

**THE IMPACT OF THE INSTITUTIONAL ENVIRONMENT ON ENTREPRENEURIAL
ACTIVITY: AN ANALYSIS OF DEVELOPING AND DEVELOPED COUNTRIES**

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1 INTRODUCTION

Researchers generally agree that institutions are important to entrepreneurship, coming up with a long list of institutional aspects that constrains and enhance entrepreneurial activities across countries (Dilli *et al.*, 2018; Elert & Henrekson, 2021). Thus, institutional theorists have been clarifying on the institutional impact, as well as on how institutions work, change and where they lead to (Su, 2020). Regarding entrepreneurship, scholars have been focusing on how to increase its prevalence and allocate it productively (Baumol, 1990; Chowdhury *et al.*, 2019; Z. Su, 2020), since productive entrepreneurship is determined by the set of payoffs that society offers to these activities, hence, its predominant institutions (Burns & Fuller, 2020).

Literature has been recognizing as productive types of entrepreneurship: innovative new firms (Arabiyat *et al.*, 2019; Bradley *et al.*, 2021), new ventures with high-growth expectations (Bosma *et al.*, 2018; Giotopoulos *et al.*, 2017), as well as new companies where the founders are motivated by perceived opportunities, rather than by necessity to provide for their living (Amorós, Ciravegna, *et al.*, 2019; Fuentelsaz *et al.*, 2019; Galindo-Martín *et al.*, 2019).

According to Scott (1995), institutions are resilient social structures, composed of three pillars: cultural-cognitive, normative, and regulatory. These three elements are important in restraining organizational behavior and influencing enforcement mechanisms, which will provide stability and meaning to social habits. Based on Scott's (1995) pillars, Kostova (1997) introduced the Country Institutional Profile (CIP) for empirical studies comparing institutions among countries and Busenitz *et al.* (2000) adapted this framework to be used in studies testing institutional impact on entrepreneurship.

Further clarification on the theme concerning institutional impact of entrepreneurship is important for policymakers (Bradley *et al.*, 2021; Chowdhury *et al.*, 2019; Galindo-Martín *et al.*, 2019; Tomizawa *et al.*, 2020) as institutions have a key role on the prevalence and type of entrepreneurship, and thus, it is important to assess how institutional quality drives productive entrepreneurship, which, in turn will affect economic growth (Bosma *et al.*, 2018). Therefore, by using the consolidated framework of the CIP, this study can contribute to assess which institutional dimensions have more influence on entrepreneurial activity across countries. Also, by verifying differences in the institutional impact on the entrepreneurship of both developing and developed economies, this study contributes to the literature, as scholars have been mentioning (1) differences in institutional voids (Webb *et al.*, 2020), (2) different types of institutional incongruence (Fredström *et al.*, 2020; Scott *et al.*, 2004), and (3) different motivations to start a business (Amorós, Ciravegna, *et al.*, 2019) among these types of countries.

2. RESEARCH PROBLEM AND OBJECTIVES

Based on the productive entrepreneurship discussion (Baumol, 1990; Sobel, 2008), the research problem is about understanding how differently does the institutional environment affects the prevalence, as well as some qualitative aspects, that indicate productive entrepreneurship, in developed and developing economies. Some authors have used one or more pillars of the CIP on cross-national studies to test (1) cognitive practices on entrepreneurs' activities (Al Mamari *et al.*, 2020), intentions (Liñán *et al.*, 2011) and innovation (Fuentelsaz *et al.*, 2018); (2) regulatory aspects on new business activity (De Clercq *et al.*, 2010), on strategic entrepreneur's entry (Levie & Autio, 2011) and allocation of entrepreneurial effort (Bowen & De Clercq, 2008); and (3) normative aspects on entrepreneurs' behavior (Autio *et*

al., 2013) and on entrepreneur's mindset (Rarick & Han, 2015). Some other researchers have focused on the role of the full countries institutional profile on the total early-stage entrepreneurial activity (TEA) (Stenholm *et al.*, 2013; Urbano & Alvarez, 2014) or in the entrepreneurial innovation (Arabiyat *et al.*, 2019; Stenholm *et al.*, 2013; Urban, 2016).

However, there is a gap in the comprehension of how differently the institutional dimensions affect the prevalence type of entrepreneurship in developing and developed countries, on a longitudinal approach over time (Arabiyat *et al.*, 2019; Stenholm *et al.*, 2013), and on a integrative approach that allows studying the entrepreneurship determinants and outcomes at the same time, as well as different types of entrepreneurship (Terjesen *et al.*, 2013). Also, this study uses data from the Global Entrepreneurship Monitor (GEM), that allows a longitudinal approach with the same database for 112 countries, ranging over the period 2003 to 2019. Thus, panel data regressions are applied to answer the following research question: what is the impact of the Country Institutional Profile on the entrepreneurial activities of developed and developing countries?

The main objective of this research is verifying to what extent do the pillars of the CIP – regulatory, cognitive, and normative – affect both the quality and prevalence of entrepreneurship, assessing the differences between developing and developed countries both in TEA and in the following qualitative frames: high job creation expectation; innovation; and motivational index.

