

GEM Results: NES-NECI 2020

Executive summary

1. Introduction

Since its inception in 1999, the Global Entrepreneurship Monitor (GEM) is the only source of information that provides an estimate of the average state of the environmental conditions for starting new businesses in the participating countries.

The literature identifies the following as essential environmental conditions for entrepreneurs to develop their activities with adequate support:

1. Financing for entrepreneurs
2. Government policies (support and relevance on the one hand and taxation and regulation on the other hand)
3. Government programmes for entrepreneurs
4. Entrepreneurship education and training (in the school stage on the one hand, and in the post-school stage on the other hand)
5. R&D transfer
6. Access to and availability of business and professional infrastructure
7. Opening of the internal market (its dynamics, on the one hand, and its barriers and regulations on the other hand)
8. Access to and availability of physical infrastructure and services
9. Social and cultural norms

The literature points out that it is desirable for the average state of these conditions to be satisfactory for entrepreneurs and their activities to develop in a favourable context, so that they find the necessary support for their initiatives to progress and make a significant contribution to the economy. However, entrepreneurship is a complex phenomenon and, even though theoretically, the better the conditions for entrepreneurship, the greater the entrepreneurial activity, in reality, there are many conditioning factors that prevent the equation from being as straightforward as that.

There are many situations in countries that illustrate this difficulty, such as, for example:

- Countries with poor environmental conditions where entrepreneurial activity is very intense and characterised by necessity, with a multitude of lone entrepreneurs, micro-SMEs and SMEs, whose sole objective is survival.
- Countries with environmental conditions in an acceptable state, but with a lot of public and private employment where there is little to no entrepreneurial culture and where entrepreneurial activity is scarce.
- Countries with relatively good environmental conditions and a level of entrepreneurial activity in line with their needs.
- Etc.

The possible scenarios are many and varied and, for this reason, the relationship between the state of the environmental conditions and the level of entrepreneurial activity is not considered to be direct and positive at the present time. For this perfect relationship to exist, it would have to be the case that countries with poor environmental conditions for entrepreneurship would have low rates of entrepreneurial activity. However, this is not the case in all countries in reality, since the least developed countries tend to have the highest rates of activity motivated by necessity. Similarly, countries with highly conducive environmental conditions for entrepreneurship should theoretically have high rates of entrepreneurial activity. This does not happen in reality either because in many developed countries, the level of public and private employment leaves less room for entrepreneurship, or there is a lack of entrepreneurial culture, or these countries may have outsourced the production of many goods and services, etc.). The level of employment in a given country has a strong influence on the rate of entrepreneurial activity, as well as other factors such as cultural background, state of the market, the existence of opportunities, the economic structure of the country and many other variables.

Once this is understood, the question that arises is: what is the purpose of measuring and estimating the average state of the environmental conditions for entrepreneurship?

This measurement is useful for many reasons and, in fact, in many countries participating in the GEM Observatory of National Teams, the recommendations derived from its analysis have contributed to policymakers establishing a better context for entrepreneurs over time, which not only favours entrepreneurs, but all economic agents that interact to promote the progress of nations.

Analysing the environmental conditions for entrepreneurship makes it possible to identify the strengths and weaknesses of a country's context that favour the interaction of economic agents and, in particular, those that can promote entrepreneurship in different areas, whether by opening channels of financing, adapting public policies and regulations so that it is easier and more affordable to start up a business and make it grow over time, educating new generations so that they have values associated with entrepreneurship and are able to better manage their own lives, their jobs or their companies if they create them, etc.

Likewise, analysing the environmental conditions, together with the analysis of other indicators, allows countries to be positioned and compared using a benchmark, so that different models can be visualised and studied according to the interests of each country. In this sense, it is very important to bear in mind that each country needs a rate of entrepreneurial activity as one of the ingredients that make up its Gross Domestic Product and contributes to it. Depending on the economic structure of the countries, this rate of entrepreneurial activity will be higher or lower and it is not always reasonable to think that, in the activity rankings, having a lower or higher rate is better or worse. The important thing is to analyse how big the entrepreneurial sector should be in each country and to try to achieve this level and to ensure that the environment provides security both for entrepreneurs and for the new generations that will gradually take over small and medium-sized businesses. Once again, it is important to remember that the equation whereby better environmental conditions lead to more entrepreneurial activity or greater economic development is not always applicable since there are many factors that affect these variables and which depend on the economic structure of the countries, the historical moment they are going through, etc.

In addition to the above, if a country's economic analysts are designing structural changes in which the promotion of entrepreneurship is a key element, knowledge of the state of the environmental factors

is of great value in pressing the keys that are perceived to be most necessary to achieve this. GEM data is therefore a valuable tool for policy makers working in this space.

Among other examples that can be cited, GEM has been warning since its creation of the need to promote entrepreneurial values and education in the populations of the participating countries. The results - after twenty years - have hardly changed and very few countries have made a commitment to improving this pillar, which has very low ratings in most countries, and which, logically, influences the lower average rating of the context for entrepreneurship. Youth unemployment is dramatic in many countries because many children and young people have not received entrepreneurial training and have not acquired the mentality to carry out actions to, alone or in teams, generate their own professional life which, moreover, can lead them to create jobs for others. In a situation like the current COVID-19 pandemic, entrepreneurship is seen, once again, as part of the solution to the crisis. However, with an exceedingly challenging market context, plagued with restrictions due to the health crisis, it would be necessary, in addition to entrepreneurial training, to have a strong component of creativity and innovation, as well as a mastery of new technologies to face this new digital era. Countries that have made a commitment to entrepreneurial training and education will see that their young people will have better tools to face this economic crisis.

In any case, analysis of the environmental conditions and their evolution is necessary for a better understanding of the entrepreneurial sector in each country as a whole. Analysing activity is not enough; it is also important to evaluate the type of scenario in which it is taking place.

2. Notes on the GEM-NES Methodology

Since its launch in 1999, the GEM Observatory has been using a proprietary information tool to estimate the average state of the business environment as regards entrepreneurship in participating countries.

This tool consists of a comprehensive questionnaire that is administered to a sample of selected experts in these environmental conditions in each country. It is a convenience sample in which all participants complete the questionnaire in full regardless of the environmental condition for which they were selected. This means that all experts, no matter for what condition they were recruited, must complete questionnaire and not just the block of questions that corresponds to their concrete field of expertise. This strategy prevents biases, or in other words, that experts in concrete conditions score higher in their condition(s) increase the average score of this (these) conditions.

The expert survey methodology is widely used by various prestigious sources of information (e.g. the WEF Global Competitiveness Report) and is applied in order to measure concepts for which there are no other objective sources of information.

Through the expert survey, GEM estimates the average state of the context in which entrepreneurs operate in each country and is the only source of information worldwide that provides this type of information. At the time GEM was created, there were no objective indicators specifically designed to measure the state of the entrepreneurial environment. Having analysed many current objective indicators that could approximate some of the concepts, GEM researchers concluded that they are not specific enough, that there is no guarantee that the data will be available in the same year (remember that GEM measures annually and presents the results at the beginning of each new year, i.e. in a usually

record time span), and that there is no continuity of the series and methodology. Consequently, GEM continues using its tool, just as other organisations continue to use this methodology.

From the point of view of people unfamiliar with statistical methods, it is logical that some scepticism exists related to subjective information tools, where a set of experts evaluate a set of concepts. However, on reflection, many indicators come from seemingly objective sources when, in fact, they are not. Many composite indices contain subjective information and many psychological tests, tests of perceived health, vocational skills and so on are based on subjective assessments and are used regularly and with statistical reliability. Expert survey approaches, like the Delphi method and others, are fully accepted and perfectly valid if the methodology is rigorously applied.

In the case of the NES, each participating country must:

- Select a minimum of 4 experts per condition ($4 \times 9 = 36$), providing a sample of at least 36 experts.
- Each expert must complete the entire questionnaire regardless of the condition for which he/she was selected and without being informed that he/she has been chosen for his/her specific expertise. In this way, the final average evaluations avoid the bias that experts may score better or worse on items that refer to their environmental status. Even so, it is logical to expect that their ratings in the conditions they know best will be somewhat different from those of the others because of their greater knowledge. Therefore, it is very important that the expert does not know for which condition he/she was chosen. Most of the experts are able to give opinions on all items of the questionnaire and 25% of the experts must be active as entrepreneurs or established businesspeople.
- The questionnaire is structured in blocks of items that are constructs measuring a latent concept. Applying a principal component analysis (PCA) to each block of items and using the total sample of experts from all countries, provides the latent variables, which are a total of 12.
- The 12 components represent the above-mentioned environmental conditions, but in greater detail. Thus, the government policy component is divided into two: support and relevance on the one hand and regulations and taxes on the other; the entrepreneurial education component is also divided into two: education at the school level and education at the post-school level and, finally, the internal market component is also divided into two: internal market dynamics and regulations and barriers to entry.

From the 12 components, a composite index called National Entrepreneurship Context Index (NECI) is calculated, which is the arithmetic mean of these components. Given that the principal component analysis already weights the variables and relativises the positions of the individuals in relation to each other, the recommendations received by GEM regarding the calculation of this composite index from the experts of the Joint Research Centre of the European Commission based in Ispra (Italy) were not to weight this average and to leave it as simple so as not to distort the results.

- As a measure of reliability and internal consistency, Cronbach's Alpha is calculated for all constructs before the principal component analysis is carried out. The results are stable over 20 years, with values for all blocks ranging from 0.7 to over 0.9, which guarantees the robustness of the methodology.

The NECI is a composite indicator that represents the average state of the entrepreneurial environment conditions of a country or territory in which it has been measured. Like all the variables that form part of the NES questionnaire, it is measured on a Likert scale of 0-10 points, so that the higher the value, the better the average state of conditions. Since 2018, GEM offers a ranking where

you can see the positions that countries occupy on an annual basis, thus allowing observation of evolution over the years.

Due to the nature of the GEM Project, which is always open to adding new countries, and the fact that some countries may not be able to participate in a given cycle because teams must raise their own funding, the list of countries may vary from year to year. However, each country that consistently participates can track the evolution of the value of its NECI and compare itself with other key countries that are stable within the project. Again, the rankings should be used with their advantages and limitations in mind. The important thing is to know whether the context is getting better or worse and which are the strongest and weakest pillars.

The year 2020 has been exceptional and yet GEM has been able to run its edition and obtain NES data from some 44 countries. Although the sample is not as representative as in other years, and although some key countries are missing, there is no doubt that the data are of great value because they reflect the state of the environment at the time of the first lockdowns and in the first months of the pandemic. The results and their interpretation are shown below.

3. Results

The following table shows the average values given by the experts in each participating country for each of the 12 entrepreneurial environment conditions (EFCs) that make up the context in which entrepreneurial activity takes place:

EFC	Entrepreneurial framework condition
A	Financial environment related with entrepreneurship
B1	Government concrete policies, priority, and support
B2	Government policies bureaucracy, taxes
C	Government programs
D1	Entrepreneurial level of education at Primary and Secondary
D2	Entrepreneurial level of education at Vocational, Professional, College and University
E	R&D level of transference
F	Professional and commercial infrastructure access
G1	Internal market dynamics
G2	Internal market burdens
H	General physical infrastructures and services access
I	Cultural, social norms and society support

The scale of measurement on which these averages are given is from 0 to 10 points, whereby 0 = completely insufficient and 10 = completely sufficient.

