

# **INSTITUTIONS AND INTERNATIONAL ENTREPRENEURSHIP: THE ROLE OF REGULATORY, NORMATIVE AND COGNITIVE CONGRUENCE**

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## **ABSTRACT**

In this article we address the impacts of institutions (regulatory, normative and cognitive) on the country-aggregate propensity to engage in export-oriented entrepreneurship. Using a panel-data of 88 countries from 2006 to 2017, we estimated the direct and moderate effects of institutions on international entrepreneurship. Although a positive institutional environment effect on international entrepreneurial activity has been observed, the nature of this effect is not consistent across models and is especially concentrated in developed economies. These findings provide insights into the complexity of institutional conditions and their impacts on export-oriented entrepreneurship. Through a multidimensional approach, our research offers novel evidence in the context of entrepreneurial internationalization by analyzing the ‘institutional congruence’ hypothesis in the context of international entrepreneurship as an outcome. Indeed, we observed the lack of association between some institutional conditions and export-oriented entrepreneurship in developing economies. Key implications emerged regarding how to improve regulatory, cognitive, and normative conditions in business environments by considering the notion of institutional alignment (a central issue in integrating Global Value Chains).

**Keywords:** entrepreneurship; internationalization; institutions; export-oriented entrepreneurship.

**JEL Codes:** L26; M13; Q27

## 1. INTRODUCTION

Entrepreneurial activity, by means of creative destruction and renewal, has long been recognized as a potential source of economic growth, social welfare and wealth creation (Baumol, 1968; Dorfman, 1983; Kirzner, 1997; Beckman *et al.*, 2012). Because of the competitive capabilities often found in new ventures, this situation holds despite the small-scale outputs and reduced possibilities of achieving economies of scale in their early stages (Pavitt, Robson and Townsend, 1987; Acs *et al.*, 1997). Such dynamics are increasingly relevant in a context of globalized economic systems, in which entrepreneurial dynamism, flexibility, and motivation become key ingredients to unravel sustained developmental processes (Paul, Parthasarathy and Gupta, 2017).

But these conditions do not represent the reality of all small entrepreneurial firms. It is the type of activity undertaken by entrepreneurs that shape potential contributions towards socioeconomic systems (Bowen and De Clercq, 2008). In fact, policy approaches aiming at simply generating higher levels of start-up activity neglect that the majority of nascent ventures are not innovative, create few jobs and have meager impacts on wealth creation (Shane, 2009). Instead, focus should be oriented towards high quality entrepreneurs, i.e., those cases that possess innovative capabilities, high-growth aspirations and export orientation (Giotopoulos, Kontolaimou and Tsakanikas, 2017). Rather than distinct features, innovativeness, firm growth and international focus often stand for complementary characteristics of young businesses (Love and Roper, 2015).

In this article, our interest resides in export-oriented entrepreneurship, taking it as a measure of entrepreneurial quality. Prior literature provides support for this assumption, identifying that internationalized SMEs not only rely on existing innovative capabilities and productivity levels, but they also enhance these competences by competing and learning in different markets, as well as expanding scales of production (Di Gregorio, Musteen and Thomas, 2008; Golovko and Valentini, 2011; Amorós, Fernández and Tapia, 2012; Martínez-Zarzoso, Peluffo and Silva, 2018; Tabares *et al.*, 2021). Empirical evidence also supports this notion by identifying associations between firm-level export activity and knowledge intensity (Autio, Sapienza and Almeida, 2000), innovative capabilities (Love and Roper, 2015; Pickernell *et al.*, 2016; Exposito and Sanchis-Llopis, 2019), economic growth (González-Pernía and Peña-Legazkue, 2015) and opportunity-driven entrepreneurship (Mainela, Puhakka and Sipola, 2018).

Based on these arguments, export-oriented entrepreneurship can be understood as a desirable target for dedicated policies. However, setting the stage for appropriate conditions and incentives requires a thorough comprehension of how institutional contexts affect the behavior of nascent ventures, i.e., the existing constraints that structure politics, economic and social interactions in delimited countries or regions (North, 1991). Baumol (1996) was among the first to outline the effect of institutions and the structure of social benefits on the distribution of entrepreneurship between productive and unproductive activities. Ever since, researchers have paid attention to the systemic nature of entrepreneurship and how institutional conditions

influence forms and patterns of entrepreneurial behavior (Freytag and Thurik, 2007; Ács, Autio and Szerb, 2014; Levie *et al.*, 2014).

The interplay between international entrepreneurial activity and institutions (both formal and informal) has become increasingly relevant (Gao *et al.*, 2010; Reuber *et al.*, 2018; Tabares *et al.*, 2021). However, this debate remains open as the role of institutions as determinants of entrepreneurial activity has not yet been resolved. Consequently, further assessments on these matters are needed in order to reach clearer insights on the mechanisms through which institutions can foster high-quality, export-oriented entrepreneurial activity.

Drawing from this background, the goal of this article is to address the impacts of different kinds of institutions on the aggregate propensity of countries to engage in export-oriented entrepreneurship. We focus on different indicators representing regulatory, normative and cultural-cognitive institutional traits (Kostova and Roth, 2002) and the extent to which they are associated with different levels of incidence of internationalized new ventures. We take one step further from previous research by addressing the uncharted issue of combined (or interactive) effects of different institutional dimensions on international entrepreneurship. Such interactions have been termed as institutional congruence/incongruence, i.e., the level of alignment (or lack thereof) between institutional scopes towards generating coherent incentives for agents, where different institutional dimensions can either enable or constrain the effects of others (Yang, 2009; García-Cabrera, García-Soto and Durán-Herrera, 2016; Wilfahrt, 2018). This approach represents a novel contribution to literature, underscoring the interdependence among these elements – not only their direct effects – in shaping an economic environment conducive to the specific cohort of internationally-oriented entrepreneurs. This implies the need for entrepreneurship policies to achieve coordination among different institutional spheres in order to maximize its impacts.