3 THEORETICAL BACKGROUNDS

North (1991) defines institutions as humanly created constraints that determinate political, social, and economic interaction within society and gathers both formal and informal rules. He argues that institutions provide support for countries economic development and emphasizes that "third World countries are poor because the institutional constraints define a set of payoffs to political/economic activity that do not encourage productive activity" (North, 1990, p. 110). On the one hand, institutions affect country growth because they are crucial to expenditures on transactions, playing an important role in formal economic modelling and reducing uncertainty with credible reforms (Aron, 2000; Henisz, 2000). On the other hand, Przeworski (2004) recognizes that institutions are endogenous and non-autonomous, as conditions shape institutions, which will reinforce the casual effects of those conditions. Williamson (2000) proposes a four-level framework, starting with informal and spontaneous institutions that influence formal institutions, which influences governance and resource allocation.

The theoretical baseline for the hypotheses comes from the fact that institutions and policies influence entrepreneurship, as they influence transaction costs of entrepreneurs searching for combining, and adapting different resources to obtain profit (Bjørnskov & Foss, 2016). This makes institutional importance even higher, as alongside with quality in the institutional environment, new ventures creation has been increasingly important for the economic development (Audretsch & Thurik, 2000; Carree *et al.*, 2002), with productive and ambitious entrepreneurship being even more important.

Schumpeter (1943) claimed that entrepreneurial innovation is crucial to development in some cycles and Acs *et al.* (2008) built on Porter's (1990) division of economies in three stages (factor-driven, efficiency-driven, and innovation-driven) defends a more institutional approach to assess the relationship between entrepreneurship and economic growth. The authors claim that entrepreneurship is more related to economic growth only in innovation-driven economies, which, in terms of institutions, could not be confirmed by Acs *et al.* (2017), who found that institutions impact more on the entrepreneurship of factor-driven economies.

However, Shane (2009) disagrees that supporting entrepreneurship is a good public policy, because in order to get more economic growth from new ventures would demand that they were more efficient than the existing ones, which is not true. To this extent, Baumol (1990) brings on the entrepreneurial productivity discussion, that is central to the institutional perspective. According to this author, some entrepreneurs are engaged in productive activities with positive sum, whereas other are involved in unproductive activities, which may involve lobby and corruption, resulting in negative sum to economy and society. His theory was tested and confirmed empirically by Sobel (2008), on a research involving the 50 US states.

Even though the entrepreneurial process should be seen as multidimensional process, most research focused on a single dimension approach, with some using a context-centric approach, such as Aldrich & Fiol (1994) “red tape” concept - in which entrepreneurs need to conform to the institutional environment to secure their legitimacy and succeed - and it’s pointed by Su *et al.* (2017) as a seminal work connecting institutions and entrepreneurship. Others are focused on an actor-centric approach, that examines the entrepreneur’s cognition, intentions, and network, but few studies view entrepreneurial innovation in a process where actors and contexts are co-created, resulting in a multilevel approach (Garud *et al.*, 2014). To this extent, Elert & Henrekson (2021) claim that the causality is bidirectional, as entrepreneurship is also a key factor to institutional change. More recent studies focused on building econometric models, using secondary data, especially from the GEM, to access how cross-country differences in the institutional profile affects the rate, type, and productivity of new firms (Arabiyat *et al.*, 2019; Bosma *et al.*, 2018; Stenholm *et al.*, 2013; Urban, 2016).

3.1 Institutions and entrepreneurship: prevalence and quality

Stenholm *et al.* (2013) conducted a multidimensional research to evaluate how the institutional profile influences the rate and type of entrepreneurship (innovative). Using GEM and other indices data from 63 countries on a structural equation model (SEM), the authors found that the regulatory institutional arrangements influence the rate of entrepreneurial activity in a country, whereas normative, cognitive, and conducive dimensions have no impact on the rate. Regarding the type of entrepreneurship, the conducive dimension i.e., technology and venture capital availability, have a positive impact on high quality entrepreneurship, while the normative dimension have a negative impact. From the aspect of normative dimension, similarly to Stenholm *et al.* (2013), Arabiyat *et al.* (2019) found a negative impact to innovation rates, but they claim that when modeling the effects of normative dimension on entrepreneurial innovation separately, the relationship becomes positive and significant.

Urbano & Alvarez (2014) used binominal logit regression on the 2008 GEM data to examine the influence of institutional dimensions (regulatory, cognitive, and normative) on the likelihood of an individual becoming an entrepreneur and found a positive influence, with the regulatory and normative dimensions encouraging people to become entrepreneurs, and with normative dimension being moderated by the cultural-cognitive dimension (strong cultural-cognitive environment is needed to create new firms). Results were comparable to Urban's (2016), who studied the influence of the institutional environment on the innovation performance of information and communications technology (ICT) companies in South Africa, and found small, but significant, influence from the regulatory and normative perceptions on venture innovation.