In the table, those conditions that are perceived as sufficient by the experts are coloured in different shades of green. The higher the score, the more intense the colour.

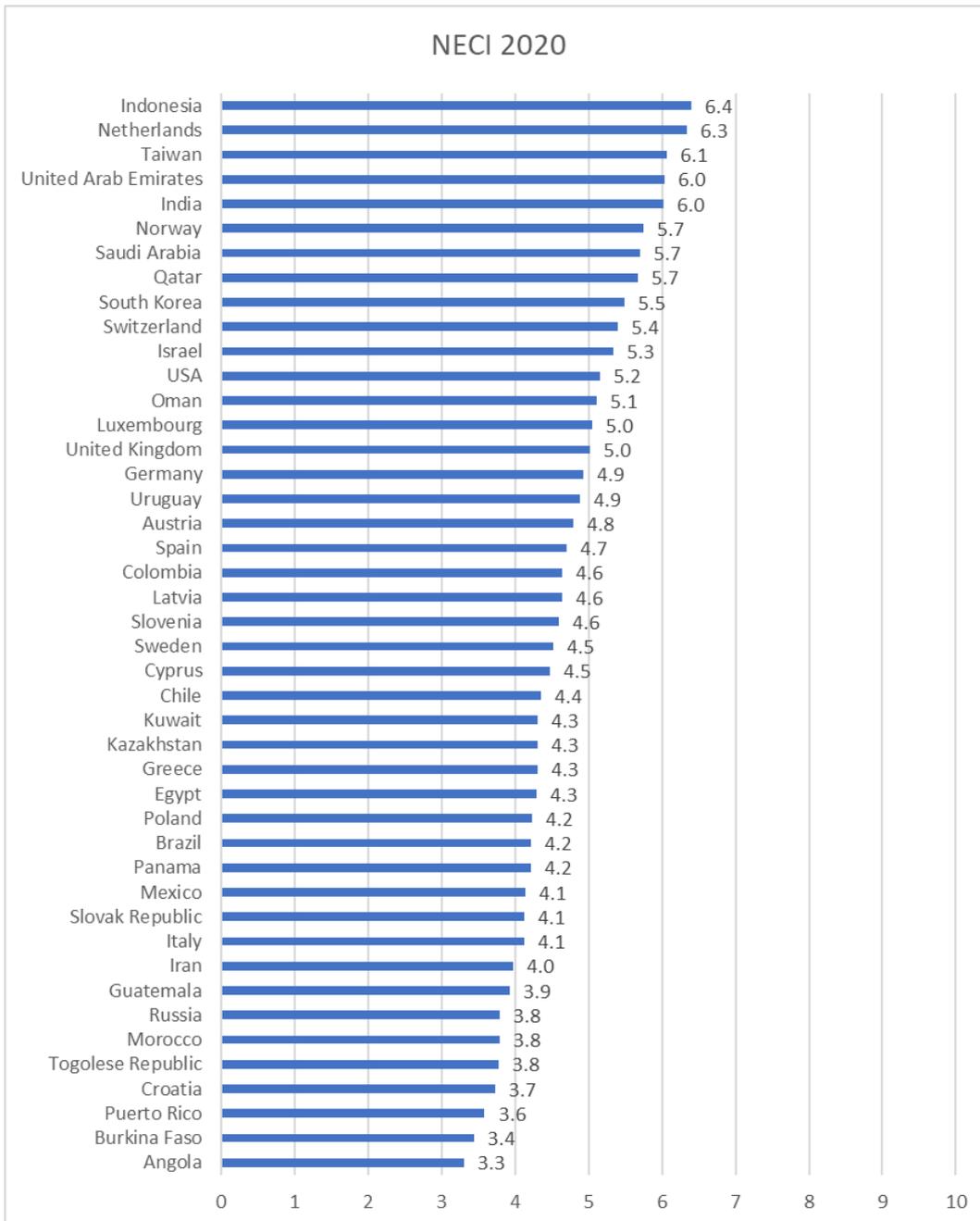
Table 1. Average scores for 12 Entrepreneurial Framework Conditions (EFC) by country

	A	B1	B2	C	D1	D2	E	F	G1	G2	H	I
Angola	3.1	3.8	2.5	2.8	2.7	3.3	2.1	3.1	5.2	3.0	3.4	4.6
Austria	4.8	4.5	4.0	6.3	1.9	4.3	4.3	5.6	4.2	5.6	7.8	4.2
Brazil	4.4	3.7	2.4	4.0	2.6	4.4	3.1	4.5	6.6	4.1	6.0	4.8
Burkina Faso	2.7	3.2	3.6	3.6	1.6	3.4	2.8	4.6	3.9	3.3	4.6	4.1
Chile	3.3	3.9	4.6	5.0	2.3	4.6	3.7	4.7	4.2	3.4	7.2	5.2
Colombia	3.7	4.4	3.3	4.6	3.6	6.6	4.1	4.7	4.9	4.5	5.9	5.6
Croatia	4.2	3.2	2.5	3.3	2.4	3.5	2.9	4.6	5.4	3.2	6.4	3.3
Cyprus	3.5	4.9	5.6	4.2	2.7	4.4	4.0	5.1	4.7	4.4	6.0	4.1
Egypt	4.4	4.3	3.2	4.1	2.3	4.2	3.4	4.6	5.1	4.3	6.7	4.8
Germany	5.3	4.6	4.1	6.2	3.0	4.8	4.7	5.7	5.1	4.5	6.3	4.8
Greece	4.0	5.0	3.4	3.8	2.6	4.3	4.4	4.7	5.2	4.1	5.7	4.4
Guatemala	3.2	2.6	3.3	3.1	2.5	5.3	3.4	5.0	3.6	3.7	6.4	5.2
India	6.4	5.9	5.7	5.8	5.0	5.2	5.7	6.4	6.8	6.2	7.0	6.2
Indonesia	5.8	6.4	6.1	6.1	6.6	7.2	6.5	5.9	6.3	6.1	6.8	6.9
Iran	3.9	3.7	2.9	3.2	2.4	3.9	4.0	3.9	4.8	3.1	6.8	5.1
Israel	5.5	3.9	3.4	4.6	3.9	5.4	5.1	6.6	5.7	5.3	7.5	7.0
Italy	4.5	4.3	2.7	3.9	2.8	4.4	4.5	5.1	3.9	4.4	5.5	3.7
Kazakhstan	3.5	5.0	4.4	4.7	2.9	4.0	2.5	4.7	6.0	3.3	5.8	5.0
Kuwait	4.5	3.5	4.5	2.9	2.5	3.9	3.2	5.1	5.2	3.8	6.9	5.8
Latvia	4.8	4.2	2.6	5.4	4.5	4.8	4.5	5.2	5.2	3.4	6.4	4.8
Luxembourg	4.2	4.9	5.3	5.9	4.1	5.1	5.6	6.0	3.8	4.9	6.0	4.7
Mexico	3.8	2.6	3.2	3.4	2.4	6.0	3.7	4.3	4.9	3.8	6.1	5.3
Morocco	3.5	4.5	3.6	3.9	1.9	4.1	2.6	4.7	4.2	3.0	6.0	3.4
Netherlands	6.2	6.1	5.9	6.6	6.0	6.5	6.1	6.5	5.1	6.3	8.0	6.8
Norway	5.6	5.5	5.2	6.3	5.2	5.6	5.1	6.6	4.1	5.7	7.9	6.2
Oman	4.9	5.2	4.3	5.1	4.4	5.3	4.4	4.8	5.7	5.1	6.1	6.0
Panama	3.5	3.7	4.3	4.5	2.0	4.2	3.3	4.7	3.7	3.9	7.1	5.6
Poland	4.2	4.3	2.8	4.1	2.2	3.5	3.3	4.9	6.8	3.9	6.5	4.4
Puerto Rico	3.6	2.4	1.5	3.2	1.7	4.2	3.4	4.6	5.0	3.6	4.8	5.1
Qatar	5.1	5.5	5.8	5.7	5.3	6.0	5.4	5.8	5.8	4.8	7.1	5.9
Russia	3.5	3.1	3.0	3.3	2.7	4.1	2.4	4.4	5.7	3.2	6.4	3.8
S Korea	5.6	6.2	5.1	5.8	3.9	4.6	4.5	4.8	7.9	4.5	7.8	5.2
Saudi Arabia	6.0	6.2	5.3	5.9	2.9	4.6	4.7	5.6	6.9	5.8	8.1	6.4
Slovak R	4.6	3.7	3.1	4.1	2.9	4.4	3.0	4.9	4.1	4.7	6.4	3.4
Slovenia	4.4	4.1	3.6	4.5	3.3	4.7	4.1	5.1	5.6	4.5	6.8	4.5
Spain	4.4	4.6	3.9	5.7	2.2	5.1	4.8	6.5	4.5	4.5	5.9	4.3
Sweden	5.1	3.5	3.0	3.7	3.9	4.4	3.4	5.3	5.6	4.4	6.9	5.1
Switzerland	5.7	4.8	5.6	5.8	3.1	5.2	5.5	6.6	3.7	5.2	7.6	6.1
Taiwan	5.6	6.9	5.8	6.2	4.4	5.4	5.7	6.2	6.2	5.6	8.4	6.4
Togolese R	3.2	4.4	4.3	4.5	1.7	3.8	2.9	4.9	4.0	3.7	4.2	3.8
UAE	5.3	6.8	5.7	6.0	5.8	5.6	5.1	6.0	6.2	5.2	7.3	7.3

UK	5.6	4.5	5.0	4.7	3.4	4.5	4.5	5.6	5.3	5.2	6.3	5.7
Uruguay	3.5	4.9	4.4	6.4	2.6	6.6	5.0	5.9	3.0	4.5	7.5	4.4
USA	5.6	3.9	4.0	4.3	3.5	5.6	4.4	6.0	5.5	4.5	7.0	7.5

The following figure shows the ranking of participating countries in terms of the NECI index which is calculated as the arithmetic mean of the scores obtained on the status of the 12 entrepreneurial environment conditions shown in Table 1.

