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"And Yet It Moves": National Entrepreneurial Culture and Entrepreneurship-Friendly Policies: Evidence From OECD Countries

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Abstract: This paper investigates the impact of public policies aimed to foster entrepreneurship on the national entrepreneurial culture of a country. While most of the existing studies focus on the direct impact of policies on entrepreneurship outcomes, we propose that the impact of policies on entrepreneurial culture may be even more important for the development of economies in the long term. Using data for 36 OECD countries in the period 2002–2014, we investigate econometrically the impact of policies on culture usually associated with entrepreneurship and find that such impact is stronger for policies that address a broader target of potential beneficiaries, rather than a narrow one. Moreover, we find that, among the values that are usually associated with entrepreneurial activity, entrepreneurship-friendly policies foster those that are related to creativity, innovation and risk taking, but not those that relate to individualism and the belief that success is achieved through one's own personal efforts. Lastly, we find that the positive impact of policies on culture only applies to the countries with a higher initial level of entrepreneurial culture, and not to the countries with lower initial levels.

Keywords: institutions, entrepreneurial culture, entrepreneurship policies, panel data models

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1 Introduction

In this paper, we investigate whether the implementation of entrepreneurship-friendly policies has an impact on the entrepreneurial culture of a country. An increasing number of studies over the last 30 years have analyzed the role of governmental policies related to entrepreneurship and their impact on entrepreneurial activity (Chowdhury, Audretsch, and Belitski 2019; Gilbert, Audretsch, and McDougall 2004; Minniti 2008). Existing research has investigated the effect of different tools that governments may implement in order to foster the creation and the survival of new ventures, ranging from financing schemes for entrepreneurs (Harrison, Mason, and Girling 2004), the availability of venture capital (Cumming 2007; Kreft and Sobel 2005), the introduction of specific tax incentives for the creation of new ventures (Edmark and Gordon 2013; Takii 2008), up to the creation of specific institutions – such as publicly financed incubators, science and technology parks – aimed at supporting entrepreneurs. These studies have produced a large amount of empirical evidence about the effectiveness of such measures in fostering the levels of entrepreneurial activity within an economic systems: one of the main findings is that the appropriateness of entrepreneurship policies depends on the actual implementation of each policy and on the local context in which they are introduced (Minniti 2008). The finding that the local context matters is in line with another stream of studies in entrepreneurship research, which highlights the importance of the set of informal institutions such as values, norms, and inherited knowledge broadly associated with entrepreneurial activity in a specific context, i.e. the entrepreneurial culture (Ahlstrom and Wang 2010; Liñán and Fernandez-Serrano 2014; Mustafa, Gavin, and Hughes 2018; Pinillos and Reyes 2011; Zhai et al. 2019). According to this line of research in order to explain entrepreneurial activity rates it is necessary to keep into account the cultural dimension, since it has an impact on processes and determination of individuals who wish to pursue business undertaking (Gerard and Shaker 2002). Localities with a diffused entrepreneurial culture are also likely to see higher rates of entrepreneurship (Davidsson 1995; Davidson and Wiklund 1997). Just like any type of culture (Guiso, Sapienza, and Zingales 2006), also entrepreneurial culture is a very persistent and stable factor that is often transmitted across generations, and this persistency is found to hold across different countries worldwide (Fritsch and Wyrwich 2014; Opper and Andersson 2019).

If the overall levels of entrepreneurial activity depend to a large extent on entrepreneurial culture, then in order to assess the effectiveness of public entrepreneurship policies, it seems also important to investigate whether such policies have any impact on the entrepreneurial culture of a country. From an institutional perspective (North 1990), this implies investigating the potential impact and

positive spillover of formal institutions, such as governmental policies, on informal institutions, such as entrepreneurial culture (Chowdhury, Audretsch, and Belitski 2019). In this paper, we study the impact of entrepreneurship-friendly policies not on entrepreneurship activity, but rather on the levels of entrepreneurial culture, i.e. on the features of national culture that are usually associated with entrepreneurship and new firm formation. Public policy indeed may have an important impact on the dynamics of the culture that favors entrepreneurial behaviour. Typically policy measures introduce a set of incentives aimed at fostering specific behaviours. In the case of entrepreneurship-friendly policies, this usually means creating incentives for individuals to engage in more risky activities, such as the start of a new firm, to feel more confident in expressing their creativity through their business ideas, possibly also to feel reassured about the concrete possibility to earn a living through one's own means. By setting up schemes that reward these types of behaviour public policy not only can provide a concrete help to existing and nascent entrepreneurs in their daily activities, it also sends an important signal to the society in general, as to what are the behaviours (and the culture associated to them) that are considered as legitimate and worthwhile pursuing by individuals. This suggests that entrepreneurship policy can indeed have an impact on culture that is correlated with entrepreneurial activity.

More specifically we explore three different dimensions of this relationship. First, we study which types of entrepreneurship policies are more likely to impact entrepreneurial culture, distinguishing between policies that target a broad versus a narrow audience of potential beneficiaries. Secondly, we study how public entrepreneurship policies affect different dimensions that have been traditionally associated to entrepreneurial culture, such as the general appreciation of creativity, innovation and risk taking and the broad acceptance of individualism and of self-responsibility. Thirdly, we check whether the impact of entrepreneurship policies on culture is stronger for contexts in which there is already a well-developed tradition of entrepreneurial culture, as opposed to countries in which this cultural background is less strong.

We use data on entrepreneurial culture and entrepreneurship-friendly policies collected by the Global Entrepreneurship Monitor database, combined with a large number of different sources of data at the country level, to measure the correlation between entrepreneurship policies and entrepreneurial culture for a set of 36 OECD countries in the period 2002–2014. We control for a variety of other factors that are also likely to affect entrepreneurial culture, such as unemployment levels, income per capita and overall levels of corruption and government policy effectiveness.

Our empirical results show that the overall scope of entrepreneurship policies increases their impact on culture associated with entrepreneurship: while policies that are more tailored to specific set of entrepreneurs (niche policies) do not show a relevant effect on culture, broader policies that target wider audiences show a more positive correlation. Our results also indicate that the

implementation of entrepreneurship policy is correlated with the increase of the importance of creativity, innovation and risk taking, while we do not find substantial effect in relation to individualism and self-responsibility. Lastly, we find that the positive relationship between policy and culture only applies to countries with higher initial levels of entrepreneurial culture.

Our study contributes to the literature that studies the impact and effectiveness of entrepreneurship policies (Chowdhury, Audretsch, and Belitski 2019; Minniti 2008), by highlighting a novel relationship that has been mostly overlooked by existing studies, i.e. their impact on the entrepreneurial culture of a specific society. The impact of entrepreneurship policy on entrepreneurial culture may be even more important than its short-term effect on venture creation. Indeed, since entrepreneurial culture is typically very persistent, policies that are able to impact culture may have an even more relevant impact for the future economic development of countries.

This study also contributes to the emergent debate about the overall impact of policy on culture. As shown in recent empirical contributions policy change can indeed impact culture in different contexts. Campa and Serafinelli (2019) found that policies aimed at increasing women participation to the labour market implemented in East Europe by socialist regimes before the 90's changed the culture related to women's career participation in those countries. Gruber and Hungerman (2007) found that the modernization policies introduced by the New Deal in the US led to the decline of informal social safety nets based on religious charity. Moreover, relatively small policy changes, such as the introduction of pension schemes in some developing countries, can change long-lasting cultural traditions about care of elderly relatives in societies (Bau 2021). The last decades have witnessed a large expansion of support measures for entrepreneurship in most of the developed economies, in the forms of financial incentives for start-ups as well as the creation of accelerators and incubators for young businesses (Isenberg and Onyemah 2016). Often one rationale for the implementation of these policies is also the long-term aim to spur the emergence of informal institutions that can ultimately lead to more entrepreneurial behaviours (Brownson 2013). Since it has been found that even in the short run policy can indeed influence culture it is worthwhile checking whether this has occurred also in the realm of entrepreneurship policy.

Our study contributes also to the literature that studies the role of entrepreneurial culture on current entrepreneurship activities. So far most of the studies have focused on the persistency of such culture over time (Fritsch and Wyrwich 2014; Fritsch et al. 2019). However, even if culture changes very slowly across generations, it is also important to understand what are the factors that may affect its dynamics and the role of policy may be of utmost importance in this perspective.

2 Theoretical Framework

According to institutional theory, which distinguishes between formal and informal institutions (Minniti 2008; North 1990; Veciana and Urbano 2008), public policies, as embodied in the rule of the law, take part in the rules of the game of a given context (Baumol 1990) and as such can be classified as formal rules (North 1990). These formal institutions impact the conditions for entrepreneurship development (Lv, Rodríguez-García, and Sendra-García 2021), and can potentially have an impact also upon informal rules, such as entrepreneurial culture (Brownson 2013; Pocek 2022; Vazguez and Garcia 2009).