The empirical exercise relies on data from the Global Entrepreneurship Monitor and the Global Governance Indicators from the World Bank, comprehending information for 88 countries in the period 2006-2017. Signs of direct impacts arising from institutional dimensions can be observed and, more importantly, institutional congruence between the regulatory, cognitive and normative dimensions appear to affect the prevalence and intensity of international entrepreneurship. However, these dynamics are confirmed solely for the case of developed countries, in spite of the fact that internationalization levels are similar among developed and developing economies. This situation might be explained by ‘hidden’ aspects related to qualitative differences in international entrepreneurship taking place in these countries. Key implications involve the notion that policies and reforms dedicated to improving the business environment in its regulatory, cognitive and normative fronts need to incorporate the view that dynamic interplays between these features can affect entrepreneurial internationalization. Thus, a fragmented focus on specific institutional dimensions can lead to inefficient outcomes. In turn, for the case of developing countries,

significant institutional improvements seem to be required in order to shift the systemic capabilities to shape incentives for entrepreneurs to explore global markets with competitive products and services.

After this introductory section, the article is structured as follows: Section 2 develops a literature review on the interplay between the institutional environment and entrepreneurial activity – with focus residing on the case of export-oriented entrepreneurship. A set of hypotheses is derived from the theoretical and empirical backgrounds. Section 3 presents sample and data details. Section 4 depicts the estimation strategies of econometric models. Section 5 describes empirical results. Section 6 discusses findings and implications according to prior literature and Section 7 concludes with final remarks and limitations of our assessment.

## 2. ENTREPRENEURSHIP, INTERNATIONALIZATION AND INSTITUTIONS

Entrepreneurial activity can be broadly defined as the actions of individuals to create and seek opportunities, assuming risks in uncertain economic environments (Baumol, 1996). More specific and operational definitions add to this perspective the features of innovation, venture creation, organizational growth, resource allocation and uniqueness (Hébert and Link, 1989; Gartner, 1990)<sup>1</sup>. Such conditions highlight the role played by entrepreneurial new ventures in contributing to economies' international competitiveness (Ferreira, Fernandes and Ratten, 2017). Hence, within the different characterizations of entrepreneurship, those cases with an international focus have increasingly attracted attention among academics and policymakers (Paul, Parthasarathy and Gupta, 2017).

These firms face an international economic environment that provides numerous opportunities for entrepreneurs to create value (Jafari-Sadeghi *et al.*, 2019), placing export activities as a key strategy to achieve superior performance (Golovko and Valentini, 2011). This is due to the potential internationalization has in leveraging firms' competitive advantages through exposure to diverse markets and competitive environments (Autio, 2017). As a result, internationally oriented entrepreneurship can be involved in continuous and dynamic innovative contexts, allowing small firms to become adaptable by constantly reconfiguring their products, services and processes (Teagarden and Schotter, 2013). Empirical evidence demonstrates that this situation ends up making internationalized firms more efficient and competitive than its domestically oriented peers (Bernard *et al.*, 2003).

But beyond firm-level possibilities and personal goals of individual entrepreneurs, the aggregate behavior of entrepreneurial endeavors is shaped by the economic, social and cultural contexts in which they are embedded (Radosevic and Yoruk, 2013; Muralidharan and Pathak, 2017). These external contingency

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<sup>1</sup>Interestingly, these insights are somewhat in contrast with the definition used by the Global Entrepreneurship Monitor (GEM) which takes entrepreneurship as “any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business” (Reynolds *et al.*, 1999, p. 3). These divergences, however, are commonly found in literature and represent the multidimensional character of entrepreneurial studies (Iversen *et al.*, 2007).

factors constitute organizations' environments, which can enable or constrain productive entrepreneurship (Baumol, 1996; Love and Roper, 2015; Acs *et al.*, 2018). This systemic nature of new ventures' exporting comprehends different levels of institutions that have effects on the types of opportunities pursued by individuals and companies (Mainela, Puhakka and Sipola, 2018).

## **2.1 Institutions and entrepreneurship**

According to North's Institutional Economics Theory (North, 1991), institutions are the limitations that structure politics, economic and social interactions. They basically consist in two types of restrictions: (i) institutions represent aspects related to culture, and (ii) they comprehend formal elements associated with the regulatory environment.

Throughout history, institutional actors have been conceived to create order. However, they gradually evolve along with the context in which they are embedded, ultimately defining the trajectory of economic change towards growth, stagnation, or decadence. Following similar conclusions, Baumol (1996) highlighted the role of institutions in shaping the incentives for entrepreneurial activity towards productive or unproductive activities. According to his reasoning, the supply of entrepreneurs can be taken as constant, but the content of their economic actions is affected by the structure of available incentives defined by institutional environments. In this vein, institutional arrangements end up shaping the conditions for business formation and the respective coordination structures, as well as individuals' proclivity towards engaging in starting new ventures (Baumol, 1996; Yeung, 2002; Baumol and Strom, 2007; Henrekson, 2007; Bruton, Ahlstrom and Li, 2010; Acs *et al.*, 2018).

