordingly, governments should promote public policies that foster entrepreneurial activity (Sarfati, 2012). Recent studies proved that policymakers are solving part of the problems related to the economic crisis by stimulating economic growth through several aspects, with direct impact on entrepreneurship: public expenditure on R&D and education, legal aspects which regulate certain conditions for startups or facilitate SMEs' access to external resources, innovative economic environment, human capital, etc. (Castaño et al., 2016; Méndez-Picazo et al., 2012). As long as these aspects are strongly interrelated but also components of various sectors (macroeconomics, business environment, public sector, etc.), this research will be more focused than previous studies, examining to what extent the global entrepreneurship proxies related to the national framework and entrepreneurial attitude and behaviour, determine the GDP growth and economic stability of a country. This will bring new insights compared to previous findings, as we focus on emphasising the influence that the entrepreneurial ecosystem has on economic growth and development. The 'entrepreneurial ecosystem' is a concept which correlates the firms behaviour and performance with an environment that supports ambitious entrepreneurs, innovation, and economic development (Cavallo et al., 2019). Accordingly, we considered the data on entrepreneurship from individual entrepreneurs and realised distinctive indexes, gathering individual behaviour and government policies to review their effect on economic development in developed countries. Commencing from the assumption that most developed countries are focused on providing the best measures for the development of entrepreneurship, we analysed eight countries, considered the most highly industrialized nations, also known as The Group of Eight or G8: France, Germany, Italy, the United Kingdom, Japan, the United States, Canada, and Russia. The last one was suspended from The Group of Eight in 2014 in response to the Russian invasion of Crimea.

The paper continues with the literature review, presenting a series of implications of entrepreneurial behaviour and attitudes, and entrepreneurial framework on economic stability. The second section presents the data and the methods employed for analysis, reflecting the relationship between Global Entrepreneurship proxies and the economy in G8 countries. Section 3 presents the main results, being followed by conclusions.

Literature review

One of the most common terms in the literature on entrepreneurship is 'innovation'. This is related to technology, strategy, or industry, but most importantly, to 'social entrepreneurship', which goes beyond the pursuit of profits, tackling social, cultural, and environmental issues (Robertson et al., 2020; Roundy, 2017). Some studies describe that innovation is generated by the private sector while the public sector is rather an obstacle to entrepreneurship (Windrum & Koch, 2008). Basically, the public sector is one of the key drivers of entrepreneurship, as economic growth and social development depend on efficient public sector organisations that deliver high-quality services. The research evidenced that the link between the public sector and innovation policies is flexible and complex (Castaño et al., 2016; D'Agostino & Scarlato, 2015). The nexus can be explained by numerous criteria, related either to R&D expenditure and policies or to the innovative economic environment: technological advances, entrepreneurs' risk aversion or their willingness to capitalise their resources or borrow funds to finance their own business, change in services or organisational and managerial structure, etc. In addition to innovation, to increase entrepreneurship, permanent communication and exchanges between the public and private sector and non-governmental organisations should exist, as they are all connected in a private-public-social sector.

Innovation employed in improving organisational performance is not necessarily a feature of the public sector in all economies. Moreover, there are significant differences in the organisational and operational aspects of the private and public institutions (Tosterud, 2014). More specifically, public sector programs are developed based on political aspects, which may change drastically from one election period to another. The private sector is usually developed on the free market signals, which may be disruptive but not of political nature. Another difference between the two sectors is related to profit. The private sector is focused on achieving profits or going bankrupt. In terms of the public agencies, their performance is more difficult to be evaluated as there is no aim for profit.