Policies to foster entrepreneurship can apply to different levels and they are typically promoted because there is an underlying understanding that entrepreneurship is an important driver of economic growth (Audretsch and Thurik 2001; Birch 1987; Kumar and Liu 2005; Urbano, Aparicio, and Audretsch 2018). These policies are usually advocated because of the assumption that market failures may prevent economic systems to generate the desired level of new firm creation, either because of lack of incentives from the entrepreneurs' perspective or because of the high degree of mortality of ventures in their early phases.

In this respect, governmental policies are an important element of creating favorable conditions for the development of entrepreneurship and encouragement of entrepreneurial practice (Teixeira et al. 2017). Existing empirical studies have investigated government policies in support for high growth firms (Mason and Brown 2011; Shane, Lin, and Wu 2009), those providing financial support and new venture capital attraction (Bygrave and Quill 2007; Cumming 2007; Harrison, Mason, and Girling 2004; Khoja and Lutafali 2008; Li 2000) as well as those focused on tax incentives (Bruce and Mohsin 2006; Gentry and Hubbard 2000). Ultimately, government policies are embodied in the rule of law and as such they model the behaviour of the entrepreneurship related parties in a given ecosystem.[1] Lastly another stream of research has pointed out the need for the contextualization of the policies, highlighting that the one-size-fits-all approach may not always be

1 Sometimes policies may actually hamper entrepreneurship: in this respect existing research has rather focused on which are *good* policies for entrepreneurship and how policymakers can avoid implementing *bad* policies for new firm creation (Djankov and Freund 2002; LaPorta et al. 1998). For example, Djankov and Freund (2002) found that interventionist governments, which offer extensive regulation to start the business, are often found in less democratic environments, which are correlated with corruption and a large share of informal economy. In light of this evidence other studies have argued that public policies should be brought with the aim of enabling entrepreneurship as opposed to imposing barriers (Acs et al. 2004; Minniti, Bygrave, and Autio 2006).

appropriate to investigate the policies and their impact on entrepreneurship (Minniti 2008).

Notwithstanding the high number of contributions that studied the impact of governmental policies on entrepreneurship per se, few studies have investigated how policies may impact entrepreneurial culture (Hayton, Zahra, and Zahra 2002; Wright and Zahra 2011), which is to be considered as a prerequisite for the creation of vibrant entrepreneurship ecosystems. Indeed, culture has been already recognized as important in explaining differentiation in the economic success of nations (Leff 1979). Cultural propensities for entrepreneurship point towards the status and respect for entrepreneurs in a given society (Klyver and Thornton 2010) and usually relate to the dimensions of individualism, uncertainty avoidance, risk taking and high power-distance (Hofstede 1991). Culture has been also considered to be the sum of individual values and beliefs (Hayton, Sehili, and Scarpello 2010). In a review of studies on entrepreneurial culture, Brownson (2013, p. 147) finds that culture is the sum of attributes, values and beliefs, and behaviors "*associated with entrepreneurs by individuals and which distinguishes them from others*." However, as an aggregate dimension culture also has the potential to calculate the individual values (Hayton, Sehili, and Scarpello 2010).

Public policy indeed can have an impact on the culture related to entrepreneurial behaviour (Vatavu et al. 2021). Policy measures introduce incentives aimed at fostering specific behaviours (Dessart, Hurle, and Bavel 2019; Vatavu et al. 2021). Policies aimed at fostering entrepreneurship create incentives for individuals to found new firms and hence increase their tolerance for risk, to use their creativity in the implementation of business ideas, ultimately to believe in the possibility to be able to be economically independent through one's own efforts. Entrepreneurship-friendly policies introduces specific programmes that not only help established or nascent entrepreneurs in setting or strengthen their businesses. These policies also signal at the societal level what are the behaviours (and the culture associated to them) that are considered as legitimate and worthwhile pursuing by individuals. This may substantially impact the evolution of such culture not only among entrepreneurs but also in the society in general.

Lundström and Stevenson (2005) find that entrepreneurial policy should positively impact the environment so that it favors entrepreneurship. It should also promote measures that encourage entrepreneurial process. Therefore, the relevance of research on the possible effects of policies on culture is supported by the fact that culture, which forms large part of the environment and context (Baumol 1990; North 1990), can directly impact the frequency of individuals in a society which engages in entrepreneurship (Klyver and Thornton 2010).

2.1 Scope of Policies: Broad or Narrow

An important feature of policies targeting entrepreneurship is the scope of their action, i.e. the number of individuals to which they actually apply (Elola et al. 2017). For example, a policy aimed at decreasing technology transfer costs for small ventures in university incubators – even a very successful one with a positive impact on the success of such ventures – does not apply to a large share of entrepreneurs in a country. Hence the implementation of such a policy may not have a strong impact on entrepreneurial culture in general, as it will hardly increase the overall perception of the ease of doing business in the national culture. This is mainly because the programmes targets a very specific audience of existing entrepreneurs and will not be perceived as a substantial change by individuals who are not currently running a venture in an incubator. These programmes have also been defined as "niche entrepreneurship policies" which aim to foster entrepreneurial activity in specified groups of the population (Lindholm Dahlstrand and Stevenson 2010; Stevenson and Lundström 2002). On the contrary policies that apply at a greater scale, sometimes defined as holistic policies (Stevenson and Lundström 2002) may have a larger impact on entrepreneurial culture. Examples of such policies can be the 2015 introduction in Italy of the new law on startups (D.L. 3/2015 – Investment Compact), which established the notion of "innovative SME," with the aim to ease the process of establishing a new venture and sets preferential tax regimes in the first years of a new venture (Nadotti, Gallo, and Vannoni 2018). The 1991 wave of reforms in Sweden which lowered corporate income taxes are also an example of policies that apply to a large audience of potential beneficiaries (Edmark and Gordon 2013). The aim of these policies, either narrow or broad in scope, is usually the attainment of specific targets when it comes to support for existing or nascent entrepreneurs, such as the reduction of tax burden or bureaucratic procedures to start a firm, or the easier availability of complementary skills necessary to run a firm to new entrepreneurs. Rarely these policies have explicit and concrete goals of changing culture in the society. However, based on our reasoning above, the scope of these policies can have relevant (and possibly unintended) consequences on the development of culture related to entrepreneurship. As displayed in Figure 1, it is possible to propose a positive relationship between the scope of entrepreneurship-friendly policies and their impact on the national culture regarding entrepreneurship: policies targeted at selected audiences of individuals are not likely to have a strong impact on the overall national entrepreneurial culture, while policies that target a larger set of individuals will have better chances to positively affect the national culture. Accordingly, our first hypothesis is the following:

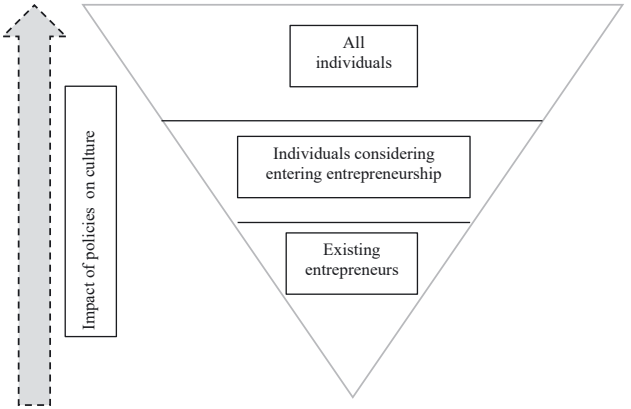

Figure 1: The relationship between the scope of entrepreneurial policies and their impact on national entrepreneurial culture.

H1: General policies aimed at fostering entrepreneurship that apply to a large number of individuals have a higher impact on the national entrepreneurial culture with respect to policies that target a small set of individuals.

2.2 Policies and the Dimensions of Entrepreneurial Culture

There is not a single and clear cut definition of what is an entrepreneurial culture, nor of how an entrepreneurial culture should look like (Hayton and Cacciotti 2014). Rather, there are some behavioral models that have been found by existing studies to be broadly associated with societies with high levels of entrepreneurial activity. Therefore defining the elements that characterize a national entrepreneurial culture is a challenging task, since there are many different factors that may contribute to the overall emergence of a culture that nurtures and favors the creation of new ventures. Here we will focus on two set of values that are often associated to the culture of entrepreneurship: the values of creativity, innovation and risk taking on the one hand and the value of individualistic action and individual responsibility on the other hand. The first set of values refers to the general acceptance in a national culture of the belief that a society needs a certain degree of dynamism in its economic structure, the concept that innovation is a central element of economic change (Schumpeter 1934) and that the society should foster creativity and change, since new business ideas will eventually lead to higher economic development and wellbeing. As stressed by Lee, Florida, and Acs (2004) creativity represents an important

element of entrepreneurship. It is indeed in social systems that are oriented towards innovation and risk-taking that entrepreneurship have been found to be more frequent (Röhl 2018). Existing studies show that an entrepreneurial culture typically provides a positive feedback to individuals who dare to take risk and propose new solutions to the way of doing business (Danish et al. 2019; Kreiser and Davis 2010; Rigtering et al. 2017; Semrau, Ambos, and Kraus 2016).