Díez-Martín *et al.* (2016) applied partial least squares (PLS) methodology on GCI and GEM data of 37 countries from 2009 to 2013 to verify the influence of the country’s institutional legitimacy (framework) on both entrepreneurial activity and access to finance. Findings suggest that innovation-driven countries present larger entrepreneurial activity, when anchored by a high-level on entrepreneurial legitimacy (institutions supporting entrepreneurship), with the cognitive dimension exerting stronger influence than normative and

regulatory ones. Similarly, Urban (2019) found that the three institutional dimensions are significant in explaining entrepreneurial orientation dimensions variance, in financial service sector companies in South Africa, with the cognitive dimension being the most important determinant.

Bosma *et al.* (2018) conducted a three-stage least squares (3SLS) for simultaneously estimating the effect of institutional quality on productive entrepreneurial activity and on GDP per capita growth, using data of 25 European countries from 2003 to 2014. Regarding regulatory dimension, they found that regulation for credit labor and business is positively related to entrepreneurial activity, while government size is negatively related. Regarding the cultural environment, encouraging a culture of entrepreneurship, that reinforces awareness and perceived capabilities, is positive to entrepreneurial activity. Calculating by the predictive results of the model, Bosma *et al.* (2018) claim that a 10% increase in perceived skills could result in 0.5% GDP per capita growth and a 10% improve in the regulation for credit labor and business could result in additional 1.1% growth. The authors recognize that improving institutional scores is not trivial and requires an institutional improvement strategy.

3.2 Institutions and entrepreneurship: developing and developed countries

One important discussion about differences in entrepreneurship between developing and developed economies concerns motivation and opportunity costs. In developed economies it is harder to engage in non-innovative entrepreneurial activities due to higher transaction costs and sophistication of these markets, whereas in the poorest countries entrepreneurship is mostly necessity-driven. (Amorós, Ciravegna, *et al.*, 2019; Naudé, 2011). Due to differences in the entrepreneurial motivation, Boudreaux (2019) claim that entrepreneurship contributes to the economic growth of developed countries, but not to the developing ones. However, even though improving the institutional profile to create a conducive environment to entrepreneurship quality in developing countries is desirable, it is important to take informal institutions into account (Cullen *et al.*, 2014), because a formal institutional policy may hinder cultural drivers of opportunity entrepreneurship. Also, in countries where the informal size of the economy is large, state measures to improve governance may be counterproductive due to institutional incongruence or institutional voids (Estrin & Mickiewicz, 2011; Fredström *et al.*, 2020). In a study conducted in three Eastern Europe emerging countries (Latvia, Bulgaria, and Hungary), Manolova *et al.* (2008) argue that the overall institutional profile among them is not favorable to entrepreneurship. In Latin America region, Aparicio *et al.* (2016) found that informal institutions have more influence on opportunity entrepreneurship, which, in turn, brings more economic growth.

In China, for instance, Su (2020) affirms that the institutional transition was possible because it took almost 20 years for the population to start seeing entrepreneurship as a good career choice. Since initially there were few entrepreneurs, who were mostly allocated into unproductive activities, it took even more time for the government to develop institutions that enhanced market transactions. More recently, the political influence of entrepreneurs resulted in new informal institutions that compensated for the lack of formal ones, especially in regards to venture internationalization (Li *et al.*, 2021).

Chowdhury *et al.* (2019) evaluated how formal and informal institutions account for variations in the quality and quantity of entrepreneurship across developing and developed countries, using data of 70 countries from 2005-2015 (matching data from 6 different sources, including the GEM). They tested some hypothesis and found that: (1) venture capital (VC) availability compared to debt financing increases quality of entrepreneurship in both developed and developing economies, but not the quantity; (2) entrepreneurial skills and perceived opportunities increase entrepreneurship quantity; (3) improvements in fiscal, labor and bankruptcy regulation is beneficial to the quantity of entrepreneurship in developing

economies; (4) corruption increases the quantity of entrepreneurship in developing countries, but not the quality; (5) state programs and government size contributes more to the quantity of entrepreneurship in developing countries compared to the developed ones, while the quality is positively affected by government programs in both types of countries.

3.3 Institutional Framework

According to Scott *et al.* (2004) the three institutional pillars - cultural-cognitive, normative, and regulatory - may not be influencing in the same way, sometimes with one undermining other. Also, some theorists have been recognizing bottom-up schemes of influence, discussing Institutional “process” rather than Institutional “effects”. This might explain why some studies found moderate relations between some of the variables (Urbano & Alvarez, 2014) or even differences in results when evaluating a dimension separately or combined on the CIP (Arabiyat *et al.*, 2019). This justifies working with all the three dimensions from the CIP, following Busenitz *et al.* (2000); Kostova (1997); Scott (1995).

The cognitive dimension includes logics, ideologies and cognitive frames that are profoundly embedded in each society (Sine & David, 2010). De Clercq *et al.* (2010) relates this dimension with the ability of a given country population to start and manage a new business. Busenitz *et al.* (2000) defines the cognitive dimension as the knowledge and skills shared by the populations of a country that became institutionalized and enables them to start new businesses. Scott (1995) based his cognitive pillar heavily on DiMaggio & Powell (1991) and, alongside with the normative pillar, saw it as an informal institution built of rules and meanings, over time, to constrain actions and beliefs.