Public policies supporting industrial clustering are often employed in developed countries, and became of interest in developing and transition economies as well (Lin et al., 2010; OECD, 2010). Of course, government expenditures is the key in supporting the industrialised countries, for the development of R&D, especially for the digitalisation sector (Kotlebova et al., 2020). For instance, industrial parks were developed in Taiwan since the end of the last century: the Industrial Technology Research Institute incubated over 270 innovative companies having a significant impact on the economy of Taiwan, especially in the tech industry. In developing countries, governments tend to employ policies facilitating access to funds and other resources needed for business development, promoting entrepreneurial activities. For example, in Nigeria the following programs were established by the Federal Government or the Small and Medium Enterprises Development Agency: N-Power programme, Government Enterprise and Empowerment Programme (GEEP), or You-win programme (Oliyide, 2012). Similarly, in South Africa, the National Small Business Act was promulgated in 1996 to promote entrepreneurial activities. According to it, the National Small Business Council and the Ntsika Enterprise Promotion Agency should

work together and constantly report the development and trends of the small businesses, analyse how the small business sector impacts the economy or supports the development of the rural regions or the integration of the marginalised groups in the economy. The Agency and Council also offer recommendations in terms of legislation to remove any restrictions in the small business sector. Studies proved that the development of clusters has a positive effect on the economy through entrepreneurship, as strong clusters contribute to the survival of the new businesses, being associated with their growth and also with employment (Delgado et al., 2014). Dobeš et al. (2017) also indicated that large companies have higher chances of recieving financial support from government, becoming through these means even more competitive.

Government policies usually encourage two sides of the business environment: venture capital and entrepreneurial activities. To ensure the attractiveness of entrepreneurship, governments must create a favourable environment through several dimensions. First of all, education should be oriented towards entrepreneurial activities, especially at the university level. For this, creative ideas from students should be supported by the governmental framework while academia is providing help in developing such ideas. Regardless of these assumptions, in reality, most entrepreneurs come from the business environment and not from academia, and the entrepreneurial attractiveness is strongly influenced by the tax policy. Another important aspect is related to the investors' depth and knowledge of certain domains and locations. Usually, a country or a region that becomes an entrepreneurial hub is more attractive for investment. Therefore, nowadays, a pro-entrepreneurial environment is often seen as a requirement for governments in order to ensure the development of the regions (Mempel-Śnieżyk et al., 2020). However, the domestic organisations could be rapidly surpassed by international investors undertaking critical early investments (Lerner, 2014).

A reasonable governmental program must consider the needs of the private sector and the market trend. For example, a common problem is related to public venture capital initiatives which are ceased after a while due to poor results. This could also be related to the fact that such investment might take years until it becomes profitable, or that poor investment analysis is the main reason for decision failure. Also, governmental requirements could be detrimental to private sector development. While restricting the location of the business or the level of securities raised would affect the entrepreneurial process, receiving subsidies to retain the local citizens hired would represent a supportive measure. Another fact may be related to the market trend, which is often ignored by the government who encourage investments in regions with a lack of private interest, leading to a waste of public resources on ineffective programs.

Countries with an effective regulatory framework in terms of entrepreneurship are more competitive and ensure higher productivity through jobs and trade (Mihaila, 2015). Entrepreneurship supports employment, inducing a raise in the budget of those regions and increasing chances for a population growth in the area (Milovic et al., 2020). Accordingly, we expect a direct relationship between the regulatory framework and the development of the business sector, attracting more investments. Based on the components of the framework, fewer administrative burdens and more

simple legislation would support the development of firms, improving the business infrastructure in terms of the general performance of the economy and access to external funding. Although in the case of equity the common funding options for entrepreneurs refer to venture capitalists or business angels, the most important source of funds is, in general, bank finance (Elston & Audretsch, 2012; Moro et al., 2020).

In terms of attitude and behaviour regarding entrepreneurship, the cultural aspects should be very important for economic activity, as they have a strong impact on consumption and work, helping in establishing a social network and having a relevant impact on the number of start-ups developed, based on positive attitudes towards funding a business (Bergmann, 2009). Entrepreneurship may be affected by age, income, or skill self-perception, especially in developing countries and in those with a significant gender gap (Gunewardena & Seck, 2020). Although the vast literature on the topic observed different relationships, we expect both types of components of the Global Entrepreneurship Monitor to have a significant impact on entrepreneurship and economic development: our analysis will reveal which proxies of entrepreneurial behaviour and which framework proxies are most relevant in the economic development of the G8 countries.