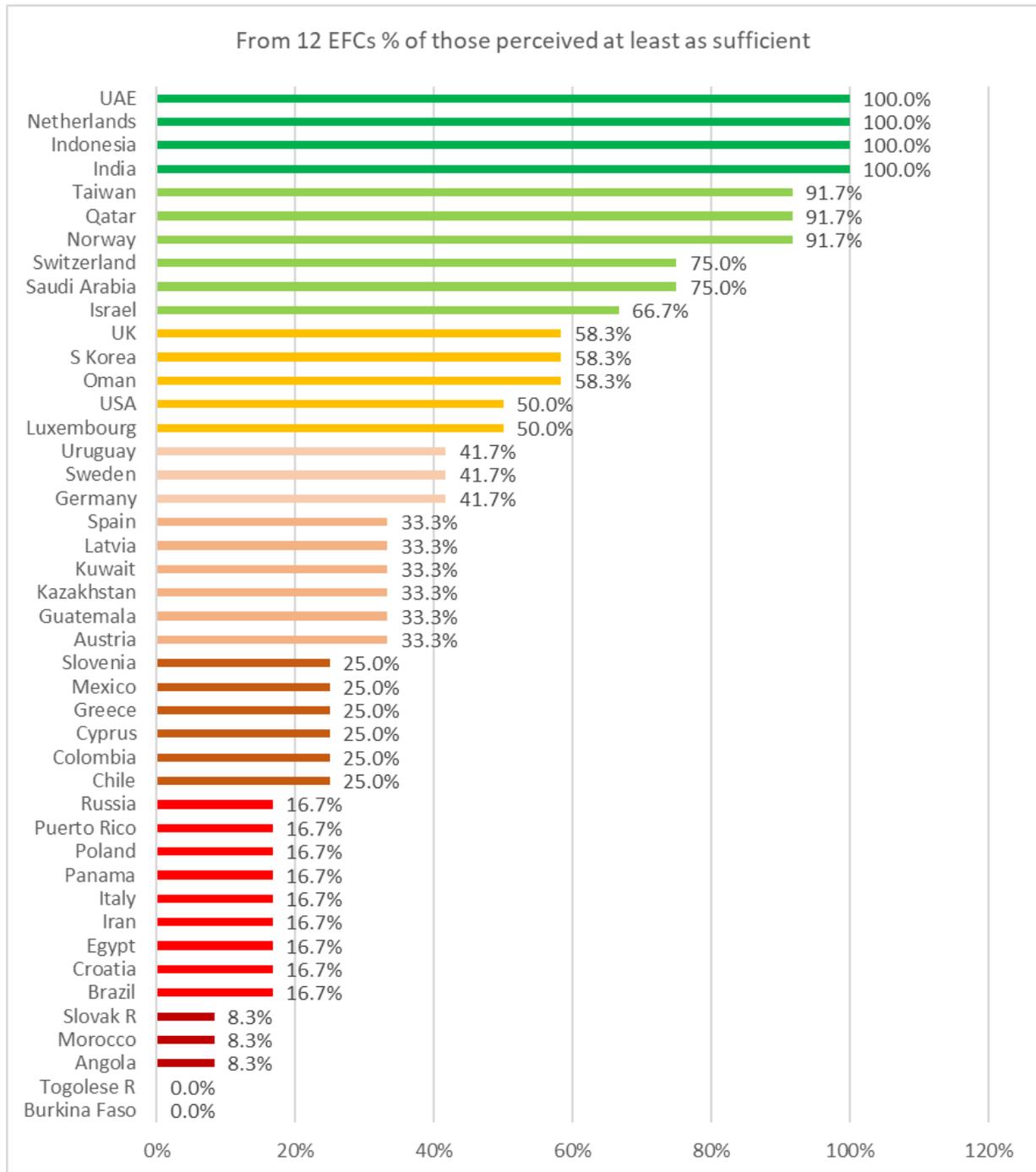
Figure 1. NECI 2020: Ranking of participating countries



4. Interpretation of results and diagnosis

From the results in Table 1, experts' perception of the average state of the conditions for entrepreneurship is precarious in most countries. Thus, calculating the percentage of the 12 conditions that reach at least sufficiency in each country, we obtain the following graph, in which, out of 44 countries (100%), 15 countries (34%), offer an environment with favourable conditions for entrepreneurs and 29 countries (66%) should improve the conditions for entrepreneurs if they wish them to be able to develop a higher quality activity. When interpreting these results, it should always be borne in mind that we are talking about the environmental conditions for all types of entrepreneurs and not about the conditions or state of a country's economy as a whole. Sometimes there is a tendency to confuse GEM evaluations with those of the general economy of countries and it is necessary not to lose sight of the focus. When talking about the state of financing, this always refers to financing for entrepreneurs, not to the financial sector of a country. The same goes for government policies and programmes, education systems and other conditions. GEM experts are not assessing the average state of general education, but rather the existence (or otherwise), implementation and results of entrepreneurship training, for example.

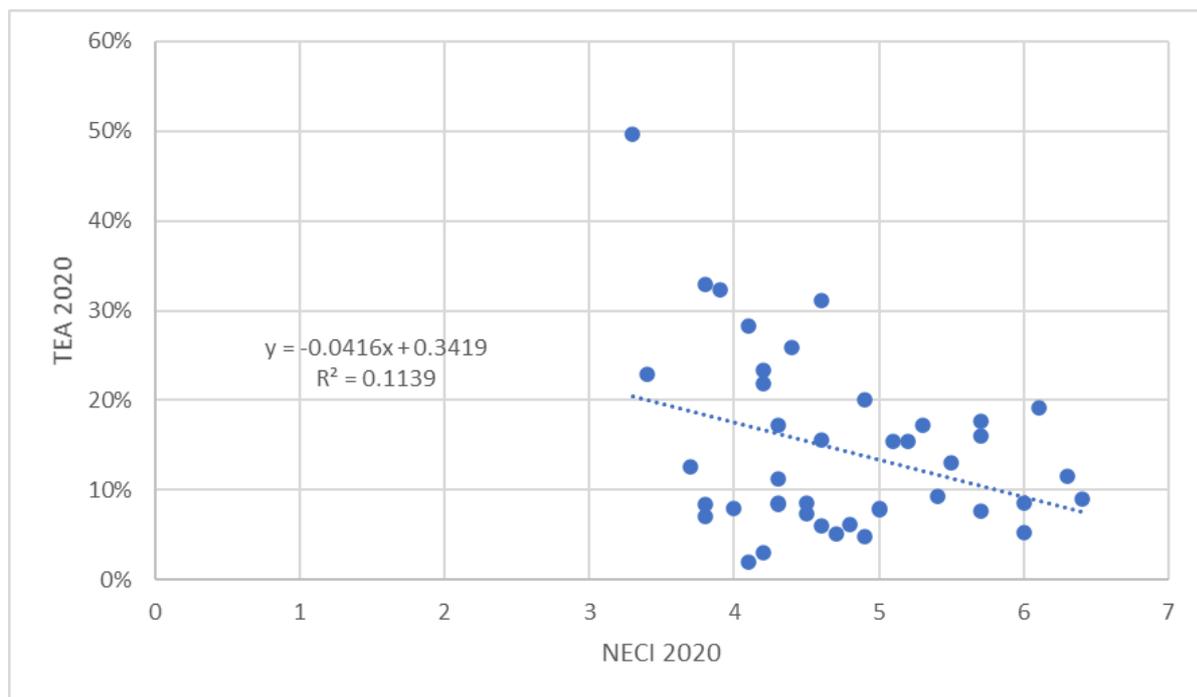
Figure 2. Proportion of EFCs perceived as at least sufficient in the participating countries



The results are remarkably diverse and, at the same time, very specific as they refer to the context faced by entrepreneurs. One instinctively looks for or presumes that there is a direct and positive linear relationship between this expert assessment (NECI) and entrepreneurial activity outcomes (Total Early Stage Entrepreneurship or TEA). However, looking at the different scenarios offered by countries on the internal composition of both variables, it is easy to deduce that no such significant relationship between environmental conditions and entrepreneurial activity outcomes can be obtained for the total sample of countries (see Figure 3).

The explanation is logical. The study of entrepreneurial behaviour shows that entrepreneurs tend to face all types of environments and that in less developed countries or countries with rather unfavourable conditions for entrepreneurship, such as the Slovak Republic, Morocco, Angola, the Republic of Togo or Burkina Faso in 2020, the rate of entrepreneurial activity can be very high (OER = 13.8%, 7.1%, 49.6%, 32.9%, 22.9% respectively). The question here is: What is the quality and economic contribution of this entrepreneurial activity, much of which is produced out of necessity and for the very survival of the entrepreneurs themselves? On the other hand, countries where experts have rated the 12 environmental conditions as sufficient or better, i.e. Indonesia, Netherlands, India and UAE, have rates of entrepreneurial activity (OER = 9.6%, 11.5%, 5.3% and 15.4% respectively) that are also diverse and more moderate than those of the less developed African countries. Therefore, a linear relationship between the OER and the NECI index for the total sample of countries is not to be expected. This is due to the complexity of the entrepreneurial phenomenon and the large number of variables that condition the result, such as the level of development of the countries, their level of public and private employment, the quality of entrepreneurial activity (whether it is out of necessity or opportunity, whether it generates employment, whether it has a technological, innovation or internationalisation component, etc.), whether the environmental conditions are in good or bad shape, and so on.

Figure 3. Linear regression analysis between the TEA rate and the NECI index



Therefore, when interpreting the GEM results it is very important to keep in mind that their focus is not on the general state of a country's economy. Rather, their focus is on entrepreneurship and the environment entrepreneurs face and that the broad definition of entrepreneurship used to capture the activity encompasses initiatives of all kinds: from those launched for reasons related to survival to those driven by opportunities where innovation and high-growth expectations are present.

The important thing about the information provided by the experts' diagnosis of the entrepreneurial environment is to be able to identify the strengths and weaknesses of the context, so as to inspire all actors in the field of entrepreneurship - including public policy makers, entrepreneurs, potential

entrepreneurs, trade unions, business associations, chambers of commerce and many others - to take actions to improve the context. However, it must always be borne in mind that each country must calculate what rate of entrepreneurial activity fits its economic structure and that quality counts more than quantity of activities.

The rankings are considered particularly important because they allow comparisons between countries on key concepts and the monitoring of their positioning in relation to them. However, their limitations must be taken into account. The key to a good diagnosis of the environment in which entrepreneurs operate is to analyse the state of the 12 conditions in each country, to see the average result in terms of the NECI and to study the experts' assessments of the items that make up each condition's construct, in order to have detailed information about the aspects that can be improved within each condition.

5. The initial impact of the pandemic on the environmental conditions for entrepreneurship

The year 2020 has been an exceptional year due to the outbreak of the COVID-19 pandemic worldwide. GEM and other research projects involving teams formed in the various countries have been affected to some degree. In the case of GEM, some teams have had to postpone their participation until 2021 due to lockdowns, disruption of activities, uncertainty, interactions with sponsors, reorganisation of online work and other reasons. Despite this, 44 economies were able to conduct the NES survey, obtaining the information necessary to analyse the state of the environment for entrepreneurship at a crucial point in time (first six months of the pandemic).

For those countries where it was possible, a comparison was made between the NECI values for 2019 and 2020. Table 2 shows the result. The results suggest that, taken as a whole, entrepreneurial environment conditions had not significantly altered their average state in most countries, so that the impact of the economic crisis resulting from the pandemic had not yet been fully captured, and needs to be measured in 2021 to see if, where and which conditions are particularly affected.

Nevertheless, the NES indicators are highly sensitive and some changes are worth noting. Taking as significant a change of 0.5 points or more in an indicator on this scale, some significant worsening is noted in the NECIs of Spain, Switzerland and Mexico, with the other countries experiencing less impact. On the other hand, there is some significant improvement in the NECIs of Indonesia, Iran, Saudi Arabia, Oman and Israel. Logically, we must speak of the NECI values and not of the positions in the ranking, as the latter is not comparable with that of 2019 as it is not made up of the same countries. The ranking should be taken as a snapshot of the countries present in this exceptional year, and it is better to look at the evolution of the value of the indicator with respect to the previous year.