Policies targeting entrepreneurship typically signal to the overall public that they promote behaviors associated with being creative and taking risk, which eventually may lead to the introduction of new products or business ideas through the creation of new ventures (Busenitz, Gomez, and Spencer 2000; Urbano and Alvarez 2013). This on its turn may induce a more positive perception of this type of behaviors in a national culture. Individuals within a society may elaborate the information that the government rewards behaviors geared towards change and innovation and possibly update their beliefs about what is considered a "good" type of conduct. For example, reforms such as the ones introduced in Sweden in the early 90's, which decreased taxes for entrepreneurs, signal to the public that this is considered as an activity beneficial for the society (Heyman 2019). If entrepreneurship-friendly policies generally have a positive impact on the different values that are usually associated with entrepreneurial culture, then it is possible to expect that they will also have a positive impact on the acceptance of values related to creativity, innovation and risk taking. Accordingly, we put forward our second hypothesis:

H2: Policies that foster entrepreneurship will increase the dimension of entrepreneurial culture related to fostering creativity, innovation and risk taking.

A second dimension of entrepreneurial culture according to existing studies is the fact that the individual is considered as the main agent of change (Khavul, Chavez, and Bruton 2013; Lawrence, Suddaby, and Leca 2009; Suddaby et al. 2010). They are responsible for their own achievement and the national culture typically rewards the efforts made in order to achieve independence and economic success. While not all types of entrepreneurial ventures are necessarily the results of individual efforts, engaging in entrepreneurship typically involves some degree of resourcefulness and ability to do ones' own assessment of different scenarios. This is rather different from corporate culture, that instead rewards more the ability to perform tasks that are often not decided by the individual. Building on Hofstede's (1991) original dimensions, cultural individualism has often been associated to entrepreneurship by previous research, under the assumption that entrepreneurs are often individuals with the motivation to achieve the pursuit of personal goals (McGrath, MacMillan, and Scheinberg 1992; Mueller and Thomas 2001; Shane 1993;

Wennekers et al.2002). This has also been described as performance-based culture, i.e. the idea that a culture "rewards individual accomplishments as opposed to collective membership, family relationships or position, and in which systematic, future-oriented planning is viewed as a key way to achieve high performance" (Stephan and Uhlaner 2010, p. 1351). Although some studies have challenged the association between this type of values and overall entrepreneurial activity, stressing that it may hold only in developed countries (Pinillos and Reyes 2011), this suggests that a common feature of the national cultures that favor entrepreneurship is to consider in high regard individualism and the ability to take responsibility of one's own actions. Entrepreneurship-friendly policy aimed at fostering the rate of new venture creation in a country may hence also positively affect this specific dimension of entrepreneurial culture related with the individuals' responsibility about their own achievement. For example, by lowering taxes and the bureaucracy related to starting a firm, national policies may increase the propensity of individuals to engage in entrepreneurship and accept that their future income depends to a large extent on their own ability to succeed as an entrepreneur. This may eventually lead to a shift in the national culture, where more and more individuals believe that it is indeed possible to earn one's own means of living through personal effort, increasing the level of individualism and of belief in self-responsibility. Accordingly, we propose that policies aimed at fostering entrepreneurship may also increase the perception that own responsibility is positive and hence increase this specific dimension of entrepreneurial culture.

H3: Policies that foster entrepreneurship will increase the dimension of entrepreneurial culture related to individualism and own responsibility.

2.3 Initial Conditions Matter

The effect of entrepreneurship-friendly policies on entrepreneurial culture may also depend on the existing gap between the two. In countries with a little developed entrepreneurial culture even well-designed policies that encourage firm creation may be hampered by the little average familiarity of individuals with entrepreneurial activity. This can be due to the fact that most individuals may lack the necessary knowledge related with starting and managing a business to understand the actual advantages provided by the new policies (Mathew 2010). Creating high-tech business incubators in a country with very little entrepreneurial activity and little acquaintance with entrepreneurship may not necessarily increase the average entrepreneurial

culture, because the majority of individuals, even the already existing entrepreneurs, may not be able to understand the benefits that they could gain from such a government policy. Instead in countries with a higher level of entrepreneurial culture and well-established culture that encourage entrepreneurship new policies that foster venture creation may be more easily understood, their benefits may be more evident and this may induce a stronger impact on the willingness of individuals to engage in entrepreneurship, further reinforcing entrepreneurial culture.

Accordingly, it is reasonable to expect that the impact of entrepreneurship-friendly policy may have a stronger impact in countries with an already high level of entrepreneurial culture, on the contrary the impact of policies on entrepreneurial culture may be less strong in countries with lower initial conditions in terms of entrepreneurial culture.

H4: Higher (lower) initial levels of entrepreneurial culture will lead to stronger (weaker) impact of entrepreneurship policies on entrepreneurial culture.

3 Data and Methodology

We draw on a number of different datasets in order to measure the level of entrepreneurial culture in a country over time and its determinants. Our main source of data is the Global Entrepreneurship Monitor (GEM) database which provides cross-country data for different years on several dimensions that relate to entrepreneurship. The GEM dataset is considered among the most reliable sources of data for country-wide empirical analyses of entrepreneurship data, because of its rigorous methodology of data collection. The data has been used extensively in entrepreneurship research (Chowdhury, Audretsch, and Belitski 2019; González-Pernía, Jung, and Peña 2015; Pathak, Laplume, and Xavier-Oliveira 2015; Pinillos and Reyes 2011).

In this paper, we will use the part of the dataset that is built through the collection of surveys to national experts (the NES National Expert Survey). The managers of the GEM project have identified common procedures and routines to make sure that in each country a national team selects a group of at least 36 (usually many more) different experts for each wave of the National Expert Survey.[2]

2 The selection of each expert needs then to be approved by the management of the GEM project. The experts are identified following nine different fields of expertise that are in line with the so-called critical framework conditions that the National Expert survey is aimed at measuring. Therefore each national survey should include at least 4 experts for 9 different categories (see more details in the Appendix).

The advantage of the NES National Expert Survey of the GEM dataset is that it allows to measure the degree to which different policies related to entrepreneurship have been implemented in a country (and its change overtime), as well as the way in which the national culture has evolved with respect to entrepreneurship related values. Through the GEM data we can hence identify for each country the elements that contribute to the overall levels of entrepreneurial culture. We can also distinguish between different types of policies that are aimed at facilitating entrepreneurial activity and new firm creation in each country. Since entrepreneurial culture is likely to be affected by a large number of factors, we combine the GEM data with a number of different datasets that allow us to control for the effect of other variables which may also impact entrepreneurial culture. We use the World Bank database World Development Indicators which provides general information about each country and its economy, such as population unemployment levels and participation rates, but also other important economic variables, such as overall levels of investments and foreign direct investments. We also take advantage of the Worldwide Governance Indicators dataset, which provides information about institutional factors such as level of corruption, the level of government effectiveness.

We restrict our sample to OECD countries in order to have more comparable type of economic systems and entrepreneurial cultures. The time span is limited by the availability of GEM data and hence covers the period 2002–2014 for a total of an unbalanced panel of 36 OECD countries. In Table 1 we list the countries included in our analysis and the amount of yearly observations available for each of them.

3.1 Dependent Variables

Our dependent variable is the yearly level of entrepreneurial culture in each country, as provided by the GEM dataset. Measuring entrepreneurial culture is a daunting challenge, because of the complex and multifaceted nature of entrepreneurial culture. Typically the existing literature has relied on specific cultural features that have been found to be associated to entrepreneurial activity. The common assumption is that the higher is the level of these cultural features the higher is the level of entrepreneurial culture in a country. Since most studies have suggested that individualism, uncertainty acceptance and power proximity are associated with higher entrepreneurial activity (Rinne, Steel, and Fairweather 2012; Shane 1993; Williams and McGuire 2010) these cultural traits are usually adopted to proxy for the existence of an entrepreneurial culture. Different sources of data have been used to create indexes that measure entrepreneurial culture.

Table 1: Number of observations for each country included in the analysis.

#	Country	Num of observations	Share (%)
1	Norway	12	7.02
2	Finland	12	7.02
3	Slovenia	12	7.02
4	Greece	11	6.43
5	United States	10	5.85
6	Ireland	10	5.85
7	Netherlands	7	4.09
8	Hungary	7	4.09
9	Italy	7	4.09
10	Chile	6	3.51
11	Iceland	6	3.51
12	Belgium	5	2.92
13	France	5	2.92
14	Spain	5	2.92
15	Switzerland	5	2.92
16	United Kingdom	5	2.92
17	Sweden	5	2.92
18	Germany	5	2.92
19	South Korea	5	2.92
20	Turkey	5	2.92
21	Latvia	5	2.92
22	Mexico	4	2.34
23	Australia	4	2.34
24	Canada	4	2.34
25	Portugal	4	2.34
26	Poland	3	1.75
27	Israel	2	1.17
	Total	171	100

Suddle, Beugelsdijk, and Wennekers (2010) use for example the World Value Survey to identify values associated to the ability to identify business opportunities or the propensity to be performance-oriented. Suddle, Beugelsdijk, and Wennekers (2010) also implement other sources of data, such as the index of performance orientation provided by the GLOBE project (Hofstede 2001), which measures the degree to which "a collective encourages and rewards group members for performance improvement and excellence." Other studies have used other dimension of Hofstede's cultural traits, such as the balance between individualism and collectivism in a society (Pinillos and Reyes 2011).