Data and methodology

The model proposed for observing the relationship between entrepreneurial behaviour and attitudes, entrepreneurial framework, and economic stability is constructed in several stages. In terms of the Global Entrepreneurship Monitor (GEM) proxies, the data was collected from the official website, while the data on GDP was collected from the World Bank website. The data refers to annual scores over the period 2001-2018. We commenced our sample period in 2001 as none of the countries overviewed in our analysis had the entrepreneurship data available before this year. To complete the missing data, because some countries did not have all the GEM indicators available for the eight years, we adopted the data imputation method. For principal component analysis the panel must be strongly balanced, with no missing data. Accordingly, data imputation assumed the average value of the indicator for that country. The method of averaging the inputs from multiple imputed datasets was introduced by Rubin (1976) who considered that completing missing values with the same average value will produce unbiased inferences. However, the method should be carefully applied when a large amount of data is missing, as it might distort results, but this was not our case.

The indicators employed for the global entrepreneurship indexes are the following, with abbreviations specified in brackets: Total early-stage Entrepreneurial Activity (tea), Entrepreneurial intentions (entrepint), Perceived opportunities (percopp), Perceived capabilities (perccap), Fear of failure rate (fearfail), Governmental support and policies (govsuppol), Governmental programs (govprogr), Taxes and bureaucracy (taxbur), Internal market openness (intmkopen), Physical and services infrastructure (physservinfr), and Cultural and social norms (cultsocnorms). The first five indicators previously listed refer to the entrepreneurial behaviour and attitudes of individuals,

Table 1. Description of the global entrepreneurship indicators employed in this study.

Indicator	Description	Unit measure
Total early-stage Entrepreneurial Activity	individuals from 18 to 64 years who just became entrepreneurs or own/manage a new business	% of population
Entrepreneurial intentions	individuals from 18 to 64 years who are on the verge of becoming entrepreneurs or intend to start a business in three years	% of population
Perceived opportunities	individuals from 18 to 64 years who consider that starting a business in their living area is a good opportunity	% of population
Perceived capabilities	individuals from 18 to 64 years who have the skills and knowledge necessary to start a business	% of population
Fear of failure	individuals from 18 to 64 years who would not set up a new business due to their fear of failure	% of population
Governmental support and policies	the extent to which public policies support entrepreneurship as being a relevant aspect in the economy	From 1 to 5
Governmental programs	the quality of programs directly assisting SMEs at all governmental levels	From 1 to 5
Taxes and bureaucracy	the extent to taxes or regulations are either size-neutral or encourage new businesses and SMEs	From 1 to 5
Internal market openness	the extent to which new businesses are free to enter the markets	From 1 to 5
Physical and services infrastructure	access to physical resources at a price that does not discriminate against SMEs	From 1 to 5
Cultural and social norms	The extent to which social and cultural norms encourage actions for new business methods or activities that can potentially increase personal wealth and income	From 1 to 5

Source: GEM (2020b, 2020c) – Key Indicators.

while the last six represent the national context and how that impacts entrepreneurship. More details on the description of these variables are included in Table 1. For economic stability, the analysis will employ the logarithm of the annual GDP at purchasing power parity (PPP), to bring the GDP level to one that is similar to the level of the GEM indicators (with values that are less than 100).

Considering the data available and our research focus, we propose two hypotheses: (1) the more open citizens' are to entrepreneurship and the more risks they take to become entrepreneurs, the greater the economic development of a country will be; (2) the stronger the support from public sector towards entrepreneurship, the greater the economic development of a country will be.

The analysis will include three stages. First, correlations between GDP and global entrepreneurship indicators will emphasise the statistically significant relationships. The second stage of the analysis will refer to the construction of indexes, obtained through principal component analysis. The first ones (PC1, PC2) will be based on the first five GEM indicators, illustrating the individuals' behaviour and attitudes towards entrepreneurship; another set of indexes (PC3, PC4) will be based on the other six GEM indicators, representing the entrepreneurial framework developed by the government in relationship with the specific economic, social and cultural factors of each country. The final stage will be the regression analysis to observe the potential impact the indexes have on GDP. Through this analysis we will be able to emphasise the entrepreneurship indicators related to the society, government, and citizens, with the most influence on the economic stability in the G8 countries observed.