Our 4 cultural-cognitive indicators related with entrepreneurship were selected from the GEM Adult Population Survey (APS) data and were already used as indicators of this dimension in previous studies: (1) perceived capabilities (Al Mamari *et al.*, 2020; Chowdhury *et al.*, 2019; De Clercq *et al.*, 2010; Khurshed *et al.*, 2019; Urban, 2016); (2) perceived opportunities (Al Mamari *et al.*, 2020; Chowdhury *et al.*, 2019; Stenholm *et al.*, 2013); (3) fear of failure (Al Mamari *et al.*, 2020; Arabiyat *et al.*, 2019; Urbano & Alvarez, 2014); and (4) entrepreneurial intentions rate (Arabiyat *et al.*, 2019; Liñán *et al.*, 2011). Based on our theoretical background, we hypothesize:

H1. Better cognitive institutions positively affect entrepreneurial activity.

H1a. These effects of cognitive institutions are maximized for productive entrepreneurial activity.

H1b. Cognitive institutional effects associated with entrepreneurial activity are heterogenous among developed and developing countries.

Even though cognitive and normative dimensions both derive from culture, the latter is different in the extent that it represents informal actions that individuals and organizations should comply with, such as standards of behavior and commercial conventions (Bruton *et al.*, 2010). Many researchers use Hofstede’s (1980) dimensions of culture as normative environment (Busenitz *et al.*, 2000). Hofstede (1980) differentiates the cultural orientation of a country in four perspectives: power distance (PDI), individualism–collectivism (IND), uncertainty avoidance (UA), and masculinity–femininity (MAS). However, Busenitz *et al.* (2000) reinforces the importance to develop a specific measure to the domain of entrepreneurship, which accounts for “the degree to which a country’s residents admire entrepreneurial activity, value creation, and innovative thinking” (Busenitz *et al.*, 2000, p. 995).

2 of our 3 normative indicators related with entrepreneurship were selected from the GEM Adult Population Survey (APS) data and 1 indicator was selected from the GEM National Expert Survey (NES) data. They were already used as indicators of this dimension, or a similar framework, in previous studies: (1) entrepreneurship as a good career choice and (Arabiyat *et al.*, 2019; Díez-Martín *et al.*, 2016); (2) high status to successful entrepreneurs (Díez-Martín *et*

al., 2016; Stenholm *et al.*, 2013); and (3) cultural and social norms (Boudreaux, 2019). Based on our theoretical background, we hypothesize:

H2. Better normative institutions positively affect entrepreneurial activity.

H2a. These effects of normative institutions are maximized for productive entrepreneurial activity.

H2b. Normative institutional effects associated with entrepreneurial activity are heterogeneous among developed and developing countries.

According to Busenitz *et al.* (2000) the regulatory dimension of the CIP accounts for the laws, regulations and governmental policies that provides support for business in each country and eases the process for an individual to start a business. Scott (1995) argues that this dimension is related to rule-setting, monitoring and sanctioning activities carried out by the State. Some authors refer to the regulatory dimension as formal institutions (Chowdhury *et al.*, 2019; Fuentelsaz *et al.*, 2019).

Our 5 regulatory indicators related with entrepreneurship were selected from the GEM National Expert Survey (NES) data and were already used as indicators of this dimension, or of a similar framework, in previous studies: (1) governmental support and policies (Amorós, Poblete, *et al.*, 2019); (2) taxes and bureaucracy (Arabiyat *et al.*, 2019; Bowen & De Clercq, 2008); (3) governmental programs (Chowdhury *et al.*, 2019); (4) commercial and professional infrastructure (Boudreaux, 2019); and (5) internal market openness (Boudreaux, 2019). Based on our theoretical background, we hypothesize:

H3. Better regulatory institutions positively affect entrepreneurial activity.

H3a. These effects of regulatory institutions are maximized for productive entrepreneurial activity.

H3b. Regulatory institutional effects associated with entrepreneurial activity are heterogeneous among developed and developing countries.

3.4 Quantitative and qualitative entrepreneurial frames

To evaluate the impact of the country institutional profile on entrepreneurship, we build some econometric models, with different dependent variables. One of them – the total early-stage entrepreneurial activity (TEA) - is quantitative and the other 3 (high job expectation, innovation, and motivational index) are used as qualitative frames that indicate productive entrepreneurship.

TEA is an indicator calculated by the GEM Adult Population Survey, which is conducted by the GEM National Teams, that interview a representative national sample of a minimum of 2000 people from each country, every year (Reynolds *et al.*, 2005). The indicator is the percentage of the adult population (18 to 64 years old) that is either involved in starting a new business or is the owner/manager of a business that is less than 42 months old (Reynolds *et al.*, 2005). In the present study it is used as one of the dependent variables for our models, that testes the impact of each institutional dimension on total entrepreneurship, which is the basis for the hypothesis on the first level.