Table 2. Comparison between the value of NECI 2019 and NECI 2020 in countries where possible

Country	NECI2019	NECI2020	Difference
Angola	Not in 2019	3,3	
Austria	Not in 2019	4,8	
Brazil	4,0	4,2	0,2
Burkina Faso	Not in 2019	3,4	
Chile	4,6	4,4	-0,2
Colombia	4,2	4,6	0,4
Croatia	3,6	3,7	0,1
Cyprus	4,5	4,5	0,0
Egypt	4,3	4,3	0,0
Germany	5,0	4,9	-0,1

Greece	4,1	4,3	0,2
Guatemala	3,6	3,9	0,3
India	5,8	6,0	0,2
Indonesia	5,7	6,4	0,7
Iran	3,2	4,0	0,9
Israel	4,8	5,3	0,5
Italy	4,3	4,1	-0,2
Kazakhstan	Not in 2019	4,3	
Kuwait	New in 2020	4,3	
Latvia	4,9	4,6	-0,3
Luxembourg	5,2	5,0	-0,2
Mexico	4,7	4,1	-0,6
Morocco	4,0	3,8	-0,2
Netherlands	6,0	6,3	0,3
Norway	5,5	5,7	0,2
Oman	4,6	5,1	0,5
Panama	4,0	4,2	0,2
Poland	4,2	4,2	0,0
Puerto Rico	3,2	3,6	0,4
Qatar	5,9	5,7	-0,2
Russia	4,0	3,8	-0,2
Saudi Arabia	5,0	5,7	0,7
Slovak Republic	4,0	4,1	0,1
Slovenia	4,5	4,6	0,1
South Korea	5,1	5,5	0,4
Spain	5,2	4,7	-0,5
Sweden	4,9	4,5	-0,4
Switzerland	6,1	5,4	-0,6
Taiwan	5,7	6,1	0,4
Togolese Republic	New in 2020	3,8	
United Arab Emirates	5,8	6,0	0,2
United Kingdom	4,8	5,0	0,2
Uruguay	Not in 2019	4,9	
USA	5,3	5,2	-0,1

The following tables show the positive and negative changes that have occurred in each of the environmental conditions or pillars that make up the NECI in each country between 2019 and 2020. The differences between the mean values for each year are net, expressed in points, with a difference of 0.5 points or more being considered significant, either with a positive sign (marked in green) or a negative sign (marked in pink). The list of countries includes those where it was possible to carry out the comparison because they participated in both years.

Table 3. Comparison of the average state of conditions: financing for entrepreneurs (A), government policies on support and relevance for entrepreneurs (B1) and government policies on red tape, taxes and regulations for entrepreneurs (B2), between 2019 and 2020.

Country	A_19	A_20	Difference	B1_19	B1_20	Difference	B2_19	B2_20	Difference
Brazil	4,8	4,4	-0,4	3,9	3,7	-0,2	2,3	2,4	0,1
Chile	3,8	3,3	-0,5	4,7	3,9	-0,8	4,8	4,6	-0,2
Colombia	3,4	3,7	0,3	5,0	4,4	-0,6	3,1	3,3	0,1
Croatia	4,2	4,2	0,1	3,0	3,2	0,2	2,5	2,5	0,0
Cyprus	3,6	3,5	-0,1	4,3	4,9	0,6	5,0	5,6	0,6
Egypt	4,5	4,4	-0,1	4,2	4,3	0,1	3,3	3,2	-0,1

Germany	5,3	5,3	0,0	4,1	4,6	0,5	4,2	4,1	-0,1
Greece	3,9	4,0	0,2	3,6	5,0	1,5	2,4	3,4	0,9
Guatemala	2,6	3,2	0,6	2,4	2,6	0,2	3,4	3,3	-0,1
India	5,7	6,4	0,6	6,0	5,9	0,0	5,1	5,7	0,6
Indonesia	5,5	5,8	0,3	5,9	6,4	0,5	5,0	6,1	1,2
Iran	3,3	3,9	0,7	3,1	3,7	0,7	3,2	2,9	-0,4
Israel	5,1	5,5	0,4	4,1	3,9	-0,2	3,1	3,4	0,4
Italy	4,5	4,5	0,0	3,6	4,3	0,7	3,0	2,7	-0,4
Latvia	4,8	4,8	0,0	4,4	4,2	-0,2	3,8	2,6	-1,2
Luxembourg	4,3	4,2	-0,1	5,9	4,9	-0,9	5,4	5,3	0,0
Mexico	4,1	3,8	-0,4	4,0	2,6	-1,4	3,7	3,2	-0,4
Morocco	3,6	3,5	-0,1	3,7	4,5	0,8	3,8	3,6	-0,3
Netherlands	6,3	6,2	-0,1	5,8	6,1	0,4	5,5	5,9	0,4
Norway	5,5	5,6	0,1	5,1	5,5	0,5	4,5	5,2	0,7
Oman	4,3	4,9	0,6	4,5	5,2	0,7	4,2	4,3	0,2
Panama	3,1	3,5	0,3	2,6	3,7	1,1	4,1	4,3	0,2
Poland	4,9	4,2	-0,7	4,1	4,3	0,1	2,9	2,8	-0,1
Puerto Rico	3,4	3,6	0,2	2,5	2,4	-0,1	1,2	1,5	0,3
Qatar	5,4	5,1	-0,3	6,0	5,5	-0,5	6,1	5,8	-0,3
Russia	3,7	3,5	-0,2	3,2	3,1	-0,2	3,1	3,0	-0,1
Saudi Arabia	5,0	6,0	0,9	6,0	6,2	0,2	5,1	5,3	0,1
Slovak R	4,5	4,6	0,1	2,8	3,7	0,9	2,7	3,1	0,4
Slovenia	4,5	4,4	-0,1	4,0	4,1	0,1	3,4	3,6	0,1
South Korea	5,1	5,6	0,5	6,5	6,2	-0,2	4,6	5,1	0,5
Spain	4,9	4,4	-0,4	5,3	4,6	-0,7	5,2	3,9	-1,3
Sweden	5,2	5,1	-0,1	3,6	3,5	-0,1	3,5	3,0	-0,5
Switzerland	5,5	5,7	0,2	5,8	4,8	-1,0	6,2	5,6	-0,7
Taiwan	5,6	5,6	0,1	6,0	6,9	0,9	5,6	5,8	0,3
UAE	4,9	5,3	0,4	6,5	6,8	0,3	5,8	5,7	-0,1
UK	5,3	5,6	0,3	4,0	4,5	0,5	5,1	5,0	-0,1
USA	6,0	5,6	-0,5	4,4	3,9	-0,5	4,9	4,0	-0,9

The results in Table 3 indicate that, up to the time of the GEM measurement, around July 2020, there were no major changes in most countries in terms of the environment condition that measures the state of funding for entrepreneurs. Countries where this condition is considered as at least sufficient (Germany, India, Indonesia, Israel, Netherlands, Norway, Qatar, Saudi Arabia, Republic of South Korea, Sweden, Switzerland, Taiwan, UAE, UK and USA), have remained the same, with some improvement in India, Saudi Arabia and South Korea, and some worsening in the USA. Among the countries where this condition was seen as insufficient, slight improvements are recorded in Guatemala, Iran and Oman, and some worsening in Chile and Poland. Thus, up to the Summer of 2021, there was a modest impact on this condition, which could be attributed to the pandemic. Thus, the positive impacts may be due, especially in Asian countries, to increased activity and export of health technology products and drugs associated with the fight against HIV/AIDS to countries around the world. On the other hand,

the negative impacts may be due in part to the strict lockdowns in many countries in the first months of the pandemic, that caused business closures due to lack of liquidity and, moreover, a climate of uncertainty restricting access to financing channels, including informal ones.

In the case of government policies, there have been far more significant changes, both positive and negative, in countries where this condition was insufficient and also in some where it was perceived as sufficient. India, which has remained stable, and Indonesia, which has improved somewhat, are notable because they are key countries in terms of production and export of health technology and pharmaceuticals. Therefore, despite the health situation, the policies of the governments of these countries are perceived as sufficient because the pandemic represents an opportunity for the development of entrepreneurial activity for essential sectors in the current situation. In contrast, other European and American countries, such as Switzerland, Luxembourg, Spain, Chile, Colombia, Mexico, the United States, as well as Qatar in the Middle East, have seen a worsening in the evaluation of policies for entrepreneurs, attributable to the pandemic because in many of them a balance between controlling the health problem and the crisis derived from it has not been achieved. In contrast, in countries such as Germany, Greece, Cyprus, Indonesia, Italy and others, government policies to help new and growing businesses to avoid as many closures and job losses as possible were more highly rated by experts.

In the case of bureaucracy, taxation and regulation, Spain suffered a significant drop in rating from sufficient to insufficient, and ratings also worsened in the USA, Switzerland, Sweden and Latvia. On the other hand, in India, Indonesia and South Korea, relevant countries for their export of technologies in this pandemic situation, the evaluation of this condition improves, as well as in Greece, Cyprus and Norway.

On the other hand, the results in Table 4 show a certain worsening of the assessment of government programmes for entrepreneurs in Chile, Sweden, Slovenia, Russia and, above all, Mexico. On the other hand, in line with the relevance of the role of Asian countries in the supply of products and technology against the pandemic, the assessment improves significantly in Indonesia and Taiwan, and also in countries where the government has provided significant support for the continuity of businesses, such as Saudi Arabia, Israel (although over time this has declined), Norway, Oman, Panama and Slovakia.

Entrepreneurship education and training, the usually lowest rated environmental condition, especially at the school stage, has fared worse in Iran, Mexico, Spain, Sweden and Switzerland, possibly because home confinement has further restricted access to it as opposed to the need to follow general schooling online as far as possible. The closure of educational institutions of all levels and types for several months has been a major challenge, and countries with a stronger technological base and smaller populations, such as the Netherlands or the UAE, have managed it better and have been more highly rated for it. Brazil, Colombia, Indonesia, Oman, and other countries have also improved their assessment of this training, especially Colombia, Indonesia and Israel at the post-school level.

Table 4. Comparison of the average status of conditions: government programmes for entrepreneurs (C), entrepreneurship education in schools (D1) and entrepreneurship education post-school (D2), between 2019 and 2020.