The regression analysis based on ordinary least squares models will consider the log GDP as the dependent variable, and the principal component indexes obtained from the global entrepreneurship monitor database as independent variables. Therefore, the general regression model is the following:

$$GDP_{it} = \alpha_i + \beta_1 PC_{1 \ it} + \beta_2 PC_{2 \ it} + \beta_3 PC_{3 \ it} + \beta_4 PC_{4 \ it} + \varepsilon_{it}, \tag{1}$$

where: α_i (country $i = 1 \ldots 8$) represents the unknown intercept of every country, t ($t = 2001 \ldots 2018$) is the year analysed, the βs are the coefficients for every independent variable (index obtained through the principal component analysis), and ε_{it} is the error term.

Results

In Table 2 we include a summary of the descriptive statistics (average and standard deviation) to observe any significant differences across countries. The standard deviation may be significant for some of the GEM variables but we also run tests (Levin-Lin-Chiu test) confirming that our panel data variables are stationary.

Between the G8 countries, in terms of economic development, the United States has the highest GDP (PPP) value, followed by Japan and Germany. Going forward to the entrepreneurial behavior and attitudes topic, in the United States and Canada, we find the most entrepreneurs who start a new business, or the most citizens who consider that setting up a business would be an opportunity in their community or have the highest skills and knowledge to start a business. France presents the friendliest environment for entrepreneurship from all the countries observed, having the highest percentage of citizens who are on the verge of starting their business or intend to start one in three years. On average, 37% of the G8 countries citizens between 18 and 64 years old would not start a new business due to their fear of failure; the highest percentage for fear of failure may be observed in Russia (43%) and Japan (41%).

Table 2. Descriptive statistics.

| | GDP proxy (log of PPP) | | Entrepreneurial behaviour and attitudes of individuals | | | | | | | | | |
| | | | Tea | | Entrepint | | Percopp | | Perccap | | Fearfail | |
	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.
Canada	12.13	0.09	12.29	3.29	10.75	2.42	49.31	8.2	53.38	2.19	33.09	6.04
France	12.36	0.08	4.79	1.2	13.55	3.97	24.36	9.03	32.29	5.35	39.43	6.56
Germany	12.51	0.09	4.89	0.62	5.73	0.87	28.42	9.5	37.24	2.49	37.92	3.61
Italy	12.31	0.06	4.49	1.39	8.59	2.01	28.57	8.3	35.48	6.11	42.4	9.22
Japan	12.65	0.06	3.58	1.15	2.65	1.16	8.31	2.76	12.49	1.74	41.05	9.32
Russia	12.4	0.19	4.37	0.94	3.04	0.88	20.82	4.53	23.46	5.43	43.13	5.81
U.K.	12.36	0.08	7.02	1.45	6.69	1.58	35.17	6.42	47.55	2.7	34.15	2.11
U.S.	13.17	0.09	11.59	2	10.01	2.36	40.7	12.93	55.01	2.8	27.43	4.98
Overall sample	12.48	0.31	6.63	3.62	7.63	4.14	29.46	14.27	37.11	14.32	37.32	8.04

| | The national framework that supports entrepreneurship | | | | | | | | | | | |
| | govsuppol | | govprogr | | taxbur | | intmkopen | | physservinfr | | cultsocnorms | |
	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.	Avg.	Std. dev.
Canada	2.92	0.21	2.96	0.14	2.6	0.26	2.99	0.29	4.24	0.21	3.33	0.11
France	3.25	0.2	3.23	0.14	2.91	0.22	2.39	0.18	4.19	0.15	2.36	0.21
Germany	2.85	0.21	3.47	0.10	2.46	0.28	2.83	0.13	3.98	0.22	2.61	0.13
Italy	2.21	0.23	2.27	0.17	1.73	0.13	2.51	0.13	3.08	0.21	2.5	0.29
Japan	2.92	0.2	2.46	0.15	2.15	0.21	2.53	0.18	3.89	0.35	2.32	0.13
Russia	2.31	0.18	2.08	0.13	2.07	0.13	2.23	0.16	3.27	0.16	2.59	0.25
U.K.	2.78	0.31	2.66	0.20	2.65	0.25	2.96	0.2	3.76	0.23	2.9	0.26
U.S.	2.85	0.3	2.83	0.25	2.7	0.41	2.97	0.36	4.2	0.34	4.12	0.27
Overall sample	2.76	0.39	2.75	0.47	2.41	0.44	2.68	0.35	3.83	0.47	2.84	0.61

Source: authors' computations.