High job creation expectation is the percentage of those involved in TEA who expect to create 6 or more jobs in 5 years (GEM, 2021). In some studies, this indicator has been used as a proxy for high-growth aspirations (Autio *et al.*, 2013; Bosma *et al.*, 2018), which is seen as high-quality entrepreneurship (Giotopoulos *et al.*, 2017). In the present study, it was selected as one of the variables that indicate productive entrepreneurship.

Innovation rate is the percentage of those involved in TEA who indicate that their product or service is new to at least some customers and that few/no businesses offer the same product (GEM, 2021). It has already been used by previous studies (Arabiyat *et al.*, 2019; Bosma *et al.*, 2018), and was chosen in the present study as one of the variables that indicate productive entrepreneurship.

Lastly, the motivational index is a GEM indicator calculated by the percentage of those involved in TEA that are improvement-driven opportunity motivated, divided by the percentage of TEA that is necessity-motivated (GEM, 2021). This index or a similar GEM indicator has already been used in former studies (Amorós, Poblete, *et al.*, 2019; Aparicio *et al.*, 2016; Bosma *et al.*, 2018; Fuentelsaz *et al.*, 2019), and was chosen in the present study as one of the variables that indicate productive entrepreneurship.

4 RESEARCH METHODOLOGY

In this study we apply panel data regressions, in which time series consisted of repeated observations of several countries are grouped to be analyzed simultaneously, leading to more interesting conclusions than the ones obtained by a single cross section data sample. (Hsiao, 2003; Wooldridge, 2000). All variables from this study were selected from the GEM (dependent, independent and controls). According to Levie *et al.* (2014) the GEM is the only globally harmonized set of data – at screening and processing level – dedicated to study individual-level entrepreneurial behavior across the globe.

In the present study there are 4 dependent variables (Y1 to Y4) - chosen to indicate the prevalence or quality of entrepreneurship in each country – and 12 independent variables (X1 to X12) – chosen to indicate an institutional dimension related to entrepreneurship in each country. Also, there are four control variables chosen from the GEM NES (financing for entrepreneurs, R&D transfer; internal market dynamics; and physical and services infrastructure).

Although there were 112 countries researched over the last 20 years in GEM, the panel data is unbalanced. Therefore, for the TEA (Y1) and the high-job creation expectation (Y2) models, the data used comprise 2003 to 2019. Regarding the motivational index (Y4), the data used comprise 2010 (first year to show this variable) to 2018 (last year to show this variable). Finally, the innovation rate (Y3) model includes data from 2011 (first year to show this variable) to 2018 (last year to show this variable). Also, countries were classified into developing and developed economies according to the criteria of the Global Competitiveness Index (World Economic Forum, 2017).

To access the impact of the CIP on the prevalence of entrepreneurship, we propose a panel data regression model, with the TEA as dependent variable (equation 1) and to verify the impact of the CIP on each qualitative frame (Y2 to Y4), we apply the same model, using a different dependent variable per equation, on a total of other three equations (2 to 4). Finally, to verify institutional differences among developing and developed economies, we run equations 1 to 4 on the two groups of countries separately.

$$Y_{nit} = \beta_0 + \beta_1 \text{Regulatory Institutions } it + \beta_2 \text{Cognitive Institutions } it + \beta_3 \text{Normative Institutions } it + \beta_k \text{(Controls)}it + \varepsilon it$$

Equations 1 to 4

β_0 = constant.

Y_{nit} = for every Y, where n = 1 to 4, the value for each i unit (country) on t time (year). Y1 = TEA; Y2 = high job creation expectation; Y3 = innovation rate; and Y4 = motivational index.
 β_1 to β_k = the coefficient to be multiplied to each dimension, i.e., regulatory, cognitive, normative, and controls.

εit = error term for each i (country) on t (year).

For the present study, the fixed effects estimation was chosen as it enables consistent estimates of time-constant omitted variables upon dependent constructs (Wooldridge, 2000), a suitable feature for the assessment of cross-national entrepreneurial institutions. To confirm the suitability of this estimation method, the Hausman test was applied to the 12 models (4

including full sample, 4 including only developed countries, and 4 considering only developing countries). 9 out of the 12 models presented prob>Chi2 lower than 0.05, which indicates that the fixed effects estimation is more suitable.

5. RESULTS

Table 1 shows the main results from the models containing full sample. Regarding the regulatory institutions, commercial and professional infrastructure has a negative and significant association with TEA at 5%, contrary to what was expected. Also, surprisingly, governmental support and policies present a negative and significant relationship to high job creation expectation at 5%. Taxes and bureaucracy related positively to innovation rate and motivational index, both significant at 5%, while internal market openness presented a positive association to innovation rate at 10%. Overall, results do not show a conclusive impact from the regulatory institutions either on TEA or on productive entrepreneurship.

Regarding the cognitive institutions, however, three out of four variables have positive and significant association with TEA and two out of four have positive and significant association with innovation rate. These evidence that indicate a positive impact from the cognitive institutions, especially on TEA, show the importance of individuals' cognition and intentions on entrepreneurship (entrepreneurial intentions rate relates positively and significantly to TEA, HJCE and IR). On the other hand, we found no conclusive evidence for the impact of normative institutions, as only cultural and social norms related positively and significantly to TEA (although this variable related negatively to HJCE).