Country	C_19	C_20	Difference	D1_19	D1_20	Difference	D2_19	D2_20	Difference
Brazil	3,9	4,0	0,1	2,0	2,6	0,5	4,3	4,4	0,2
Chile	5,5	5,0	-0,5	2,5	2,3	-0,2	4,9	4,6	-0,3

Colombia	4,5	4,6	0,0	3,1	3,6	0,6	5,3	6,6	1,3
Croatia	3,4	3,3	-0,1	2,0	2,4	0,4	3,3	3,5	0,3
Cyprus	4,0	4,2	0,2	3,2	2,7	-0,4	5,1	4,4	-0,7
Egypt	4,1	4,1	0,0	2,2	2,3	0,1	3,9	4,2	0,3
Germany	6,2	6,2	0,0	2,7	3,0	0,3	4,8	4,8	0,0
Greece	3,5	3,8	0,3	2,6	2,6	0,0	4,5	4,3	-0,2
Guatemala	2,9	3,1	0,2	2,8	2,5	-0,3	5,1	5,3	0,3
India	5,5	5,8	0,3	5,1	5,0	-0,1	5,7	5,2	-0,4
Indonesia	5,3	6,1	0,8	5,0	6,6	1,6	6,0	7,2	1,2
Iran	3,1	3,2	0,1	3,0	2,4	-0,6	3,3	3,9	0,6
Israel	4,2	4,6	0,5	3,0	3,9	1,0	4,4	5,4	1,0
Italy	4,1	3,9	-0,3	2,9	2,8	-0,1	4,9	4,4	-0,6
Latvia	5,2	5,4	0,3	4,2	4,5	0,3	4,6	4,8	0,3
Luxembourg	6,0	5,9	-0,1	4,1	4,1	0,0	5,3	5,1	-0,3
Mexico	4,4	3,4	-1,0	3,1	2,4	-0,7	6,0	6,0	0,0
Morocco	3,8	3,9	0,1	2,3	1,9	-0,4	4,1	4,1	0,0
Netherlands	6,1	6,6	0,4	5,5	6,0	0,6	5,8	6,5	0,7
Norway	5,4	6,3	0,8	5,2	5,2	0,1	5,7	5,6	-0,1
Oman	4,4	5,1	0,7	3,5	4,4	0,9	4,4	5,3	0,9
Panama	4,0	4,5	0,5	2,1	2,0	-0,1	4,1	4,2	0,2
Poland	4,3	4,1	-0,2	1,8	2,2	0,4	3,2	3,5	0,3
Puerto Rico	2,9	3,2	0,4	1,4	1,7	0,3	3,7	4,2	0,4
Qatar	6,1	5,7	-0,4	5,2	5,3	0,0	6,3	6,0	-0,3
Russia	3,8	3,3	-0,6	3,0	2,7	-0,3	4,2	4,1	-0,1
Saudi Arabia	5,3	5,9	0,6	3,0	2,9	0,0	4,2	4,6	0,4
Slovak R	3,6	4,1	0,5	2,7	2,9	0,3	4,4	4,4	0,0
Slovenia	5,1	4,5	-0,7	2,8	3,3	0,5	4,3	4,7	0,5
South Korea	5,4	5,8	0,4	3,4	3,9	0,5	4,2	4,6	0,4
Spain	6,0	5,7	-0,3	2,7	2,2	-0,5	5,5	5,1	-0,3
Sweden	4,6	3,7	-0,9	4,3	3,9	-0,5	4,8	4,4	-0,5
Switzerland	6,1	5,8	-0,3	4,6	3,1	-1,5	6,3	5,2	-1,2
Taiwan	5,7	6,2	0,5	3,9	4,4	0,5	5,2	5,4	0,3
UAE	5,9	6,0	0,1	5,4	5,8	0,5	5,6	5,6	0,0
UK	4,3	4,7	0,4	3,4	3,4	0,0	4,7	4,5	-0,1
USA	4,2	4,3	0,0	3,9	3,5	-0,4	5,4	5,6	0,2

Table 5. Comparison of the average status of conditions: R&D transfer (E), access to commercial and professional infrastructure (F), access to physical and service infrastructure (H), between 2019 and 2020.

Country	E_19	E_20	Difference	F_19	F_20	Difference	H_19	H_20	Difference
Brazil	3,2	3,1	-0,1	4,5	4,5	0,0	5,5	6,0	0,5
Chile	3,7	3,7	0,0	4,4	4,7	0,4	7,7	7,2	-0,5

Colombia	3,6	4,1	0,5	4,0	4,7	0,7	5,8	5,9	0,1
Croatia	2,6	2,9	0,3	4,0	4,6	0,6	6,4	6,4	0,0
Cyprus	3,9	4,0	0,2	5,1	5,1	0,0	6,6	6,0	-0,6
Egypt	3,1	3,4	0,3	4,5	4,6	0,1	6,9	6,7	-0,2
Germany	4,8	4,7	-0,1	6,3	5,7	-0,6	6,5	6,3	-0,2
Greece	4,3	4,4	0,1	4,9	4,7	-0,3	6,1	5,7	-0,4
Guatemala	2,6	3,4	0,9	4,4	5,0	0,5	5,5	6,4	0,8
India	5,3	5,7	0,4	5,8	6,4	0,6	6,9	7,0	0,0
Indonesia	5,6	6,5	0,9	5,4	5,9	0,5	6,1	6,8	0,7
Iran	3,1	4,0	0,9	3,0	3,9	1,0	3,5	6,8	3,3
Israel	4,7	5,1	0,4	5,6	6,6	1,0	7,1	7,5	0,4
Italy	4,6	4,5	-0,2	4,8	5,1	0,3	5,4	5,5	0,0
Latvia	4,4	4,5	0,1	5,9	5,2	-0,7	6,9	6,4	-0,6
Luxembourg	5,3	5,6	0,3	5,7	6,0	0,3	6,7	6,0	-0,7
Mexico	4,1	3,7	-0,5	4,8	4,3	-0,4	7,1	6,1	-0,9
Morocco	2,9	2,6	-0,3	4,8	4,7	-0,1	6,4	6,0	-0,5
Netherlands	5,4	6,1	0,6	6,3	6,5	0,2	7,9	8,0	0,1
Norway	4,7	5,1	0,4	6,2	6,6	0,4	7,8	7,9	0,1
Oman	4,1	4,4	0,3	4,6	4,8	0,2	6,2	6,1	-0,1
Panama	3,0	3,3	0,3	4,3	4,7	0,4	7,2	7,1	-0,1
Poland	3,5	3,3	-0,3	4,5	4,9	0,4	7,0	6,5	-0,5
Puerto Rico	3,2	3,4	0,3	3,8	4,6	0,8	4,7	4,8	0,2
Qatar	5,2	5,4	0,2	5,7	5,8	0,0	7,5	7,1	-0,4
Russia	3,0	2,4	-0,6	4,9	4,4	-0,5	6,1	6,4	0,3
Saudi Arabia	4,1	4,7	0,7	4,8	5,6	0,8	6,5	8,1	1,5
Slovak R	2,9	3,0	0,1	5,1	4,9	-0,2	7,4	6,4	-1,0
Slovenia	3,9	4,1	0,2	5,1	5,1	0,0	7,1	6,8	-0,3
South Korea	4,2	4,5	0,3	4,4	4,8	0,4	7,4	7,8	0,4
Spain	5,3	4,8	-0,5	6,0	6,5	0,4	7,0	5,9	-1,0
Sweden	4,3	3,4	-0,9	5,3	5,3	0,1	7,4	6,9	-0,5
Switzerland	6,4	5,5	-0,9	6,4	6,6	0,1	8,6	7,6	-0,9
Taiwan	5,4	5,7	0,2	5,7	6,2	0,5	8,2	8,4	0,1
UAE	4,7	5,1	0,4	5,7	6,0	0,2	7,5	7,3	-0,2
UK	3,8	4,5	0,7	5,1	5,6	0,5	6,5	6,3	-0,2
USA	4,5	4,4	-0,1	5,8	6,0	0,2	7,5	7,0	-0,5

The results in Table 5 indicate that R&D transfer has improved in Colombia, Guatemala, Indonesia, Iran, the Netherlands, Saudi Arabia and the UK, while it has worsened in Mexico, Russia, Spain, Sweden and Switzerland. Business and physical infrastructure will have improved in some countries and worsened in others depending on the impact of the pandemic on the capacity to implement teleworking, costs, the ability to conduct business online, the price of workspaces and production during lockdowns, and other aspects affecting these factors due to the pandemic. This has been one of the most highly rated environmental conditions in all countries and is now the one most negatively

affected by the changes that the pandemic is generating in ways of working, although in some countries, experts have also perceived improvements, such as in Iran, Saudi Arabia, Indonesia, Brazil and Guatemala.

Table 6. Comparison between the average state of conditions: domestic market dynamics (G1), barriers to entry and regulation of the domestic market (G2), social and cultural norms (I), between 2019 and 2020.

Country	G1_19	G1_20	Difference	G2_19	G2_20	Difference	I_19	I_20	Difference
Brazil	5,8	6,6	0,7	3,9	4,1	0,2	3,7	4,8	1,1
Chile	4,1	4,2	0,1	3,9	3,4	-0,6	5,3	5,2	-0,1
Colombia	4,5	4,9	0,4	3,9	4,5	0,6	4,7	5,6	0,8
Croatia	5,5	5,4	-0,2	3,4	3,2	-0,2	2,6	3,3	0,6
Cyprus	4,4	4,7	0,3	4,4	4,4	0,0	4,4	4,1	-0,3
Egypt	5,7	5,1	-0,6	4,5	4,3	-0,2	5,0	4,8	-0,2
Germany	5,8	5,1	-0,7	5,1	4,5	-0,6	4,8	4,8	0,0
Greece	5,2	5,2	0,1	4,0	4,1	0,1	4,4	4,4	0,0
Guatemala	3,5	3,6	0,1	3,2	3,7	0,5	4,5	5,2	0,7
India	6,6	6,8	0,2	5,7	6,2	0,5	6,2	6,2	0,0
Indonesia	6,6	6,3	-0,3	5,5	6,1	0,6	6,4	6,9	0,5
Iran	3,0	4,8	1,8	3,3	3,1	-0,3	3,0	5,1	2,1
Israel	4,8	5,7	0,9	4,2	5,3	1,1	7,6	7,0	-0,6
Italy	4,9	3,9	-1,0	4,5	4,4	-0,1	4,4	3,7	-0,7
Latvia	4,8	5,2	0,4	5,0	3,4	-1,7	5,1	4,8	-0,3
Luxembourg	3,3	3,8	0,6	5,2	4,9	-0,3	5,0	4,7	-0,2
Mexico	4,8	4,9	0,2	4,4	3,8	-0,6	6,1	5,3	-0,8
Morocco	4,8	4,2	-0,6	3,3	3,0	-0,3	3,8	3,4	-0,4
Netherlands	5,3	5,1	-0,2	6,1	6,3	0,2	6,5	6,8	0,3
Norway	5,1	4,1	-1,1	4,8	5,7	0,9	6,3	6,2	-0,1
Oman	5,6	5,7	0,1	4,0	5,1	1,1	5,7	6,0	0,3
Panama	4,0	3,7	-0,3	3,9	3,9	0,0	5,4	5,6	0,2
Poland	6,5	6,8	0,3	4,1	3,9	-0,1	4,0	4,4	0,4
Puerto Rico	5,1	5,0	-0,1	2,8	3,6	0,8	3,6	5,1	1,6
Qatar	5,9	5,8	-0,2	5,1	4,8	-0,3	6,4	5,9	-0,4
Russia	6,0	5,7	-0,4	3,4	3,2	-0,1	4,1	3,8	-0,3
Saudi Arabia	5,9	6,9	1,0	4,7	5,8	1,1	5,9	6,4	0,6
Slovak R	4,4	4,1	-0,3	4,4	4,7	0,3	3,5	3,4	-0,1
Slovenia	5,4	5,6	0,2	4,7	4,5	-0,2	3,7	4,5	0,8
South Korea	7,5	7,9	0,5	4,2	4,5	0,3	4,8	5,2	0,5
Spain	5,3	4,5	-0,8	5,1	4,5	-0,6	4,8	4,3	-0,5
Sweden	6,1	5,6	-0,5	4,7	4,4	-0,3	5,2	5,1	-0,1
Switzerland	4,5	3,7	-0,8	5,5	5,2	-0,4	6,7	6,1	-0,6
Taiwan	6,1	6,2	0,2	5,4	5,6	0,2	6,1	6,4	0,3
UAE	6,1	6,2	0,1	5,1	5,2	0,1	6,8	7,3	0,5

UK	4,9	5,3	0,5	5,2	5,2	0,0	5,7	5,7	0,0
USA	5,0	5,5	0,5	4,4	4,5	0,2	7,7	7,5	-0,2

Table 6 shows that market dynamics have remained strong in South Korea, India, Indonesia and Taiwan, which were key countries during the first months of the pandemic in terms of supplying medical devices. Market dynamics in the UAE, Russia, Brazil (also improving), Saudi Arabia, Oman, Poland, Qatar, Greece and the USA (also improving) are also well rated. Other countries have positive ratings, but have lost a little, such as Germany, Egypt, the Netherlands, Puerto Rico and Sweden.