Hence, countries' institutional conditions can either enable or constrain the economic behavior of individuals and firms (Meyer, 2001; Bjørnskov and Foss, 2008; Bowen and De Clercq, 2008; Boudreaux, 2014; Boudreaux, Nikolaev and Holcombe, 2018; Nikolaev, Boudreaux and Palich, 2018). If well-functioning institutions reduce firms' transaction costs, weak institutions act in the opposite direction (Djankov *et al.*, 2002; Klapper, Laeven and Rajan, 2006; Ho and Wong, 2007; van Stel, Storey and Thurik, 2007; Makhmadshoev, Ibeh and Crone, 2015). As a result, the dynamics of entrepreneurial activity largely differ among countries (Acs, Desai and Hessels, 2008a; Bowen and De Clercq, 2008; Reuber, Dimitratos and Kuivalainen, 2017).

Illustrating these conditions, Urbano *et al.* (2019) identify causality running from institutions to opportunity entrepreneurship, where the number of procedures to start a new business, private credit coverage, and access to communication have fundamental effects on entrepreneurial behavior. Young *et al.* (2018) make a case for risk and uncertainty conditions as elements of institutional influence on the types of endeavors chased by entrepreneurs. Angulo-Guerrero *et al.* (2017) attach importance to initiatives associated with economic liberalization in driving entrepreneurship, similar to the evidence provided by Levie and Aution (2011). Nikolaev *et al.* (2018) results follow a similar pattern, putting emphasis on issues

related to monetary policy, business and investment freedom and lower levels of corruption. Estrin *et al.* (2013) also find negative impacts arising from corruption, as well as weakness of property rights, suggesting that strong governance is key in fostering growth-oriented entrepreneurship. On the adverse effects of corruption on entrepreneurial activity, also see Bowen and De Clercq (2008) and Wu and Liang (2012)<sup>2</sup>.

Wennekers *et al.* (2002) complements these conditions by expanding the formal notion of institutions to include technological capabilities of countries, levels of economic development and predominant cultural traits. Bowen and De Clercq (2008) include the focus on financial and educational backgrounds of entrepreneurial ecosystems. Dileo and García Pereiro (2019) add the perspective on the role played by fiscal systems in shaping an appropriate institutional environment for entrepreneurs. Welter and Smallbone (2011) highlight challenges faced by emerging and transition economies that are embedded in uncertain, ambiguous, and turbulent institutional frameworks, a condition that generates institutional voids.

### 2.1.2 Different Institutional Scopes

What becomes clear for the purposes of our debate is that firms' strategic choices in terms of export orientation seem to be largely influenced by institutional settings (Dickson and Weaver, 2008; Peng *et al.*, 2009). However, literature has long shown that institutions are not a one-dimensional concept.

While policymakers' focus usually relies on the associations between formal institutions and the generation of entrepreneurial activities, informal frameworks have a central role to play in these ecosystems (Stephan and Uhlaner, 2010). This happens because formal aspects of the institutional environment are more manageable from the policymaking standpoint, even though they only stand for basic framework conditions affecting potential entrepreneurs (Freytag and Thurik, 2007). Instead, other institutional aspects that are much more rooted in the way societies' function ought to be included in this discussion.

Scott (1995) proposes a classification that involves three complementary layers of institutions which comprehend the basic propositions set out by North (1991). First, the *regulatory dimension*, comprehending laws, rules and policies that incentivize or restrict certain behaviors. Second, the *cultural-cognitive dimension*, which encompass aspects related to knowledge and skills. Third, the *normative dimension* as an institutional layer referring to culture and informal social norms and values (for instance, media attention for new businesses).

This analytical framework has been adopted by researchers interested in the relationships between institutional dynamics and entrepreneurial activity (Kostova and Roth, 2002; Spencer and Gómez, 2004; Simón-Moya, Revuelto-Taboada and Guerrero, 2014; Urban, 2019; Guerrero *et al.*, 2021). Their works suggest that the three dimensions have impacts on the behavior of individuals towards entrepreneurship.

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<sup>2</sup> Interestingly, Wu and Liang (2012) find a U-shaped relationship between corruption and total entrepreneurial activity, where extremely corrupted and extremely transparent countries demonstrated higher levels of entrepreneurship.

De Clercq *et al.* (2010) use a similar framework but including institutional dimensions as moderators of the impacts of social ties on new business creation. Their findings indicate a substitution effect between institutions and social cohesion. In turn, Spence and Gómez (2004) underscore the connection between normative institutions and basic forms of entrepreneurship, although no relationship was found with more qualified entrepreneurial activity. Instead, cognitive and regulatory institutions seem to better explain the prevalence of growth-oriented entrepreneurs.

## **2.2 Institutions and International Entrepreneurship**

Typically, institutional quality tends to be associated with higher levels of international trade, as a function of the improved business ecosystem available to companies (Dollar and Kraay, 2003). In terms of entrepreneurial internationalization, an inadequate institutional context can hamper firm entry, also representing additional costs for exporters and reducing overall competitiveness (Anderson and Marcouiller, 2002; Faruq, 2011; Chen, Saarenketo and Puumalainen, 2016; Zhang, Gao and Cho, 2017). As discussed, this goes beyond the formal aspects attached to regulatory institutions. Normative and cognitive institutions are also expected to affect the internationalization propensity of entrepreneurial firms (Li, 2018). Accordingly, the existence of institutional voids can enable or constrain the extent to which nascent ventures are internationally oriented (Tabares *et al.*, 2021). Hence, our first hypotheses is based on the notion that institutional dimensions (regulatory, normative and cognitive) shape organizational behavior and capabilities to enter global markets:

***H1. Institutional quality (regulatory, normative and cognitive) affects the prevalence of export-oriented entrepreneurship in countries.***

Notwithstanding, this view offers only a partial notion of the underlying connections between the institutional framework and the behavior of entrepreneurs. Institutions should not be expected to function as isolated blocks. Instead, alignment among different institutional scopes is a pivotal feature in offering coherent incentives and conditions for entrepreneurs to operate (North, 1990; Fredström, Peltonen and Wincent, 2021). This perspective includes the notion of interaction among institutional dimensions in shaping socioeconomic behavior (Amable, 2000). When such conditions lead to institutional congruence, incentives and conditions for expected behavior complement each other, a feature known as institutional congruence (Yang, 2009). Alternatively, when there is no convergence in the pillars of the institutional framework, conflicts arise and compromise the capacity of institutions to generate effective impacts in the behavior of agents (Wilfahrt, 2018). In this regard, prior literature has shown that positive institutional effects on entrepreneurial activity are contingent upon the alignment of informal and formal institutions (Ghura, Li and Harraf, 2017). However, despite the importance of the moderating effects amongst

institutions, remains a conspicuous gap of studies contributing to this topic when it comes to entrepreneurship assessments (Ghura, Li and Harraf, 2017).

What is known so far is that the cognitive dimension appears to moderate the relationship of other institutional influences on entrepreneurial activity (Dheer, 2017). In turn, national culture and societal attitudes (normative pillars) shape the extent to which regulatory aspects influence the individual decision to allocate entrepreneurial talent (Fuentelsaz, González and Maicas, 2019; Lee *et al.*, 2020). García-Cabrera *et al.* (2016) highlighted the importance of institutional congruence in internationalization processes of new firms, i.e., the complex interaction effects that may take place in this process. If structural conflicts arise in the institutional interplay involving regulatory, normative and cognitive dimensions, systemic effects can become inefficient in driving individuals and firms towards the expected conduct (Cantwell, Dunning and Lundan, 2010; Szyliowicz and Galvin, 2010). For this reason, Jackson and Deeg (2008) observe the limitations in solely relying on insulating the analysis of each institutional dimension. Thus, these complex institutional interplays still require further attention from literature. Following these reasonings, our second hypothesis is proposed:

***H2. There are moderation effects when analyzing the relationship between Institutional Dimensions (regulatory, normative and cognitive) and the prevalence of export-oriented entrepreneurship in countries.***

***H2.a Congruence among regulatory and normative dimensions increase the strength of association between institutions and international entrepreneurship.***

***H2.b Congruence among regulatory and cognitive dimensions increase the strength of association between institutions and international entrepreneurship.***

***H2.c Congruence among normative and cognitive dimensions increase the strength of association between institutions and international entrepreneurship.***

### **3. SAMPLE AND DATA**

The sample of countries used in our empirical analysis relies primarily on data availability of national-level results from the Global Entrepreneurship Monitor (GEM). GEM is the most comprehensive dataset focusing on entrepreneurial activity worldwide, also offering the possibility of establishing cross-country comparisons and accounting for framework conditions that shape entrepreneurial contexts. This offers the possibility of addressing relevant questions for entrepreneurial practice and policy (Bergmann, Mueller and Schrettle, 2014; Levie *et al.*, 2014). Moreover, cultural traits, institutional conditions, and power relationships among economic agents can be deemed as country-specific, justifying our interest to address such conditions from a country-level perspective (Autio, 2017). GEM data has a long tradition as a source for information on the analysis of the determinants of entrepreneurial activity (Acs, Desai and Hessels, 2008b; Levie and Autio, 2008). Its richness of data has allowed researchers to address entrepreneurial

dynamics from myriad perspectives, including the effects of institutions on new venture formation (Audretsch *et al.*, 2022; Sendra-Pons, Comeig and Mas-Tur, 2022), entrepreneurial intentions (Junaid, He and Afzal, 2022), growth aspirations (Estrin, Korosteleva and Mickiewicz, 2013), and entrepreneurial internationalization in specific contexts (Arafat *et al.*, 2022). These examples – a few among the many studies using GEM - demonstrate the relevance of this dataset for assessments looking into processual features of National Systems of Entrepreneurship.

Our analysis uses data for the period 2006-2017<sup>3</sup>. From the whole sample of countries in GEM datasets, 88 countries (44 developed and 44 developing<sup>4</sup>) were included in our analysis, respecting a minimum of at least three observations per country into consideration for the analysis in order to allow including a minimum level of temporal dynamics for each observation in the panel. In addition, we complement variable from GEM with World bank variables. The list of countries is included in Appendix II. The analytical separation between developed and developing countries is expected to provide relevant information for our methodological strategy as investigated relationships between variables can demonstrate differences when comparing economies in different stages of development (Welter and Smallbone, 2011; Boudreaux and Caudill, 2019).

We address the dynamics of international entrepreneurship through four variables. First, *International Entrepreneurship* (IE) comprises information on the prevalence of export-oriented entrepreneurship (more than 50% of customers abroad) among the population of individuals in a given country (ages 18-64). Second, we identify the intensity of international orientation amongst entrepreneurs (i.e., within TEA – Total Entrepreneurial Activity). For that, we use a classification (*low, moderate and high*) similar to those found in prior literature (González-Pernía and Peña-Legazkue, 2015).