The coefficient of determination R² overall was higher for the TEA (65.55%) and motivational index (30.84%), indicating a higher proportion of the variance in the dependent variable that is explained by the independent variables. The R² overall for HJCE and IR were extremely low, on the other hand.

Table 1
Full Sample Models

	TEA	HJCE	IR	MI	
Regulatory Institutions	Governmental support and policies	-0.251 (0.514)	-2.784** (1.190)	1.040 (1.396)	-0.356 (0.317)
	Taxes and bureaucracy	0.163 (0.558)	0.569 (1.295)	3.580** (1.717)	0.779** (0.386)
	Governmental programs	0.279 (0.730)	-0.009 (1.691)	0.639 (2.208)	0.077 (0.491)
	Commercial and professional infrastructure	-1.194** (0.636)	0.329 (1.472)	-0.198 (1.773)	-0.117 (0.401)
	Internal market openness	-0.122 (0.713)	2.654 (1.656)	3.795* (2.024)	-0.460 (0.453)
	Normative Institutions	Perceived capabilities	0.099*** (0.020)	0.061 (0.048)	-0.053 (0.080)
Perceived opportunities		0.049*** (0.013)	-0.025 (0.031)	0.022 (0.052)	0.041*** (0.011)
Fear of failure rate		-0.010 (0.017)	0.059 (0.040)	0.117** (0.058)	-0.005 (0.013)
Entrepreneurial intentions rate		0.183*** (0.017)	0.142*** (0.040)	0.140** (0.055)	-0.012 (0.011)
Entrepreneurship as a good career choice		-0.009 (0.020)	0.031 (0.047)	0.110 (0.076)	-0.023 (0.016)

	High status to successful entrepreneurs	-0.024 (0.020)	0.026 (0.048)	-0.126 (0.087)	0.025 (0.019)
	Cultural and social norms	0.913* (0.541)	-2.457* (1.258)	-0.063 (1.772)	-0.128 (0.396)
Controls	Financing for entrepreneurs	YES	YES	YES	YES
	R&D transfer	YES	YES	YES	YES
	Internal market dynamics	YES	YES	YES	YES
	Physical and services infrastructure	YES	YES	YES	YES
	_cons	1.657 (2.854)	14.546** (6.616)	28.087*** (9.943)	-1.337 (2.184)
	Ar(1)	0.021	-0.205***	0.157	-0.445***
	Ar(2)	0.047***	-0.066	-0.072	-0.095***
	Hausman prob>Chi2	0.001	0.0001	0.029	0.7719
	Observations	776	773	441	495
	Instruments	169	169	37	44
	R ² within	0.2895	0.077	0.1113	0.0880
	R ² between	0.6138	0.0149	0.0007	0.2796
	R ² overall	0.6554	0.0011	0.0177	0.3084

Note. *** p<0.01, ** p<0.05, * p<0.1. Standards errors in parentheses. Fixed-effects estimations. Source: Own Authorship.

Table 2 contains the comparison of the variables' coefficients between the same models with different samples (developed and developing countries). Regarding TEA models, perceived capabilities and entrepreneurial intentions rate presented coefficients that are slightly positive and significant in both samples, whereas perceived opportunities related positively to both models, but the relationship is significant only in the developed countries sample. Apart from these variables indicating cognitive institutions, no other variable related significantly to TEA.

Regarding HJCE, the differences are more pronounced, indicating that regulatory, normative, and cognitive institutions impact is heterogenous, for HJCE, between the two types of countries. Cognitive results may be an evidence that in developing countries individuals may see themselves as more prepared and willing to start a new venture with high-growth aspirations, despite the stronger fear of failure in relation to developed countries. Normative results indicate a rougher environment for those willing to start high-growth new firms in developing countries (despite the societal recognition to the successful entrepreneurs).

Regarding the IR models, taxes and bureaucracy have an extraordinarily strong and significant relation to IR only in developing countries, which indicate that taxes and regulations are encouraging for SMEs in this type of countries. This is the only significant relationship between IR and regulatory variables; thus, we cannot argue that regulatory institutional effects are significantly different between the two types of countries. Concerning other variables, IR related positively to fear of failure rate, entrepreneurial intentions rate, and entrepreneurship as a good carrier choice (all significant relationships) and related negatively and significantly to high status to successful entrepreneurs, all in the developing countries sample. Regarding developed countries sample, there was no significant relationship at all to IR. These results indicate that cognitive and normative institutional effects are heterogeneous between the two sample of countries, in IR models.

Finally, concerning MI, taxes and bureaucracy associated positively at 5% to it in only developed countries, while perceived opportunities related positively and significantly to it in the two samples. MI results do not evidence that effects from any institutional dimensions are heterogeneous between the two samples of countries.