Barriers to entry and internal market regulations have improved in Israel, Oman, Saudi Arabia, Iran, Colombia, Guatemala, India, Indonesia and other countries, although some come as a result of previous low ratings by experts. The Netherlands, Switzerland, Taiwan, UAE and UK remain stable within a positive assessment, while Qatar, Germany, Latvia and Spain worsen their assessment.

Finally, social and cultural norms or social background supporting entrepreneurship show significant increases in several countries such as Iran, Brazil, UAE, Saudi Arabia, Puerto Rico, Slovenia, South Korea and others, while it remains strong in the USA, Israel (although it loses a little), the Netherlands, UK, Taiwan and other countries. In contrast, this condition loses some strength in Switzerland, Mexico, Italy and Spain.

6. Experts' evaluation on the entrepreneurial and governmental sectors first response to the consequences of the lockdowns and economic impacts of the COVID-19 pandemic over new and growing firms

As the pandemic coincided with the start of data collection for the GEM 2020 cycle, the GEM technical and scientific team reacted quickly, and developed batteries of questions related to the impact of the pandemic in its information tools.

Specifically, in the expert survey that GEM conducts annually, it inserted two blocks of questions. One to capture the opinion of the experts about the way in which the entrepreneurs' sector reacted to the lockdown situation and another to press their opinion about the measures taken by national governments to help the sector. The latent or summary variables measured by the 2020 NES are:

Covid 1: Entrepreneurs' response to the COVID-19 consequences

Covid 2: Government response to the COVID-19 consequences

The items for the two constructs behind these latent variables are:

Covid 1: Entrepreneurs' response to the COVID 19 consequences
A substantial number of new and growing firms are adopting new ways of doing business as a result of the COVID 19 pandemic
A substantial number of new and growing firms are promoting working from home as a result of the COVID 19 pandemic

A substantial number of new and growing firms are making adjustments to their current products and services to adapt to the COVID 19 pandemic
A substantial number of new and growing firms are identifying plenty of new opportunities because of the COVID 19 pandemic
Cooperation between and within new and growing firms and/or established firms has increased as a result of the COVID 19 pandemic
A substantial number of new and growing firms are collaborating on global social activities, challenges and proposals, as a result of the COVID 19 pandemic

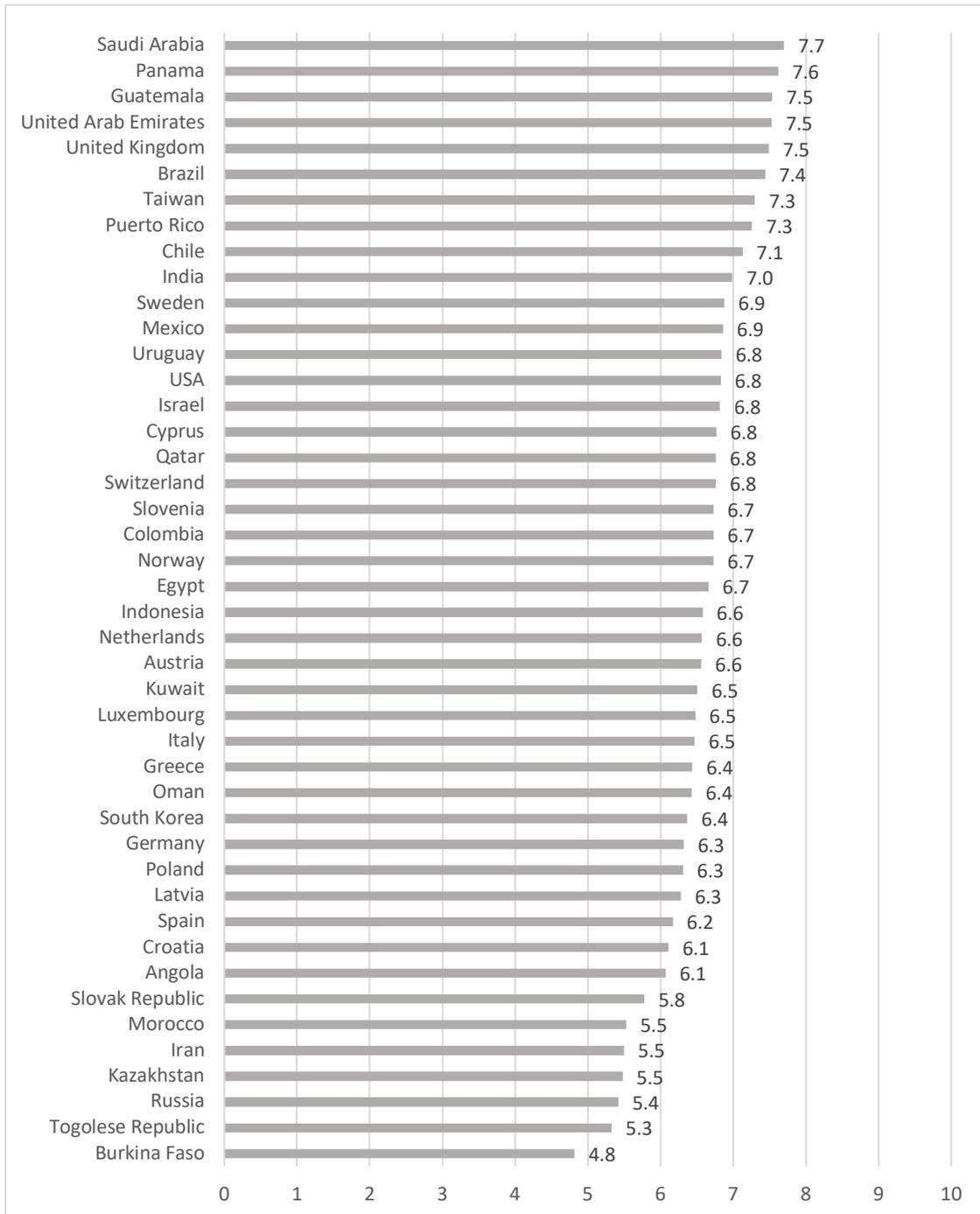
Covid 2: Government response to the COVID-19 consequences
The government has adopted effective measures for new and growing firms to adjust to the economic reality caused by the COVID-19 pandemic
The government has adopted effective measures to avoid massive loss of new and growing firms due to the COVID-19 pandemic
The government has acted to protect workers and customers of new and growing firms from COVID-19 during the pandemic
As a result of the COVID-19 pandemic, the government has substantially increased the digital or online delivery of regulations for new and growing firms.

This section presents the results of this consultation, which allow a first approximation to the rapid changes that entrepreneurs are facing to adapt to the new scenario and help prevent the deterioration of the economy of their countries or its reconstruction in the cases most affected.

Therefore, in general, the experts evaluated the performance of their respective governments in terms of the help they consider that they have provided the entrepreneurial sector to avoid the loss of companies and jobs, to protect workers, suppliers, and customers and, in terms of facilitating the new regulations necessary to face these initial stages electronically. The results of the evaluation, as will be seen below, have been diverse depending on the countries.

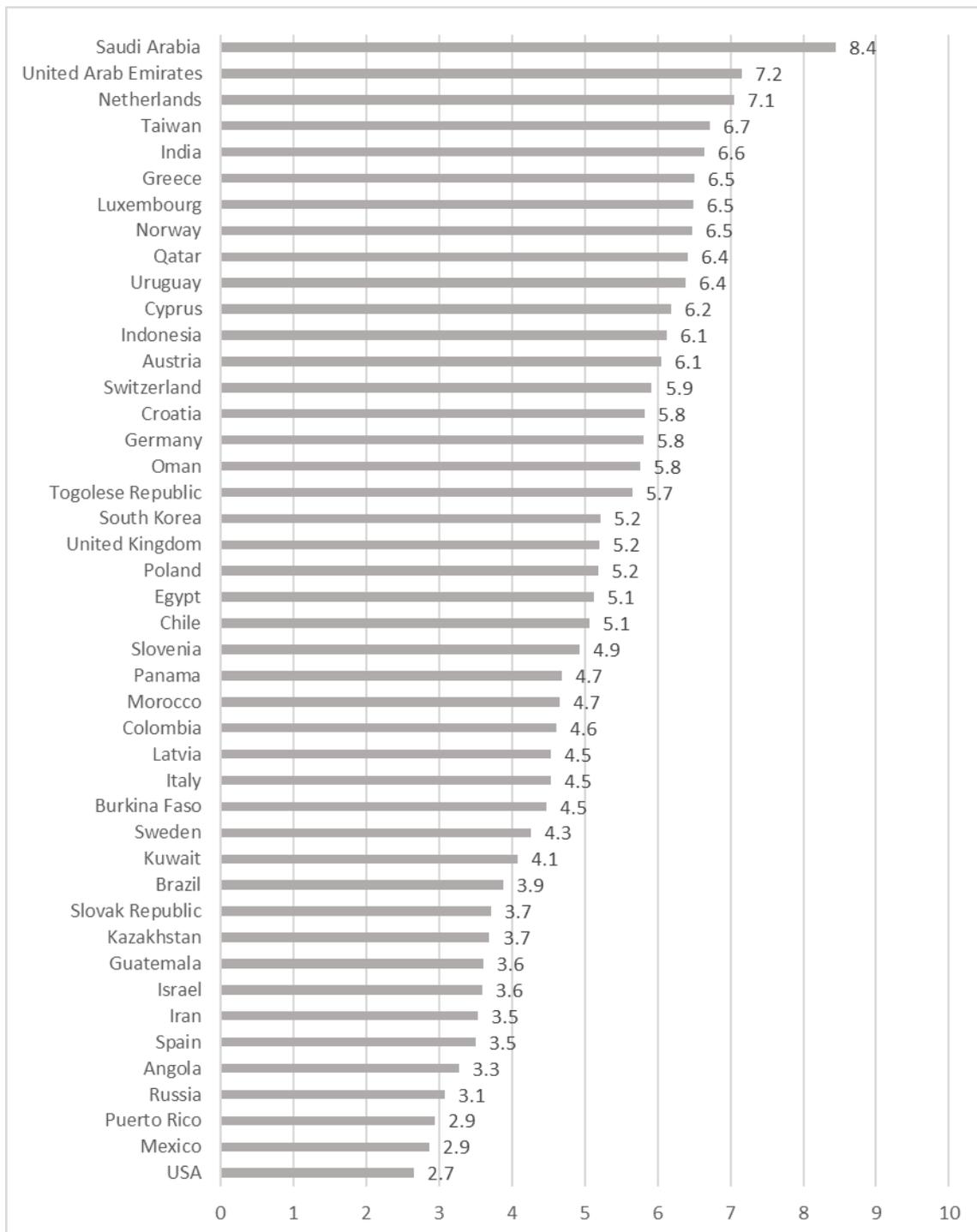
Figures 4 and 5 show, respectively, how GEM 2020 countries rank. The first ranking suggests that in the nascent entrepreneurial sector, new, and growing firms reacted proactively to lockdowns in general, with diverse intensity depending on the country. On a 10 points scale, all countries except Burkina Faso (although with almost 5 points), obtained experts' average scores of above 5 points. The most prominent positive evaluations are given in Saudi Arabia, Panama, Guatemala, United Arab Emirates, United Kingdom, Brazil, Taiwan, Puerto Rico, and Chile. All these countries - with average scores of above 7 points - appear to be those where experts perceived a greater degree of proactivity in the entrepreneurial sector.