We address institutional features in three different levels: regulatory, cognitive and normative frameworks. Different specifications have been used in order to obtain a robust picture of associations. The *regulatory dimension* involves indicators of regulatory quality and government effectiveness from the World Bank Global Governance Indicators (Kaufmann, Kraay and Mastruzzi, 2003) and aspects related to entrepreneurship support policies. The *cognitive dimension* was addressed with perceptions on the entrepreneurial skills and training available at the country-level. The *normative dimension* comprises information on the status of entrepreneurs, views on entrepreneurship as a desirable career choice, media attention to entrepreneurial activity and prevalence of social norms that promote individuals to be involved in business endeavors.

A set of control variables is also introduced in our analysis. GDP per capita, a proxy for levels of income in markets that affects both the supply of entrepreneurs and the demand for entrepreneurial

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<sup>3</sup> Latest year available for GEM full datasets at the time this research was conducted.

<sup>4</sup> Developed countries are classified according to the list of high-income economies from the World Bank. Countries below this level are classified as developing economies.

undertakings (Boudreaux and Caudill, 2019; Jiang *et al.*, 2020). R&D for SMEs gathers information on the extent to which entrepreneurial activity is affected by the technological dynamics in a given economy – a typical driver of export-orientation in entrepreneurial ventures (Exposito and Sanchis-Llopis, 2019). Exports provides us with a measure for established businesses international operations, offering a proxy for internationalization proclivity of countries' economic systems (Belderbos *et al.*, 2016). Last, we add variables related to business support services for SMEs (soft infrastructure) and quality of infrastructure for business operations (hard infrastructure), as these elements are likely to affect the dynamics of entrepreneurial activity in markets (Dionisio, Inácio Júnior and Fischer, 2021; Tabares *et al.*, 2021). The full description of variables is presented in Table 1 and summary statistics can be found in Appendix I.

**[Table 1 about here]**

#### 4. ESTIMATION STRATEGY

Our estimation strategy is based on an entrepreneurial propensity function (Acs *et al.*, 2018). To operationalize institutional dimensions, we have grouped individual variables into representative factors that allow streamlining our analytical process. This procedure is particularly useful in the context of testing moderating features in the model while maintaining it parsimonious. Principal Component Analysis techniques were applied, and we ran Bartlett's sphericity tests to check for consistency in resulting factors. The structure of factors is outlined in Table 2.

**[Table 2 about here]**

The first analytical model (Equation 1) offers a simplified approach to our research goal, assessing direct impacts arising from regulatory, cognitive and normative institutions on the four measures of international entrepreneurship.

$$IE_{it} = \beta_0 + \beta_1 \text{Regulatory Dimension}_{it} + \beta_2 \text{Cognitive Dimension}_{it} + \beta_3 \text{Normative Dimension}_{it} + \beta_k (\text{Controls}_{it})$$

**Equation 1**

Where subscripts "i" refer to countries and "t" to years included in the sample. The control vector includes the variables Exports, GDP per capita, R&D for SMEs, Hard Infrastructure and Soft Infrastructure. While this equation is sufficient to address the direct association between institutional dimensions and the prevalence of international entrepreneurship in the sample, our second hypothesis requires the insertion of moderation effects. Hence, our second equation builds on the simplified model and adds multiplicative interaction terms to assess the interplay among distinct institutional features.

$$IE_{it} = \beta_0 + \beta_1 \text{Regulatory Dimension}_{it} + \beta_2 \text{Cognitive Dimension}_{it} + \beta_3 \text{Normative Dimension}_{it} + \beta_4 \text{Regulatory Dimension}_{it} * \text{Normative Dimension}_{it} + \beta_5 \text{Regulatory Dimension}_{it} * \text{Cognitive Dimension}_{it} + \beta_6 \text{Cognitive Dimension}_{it} * \text{Normative Dimension}_{it} + \beta_7 (\text{Controls}_{it})$$

**Equation 2**

Operational elements of equation remain unaltered. Both equations are applied to the full sample of countries and separately for developing and developed countries. This approach allows a better comprehension of the institutional mechanisms at play when different contexts are analyzed (Welter and Smallbone, 2011; Boudreaux and Caudill, 2019).

Estimations are undertaken with the application of Generalized Estimating Equations (population average model) for panel data, allowing to handle unmeasured dependence in countries' outcomes. An exchangeable correlation structure is applied, taking into account the relatively short timespan included in our analysis<sup>5</sup>. Variables are included in estimations using their respective standardized scores (Z scores) to harmonize coefficients.

## 5. EMPIRICAL ANALYSIS

Results obtained from the panel data estimations for the full sample are presented in Table 3. Following our estimation strategy, we first address only direct effects associated with institutional dimensions on our four measures of international entrepreneurship. The regulatory dimension appears to be associated only with the cohort of low-intensity internationalization (IE Low, i.e., up to 25% customers abroad). In turn, the cognitive dimension is positively associated with the overall prevalence of international entrepreneurs in the population (IE) and negatively related to high-intensity exporters (IE High, i.e., 76-100% customers abroad). This means that countries where people perceive stronger entrepreneurial skills and high levels of training availability for entrepreneurs are actually less engaged in producing entrepreneurial firms which are essentially oriented to external markets. The normative dimension appears to offer only marginal positive contributions to the prevalence of international entrepreneurs (IE).