Table 2
Color-labeled groups comparison: developing and developed countries

	Developed	Developing	Developed	Developing	Developed	Developing	Developed	Developing		
	TEA	TEA	HJCE	HJCE	IR	IR	MI	MI		
Regulatory Institutions	Gvmt. Supp. and policies	0.021 (0.454)	-0.354 (0.855)	-2.207 -1.774	-2.620* -1.574	1.942 -1.864	-1.678 -2.020	-0.438 (0.664)	-0.178 (0.328)	
	Taxes and bureaucracy	0.365 (0.448)	-0.660 -1.039	-0.848 -1.754	2.460 -1.917	1.797 -2.301	7.114*** -2.570	1.913** (0.781)	0.243 (0.404)	
	Governmental programs	0.521 (0.643)	0.882 -1.255	2.650 -2.515	-1.696 -2.312	0.162 -3.247	-0.011 -3.147	1.410 -1.102	-0.590 (0.491)	
	Comm. and prof. infrastructure	-0.735 (0.597)	-1.382 -1.004	-2.293 -2.333	1.398 -1.849	4.230 -2.878	-1.926 -2.307	0.422 (0.999)	-0.132 (0.373)	
	Internal market openness	-0.565 (0.605)	0.048 -1.229	4.010* -2.380	-0.219 -2.263	4.316 -2.860	1.114 -2.849	-0.620 (0.984)	-0.596 (0.447)	
	Perceived capabilities	0.063*** (0.022)	0.137*** (0.032)	-0.175** (0.086)	0.129** (0.059)	-0.056 (0.148)	-0.025 (0.099)	-0.037 (0.046)	-0.014 (0.014)	
	Perceived opportunities	0.068*** (0.010)	0.014 (0.026)	0.031 (0.041)	-0.066 (0.048)	0.126 (0.076)	-0.015 (0.077)	0.065*** (0.023)	0.026** (0.012)	
	Fear of failure rate	0.016 (0.017)	-0.021 (0.027)	-0.164** (0.067)	0.155*** (0.051)	0.014 (0.106)	0.159** (0.072)	0.022 (0.034)	-0.018 (0.011)	
	Cognitive	Entrepreneurial intentions rate	0.175*** (0.022)	0.179*** (0.024)	0.008 (0.090)	0.207*** (0.045)	-0.055 (0.097)	0.205*** (0.068)	-0.020 (0.033)	-0.011 (0.010)
		Entr. as a good career choice	-0.012 (0.017)	0.001 (0.035)	0.245*** (0.068)	-0.131** (0.065)	-0.199 (0.151)	0.228** (0.095)	-0.055 (0.045)	-0.004 (0.015)
High status to succ. Entr.		-0.006 (0.016)	-0.040 (0.037)	-0.138** (0.065)	0.170** (0.068)	0.150 (0.173)	-0.192* (0.105)	0.078 (0.055)	0.010 (0.016)	
Normative	Cultural and social norms	0.674 (0.450)	0.736 (0.953)	-1.553 -1.767	-3.63*** -1.763	-1.465 -2.629	2.487 -2.407	-1.408 (0.914)	0.470 (0.378)	
	Color label		slight significant negative impact		strong significant negative impact		slight significant positive impact		strong significant positive impact	
								extraordinarily strong significant positive impact		

Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standards errors in parentheses. Fixed-effects estimations. Source: Own Authorship.

5.1 Hypothesis Validation

Based on our full sample TEA model, we found enough evidence to support H1, as the variables that indicate better cognitive institutions are positively associated to entrepreneurial activities. We found no evidence, however, to support H1a, as, overall, more variables related positively to TEA than to the three variables that indicate productive entrepreneurship. Finally, regarding H1b, we found some evidence to partially support it, as the positive impact of cognitive variables in both HJCE and IR models is higher in developing countries, indicating that cognitive institutional effects are heterogeneous for productive entrepreneurship among these two types of countries.

Also, we found not enough support for H2, as only cultural and social norms related positively to TEA out of three variables. Regarding H2a, we found no support to claim that normative institutional effects are maximized for productive entrepreneurship, as the only significant association between one variable and all three dependent variables indicating productive entrepreneurship, in full sample models, is a strongly negative association between cultural and social norms and HJCE at 10%. Lastly, we found evidence to partially support H2b, which states that the normative institutional effects are heterogeneous between developed and developing countries, as results in HJCE and IR models were mostly different between these two types of countries, indicating a more tough normative environment for productive entrepreneurship in developing countries.

Regarding the regulatory dimension, based on our full sample model, we found no evidence to support H3, as none of the regulatory variables associated positively to TEA. We also found not enough evidence to support H3a, which hypothesizes that the effects of regulatory institutions are maximized for productive entrepreneurship, even though two variables (taxes and bureaucracies and internal market openness) related positively and significantly to IR. We also found not enough support for H3b, which states that regulatory effects are heterogeneous among developed and developing countries, although there are some differences in specific variables, in specific models.

6. DISCUSSION

Firstly, none of the hypothesis that claimed that institutional quality would maximize productive entrepreneurship could be confirmed (H1a, H1b and H1c). This is an evidence that it is an enormous challenge to formulate politics for this type of entrepreneurship as it is only a minority of total entrepreneurship. To this extent, Shane (2009) alerted to the fact that encouraging entrepreneurship is a bad public policy, as the average entrepreneur is a self-employer with no high-growth aspirations. Moreover, it is important to emphasize the near-stochastic nature of productive entrepreneurship in macro analysis. In the present study, the coefficients of determination R^2 overall for all models with dependent variables that indicated productive entrepreneurship were below 31%. Additionally, it is important to state that a macroeconomic analysis has some limitations to explain individuals' behavior and intentions within countries, which could be better explored by other sources of data, as GEM does not provide them.