From the national framework point of view, in Europe, we mention France with the highest levels of evaluation for governmental support, policies, and programs assisting SMEs, and also with prices that do not discriminate against SMEs. In terms of taxation and regulations that encourage new businesses and SMEs, France is also at the top of the G8 countries. Regarding market openness, the island countries (Canada, U.S., U.K.) and Germany provide the most support for new businesses to enter the market.

For the cultural norms that encourage actions for new business methods, the United States leads the G8 top, with a score of 4.12 compared to the sample average, of 2.84.

The Pearson correlation coefficients included in Table 3 indicate a statistically significant dependence between the global entrepreneurship indicators. Some of the entrepreneurship variables indicate a strong correlation between each other (e.g. percopp and tea, perccap and tea, perccap and percopp, physservinfr and taxbur etc.). However, there will be no autocorrelation issues in the regression analysis as long as the principal component analysis allows us to build a series of indexes characterised by uncorrelated linear combinations of the variables.

Considering the influential factors for GDP, it seems that most impact (in terms of statistical significance and coefficient values) comes from the Cultural and social norms promoted in society, Total early-stage Entrepreneurial Activity, Physical and services infrastructure, and from Tax and bureaucracy. These four variables have a direct impact on GDP, and their high values would support economic stability. The Fear of failure is also an indicator of entrepreneurship with a significant impact on GDP but carrying a negative influence. Based on the Pearson correlation matrix we may conclude that both the individuals' entrepreneurial behaviour and the entrepreneurial framework influence the economic stability of a country. The principal component analysis (PCA) stage allows us to reduce the number of independent variables correlated to each other and create a series of indexes that carry out the main characteristics of the individual behaviour and framework concepts in terms of entrepreneurship. The results of PCA are presented in Table 4.

The analysis provided two indexes from the individual behaviour and attitude variables, as they both explain 83.4% of the total variance (as evidenced by the cumulative proportion). The first two components also have an eigen value of approximately 1 or higher, which is another suggestion on retaining two factors from the behavioural side of entrepreneurship. Based on the factor loadings, we can determine the weights and correlations between the variables in every factor built. In the first one, the fear of failure is the only behavioural characteristic with a negative effect on the factor, but also with the smallest impact compared to the rest of the variables. The highest impact on the first factor comes from the perceived capabilities and opportunities, and total early-stage entrepreneurial activity, and thus we will refer to this factor as the individual interest for entrepreneurship (interest.entrep). However, for the second factor (PC2), fear of failure has a direct influence and the highest level of impact along with entrepreneurial intentions. Considering that the first factor concentrates the positive aspects of entrepreneurship (individual capabilities, opportunities, and incipient entrepreneurial activity), the second factor reflects the personal attitude towards entrepreneurship, gathering the effect of contrasting feelings: fear of failure and entrepreneurial intentions (we will refer to this factor as entrep.feel).

Table 3. Correlations between economic stability and global entrepreneurship indicators.