On the other hand, once we analyze the patterns of interaction among institutional dimensions, some interesting insights emerge. First, while the regulatory dimension does not show any significant effect on the prevalence of international entrepreneurship, it does enhance significantly the impacts arising from the normative and cognitive dimensions. Hence, while formal regulations may have negligible *direct* impacts on the generation of export-oriented oriented entrepreneurship, its combined effects along with cognitive and normative aspects. This situation also holds for the interaction with the normative dimension for the case of high-intensity international entrepreneurship, along with a positive interaction between normative and cognitive dimensions. These initial results grant partial acceptance for H1 and H2 when addressing the

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<sup>5</sup> This is especially relevant considering we have an unbalanced panel due to GEM data collection for each country/year.

full sample. As per controls, the overall levels of export-orientation are consistently associated with international entrepreneurship. Higher levels of GDP per capita are mostly positively related to dependent variables. Infrastructure (hard and soft) indicators do not present any significant relationship and the availability of R&D for SMEs has only a marginal positive association with high-intensity exports in the full model.

**[Table 3 about here]**

We now turn our attention to the differential dynamics taking place in developed and developing economies (Tables 4 and 5). Following recent findings by Boudreaux and Caudill (2019), the associations between institutional dimensions and entrepreneurial activity are heterogeneous among these groups of countries – and this is also the case in our analysis. As it can be observed, while some direct effects (although weak) are attached to institutional dimensions are perceived for developed economies, no such signs emerge for developing countries. Yet, cognitive institutions are again related to some negative effects for the former group, an event that takes place for both low- and high-intensity international entrepreneurship.

For the case of combined effects, positive associations – as indications of institutional congruence – arise for developed countries, but these are only positive when involving the interplay between the regulatory dimension with its cognitive and normative counterparts. In turn, some signs of institutional conflict (negative sign) can be observed for the interplay between cognitive and normative dimensions in the case of low- and moderate-intensity international entrepreneurship. When addressing these moderating effects in developing countries, however, most of these associations vanish and slightly significant positive results were only sustained for the interaction between the regulatory and normative dimension (for moderate-intensity IE), and cognitive and normative dimension (for high-intensity IE). These are relevant indications not only on the complexity involving the relationship between institutional frameworks (both formal and informal) and entrepreneurial activity with an international orientation. These results confirm partially our second hypothesis. These findings are now discussed in light of prior literature.

**[Table 4 about here]**

**[Table 5 about here]**

## **6. DISCUSSION AND IMPLICATIONS**

Our hypotheses have partial acceptance from data analysis. First, while the three different institutional scopes analyzed – regulatory, cognitive and normative – have been associated with increases in

international activity in entrepreneurs, findings did not offer a robust argument in favor of clear effects. More interestingly, some signs of moderation among institutional dimensions have emerged, particularly concerning interplays between regulatory and cognitive, and regulatory and normative dimensions. Yet, these effects are concentrated in developed economies, suggesting that our take on the institutional dynamics in developing economies fails to grasp what is going on in these countries. This can be interpreted as a representation of the difficulty in properly addressing the relevant elements that compose this complex socioeconomic infrastructure. In sum, partial acceptance of our two research hypotheses is granted for the case of developed nations, but these expectations did not hold significantly for developing economies.

First, the regulatory dimension is associated with significant positive effects solely for the case of IE Low (up to 25% of customers abroad). Nonetheless, while this result is valid for the full sample, a weaker association has been found for developed economies and no significant outcomes were observed for developing countries. These findings outline the limitations in perceiving formal regulations alone as conduits to drive entrepreneurial internationalization. This is in line with recent literature that identifies mixed impacts arising from regulatory frameworks on the propensity of entrepreneurs to seek foreign markets (Chowdhury and Audretsch, 2021). Second, direct results for the cognitive dimension offer conflicting results. While weak positive effects could be observed for IE prevalence among the population, its effects are negative when addressing high-intensity internationalization. Again, differences emerge when comparing developed and developing economies, since no significant coefficients could be observed for the latter. Third, normative dimensions are associated with higher incidence of international entrepreneurship, but this holds mostly for developed markets. Taken together, these results are somewhat in line with those of Stenholm et al. (2013) who analyze institutional effects on entrepreneurial activity and aspirations. Using GEM data from 63 countries (2008) they also found scant relationships amongst normative and cognitive dimensions – although the regulatory environment seemed to affect entrepreneurial entry rates.

Beyond these direct associations between institutional dimensions and international entrepreneurship our analysis has dedicated attention to the interplay among the different kinds of institutions. This perspective follows the reasoning that institutional environments are not monolithic, and that misalignments between regulatory, cognitive and normative aspects may end up impairing each other's impacts (Scott, 2004). In turn, such institutional incongruences can lead to negative results in terms of entrepreneurial activity (Fredström, Peltonen and Wincent, 2021). In this regard, our empirical findings have added novel evidence to the literature on institutional determinants of international entrepreneurship. Overall results highlighted the significance of combined effects between institutional dimensions with particular emphasis for the case of international entrepreneurship prevalence in the population and high-intensity international entrepreneurship (76-100% customers abroad). Results are noteworthy for the interactions taking place between the regulatory dimension (a typical representation of formal institutions)

and the cognitive and normative dimensions. Interestingly, some signs of negative moderation in the interaction between cognitive and normative dimensions were observed for developed countries.

While some of these results could be observed for the entire sample, statistical associations were much stronger for the specific case of developed economies, thus repeating the previously observed trends. A plausible explanation for the differences observed in developed and developing economies can be related to the distinct patterns of trade that take place in these countries (Hidalgo *et al.*, 2007; Koch and Schwarzbauer, 2021). While international entrepreneurs from advanced markets shall rely on high value-added participation in global value chains, exporters from developing markets are likely to engage in more passive forms of internationalization, i.e., based on outsourcing strategies attached to efficiency gains from importers. The fact that the variable R&D for SMEs is related to more intense internationalization for the sample of developed countries but not for developing markets adds evidence in favor of this proposition. If this is the case, then domestic institutions indeed might have a lesser role in driving entrepreneurs from laggard economies to seek foreign markets. This issue warrants further research on the relationship between institutional conditions and the *content* of international entrepreneurship.