For our analysis we have chosen to rely on the GEM National Expert Survey, where in each year a set of at least 36 experts in each country respond to a survey that explores different dimensions of entrepreneurship. One of the advantage of this source of data is that it allows for over-time variability, when it comes to national levels of entrepreneurial culture. This is possible thanks to the fact that the National Expert Survey is repeated over different years. The interviewed experts are not necessarily the same across the years.

In order to measure entrepreneurial culture we use the part of the survey that is focused on culture and social values. The questions related to entrepreneurial culture are very much in line with the existing literature, focusing in particular on creativity, risk avoidance, personal responsibility and individualism. Each variable measures the average score provided in a specific year by experts in each country to a number of questions focused on entrepreneurship culture. In the Appendix (Table A1) we provide further details on the process of selection of the national experts and on the construction of GEM-based variables used in this paper.

3.1.1 Creativity and Risk Taking

In order to test H2 *(Policies that foster entrepreneurship will increase the dimension of entrepreneurial culture related to fostering creativity, innovation and risk taking)* we take advantage of two variables that respectively measure the extent to which a national culture encourages creativity, innovation and risk taking.

Creativity and Innovation is a variable which measures whether the national culture encourages creativity and innovativeness.[3] *Personal Risk Taking* measures whether the national culture encourages entrepreneurial risk-taking.[4]

3.1.2 Individualism and Own Responsibility

In order to test H3 (*Policies that foster entrepreneurship will increase the dimension of entrepreneurial culture related to individualism and own responsibility*) we take advantage of two variables that respectively measure the extent to which a national culture encourages the individual responsibility of the entrepreneurs and their individual achievements.

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3 More specifically national experts were asked whether they agreed (on a scale from 1 to 5) to the following statement: "In my country, the national culture encourages creativity and innovativeness."
4 National experts were asked to what extent (on a scale from 1 to 5) they agreed on the following statement: "in my country, the national culture encourages entrepreneurial risk-taking."

Own Efforts is a variable that measures instead whether the national culture is supportive of individual success achieved through own personal efforts.[5] *Individualism* measures whether the national culture emphasizes the responsibility that the individual – as opposed to the collective – has in managing their own life.[6]

Finally, we use the variable *Entrepreneurial Culture*, which is an average of the previous 4 variables and summarizes the information provided in each of the different component of entrepreneurial culture.

All the dependent variables are the average at the country level of the individual responses provided by each national expert on a Likert scale from 1 (totally disagree) to 5 (completely agree), therefore the variables are continuous and bounded between 1 and 5.

3.2 Independent Variables

As independent variables we use other sections of the GEM database which specifically focus on the existence of governmental policies and programmes aimed to foster entrepreneurship and on the level of bureaucracy related to the process of starting a new company.

Governmental Support. This variable summarizes the extent to which, according to NES experts, national and local governments implement concrete policies towards entrepreneurship and put high priority on the support for new businesses. The variable is created as the average score at the country level among all the experts of the National Expert Survey in a specific year.[7]

This variable is able to measure to what extent governmental policies foster entrepreneurship in general: it shows whether the local, regional and national governments apply broad policies aimed at helping the growth of all new ventures, hence its scope is relatively broad and it will allow us to test H1 (*General policies aimed at fostering entrepreneurship that apply to a large number of individuals have a higher impact on the national entrepreneurial culture with respect to policies that*

5 National experts were asked to what extent (on a scale from 1 to 5) they agreed on the following statement: "in my country, the national culture is highly supportive of individual success achieved through own personal efforts."

6 National experts were asked to indicate their agreement or disagreement (on a scale from 1 to 5) with the following statement: "In my country, the national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life."

7 The experts were asked to what degree they agreed to the following statements: (a) In my country, Government policies (e.g. public procurement) consistently favor new firms (1 thru 5) (b) In my country, the support for new and growing firms is a high priority for policy at the national government level (1 thru 5) (c) In my country, the support for new and growing firms is a high priority for policy at the local government level (1 thru 5).

target a small set of individuals) by identifying policies that potentially apply to a large number of individuals.

Taxes and Bureaucracy measures the extent to which the bureaucracy related to starting and running a business is relatively easy to navigate and the extent to which taxes are not a big burden for new firms.[8]

In this case these policies are relatively broad in scope, since they apply to all individuals that are involved or are considering getting involved in entrepreneurship, and we will use them again as a proxy of broad entrepreneurship-friendly policy to test H1.

Governmental Programmes is a variable which measures the extent to which specific agencies aimed at fostering entrepreneurship (such as science parks, business incubators) provide effective support to new ventures and whether entrepreneurs find easily support from the employees of such agencies.[9]

In this case instead the scope of this type of policies is narrower, as these programmes are much more hands-on ones which target specific types of entrepreneurs and do not necessarily apply to all the individuals who engage or are considering engaging in entrepreneurship. For these reasons we will use these policies as a proxy for narrow/niche policies that target a more specific and well defined set of individuals.

All in all the different scope of the policies that we measure through these three independent variables will allow us to test H1, according to which we expect a stronger effect on entrepreneurial culture of policies with a broader scope of application with respect to policies with a narrow scope (niche policies). Table 2 sumarizes our main hypotheses, the variables that we use and the expected effects.

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8 The experts were asked to what degree they agreed to the following statements: (a) In my country, new firms can get most of the required permits and licenses in about a week (1 thru 5) (b) In my country, the amount of taxes is NOT a burden for new and growing firms (1 thru 5) (c) In my country, taxes and other government regulations are applied to new and growing firms in a predictable and consistent way (1 thru 5) (d) In my country, coping with government bureaucracy, regulations, and licensing requirements it is not unduly difficult for new and growing firms (1 thru 5).

9 The experts were asked to what degree they agreed to the following statements: (a) In my country, a wide range of government assistance for new and growing firms can be obtained through contact with a single agency (1 thru 5); (b) In my country, science parks and business incubators provide effective support for new and growing firms (1 thru 5); (c) In my country, there are an adequate number of government programs for new and growing businesses (1 thru 5) (d) In my country, the people working for government agencies are competent and effective in supporting new and growing firms (1 thru 5) (e) In my country, almost anyone who needs help from a government program for a new or growing business can find what they need (1 thru 5) (f) In my country, Government programs aimed at supporting new and growing firms are effective (1 thru 5).

Table 2: Hypotheses, measures and expected effects.

Independent variables	Effect	Dependent variable
Hypothesis 1		
Broad entrepr. policies (governmental support; taxes and bureaucracy)	POSITIVE EFFECT	Entrepreneurial culture
Niche entrepr. policies (government programs)	SMALL/NO EFFECT	Entrepreneurial culture
Hypothesis 2		
Entrepr. policies (governmental support; taxes and bureaucracy; government programs)	POSITIVE EFFECT	Creativity and innovation; personal risk taking
Hypothesis 3		
Entrepreneurship policies (governmental support; taxes and bureaucracy; government programs)	POSITIVE EFFECT	Own efforts; individualism
Hypothesis 4		
Countries with high initial levels of entrepreneurial culture		
Entrepreneurship policies (governmental support; taxes and bureaucracy; government programs)	POSITIVE EFFECT	Entrepreneurial culture
Countries with low initial levels of entrepreneurial culture		
Entrepreneurship policies (governmental support; taxes and bureaucracy; government programs)	SMALL/NO EFFECT	Entrepreneurial culture

3.3 Control Variables

We use a number of different control variables that are likely to have an impact on the overall level of entrepreneurial culture. We start with a set of variables that control for the overall "quality" of the institutions in a country.

Control over Corruption is likely to influence the overall entrepreneurial culture, since control over corruption can to decrease the uncertainty and the costs related to engaging in an entrepreneurial career.

Regulatory quality measures the ability of the government to formulate and also implement appropriate policies and regulations able to promote the development of the private sector.

Government effectiveness is an index that measure the quality of public and civil service, as well as policy formulation and implementation. It also measures the credibility of the government's commitment to improve these qualities.

We also introduce a set of control variables that are instead related to the general economic conditions of a country, as also these factors may influence the overall entrepreneurial culture.

Unemployment (yearly level of unemployment in a country), *Participation rate* (extent to which the country has a large or small part of the population involved in economic activities), *GDP per capita*, *Investment levels* (gross capital formation annual), *Foreign Direct Investments* and overall *Population* of a country. Lastly we include a set of *time dummies*.