	GDP	entrepint	Tea	percopp	perccap	fearfail	govsupppol	govprogr	taxbur	intmopen	physservinfr	cultsocnorms
GDP	1											
entrepint	−0.0105	1										
tea	0.232***	0.515***	1									
percopp	0.0290	0.587***	0.792***	1								
perccap	0.101	0.514***	0.743***	0.810***	1							
fearfail	−0.193**	−0.0732	−0.377***	−0.264***	−0.542***	1						
govsupppol	0.0666	0.310***	0.156*	0.006	0.107	−0.216***	1					
govprogr	0.0205	0.407***	0.206**	0.240***	0.362***	−0.248***	0.692***	1				
taxbur	0.161*	0.475***	0.421***	0.343***	0.402***	−0.286***	0.649***	0.654***	1			
intmkopen	0.106	0.121	0.486***	0.398***	0.589***	−0.463***	0.339***	0.473***	0.438***	1		
physservinfr	0.200**	0.343***	0.434***	0.184**	0.323***	−0.361***	0.755***	0.691***	0.706***	0.556***	1	
cultsocnorms	0.487***	0.305***	0.786***	0.606***	0.714***	−0.563***	0.115	0.175**	0.405***	0.583***	0.410***	1

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: authors' computations.

Table 4. Indexes resulted from the principal component analysis.

				Factor loadings	
Component	Eigen value	Cumulative proportion	Variable	PC1	PC2
Comp1	3.194	0.639	tea	0.497	0.032
Comp2	0.978	0.834	entrepint	0.383	0.526
Comp3	0.456	0.926	percopp	0.507	0.187
Comp4	0.247	0.975	perccap	0.516	−0.151
Comp5	0.125	1	fearfail	−0.287	0.815
				Factor loadings	
Component	Eigen value	Cumulative proportion	Variable	PC3	PC4
Comp1	3.62	0.603	govsuppol	0.421	−0.415
Comp2	1.153	0.796	govprogr	0.434	−0.285
Comp3	0.476	0.875	taxbur	0.445	−0.078
Comp4	0.333	0.93	intmkopen	0.369	0.463
Comp5	0.237	0.969	physservinfr	0.476	−0.074
Comp6	0.181	1	cultsocnorms	0.273	0.722

Source: authors' computations.

From the framework point of view, the principal component analysis returned two main factors with eigen values higher than 1, which explain 79.6% of the total variance (expressed by the cumulative proportion). All the framework variables have a positive impact on the first factor (PC3), but most influence comes from the physical and services infrastructure, taxes and bureaucracy, governmental programs, and governmental support and policies. This factor is mostly related to the public sector, public policies and public services and thus we abbreviate it as public.pol.entrep. The second factor (PC4) is positively influenced by the cultural and social norms and the internal market openness, while the rest of the framework variables carry a negative impact on PC4. However, only governmental support and policies have a high level of weight in the factor (0.415). Considering that this factor is positively influenced by the market, society, and culture, and restrained by the public governance and policies, we will refer to it as the external environment with an impact on entrepreneurship (ext.environ.entrep).

Table 5 presents the results from the final stage of the analysis, i.e. regression analysis based on ordinary least squares models. We considered three models to verify the consistency of the results: one for reviewing the impact of the individual behaviour and attitudes towards entrepreneurship on GDP, one for reviewing the impact of the entrepreneurial framework on GDP, and another one for testing the effect of the overall context of entrepreneurship on GDP.

The first model regresses the entrepreneurial behaviour and attitude indexes (interest.entrep and entrep.feel) on GDP. Results indicate a statistically significant relationship between the feelings towards entrepreneurship and GDP, suggesting that the personal attitude towards entrepreneurship have a restricting effect on GDP, as a high level of fear of failure and entrepreneurial intentions will induce a decrease in the level of GDP in G8 countries.

The second model employed regresses the indexes resulted from the framework of entrepreneurship and emphasizes the positive influence of both factors (public.pol.entrep and ext.environ.entrep) on GDP. More specifically, considering that the two factors gather the direct influences of all the six framework variables, we conclude that the general framework related to entrepreneurship has a positive effect on GDP.

Table 5. OLS regression results on economic stability.

	Dependent variable: GDP		
	Model 1	Model 2	Model 3
interest.entrep	0.023		−0.055***
	(0.014)		(0.021)
entrep.feel	−0.053**		0.008
	(0.026)		(0.002)
public.pol.entrep		0.033***	0.071***
		(0.013)	(0.017)
ext.environ.entrep		0.092***	0.141***
		(0.023)	(0.031)
constant	12.485	12.484	12.485
	(0.026)	(0.024)	(0.024)
R-squared	0.0449	0.1393	0.1806
F-test	3.32**	11.41***	7.66***

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$; standard errors in parentheses.
Source: authors' computations.