Another issue of interest in this debate concerns the existence of institutional voids. On the one hand, such situations are representative of fragile and dysfunctional institutions and they are often attached to negative effects on entrepreneurial competitiveness (Webb, Khoury and Hitt, 2020). On the other hand, they may also pose opportunities for entrepreneurs (Khanna and Palepu, 2006; Tracey and Phillips, 2011; Doh *et al.*, 2017), as it has been observed in especially Latin American countries (Chen, Saarenketo and Puumalainen, 2016). Assertions concerning institutional voids as sources of opportunities are in line with the view that entrepreneurs often possess substantial adaptative capabilities (Eshima and Anderson, 2017). If these conditions hold to a significant extent, then associations between export-oriented entrepreneurship and institutional quality can become blurry. Also, we must consider that individuals with heterogeneous backgrounds are likely to react differently to institutional conditions (Helmchen, 2020). That means that any way of thinking about the relationship between institutional drivers and entrepreneurial action in a linear fashion is bound to offer limited insights on this complex interplay. Hence, although our assessment has raised novel and important issues in this field, more research is still needed to derive precise implications for policy.

Such conditions underscore the challenges for policymakers in designing and reforming institutional traits that favor new ventures' orientation towards foreign markets – and the aggregate economic gains that come with it (Urbano *et al.*, 2019). Creating an environment conducive to the internationalization of small firms should be a pivotal goal for governments (Acs *et al.*, 1997), but detecting the proper ways to do it can be tricky, requiring complex adaptive approaches (Bosma *et al.*, 2018). As our results demonstrate, directly transposing lessons from advanced economies to developing markets can offer inefficient impacts –

considering the heterogeneous nature of how these distinct socioeconomic backgrounds operate (Inacio Junior *et al.*, 2021).

While seemingly straightforward solutions are often proposed, we must understand that institutional settings take long periods to mature into cultural practices that affect entrepreneurial behavior (Autio, Pathak and Wennberg, 2013). Also, while governmental entities might have some control over regulatory institutions, their capacity of molding normative and cognitive dimensions are limited, particularly in the short run (Acs, Desai and Hessels, 2008a; Su, 2020; Li *et al.*, 2021). Since the combined effects of distinct institutional dimensions seem to play a critical role in shaping the conditions for international entrepreneurship, establishing a proper alignment between these complementary perspectives should become a priority for entrepreneurship policy (although a rather challenging one).

## **7. CONCLUDING REMARKS**

The role of institutions in shaping the underlying conditions for entrepreneurial activity has a long-standing tradition. The ways through which the ‘rules of the game’ influence the content of products and services offered by new ventures has been a subject of attention since the seminal contributions of Baumol (1996). Interest in this subject has increased thanks to the systematic collection, organization and dissemination of data dealing with entrepreneurial behavior and the associated framework conditions. The Global Entrepreneurship Monitor has been a powerful tool for analyses in this field.

Following this trajectory, our research has addressed relationships between three institutional dimensions (regulatory, normative and cognitive)- as well as their interplay - and patterns of export-oriented entrepreneurship. Beyond some signs of direct positive associations between institutional quality and international entrepreneurship, our findings underscore the existence of complementarity in the interaction between institutional dimensions. This situation underscores the complexity involved in assessing institutional drivers. Such conditions pose relevant implications for policymaking as the intentional manipulation of specific institutional attributes may not render the expected results. Furthermore, fundamentally different relationships seem to take place according to the level of development of economic systems, indicating the presence of non-linear dynamics concerning institutional environments. In fact, what our empirical contributions reveal is that institutional reforms oriented at fostering high-impact entrepreneurship (of which internationalized new firms is an example) is a rather complex matter that requires multidimensional congruence among institutional pillars. The main challenge in this case is that not only institutions are sticky, but they are often social manifestations that are not under the direct influence of policies.

Further research is still needed to refine this debate. We believe this involves future assessments dealing with both qualitative and quantitative appreciations of institutional phenomena and its connections to international entrepreneurship. Such approaches should also address different contexts and analytical units

(countries, regions, ecosystems and individuals). This is a promising field of research considering the systemic benefits that may accrue from stronger exporting activity in entrepreneurs. As per our results, solutions for this puzzle are far from straightforward.

It should be noted that our research does not go without limitations. A first issue concerns the subjective nature of data from GEM, collected via questionnaires. Individuals' perceptions on institutional conditions may vary due to several background elements and this may affect the alignment of available data and the actual institutional environment. In a similar vein, we do not rule out issues of institutional measurement that can be affecting our results. These methodological challenges are recognized in literature (Frericks, Höppner and Och, 2018), particularly for informal institutions (Voigt, 2018). Last, while we have applied multiple institutional measures, we acknowledge that these variables unveil only the tip of a complex foundation of socioeconomic structures.