In Table 3 we provide a description of the variables used in the analysis, indicating also the source of data for each of them.

Table 3: Description of variables.

Variable	Description	Source
Dependent variables		
Creativity and innovation	Variable that measures whether the national culture encourages creativity and innovativeness (values: 1–5)	Global Entrepreneurship Monitor
Personal risk taking	Variable that measures whether the national culture encourages entrepreneurial risk-taking (values: 1–5)	Global Entrepreneurship Monitor
Own efforts	Variable that measures whether the national culture is supportive of individual success achieved through own personal efforts (values: 1–5)	Global Entrepreneurship Monitor
Individualism	Variable that measures whether the national culture emphasizes the responsibility that the individual – as opposed to the collective – has in managing his or her own life (values: 1–5)	Global Entrepreneurship Monitor
Culture	Average of the values of the variables: Creativity and innovation, personal risk taking, own efforts and personal responsibility (values: 1–5)	Global Entrepreneurship Monitor
Independent variables		
Broad scope entship policies		
Governmental support	Variable that measures the extent to which national and local governments implement concrete policies towards entrepreneurship and puts high priority on the support for new businesses (values: 1–5)	Global Entrepreneurship Monitor
Taxes and bureaucracy	Variable that measures the extent to which the bureaucracy related to starting and running a business is relatively easy to navigate and the extent to which taxes are not a big burden for new firms (values: 1–5)	Global Entrepreneurship Monitor

Table 3: (continued)

Variable	Description	Source
Narrow scope entship policies		
Government programs	Variable that measures the extent to which specific agencies aimed at fostering entrepreneurship (such as science parks, business incubators) provide effective support to new ventures and whether entrepreneurs find easily support from the employees of such agencies (values: 1–5)	Global Entrepreneurship Monitor
Control variables		
Unemployment	Total level of unemployment in the country (in %)	World development indicators
Population	Log of total population living in the country	World development indicators
Investments	Gross capital formation (annual growth rate)	World development indicators
FDI	Foreign direct investments, net inflow as a percentage (%) of GDP	World development indicators
Participation rate	Labour force participation rate (share of total population aged 15+)	World development indicators
GDP per capita	Log of GDP per capita in 2011 purchasing power parity dollars	World development indicators
Corruption control	Control of corruption index	Worldwide governance indicators
Regulatory quality	Regulatory quality index	Worldwide governance indicators
Gvt effectiveness	Government effectiveness index	Worldwide governance indicators

3.4 Methodology

The aim of our empirical analysis is to identify the main determinants of entrepreneurial culture and we are particularly interested in the role of the implementation of formal institutions, such as governmental policies, the role of taxes and bureaucracy and the implementation of specific governmental programmes. We are interested in particular in the dynamics over time of the entrepreneurial culture and see whether there is a positive association with respect to the change in the main

independent variables. Since we have data for different countries and in different years we resort to a fixed effect panel estimator as follows:

$$\text{CULTURE}_{it}^{l} = \alpha + \beta^{j}\text{POLICIES}_{it-1}^{j} + \sum_{j}\gamma_{m}X_{imt-1} + \eta_{i} + \lambda_{t} + u_{it} \quad (1)$$

where i indicates the individual country and t indicates the specific year of observation. CULTURE represent the main dependent variable, which will then be measured in our specification in different ways, as indexed by l. These are the aggregate dependent variable *Culture* and its four components: (a) *Creativity and Innovation*, (b) *Personal Risk Taking*, (c) *Own Efforts* and (d) *Individualism.*

Our main independent variables are measured by the different policies implemented in each country and in each year. We ran j specifications of Equation (1) in which we use alternatively one of the three measures of policy action: (a) *Governmental Support and Policies,* (b) *Taxes and Bureaucracy and* (c) *Governmental Programmes.* We do not introduce all the three variables in the same model as we believe that this might run the risk of introducing multicollinearity, as the variables are typically very correlated with each other. Moreover, X indicates the full set of m time-varying control variables, which are also supposed to have an impact on entrepreneurial culture. Lastly η_i indicates the country fixed effect, λ_t indicates the shocks that occur at the same time across countries and is aimed to control for time effects, which will be measured by the time dummies in the estimation. Lastly u_{it} is the idiosyncratic error term. We chose to lag all the independent and control variables by one year in order to partly decrease the risk of reverse causality.

3.4.1 Endogeneity Issues

In our specification we need to make sure to avoid omitted-variable bias in the estimation of the coefficient of the independent variables of interest (POLICIES). This could be the case if both the dependent variable and the independent variables of interest were correlated with time-invariant heterogeneity (the country fixed effect η_i) or time-varying heterogeneity (the idiosyncratic error term u_{it}) Indeed time-invariant factors that are included in the country fixed effects could be correlated with both POLICIES and with entrepreneurial culture. The level of economic development of a country, the overall effectiveness of the government regulatory action of each country may be correlated both with the implementation of entrepreneurship policies at the country level as well as with entrepreneurial culture, and

its different dimensions.[10] For these reasons we choose to use a within-group panel estimator. The advantage of this estimator, compared to other panel estimators – such as the random effects estimator – is that it does not require that the independent variables are uncorrelated with the country fixed-effect, in order to be consistent (Hayashi 2000; Verbeek 2004). This allows us to make sure that all time-invariant country factors are not affecting the estimates of our coefficients of interest.

When it comes to the omitted-variable bias stemming from time-varying heterogeneity, our strategy mainly relies on introducing a rich set of time-varying controls. An economic crisis (boom) could indeed negatively (positively) affect both entrepreneurial culture in a country and the availability of resources for the implementation of entrepreneurship friendly policies: for this reason we include controls such as the yearly level of GDP per capita, the unemployment rate or the levels of foreign direct investments, which allows to control for changes over time in the other factors that may be correlated with both the implementation of policies and with the different dimensions of entrepreneurial culture.

4 Results

Table 4 shows the descriptive statistics for our variable of interests, displaying mean, standard deviation and minimum and maximum values. Table 5 provides the correlation table for each of the variables used in our empirical estimations.

4.1 The Scope of Policies

In Table 6 we first show the results of our fixed effects panel estimator on entrepreneurial culture in general (*Culture*). We introduce our main independent variables related to the role of entrepreneurship governmental policies one at the time, in order to check whether they have any effect. We find that there is a positive and significant coefficient of the *Governmental Support* variable. The *Taxes and Bureaucracy* variable is also positive and significant in column (2), while the variable

10 A country with very poor levels of government regulatory action may be on the one hand less capable of adopting appropriate entrepreneurship-friendly policies and on the other hand the overall inefficiency of the regulatory framework may also have an effect on the different dimensions of entrepreneurship culture. For example, it may decrease the overall levels of support for risk taking (*Personal Risk Taking* variable), since unclear rules may discourage people from taking entrepreneurial risk, or it may on the contrary increase the levels of the *Own efforts* variable, because individuals may feel that entrepreneurs do not have any support from the state in running their business and they can do it only through their own means.

Table 4: Summary of variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
Creativity and innovation	171	2.911	0.546	1.920	4.487
Personal risk taking	171	2.517	0.606	1.353	4.538
Own efforts	171	2.967	0.602	1.622	4.564
Individualism	171	2.918	0.558	1.533	4.487
Culture	171	2.849	0.544	1.738	4.585
Governmental support	171	2.642	0.460	1.590	3.671
Taxes and bureaucracy	171	2.497	0.558	1.468	4.273
Government programs	171	2.764	0.417	1.720	3.714
Unemployment	171	8.147	4.541	2.493	27.466
Population	171	16.443	1.527	12.569	19.571
Investments	171	1.442	12.723	−49.202	45.812
FDI	171	4.310	6.989	−15.963	37.481
Participation rate	171	60.194	6.133	45.056	77.010
GDP per capita	171	10.451	0.350	9.605	11.083
Corruption control	171	1.301	0.784	−0.512	2.465
Regulatory quality	171	1.265	0.424	0.253	1.908
Gvt effectiveness	171	1.348	0.578	0.120	2.261

Governmental Programmes is positive but not significantly different to zero. This provides a first confirmation of H1*:* while an increase of *Governmental Support and Policies* or *Taxes and Bureaucracy* (which are variables that proxy policies with a broad scope) is associated with a positive increase of entrepreneurial culture in general, in the case of *Governmental Programmes* (a proxy for policies with a narrower scope or niche policies) there is no positive and statistically significant relationship between the variables.

Among the other control variables that have an impact on entrepreneurial culture in general we find that the control of corruption is an important factor that makes culture more willing to embrace entrepreneurship. This resonates with recent studies that found an overall negative effect of corruption on entrepreneurial activity per se (Belitski, Chowdhury, and Desai 2016; Chowdhury, Audretsch, and Belitski 2019; Dutta and Sobel 2016). The same applies to the quality of regulation, hence suggesting that when regulation mechanisms improve also entrepreneurial culture benefits from it.