Figure 4. Entrepreneurs’ response to the COVID-19 lockdown and consequences (scale 0 = nothing proactive, 10 = fully proactive)



On the other hand, governmental response is perceived as non-satisfactory or insufficient by experts at 21 countries (50% of the sample). Regarding the countries where experts approve of the governments moves, Saudi Arabia stands out in first place with a high rating that exceeds 8 points from experts. It is closely followed by the United Arab Emirates and the Netherlands, the latter being a country where entrepreneurial activity traditionally enjoys great support and consideration.

Figure 5. National Governments’ response to the COVID-19 lockdown and its consequences for the entrepreneurial sector (scale 0 = nothing proactive, 10 = fully proactive)

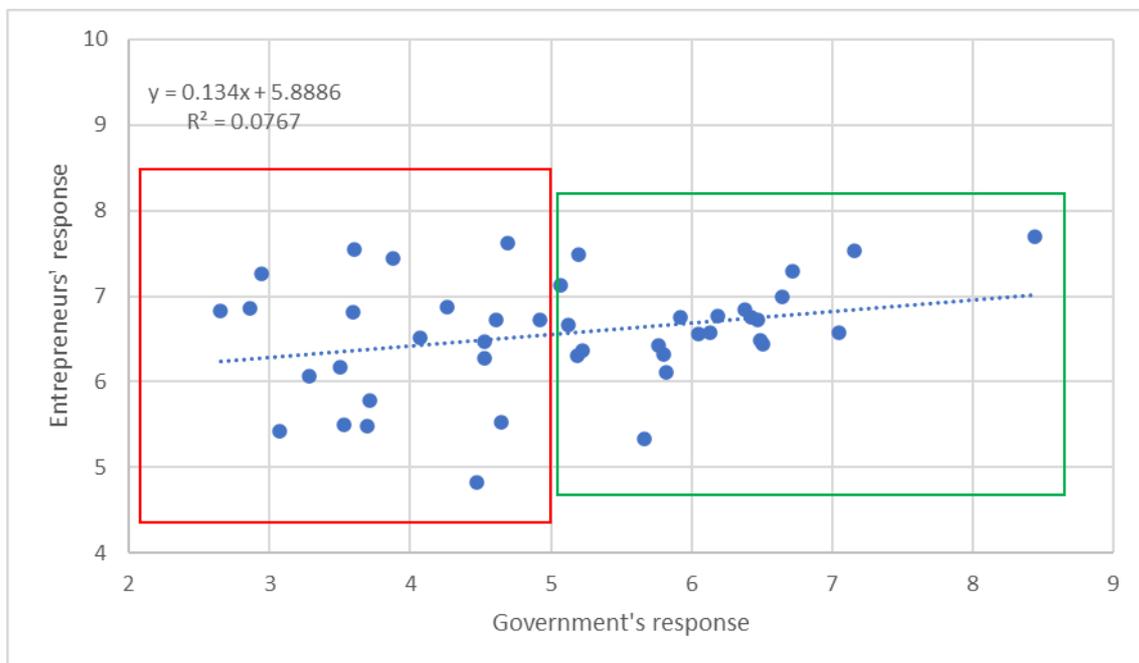


In view of previous rankings, the question immediately arises as to whether the response of the entrepreneurial sector has depended to some degree on the governmental response. The linear correlation coefficient is positive but very low (0.27) between the two variables and a linear regression analysis (see Figure 6) shows that there is no significant dependence between the responses of both sectors to the lockdown when considering the whole sample of countries. Regarding this result, it must be considered that experts from half of the countries viewed the government’s response insufficient with some variability while half of the countries considered it sufficient or higher. Both

entrepreneurs and governments reacted at the same time and with different intensities depending on the country in question. So, the result suggests that there are at least two types of behaviours or models within the general regression model:

- 1) A group of countries where the entrepreneurial sector reacted proactively almost independently from a governmental response perceived as insufficient (red square in the chart)
- 2) A group of countries where governments and the entrepreneurial sector are perceived as reacting proactively while at the same time coordinating their efforts to some degree (green square in the chart)

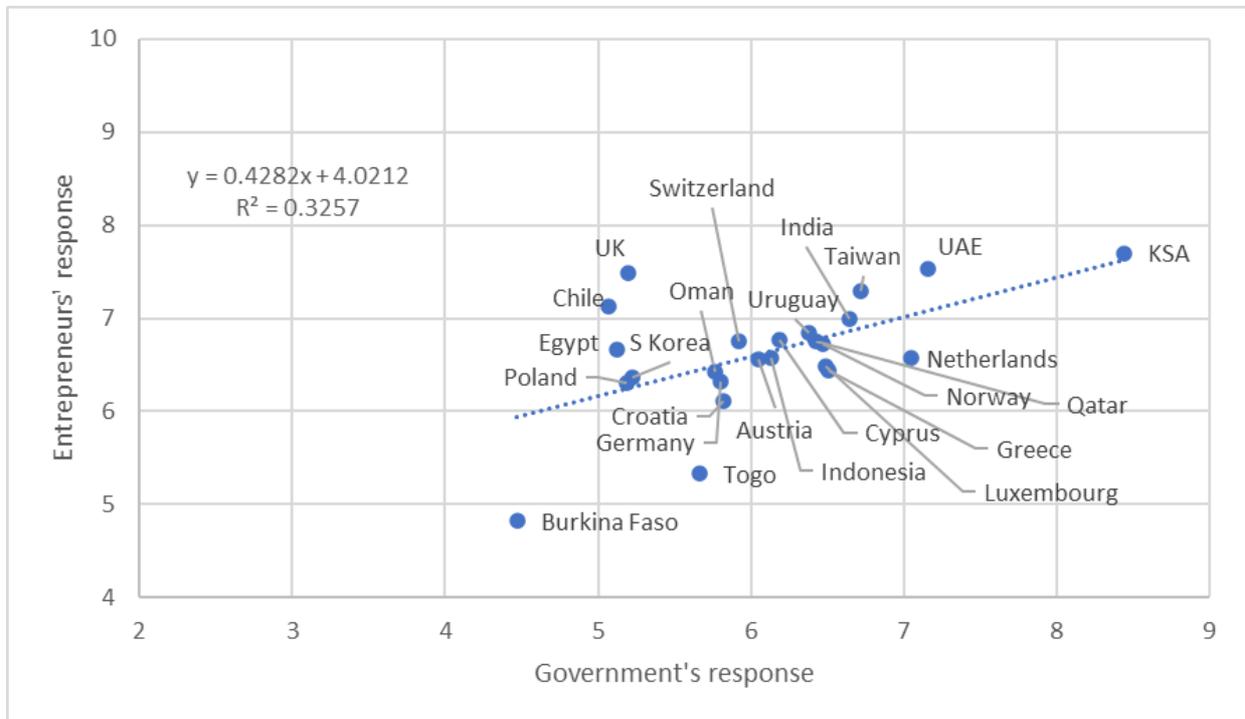
Figure 6. Linear regression between the entrepreneurial sector response and the government response to the first lockdown derived from the COVID-19 pandemic.



Thus, if we separate countries within the green square from those within the red square, we obtain a regression model in which the response of both sectors is somewhat weak but still significantly and positively related (see Figure 7). In this model, governmental response explains 32.6% of the entrepreneurs' response to the first lockdown.

The estimated model indicates that, on average, when the government response increases 1 point, the response of the entrepreneurial sector increases almost 0.43 points. Therefore, it is found that a proactive reaction by governments to the economic consequences derived from the health crisis caused by the coronavirus disease (COVID-19) is very positive in terms of helping new and growing companies to survive and ultimately prosper. Taking protective action that prevents closure and loss of employment -and that enables continuity in generation of wealth – both positively contributes to and complements the efforts that entrepreneurs make themselves.

Figure 7. Linear regression between the entrepreneurial sector response and the government response to the first lockdown derived from the COVID-19 pandemic for the group of countries where both sectors reacted proactively at the same time.



As mentioned, the assessment of the reaction of the entrepreneurial sector in all participating countries was positive, which shows that this group, by its very nature, will always try to cope with adverse events. However, in a situation like the current one, the lack of support measures for companies can lead within a few months to the closure of many activities in many countries and the loss of many jobs. In fact, this type of situation is already occurring in some countries and the result will be seen in the next GEM 2021/22 edition.

In view of previous results, the next question that arises is: To what extent does the type of response to the pandemic in countries by the entrepreneurial and government sectors depend on the state of environmental conditions?

As explained before, the average state of the entrepreneurial framework conditions is subjectively measured by GEM experts when they evaluate these thanks to a wide battery of items organized in blocks or constructs that represent each condition. Later, the simple average of the principal components extracted from these blocks constitutes the NECI, a composite index that synthesizes the average state of the conditions in place. Taking this index as an explanatory variable and the two variables that represent the reaction of the entrepreneurial and government sectors as independent, two linear regression analysis provide an answer to this question.

Table 7 shows the main indicators that result from these linear regression analyses. In the first case, the reaction of the entrepreneurial sector appears as scarcely dependent on the average state of the environmental conditions in place, although it is necessary to check if it has depended on some of them in a more concrete way, which will be done later. The explanatory capacity of the NECI index is

19.8%. The relationship between the NECI and the entrepreneurs’ reaction is positive so, as the average state of the entrepreneurial conditions increases, so does the proactive response of entrepreneurs. On average, the score of the reaction gains 0.365 points when the NECI increases by 1 point. In the second case, the response of the government sector appears as much more dependent on the NECI than the entrepreneurs’ response. The explanatory capacity of the NECI index is 40.9%. The relationship between the NECI and the governments’ reaction is positive so, as the average state of the entrepreneurial conditions increases positively, so too does the proactive response of national governments. On average, the score of the governments’ reaction gains 1.083 points when the NECI increases 1 point.

Table 7. Linear regression analyses between the NECI index and the variables that represent the entrepreneurial and government sector’s response to the first COVID-19 lockdown and its consequences for 44 economies.

Dependent variable	Independent variable	B coefficient	Significance	R	R ²	N
Entrepreneurs’ response to COVID-19 lockdown and its consequences	National Entrepreneurship Conditions Index (NECI)	0.365*	0.002	0.445	0.198	44
Dependent variable	Independent variable	B coefficient	Significance	R	R ²	N
National government response to COVID-19 lockdown and its consequences	National Entrepreneurship Conditions Index (NECI)	1.083*	0.000	0.639	0.409	44

Note*: Regression slopes (B Coefficients) are significant at 95% level of confidence.

The results of these analyses indicate that the state of the surrounding environmental conditions has more influence on the proactive reaction of governments than on that of entrepreneurs. In this sense, the latter are accustomed in many countries to promoting their activities without enjoying adequate contextual support, as GEM has pointed out over the last twenty years. However, in those countries where the context has been improving across these years, aid mechanisms to stop the destruction of businesses have worked more efficiently and satisfactorily. Consequently, developing a good scenario to accommodate the activities of entrepreneurs is clearly the key to coping with the consequences of crises such as that cause by the current pandemic.