Secondly, the only hypothesis that could be confirmed is H1 (cognitive institutions positively affect TEA). This is consistent with previous studies, such as Díez-Martín *et al.* (2016) who found that the cognitive dimension influence on entrepreneurial activity is stronger than both the normative and regulatory ones. These results might also be an evidence that individuals' attributes exert a stronger impact on entrepreneurial activity than macroeconomic

policies, however, authors have been emphasizing the importance of an education that reinforces perceived capabilities (Bosma *et al.*, 2018), self-confidence and individuals' skills (Aparicio *et al.*, 2016) to achieve economic growth through encouraging entrepreneurship, especially opportunity entrepreneurship. Also, even though H2 and H3 could not be confirmed, regulatory results suggest some interesting insights for policymakers, as, in spite of policies in general being inefficient, lowering taxation for innovative or high-growth new ventures may be a worthy policy.

Thirdly, 10 out of the 11 significant and positive relationship between independent and dependent variables in developing countries came from informal institutions variables (normative and cognitive). Researchers have warned to the risk of formal institutional policies that may hinder cultural drivers of entrepreneurship, in this type of countries (Cullen *et al.*, 2014), due to the institutional incongruence (Fredström *et al.*, 2020), as informal institutions have more influence in OPP entrepreneurship in developing countries (Aparicio *et al.*, 2016). Therefore, our results, which were consistent to literature, emphasize that no other formal policies, apart from those that easy regulation and taxation for new SMEs, should be taken in developing countries (education is another exception).

Fourthly, literature consensus suggests that institutions are a primary cause of productive entrepreneurship, which, in turn, produces economic growth, however we should not discard the hypothesis that it is the economic development that serves as fuel for institutional improvement. Elert & Henrekson (2021) claim that this causality is bidirectional, as entrepreneurship is also a key factor to institutional change. One evidence of that is the case of China's recent economic growth (Su, 2020). Even in the NIE, some authors such as Glaeser *et al.* (2004) and Przeworski (2004) discuss that institutions might be either caused by economic growth or the relationship is bi-directional. Further research on the theme is necessary.

7. CONCLUSION

This study aimed to assess the impact of the CIP on the entrepreneurial activity of developed and developing countries. To accomplish our objectives, we applied panel data regression models using GEM data (APS and NES research) of 112 countries, from 2003 to 2019. Our results, which contribute to literature, indicate that the cognitive dimension influences positively on total entrepreneurship, while the normative and regulatory dimensions impact on the entrepreneurial activity could not be supported. Another contribution is our empirical evidence that institutional quality does not maximize productive entrepreneurship, drawing attention to the fact that macroeconomic policies for this matter are mostly inefficient, and policymakers should be looking only to specific effects, such as lowering taxation for innovative and high-growth SMEs. By comparing developing and developed countries results, we contribute to literature with evidence that institutional effects are partially heterogeneous among these countries, with informal institutions being more relevant for developing countries than formal ones.

Nonetheless, this study has some limitations. Firstly, the panel data of 112 countries is unbalanced, with unequal observations between countries from 2003 to 2019. Secondly, the use of a single source of data, the GEM, result in limitations coming from the nature of this data. The APS research, for instance, is a subjectivist source of data, and comparing this type of data among countries for institutions might bring differences between how an individual of a country views its institutions in comparison to an international expert, for instance (individuals might underrate or overrate their institutions because they do not have comparison basis). Even the NES research has some limitations as some large countries with different regions, ethnicities, nationalities, and so forth, might have two experts with completely different views of the countries' institutions. Thirdly, a macro analysis such as the one conducted by this study has some clear limitations in understanding cultural and individual behaviors within countries, on

a micro level, that could have some impact on both TEA and productive entrepreneurship. Moreover, it is likely that a lot of information was lost on the process of transforming something as intangible as institutions into objective indicators. Lastly, the lack of moderating variables such as venture capital availability, technological resources availability, and infrastructure, can result in some non-captured effects of institutions under specific conditions.

As recommendations for future research, we include: (1) exploiting a bi-directional relationship between institutions and entrepreneurship; (2) including other sources of data that could mitigate some limitations of the GEM data for specific variables or, even, some dimensions; (3) exploring individual and cultural drivers of productive entrepreneurship, on a micro level, by assessing different subjects that might impact on it, such as the antecedents of entrepreneurial intentions (Khursheed *et al.*, 2019), proactive/responsive market approach (Narver *et al.*, 2004), cognitive aspects, and cultural perceptions; (4) some qualitative research exploring what other issues are relevant to compose each institutional dimension, and what other dimensions are important in institutional studies; and (5) research in Education proposing and testing forms of courses that could develop some competences appointed by the present and former studies.

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