We also find a positive but moderate relationship between unemployment and entrepreneurial culture. This suggests that in times of lower availability of salaried jobs (such as during recession times) entrepreneurship becomes a relatively better

Table 5: Correlation table.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Creativity and innovation	1.0000																
2	Personal risk taking	0.8272*	1.0000															
3	Own efforts	0.8363*	0.8567*	1.0000														
4	Individualism	0.8108*	0.8216*	0.8205*	1.0000													
5	Culture	0.9054*	0.9493*	0.9449*	0.9043*	1.0000												
6	Government programs	0.2949*	0.0686	0.1885*	0.2814*	0.2264*	1.0000											
7	Governmental support	0.3114*	0.1519*	0.1891*	0.3387*	0.2623*	0.7447*	1.0000										
8	Taxes and bureaucracy	0.4364*	0.2908*	0.4822*	0.5441*	0.4572*	0.6196*	0.6480*	1.0000									
9	Unemployment	−0.2946*	−0.2020*	−0.3283*	−0.3070*	−0.2900*	−0.2896*	−0.2781*	−0.3413*	1.000								
10	Population	−0.0505	0.0807	−0.0703	0.0310	0.0482	0.0431	0.1054	−0.2654*	0.012	1.000							
11	Investments	0.0119	0.0587	0.0339	0.0573	0.0409	−0.0319	0.0858	0.0854	−0.211*	0.007	1.000						
12	FDI	0.1164	0.0935	0.1301*	0.2203*	0.1287*	0.1529*	0.1235	0.2333*	−0.093	−0.204*	0.141*	1.000					
13	Participation rate	0.5353*	0.3780*	0.5792*	0.5337*	0.5246*	0.4674*	0.3585*	0.6653*	−0.383*	−0.334*	0.049	0.222*	1.000				
14	GDP per capita	0.3706*	0.1049	0.3362*	0.2480*	0.2689*	0.5042*	0.3181*	0.4488*	−0.372*	−0.086	−0.037	0.137*	0.509*	1.000			
15	Corruption control	0.3066*	−0.0148	0.2398*	0.2504*	0.1783*	0.5433*	0.4368*	0.6327*	−0.378*	−0.255*	0.072	0.205*	0.659*	0.735*	1.000		
16	Regulatory quality	0.3705*	0.0946	0.2860*	0.3340*	0.2695*	0.4906*	0.4157*	0.5782*	−0.336*	−0.138*	0.083	0.255*	0.576*	0.678*	0.889*	1.000	
17	Gvt effectiveness	0.3738*	0.0388	0.2941*	0.2827*	0.2318*	0.5327*	0.4719*	0.6163*	−0.378*	−0.249*	0.078	0.185*	0.671*	0.750*	0.950*	0.865*	1.00

Asterisks indicate that a correlation is statistically significant at the 95% level.

Table 6: The scope of governmental policies.

Variables	(1)	(1) *Culture*	(1)
Broad scope entship policies			
Governmental support	0.189**		
	(0.073)		
Taxes and bureaucracy		0.170**	
		(0.064)	
Narrow scope entship policies			
Government programmes			0.154
			(0.116)
Corruption control	0.650**	0.589**	0.572**
	(0.243)	(0.224)	(0.244)
Regulatory quality	0.618***	0.548**	0.627***
	(0.198)	(0.210)	(0.196)
Unemployment	0.027*	0.027*	0.022
	(0.015)	(0.015)	(0.015)
GDP per capita	1.758**	1.855**	1.624**
	(0.689)	(0.760)	(0.759)
Population	−3.047**	−2.789**	−2.990**
	(1.109)	(1.010)	(1.250)
Investments	0.000	0.001	0.001
	(0.002)	(0.002)	(0.002)
FDI	0.006	0.005	0.006
	(0.005)	(0.004)	(0.005)
Participation rate	−0.010	−0.001	−0.000
	(0.023)	(0.023)	(0.022)
Gvt effectiveness	−0.343	−0.355	−0.326
	(0.250)	(0.263)	(0.263)
Constant	33.311	27.785	33.391
	(20.228)	(18.601)	(22.116)
COUNTRY FIXED EFFECTS	YES	YES	YES
TIME DUMMIES	YES	YES	YES
Observations	171	171	171
R-squared	0.431	0.446	0.445
Number of countries	27	27	27

Results from a fixed effects (within-group) panel estimator. The dependent variable is *Culture*. All independent variables are lagged by one year. Heteroskedasticity-robust standard errors in parentheses, $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

option, according to the public opinion.[11] We find a positive relationship between GDP per capita and entrepreneurial culture. Higher income per capita is also associated with increasing levels of entrepreneurial culture. This is partly in line with existing research that found that in high developed countries there is a higher likelihood to engage in entrepreneurship (Wennekers et al. 2005). The coefficient of *Population* shows a negative and significant coefficient, hence suggesting a negative correlation with entrepreneurial culture: this is quite at odds with the studies that find a positive effect of population growth on new firm formation (Hopenhayn, Neira, and Singhania 2018): this may be related to population growth due to immigration of workers which are less familiar with entrepreneurship. The other control variables do not show instead coefficients that are significantly different from zero, suggesting a marginal role in the entrepreneurial culture dynamics.

4.2 Dimensions of Entrepreneurial Culture

In Table 7 instead we check for the impact of governmental measures on the different dimensions of entrepreneurial culture, namely the categories related with creativity, innovation and risk taking ((a) *Risk Taking*, (b) *Innovation and Creativity*) and those related with the importance for the individual of being responsible and accountable for their own efforts ((c) *Own Efforts* (d) *Individualism*). In the table we only present the results for our main variables of interest (the policy related variables), while in the Appendix in Table (A2) we report also the coefficients of all the other control variables.

The results in columns (1) to (6) show that *Governmental Support* and *Taxes and Bureaucracy* have a positive and significant effect on both *Innovation and Creativity* and *Risk taking.* On the contrary we find that, just like in the specification of Table 5, the coefficient of *Governmental Programmes* is positive, but not significantly different from zero. All in all, this provides confirmation for H2, but only for policies that have a relatively broad scope.

In columns (7) to (12) we test the effect of the different policies on the dimension of entrepreneurial culture that has to do with personal initiative and appreciation of individual efforts, in line with the arguments spelled out for H3. We find that the coefficient of the variable *Governmental Support* is positive but not significant in the specification where *Own Efforts* is the dependent variable and instead it is positive

11 This result is in line with the "recession push" argument put forward by Parker (2009), as opposed to the "opportunity pull" perspective, in which individual choose to start a new business as a response to increasing economic opportunities brought forward by an expansive business cycle.

Table 7: The different dimensions of Entrepreneurial culture.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Creativity and innovation			Personal risk taking			Own efforts			Individualism		
Broad scope entship policies												
Governmental support	0.287***			0.178**			0.124			0.204*		
	(0.077)			(0.073)			(0.097)			(0.103)		
Taxes and bureaucracy		0.162**			0.200**			0.159*			0.181*	
		(0.064)			(0.074)			(0.090)			(0.092)	
Narrow scope entship policies												
Government programmes			0.199			0.150			0.096			0.241*
			(0.122)			(0.124)			(0.144)			(0.131)
Constant	30.710*	27.537	31.655*	47.489*	40.186	31.655*	22.808	16.646	22.987	58.010**	52.234*	56.399**
	(16.189)	(17.577)	(17.796)	(24.547)	(24.317)	(17.796)	(28.200)	(25.839)	(30.507)	(27.026)	(27.684)	(26.835)
OTHER CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
COUNTRY FIXED EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
TIME DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	171	171	171	171	171	171	171	171	171	171	171	171
R-squared	0.376	0.411	0.379	0.380	0.391	0.400	0.313	0.319	0.328	0.388	0.390	0.388
Number of countries	27	27	27	27	27	27	27	27	27	27	27	27

Results from a fixed effects (within-group) panel estimator. All independent variables are lagged by one year. Heteroskedasticity-robust standard errors in parentheses, $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

and weakly significant (at 10% level) in the *Individualism* specification. The coefficient of *Taxes and Bureaucracy* is instead positive and significant, although only at the 10% level, in both specifications. Finally, the coefficient of Governmental Programmes is only positively and weakly significant at 10% level in the *Individualism* specification. All in all, this provides some mixed evidence concerning hypothesis H3, suggesting that the impact of entrepreneurship-related policies on the dimension of entrepreneurial culture related to individualism and own responsibility is only partly confirmed.