Therefore, it is interesting to complete this analysis by estimating which specific environmental conditions are the ones that have most influenced each sector to articulate their respective responses. Thus, when carrying out two stepwise regressions using - as independent variables - the 12 environmental conditions synthesized by principal components on the evaluations of the experts, and as dependent variables those representing the response of the entrepreneurial sector and that of governments, we observe that, in each case, there is an environmental condition that stands out from the rest.

The results of these two stepwise regression analyses are shown in Table 8. The number of independent variables (12) is high, so as expected the stepwise method eliminated multicollinearity and identified the variables with the highest explanatory capacity within this set. The results make sense: the average state of societal cultural and social norms appears as the most determinant condition of the entrepreneurial sector’s response, while concrete government policies (priority and

support to entrepreneurs) and internal market dynamics appear as the most determinant conditions of the governments’ response.

Given that the first relationship is positive and statistically significant, it can be deduced that the stronger the entrepreneurial culture of a country, the more proactive the reaction of the entrepreneurial sector to the consequences of the pandemic.

For the second regression model, on the one hand, there is a positive and significant relationship between government policies and governmental reaction to the first consequences of the pandemic. Therefore, it can be deduced that the stronger the government support for the entrepreneurial sector, the more proactive the government’s response to the situation. On the other hand, there is a negative and not very significant relationship between internal market dynamics and the government’s response to the crisis. This result occurs because in several relevant economies where the dynamics of the internal market were in good condition, the government's reaction has been considered insufficient. These countries are Angola, Brazil, Israel, Kazakhstan, Kuwait, Latvia, Puerto Rico, Russia, Slovenia, Sweden, and the USA. If entrepreneurs from these countries had received strong government support during the first months of the pandemic, we would have expected this relationship to appeared as positive.

Table 8. Stepwise multiple linear regression analyses between the variables that represent the average state of 12 entrepreneurial framework conditions and the variables that represent the entrepreneurial and government sectors response to the first COVID-19 lockdown and its consequences for 44 economies.

Dependent variable	Independent variables selected by the stepwise method	B coefficient	Significance	R	R ²	N
Entrepreneurs’ response to COVID-19 lockdown and its consequences	Cultural and social norms	0.340*	0.000	0.558	0.312	44
Dependent variable	Independent variables selected by the stepwise method	B coefficient	Significance	R	R ²	N
National government response to COVID-19 lockdown and its consequences	Government concrete policies, priority, and support	1.708*	0.000	0.806	0.633	44
	Internal market dynamics	-0.281*	0.037			

7. Detailed expert assessment of the blocks on the impact of the COVID-19 pandemic by economy

From the entrepreneurial sector perspective (see Table 9), GEM experts perceived that, on average, the proactive and quick reactions focused on adopting telework (first place) from home in order to continue activities, while making adjustments to products and services and adapt them to the COVID-19 pandemic (second place), were effective. In third place, many firms began to adopt new ways of doing businesses and, depending on the country and with somewhat less intensity, several firms could identify new opportunities because of the pandemic. Additionally, in some countries, experts perceived a significant increase in cooperation between and within new and growing firms and/or established firms. This is especially relevant in Saudi Arabia, India, Brazil, Guatemala, the UAE, and

Taiwan. Experts also perceived a discrete but positive involvement of new and growing firms in collaborating on global social activities, challenges, and proposals because of the pandemic. Countries where these activities were perceived as somewhat more intensive are India, Uruguay, Brazil, the UAE, Saudi Arabia, Taiwan, the United Kingdom, and Israel. In the following table, it is possible to see the average scores of each country for the different actions evaluated by GEM experts as regards the entrepreneurial sector.

Table 9. Average scores for single items evaluated by experts by country to analyse the first reaction to lockdown within the entrepreneurial sector

	A substantial number of new and growing firms are adopting new ways of doing business as a result of the COVID-19 pandemic	A substantial number of new and growing firms are promoting working from home as a result of the COVID-19 pandemic	A substantial number of new and growing firms are making adjustments to their current products and services to adapt to the COVID-19 pandemic	A substantial number of new and growing firms are identifying plenty of new opportunities because of the COVID-19 pandemic	Cooperation between and within new and growing firms and/or established firms has increased as a result of the COVID-19 pandemic	A substantial number of new and growing firms are collaborating on global social activities, challenges and proposals, as a result of the COVID-19 pandemic
Angola	6.56	6.59	6.57	6.35	5.21	5.18
Austria	6.70	7.65	6.86	6.27	5.91	5.40
Brazil	7.62	7.93	7.96	6.89	6.71	6.84
Burkina Faso	5.64	4.87	5.31	5.13	3.67	3.84
Chile	7.89	8.14	8.08	6.76	5.75	6.60
Colombia	7.02	7.40	7.26	6.60	6.33	5.98
Croatia	7.03	7.24	6.84	5.47	5.03	4.81
Cyprus	7.46	7.86	6.76	6.28	5.74	5.75
Egypt	7.26	7.00	7.23	6.51	5.95	5.70
Germany	6.86	8.15	7.01	5.97	5.24	4.86
Greece	6.78	7.83	6.94	6.17	5.39	5.42
Guatemala	8.19	8.14	8.03	7.34	6.75	6.06
India	7.04	6.75	7.07	7.05	6.85	7.12
Indonesia	6.80	7.06	6.80	6.77	6.26	6.12
Iran	6.08	5.97	5.84	5.51	5.08	4.46
Israel	6.76	8.31	7.68	6.76	5.96	6.63
Italy	6.68	7.47	6.66	6.46	5.14	5.97
Kazakhstan	5.89	6.37	6.69	4.81	4.67	3.97
Kuwait	7.43	7.19	7.35	6.24	5.06	5.41
Latvia	6.75	7.42	7.17	5.75	5.08	5.42
Luxembourg	6.80	7.37	6.79	6.03	5.54	6.03
Mexico	7.38	7.15	7.46	7.15	5.87	6.06

Morocco	6.56	6.28	6.18	5.77	4.33	4.32
Netherlands	7.14	8.22	7.23	6.15	5.26	5.94
Norway	6.85	8.33	7.16	6.62	5.35	5.57
Oman	6.21	6.79	7.03	6.06	5.63	5.55
Panama	8.06	8.25	8.44	7.92	6.17	6.31
Poland	7.03	7.84	7.11	6.39	4.10	5.10
Puerto Rico	7.97	7.83	7.89	7.03	6.43	6.24
Qatar	7.46	7.18	7.55	6.36	6.13	5.78
Russia	6.39	6.54	6.89	4.89	4.48	4.12
Saudi Arabia	8.16	8.02	8.24	7.45	7.24	6.83
Slovak R.	6.39	7.06	6.14	5.29	4.72	4.73
Slovenia	7.29	7.92	7.08	6.83	5.19	5.77
Spain	6.39	6.72	6.50	6.06	5.49	5.75
South Korea	7.04	6.77	7.13	6.49	5.20	5.54
Sweden	6.76	7.55	7.72	6.78	5.92	5.86
Switzerland	7.03	7.69	7.03	6.50	6.39	5.92
Taiwan	7.14	7.20	7.75	7.98	6.57	6.82
Togolese R	6.25	4.88	6.11	5.78	4.50	4.96
UAE	8.11	8.19	7.94	7.65	6.67	6.94
U. Kingdom	7.95	8.54	8.31	6.74	6.09	6.48
Uruguay	7.28	7.72	7.60	6.14	5.66	6.88
USA	7.65	8.29	7.89	6.43	5.28	5.70
Average	7.07	7.41	7.19	6.43	5.63	5.72

Taking the sample of economies globally, the most appreciated governments' actions, on average (see Table 10), has been their measures to protect workers, consumers, and suppliers, as well as facilitating new regulations to help companies adapt to the situation from a digital standpoint. In turn, on average, measures to adopt effective measures for new and growing firms to adjust to the economic reality caused by the COVID-19 pandemic and to avoid massive loss of new and growing firms due to the COVID-19 pandemic have been overall perceived as insufficient. However, in several countries, these measures have been considered quite or even very adequate. Thus, for example, Saudi Arabia, Taiwan, Netherlands, the UAE, India, and other countries stand out as places where experts considered that their governments adopted effective measures for new and growing firms to adjust to the economic reality caused by the COVID-19 pandemic and to avoid massive loss of new and growing firms due to its impact. Table 5 shows the average evaluation of the four statements proposed to experts about the government response during the first lockdown in each participating country plus the global average.

Table 10. Average scores for single items evaluated by experts by country to analyse the first reaction to lockdown within the government sector

	The government has adopted effective measures for new and growing firms to adjust to the economic reality caused by the COVID-19 pandemic	The government has adopted effective measures to avoid massive loss of new and growing firms due to the COVID-19 pandemic	The government has acted to protect workers and customers of new and growing firms from COVID-19 during the pandemic	As a result of the COVID-19 pandemic, the government has substantially increased the digital or online delivery of regulations for new and growing firms.
Angola	3.29	2.78	3.69	3.00
Austria	6.00	5.89	6.79	5.21
Brazil	3.56	3.24	4.00	4.45
Burkina Faso	4.72	4.79	4.44	3.85
Chile	4.95	4.54	5.24	5.73
Colombia	4.65	4.40	5.09	4.73
Croatia	5.47	5.50	6.13	5.80
Cyprus	5.78	5.97	6.59	6.23
Egypt	4.97	4.80	4.85	5.61
Germany	5.96	5.58	6.87	5.05
Greece	6.24	5.97	6.62	7.32
Guatemala	3.03	2.92	4.56	4.00
India	6.58	6.65	6.56	6.79
Indonesia	6.14	6.08	6.06	6.25
Iran	3.49	3.14	3.16	4.46
Israel	3.31	3.06	3.19	4.69
Italy	4.14	3.86	4.92	4.95
Kazakhstan	3.23	3.09	3.94	4.66
Kuwait	3.56	3.46	4.41	5.14
Latvia	4.33	4.00	3.83	6.17
Luxembourg	6.06	6.00	7.06	6.12
Mexico	2.90	1.98	3.08	3.66
Morocco	4.47	4.51	5.04	4.89
Netherlands	6.71	7.18	7.64	6.88
Norway	6.69	6.62	7.12	5.91
Oman	5.59	5.41	6.00	6.09
Panama	4.31	3.72	4.69	6.28
Poland	4.81	5.38	5.38	4.65
Puerto Rico	2.44	2.17	3.34	3.58
Qatar	6.13	5.74	6.69	7.02
Russia	2.78	2.86	2.95	3.33
Saudi Arabia	8.07	8.05	8.26	8.95
Slovak R.	2.89	2.94	5.00	3.69
Slovenia	4.53	4.34	5.94	4.52

Spain	2.83	2.75	3.14	5.56
South Korea	5.11	4.97	5.20	5.81
Sweden	4.14	4.33	5.03	4.08
Switzerland	6.11	5.67	6.50	5.36
Taiwan	7.02	6.71	6.95	5.67
Togolese R	5.50	5.44	5.78	6.00
UAE	6.66	6.67	6.91	8.13
Uruguay	6.28	6.22	7.00	6.11
U. Kingdom	5.05	4.64	5.82	5.45
USA	2.79	2.51	2.66	2.96
Average	4.84	4.69	5.35	5.30