The last OLS model performed is based on all the four indexes resulted from the previous stage of the analysis. This time, the statistically significant factors are interest.entrep, public.pol.entrep and ext.environ.entrep. The first index, related to the citizens' interest in entrepreneurship has a negative influence on GDP, while the factors related to the entrepreneurial framework carry a positive influence on GDP. Overall, the regression results suggest that the subjective side of entrepreneurship, reflected by the individuals' entrepreneurial attitude and behaviour may reduce the level of GDP (as there is a statistically significant indirect relationship between interest.entrep and GDP, and between entrep.feel and GDP), while the entrepreneurial framework developed by every country would have an important role in increasing economic stability (based on statistically significant direct relationships between public.pol.entrep and GDP, and between ext.environ.entrep and GDP).

Based on the indicators of goodness of fit, these models are adequate to explain only a limited part of the variation in GDP. More specifically, up to 18% of the variation in GDP may be explained through the variation in the framework of entrepreneurship, and based on behaviour, through individual capabilities, opportunities, and incipient entrepreneurial activity.

Conclusions

The analysis of the G8 countries revealed that entrepreneurial attitude and behaviour and framework have a significant impact on the economy. The fear of failure carries a negative effect on economic stability, being an obstacle for business foundation. This result is similar to Gunewardena and Seck (2020), who concluded that fear of failure is affecting the self-perception of personal skills and abilities and is also related to risk aversion, deterring engagement in entrepreneurial activities. The perceived capabilities and opportunities also have a negative effect on economic stability, indicating that although there may be good opportunities for starting a business, economic growth is affected. This aspect could be explained by the fact that the intentions to start a business or the success of an entrepreneur may be nascent, and these feature are not that common among the citizens of G8 countries. Furthermore,

the total early-stage entrepreneurial activity would be associated with a low level of GDP when considered in the index gathering the positive aspects of entrepreneurship. Therefore, for G8 countries, the economy is more stable when less of its population is either a nascent entrepreneur or owner-manager of a start-up, because these economies are strongly industrialised.

Compared to the subjective side of entrepreneurship, relevant through behaviour and attitudes, the framework has more impact on the economy in the countries analysed. Based on the most relevant components of the indexes built, the cultural and social norms are very important for economic growth, followed by infrastructure, taxes and bureaucracy, governmental programs, support, and policies. Our results prove that there is a positive impact from government policies supporting entrepreneurship or from specific laws and regulations towards economic development, as Oliyide (2012), Lerner (2014), or Mihaila (2015) evidenced in their studies. In conclusion, the entrepreneurial framework has the capabilities of generating favourable effects on GDP, especially in the industrialised countries, characterised by great market openness and social and cultural norms specific to the entrepreneurial spirit.

For study limitations we mention the missing data from GEM database, resolved by data imputation with country average values of the indicators. Other data imputation techniques may be undertaken and the database could be retested to observe the robustness of the results. Further research could consider a dummy variable for time, or subsamples based on certain periods, in which we expect a significant variation in GDP and entrepreneurial indicators. For example, results may differ if we estimate the same results from a database including only the period of the financial crisis. In addition, for a comprehensive analysis, a broader database could be obtained by extending the geographic area beside the G8 countries, with European developed economies. The sample could also be divided into European countries and the rest, as the descriptive statistics emphasised several differences in the GEM indicators of the G8 countries, especially in terms of citizens' willingness and interest in setting up a business, market openness, and social and cultural norms supporting entrepreneurship, which are more common and developed in the United States or Canada compared to the European countries.

According to the main results of our research, entrepreneurship is very important for economic development and stability, being driven by government policies, the level of development of a country, and entrepreneurial behaviour. Although the behavioural component seems to restrain the level of GDP, an educational system oriented towards entrepreneurial activities could have a positive effect on the growth of entrepreneurship in G8 countries, also inducing a sustainable growth in GDP.

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