4.3 Initial Conditions

In Table 8, we measure the effect of entrepreneurship-friendly policies on entrepreneurial culture in general, distinguishing between countries with high or low initial levels of entrepreneurial culture. There is a quite high degree of variation among the initial levels of entrepreneurial culture in our sample, with higher values among English-speaking countries and small Western European countries and much lower values among most Southern and Eastern European countries. We hence split our sample between the 13 countries with relatively higher initial levels of entrepreneurial culture and the 14 countries with relatively lower initial levels of entrepreneurial culture and run separate regressions for the two groups of countries. In Table A3 in the Appendix we also provide the individual initial values of entrepreneurial culture for each country. The results in columns (1) and (2) show that the coefficient of *Governmental Support* is positive for both groups of countries, but only significantly different from zero for the countries with high initial conditions of entrepreneurial culture. The same is true for the specification with the variable *Taxes and Bureaucracy:* in this case the coefficient of the independent variable is positive and significant among countries with a high initial level of entrepreneurial culture, while it is even negative (although not significant) for countries with low initial levels of entrepreneurial culture. Lastly, when we look at the coefficient of *Governmental Programmes* we find again that the coefficient is positive and mildly significant in countries with higher initial levels of entrepreneurial culture and negative (although not significantly different from zero) in the latter group. These results provide some evidence that the effect of entrepreneurial policies is stronger for countries with higher initial levels of entrepreneurial culture, providing confirmation to our hypothesis H4.

Table 8: The role of the initial conditions of entrepreneurial culture.

	(1) High initial conditions	(2) Low initial conditions	(3) High initial conditions	(4) Low initial conditions	(5) High initial conditions	(6) Low initial conditions
Broad scope entship policies						
Governmental support	0.204***	0.073				
	(0.064)	(0.105)				
Taxes and bureaucracy			0.230***	−0.017		
			(0.074)	(0.115)		
Narrow scope entship policies						
Government programmes					0.317***	−0.143
					(0.094)	(0.133)
Constant	19.958	−20.451	11.011	−23.675	6.513	−27.006
	(28.097)	(37.656)	(27.558)	(42.488)	(28.904)	(39.948)
OTHER CONTROLS	YES	YES	YES	YES	YES	YES
COUNTRY FIXED EFFECTS	YES	YES	YES	YES	YES	YES
TIME DUMMIES	YES	YES	YES	YES	YES	YES
Observations	80	91	80	91	80	91
R-squared	0.679	0.482	0.699	0.479	0.695	0.488
Number of countries	13	14	13	14	13	14

Results from a fixed effects (within-group) panel estimator. All independent variables are lagged by one year. Heteroskedasticity-robust standard errors in parentheses, $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

5 Discussion and Conclusions

In this paper, we tested four hypotheses concerning the relationship between entrepreneurship-friendly policies and entrepreneurial culture. The results provide confirmation to Hypothesis 1, according to which governmental policies with a broader scope of application have a bigger impact on entrepreneurial culture at the national level. From an institutional theory perspective this suggests that the broader the scope of application of the formal rules the higher is the impact upon the informal type of rules. In line with Hypothesis 2, we found that governmental policies have indeed an impact on national entrepreneurial culture's dimensions related to risk taking, creativity and innovation. However, we find that the effect applies only to

broad governmental policies, including measures that decrease taxes and reduce bureaucracy. More niche policies, such as specifically targeted governmental programmes, instead show no effect. It must be stressed that these three dimensions of entrepreneurial culture (creativity, innovation and risk taking) can be considered as part of the action-oriented behavior attributed to both the tendency of working for others as well working on its own account. Therefore, broad governmental policies promoting creativity, innovation and risk taking may have an impact on both the individual that will pursue an entrepreneurial path and those that instead become employed.

On the contrary for what concerns Hypothesis 3, we find no strong correlation between the governmental policies and programmes values of individualism and own responsibility. It is rather Taxes and bureaucracy that have an impact upon independence and responsibility as dimensions of national culture for entrepreneurship, since they also decrease the personal perceived barriers. Finally, in testing our Hypothesis 4, we find that only in countries with higher initial levels of national entrepreneurial culture there is a significant impact of entrepreneurship policies on culture. This in line with institutional theory (North 1990) according to which the impact of formal institutions will also depend on the support they receive by the informal institutions.

The study contributes to the literature that analyzes the impact of entrepreneurship policies (Chowdhury, Audretsch, and Belitski 2019; Minniti 2008), by highlighting a new relationship that has been mostly overlooked by existing studies, i.e. their impact on the entrepreneurial culture of a specific society. Moreover we also contribute to the emergent debate about the overall impact of policy on culture. Recent empirical contributions show that policy change can indeed impact culture in different contexts. Campa and Serafinelli (2019) have shown that policies aimed at increasing women participation to the labour market implemented in Eastern Europe by socialist regimes before the 90s changed the culture related to women's career participation in those countries. Gruber and Hungerman (2007) found that the modernization policies of the New Deal in the US led to the decline of the informal social safety nets based on religious charity. Also relatively small policy changes, such as the introduction of pension schemes in some developing countries, can change long-lasting cultural traditions about care of elderly relatives in societies (Bau 2021). Finally, this study contributes to studies that analyze the role of entrepreneurial culture on current entrepreneurship activities. These studies have highlighted the persistency of such entrepreneurial over time (Fritsch and Wyrwich 2014; Fritsch et al. 2019). Our study complements this by analyzing instead the dynamics of cultural values, i.e. their change over time, and the role of policy as one of the factors that affect these dynamics.

Our work is not free of limitations: our empirical analyses cannot be considered as strong evidence of a causal link, since the relationship between policies and culture is not necessarily only one-way. It is indeed possible that shifts in the national entrepreneurial culture also influence the way policymakers set their agenda regarding entrepreneurship policy. While it seems reasonable to assume that policies are implemented precisely to change the current state of affairs (whenever policymakers believe that market failures prevent the economy from reaching the desired level of entrepreneurial activity), at the same time we cannot completely exclude that the national culture may also influence the agenda of some policymakers. A second limitation of our results is that we look at the short-term effects of policies on entrepreneurial culture. It could be that some of the effects of entrepreneurship-oriented policies take place on a more long-term scale. While data availability for cross-country long-term analyses may be more difficult to retrieve it would be interesting to complement our analysis with more long term studies of the relationship between entrepreneurship-realted policies and entrepreneurial culture.

Keeping in mind the above-mentioned limitations, our results have important implications for policy. First, we find that the scope of application of policies is positively correlated with its impact on the national entrepreneurial culture: this means that policymakers should keep this in mind when they design policy schemes to encourage entrepreneurship. If their plan is to generally increase the acceptance of entrepreneurship among the population, then targeted policies that apply to a minority of entrepreneurs may not obtain the desired outcome. Instead policymakers should rather consider the implementation of larger scheme policies, potentially applying to a broader set of individuals. Hence, policymakers should rather insist on implementing policies that make it clear to everyone that their goal is to encourage entrepreneurship: only this will have an impact on the national entrepreneurial culture. Policies that are more hands-on or that target specific subsets of entrepreneurs may be extremely valuable and lead to good economic outcomes (Aguinis, Jensen, and Kraus 2022), but they are not likely to have a large impact on the entrepreneurial-related values in the society.

Secondly our results also show that policies that encourage entrepreneurship have the effect of increasing the dimension of entrepreneurial culture that has to do with the overall acceptance of creativity, innovation and risk-taking behaviors. On the contrary, our results suggest that it is not through the implementation of entrepreneurship-friendly policies that it will be possible to increase the values that are usually associated with an entrepreneurial culture and that have to do with individualism and the idea that individual success is mainly achieved through own personal efforts. This is possibly due to the fact that, since entrepreneurs realize that policy intervention is actually helping them to start, run or consolidate their own business, their perception that their result are only achieved through individual effort may not be supported. Instead it is possible to assume that it will be the

collective dimension that would rather emerge, as policies are typically implemented through the use of taxpayers' money. Thus the entrepreneurs may realize that their success also depends on the support from other actors of the community in which they live and work.

Lastly, our finding that initial conditions matter also puts a major challenge for policymakers, as it shows that it is where entrepreneurship policies are needed the most, i.e. in countries with low initial entrepreneurial culture, that they are less effective. This suggests that entrepreneurial policies can have an impact on culture only when there is a sufficiently developed culture related to entrepreneurship. This has important implications. First, entrepreneurship-specific policies may not be enough to increase entrepreneurial culture in countries with low levels of entrepreneurial culture. This may imply that other types of complementary policies are needed in these countries, possibly going beyond the realm of entrepreneurship and including additional social or economic dimension that may also affect the overall perception of entrepreneurship in the population. Second, these results point to the fact that the implementation of entrepreneurship policies across countries will not likely lead to a long-term convergence when it comes to entrepreneurial culture. On the contrary there may even be an increase over time of the existing divide between more and less entrepreneurial countries. Future research should consider which are the cases in which also for countries with low initial conditions of entrepreneurial culture policies can have some kind of impact. This is especially important for in emerging economies, where entrepreneurship policies may be especially important to strengthen the entrepreneurial culture (Chan and Mustafa 2021). While our results are only valid for OECD countries, mostly in Europe, US and Japan, it seems relevant to expand this kind of analysis to different context to check if our empirical results apply also to countries that are instead in the process of catching up with respect to high-income countries.

Appendix: The National Expert Survey of the GEM Dataset

In the GEM project there are several national teams that manage the implementation of the questionnaire to "experts" in their respective countries. The process of identifying experts by each national team needs to be approved by the managers of the GEM project, moreover each national team should ask to at least 36 different experts in each year, although in many countries the number of experts interviewed is quite higher. The experts are identified following nine different fields of expertise that are in line with the so-called critical framework conditions that the National Expert is aimed at measuring. Therefore each national survey should include at least 4 experts for each of the following categories:

- experts in entrepreneurial financing system (bankers, venture capitalists, private investors, business angels, etc.).
- experts related with governmental public policies for entrepreneurs (members of government staff, members of public agencies related with firm creation and development, etc.).
- experts related with governmental public programs for entrepreneurs (policymakers, local development agencies, institutes and foundations that launch entrepreneurship programs, etc.).
- experts related with entrepreneurial education and training (professors and teachers from any educational institution – from schools to universities – as well as professional or vocational instructors, etc.),
- experts related with R&D transfer (researchers, personnel of technological and scientific parks, technological incubators, developers of scientific or technological programs).
- experts related with the commercial and professional infrastructure (persons serving the entrepreneurial community such as consultants, lawyers, assessors, public agents, accountants and other similar people).
- experts related with the internal market openness persons such as market analysts, financiers, specialized journalists and economists, researchers in this field, etc.
- experts related with the physical infrastructure and services (providers of real estate, water, light, gas, public infrastructures, logistics, incubators, technological parks, etc.),
- experts related with the cultural and social norms (persons that have opinions in commerce chambers, entrepreneurial and business associations, women associations, journalists, sociologists, psychologists, institutions that promote entrepreneurship, researchers in this field and the like).

The variables used in the analysis are the average values of the answers provided by the national expert in each country and in each year to different questions that relate to entrepreneurship culture and entrepreneurship policy.

Table A1: Details of the GEM-based variables.

Variable	Description of the variable
Dependent variables	
Creativity and innovation	Average of the degree of in my country, the national culture encourages creativity and innovativeness (1 thru 5)
Personal risk taking	In my country, the national culture encourages entrepreneurial risk-taking (1 thru 5)

Table A1: (continued)

Variable	Description of the variable
Own efforts	In my country, the national culture is highly supportive of individual success achieved through own personal efforts (1 thru 5)
Individualism	In my country, the national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life (1 thru 5)
Culture	Average of the values of the variables: *Own efforts*, *Creativity and Innovation*, *Individualism*, *Personal risk taking*
Independent variables	
Broad scope entship policies	
Governmental support	*Average of the answer to the following questions:* In my country, government policies (e.g. public procurement) consistently favor new firm (1 thru 5) In my country, the support for new and growing firms is a high priority for policy at the national government level (1 thru 5) In my country, the support for new and growing firms is a high priority for policy at the local government level (1 thru 5)
Taxes and bureaucracy	*Average of the answer to the following questions:* In my country, new firms can get most of the required permits and licenses in about a week (1 thru 5) In my country, the amount of taxes is NOT a burden for new and growing firms (1 thru 5) In my country, taxes and other government regulations are applied to new and growing firms in a predictable and consistent way (1 thru 5) In my country, coping with government bureaucracy, regulations, and licensing requirements it is not unduly difficult for new and growing firms (1 thru 5)
Narrow scope entship policies	
Governmental programs	*Average of the answer to the following questions:* In my country, a wide range of government assistance for new and growing firms can be obtained through contact with a single agency; (1 thru 5) In my country, science parks and business incubators provide effective support for new and growing firms; (1 thru 5) In my country, there are an adequate number of government programs for new and growing businesses (1 thru 5) In my country, the people working for government agencies are competent and effective in supporting new and growing firms (1 thru 5) In my country, almost anyone who needs help from a government program for a new or growing business can find what they need (1 thru 5) In my country, government programs aimed at supporting new and growing firms are effective (1 thru 5)

Table A2: Full coefficients for Table 6.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Creativity and innovation			Personal risk taking			Own efforts			Individualism		
Governmental support	0.287***			0.178**			0.124			0.204*		
	(0.077)			(0.073)			(0.097)			(0.103)		
Taxes and bureaucracy		0.162**			0.200**			0.159*			0.181*	
		(0.064)			(0.074)			(0.090)			(0.092)	
Government programmes			0.199			0.150			0.096			0.241*
			(0.122)			(0.124)			(0.144)			(0.131)
Unemployment	0.047***	0.045**	0.040**	0.017	0.018	0.013	0.032	0.032	0.029	0.010	0.010	0.004
	(0.016)	(0.017)	(0.017)	(0.016)	(0.016)	(0.017)	(0.021)	(0.020)	(0.020)	(0.017)	(0.017)	(0.016)
Population	−2.941***	−2.888**	−2.945**	−3.502**	−3.123**	−3.437**	−2.724*	−2.390*	−2.700	−3.724**	−3.458**	−3.474**
	(1.022)	(1.139)	(1.183)	(1.279)	(1.257)	(1.454)	(1.449)	(1.302)	(1.616)	(1.549)	(1.560)	(1.604)
Investments	0.001	0.002	0.002	−0.000	0.000	0.000	0.000	0.001	0.000	0.004	0.005	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
FDI	0.005	0.004	0.005	0.007	0.006	0.007	0.004	0.003	0.004	0.005	0.005	0.005
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)
Participation rate	−0.010	0.005	0.005	−0.001	0.006	0.008	−0.003	0.002	0.004	0.020	0.030	0.029
	(0.023)	(0.022)	(0.022)	(0.028)	(0.029)	(0.028)	(0.031)	(0.031)	(0.030)	(0.027)	(0.026)	(0.024)
GDP per capita	1.797*	1.983*	1.663	1.022	1.098	0.888	2.252**	2.297**	2.175**	0.314	0.420	0.027
	(0.909)	(1.055)	(1.118)	(0.786)	(0.858)	(0.800)	(0.918)	(0.917)	(0.897)	(0.763)	(0.879)	(0.734)
Corruption control	0.746***	0.690***	0.647***	0.791***	0.718**	0.715**	0.522*	0.463*	0.474*	0.765**	0.700**	0.642**
	(0.207)	(0.207)	(0.213)	(0.273)	(0.273)	(0.289)	(0.260)	(0.245)	(0.261)	(0.299)	(0.293)	(0.296)
Regulatory quality	0.516**	0.442*	0.524**	0.550**	0.472*	0.559**	0.636**	0.574**	0.641***	0.640**	0.566**	0.660**
	(0.194)	(0.215)	(0.200)	(0.225)	(0.246)	(0.225)	(0.235)	(0.231)	(0.227)	(0.242)	(0.261)	(0.238)
Gvt effectiveness	−0.226	−0.254	−0.211	−0.225	−0.233	−0.209	−0.348	−0.352	−0.339	−0.509	−0.523	−0.470
	(0.244)	(0.274)	(0.285)	(0.258)	(0.274)	(0.265)	(0.309)	(0.309)	(0.305)	(0.301)	(0.319)	(0.304)

Table A2: (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Creativity and innovation			Personal risk taking			Own efforts			Individualism		
Constant	30.710*	27.537	31.655*	47.489*	40.186	31.655*	22.808	16.646	22.987	58.010**	52.234*	56.399**
	(16.189)	(17.577)	(17.796)	(24.547)	(24.317)	(17.796)	(28.200)	(25.839)	(30.507)	(27.026)	(27.684)	(26.835)
COUNTRY FIXED EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
TIME DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	171	171	171	171	171	171	171	171	171	171	171	171
R-squared	0.376	0.411	0.379	0.380	0.391	0.400	0.313	0.319	0.328	0.388	0.390	0.388
Number of countries	27	27	27	27	27	27	27	27	27	27	27	27

Results from a fixed effects panel estimator. All independent variables are lagged by one year. Heteroskedasticity-robust standard errors in parentheses, $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table A3: Initial values of entrepreneurial culture.

Country	Initial value of entrepreneurial culture	First year of observation
Higher initial conditions		
United States	4.59	2003
Israel	3.97	2010
Iceland	3.68	2003
Canada	3.40	2003
Australia	3.15	2003
South Korea	3.08	2009
Switzerland	3.04	2010
Mexico	3.01	2011
Ireland	3.00	2003
Greece	2.88	2004
Hungary	2.73	2005
Netherlands	2.72	2003
United Kingdom	2.72	2010
Lower initial conditions		
Poland	2.65	2012
Finland	2.63	2003
Turkey	2.63	2007
Germany	2.61	2010
Chile	2.57	2003
Belgium	2.51	2005
Norway	2.48	2003
Italy	2.46	2006
Latvia	2.45	2006
Spain	2.28	2010
Slovenia	2.17	2003
France	2.02	2003
Portugal	1.92	2011
Sweden	1.74	2003

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