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## Tables and Figures

**Table 1. Analytical Variables**

| Variable                          | Description                                                                                                                                                                                                                                                                                                                            | Source                              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| International entrepreneurship    | Percentage of the 18-64 population who is involved with entrepreneurship and who possess more than 50% customers abroad                                                                                                                                                                                                                | GEM Adult Population Survey         |
| IE low                            | Percentage of entrepreneurs who possess 1-25% of customers abroad                                                                                                                                                                                                                                                                      |                                     |
| IE moderate                       | Percentage of entrepreneurs who possess 26-75% of customers abroad                                                                                                                                                                                                                                                                     |                                     |
| IE high                           | Percentage of entrepreneurs who possess 76-100% of customers abroad                                                                                                                                                                                                                                                                    |                                     |
| Regulatory Quality                | Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Data in their standard normal units, ranging from -2.5 to 2.5                                                                                                               | The Worldwide Governance Indicators |
| Government Effectiveness          | Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Data in their standard normal units, ranging from -2.5 to 2.5. |                                     |
| Policies 1                        | The extent to which public policies support entrepreneurship - entrepreneurship as a relevant economic issue                                                                                                                                                                                                                           | GEM National Expert Survey          |
| Policies 2                        | The extent to which public policies support entrepreneurship - taxes or regulations are either size-neutral or encourage new and SMEs                                                                                                                                                                                                  | GEM National Expert Survey          |
| Entrepreneurial skills            | Percentage of the 18-64 population who agree that he/she has required knowledge/skills to start business                                                                                                                                                                                                                               | GEM Adult Population Survey         |
| Entrepreneurial training          | The extent to which training in creating or managing SMEs is incorporated within the education and training system in higher education such as vocational, college, business schools, etc.                                                                                                                                             | GEM National Expert Survey          |
| High status to entrepreneurs      | Percentage of 18-64 population who agree with the statement that in their country, successful entrepreneurs receive high status                                                                                                                                                                                                        | GEM Adult Population Survey         |
| Entrepreneurship as career choice | Percentage of 18-64 population who agree with the statement that in their country, most people consider starting a business as a desirable career choice                                                                                                                                                                               |                                     |
| Media attention                   | Percentage of the 18-64 population who agree that in their country there is lots of media attention for entrepreneurship                                                                                                                                                                                                               |                                     |
| Social norms                      | The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income                                                                                                                                                        | GEM National Expert Survey          |
| Exports                           | Exports of goods and services (% of GDP)                                                                                                                                                                                                                                                                                               | World Bank                          |
| GDP per capita                    | GDP per capita, PPP (current international \$)                                                                                                                                                                                                                                                                                         | World Bank                          |
| R&D for SMEs                      | The extent to which national research and development will lead to new commercial opportunities and is available to SMEs                                                                                                                                                                                                               | GEM National Expert Survey          |
| Soft Infrastructure               | The presence of property rights, commercial, accounting and other legal and assessment services and institutions that support or promote SMEs. Based on the aggregate perception of experts using a 9-point Likert scale.                                                                                                              | GEM National Expert Survey          |
| Hard Infrastructure               | Ease of access to physical resources, communication, utilities, transportation, land or space at a price that does not discriminate against SMEs.                                                                                                                                                                                      | GEM National Expert Survey          |

**Table 2. Institutional Factors**

| <b>Factor</b>        | <b>Variables</b>                  | <b>Loading</b> | <b>Summary</b>                                                                                |
|----------------------|-----------------------------------|----------------|-----------------------------------------------------------------------------------------------|
| Regulatory Dimension | Regulatory Quality                | .862           | PCA. Bartlett's sphericity test significant at 1%. Cumulative variance explained: 67.35%      |
|                      | Government Effectiveness          | .900           |                                                                                               |
|                      | Policies 1                        | .706           |                                                                                               |
| Cognitive Dimension  | Policies 2                        | .802           | PCA. Bartlett's sphericity test significant at with 5%. Cumulative variance explained: 54.43% |
|                      | Entrepreneurial skills            | .738           |                                                                                               |
|                      | Entrepreneurial training          | .738           |                                                                                               |
| Normative Dimension  | High status to entrepreneurs      | .745           | PCA. Bartlett's sphericity test significant at 1%. Cumulative variance explained: 47.93%      |
|                      | Entrepreneurship as career choice | .665           |                                                                                               |
|                      | Media attention                   | .791           |                                                                                               |
|                      | Social norms                      | .542           |                                                                                               |

**Table 3. Estimations (Full Sample)**

|                      | <b>IE</b>       | <b>IE Low</b>   | <b>IE Moderate</b> | <b>IE High</b>  | <b>IE</b>       | <b>IE Low</b>   | <b>IE Moderate</b> | <b>IE High</b>  |
|----------------------|-----------------|-----------------|--------------------|-----------------|-----------------|-----------------|--------------------|-----------------|
| Exports              | 0.273[0.075]*** | 0.025[0.077]    | 0.228[0.076]***    | 0.435[0.079]*** | 0.295[0.073]*** | 0.030[0.076]    | 0.234[0.075]***    | 0.443[0.077]*** |
| GDP per capita       | 0.264[0.089]*** | 0.164[0.086]*   | 0.292[0.085]***    | -0.010[0.089]   | 0.238[0.087]*** | 0.156[0.086]*   | 0.287[0.084]***    | -0.015[0.087]   |
| Soft Infrastructure  | -0.062[0.055]   | 0.026[0.048]    | 0.037[0.046]       | -0.038[0.050]   | -0.057[0.054]   | 0.028[0.048]    | 0.041[0.046]       | -0.031[0.049]   |
| Hard Infrastructure  | -0.062[0.057]   | -0.027[0.051]   | -0.038[0.049]      | 0.013[0.053]    | -0.067[0.056]   | -0.027[0.051]   | -0.041[0.049]      | 0.007[0.052]    |
| R&D for SMEs         | -0.102[0.068]   | -0.045[0.060]   | 0.034[0.058]       | 0.093[0.062]    | -0.105[0.068]   | -0.048[0.060]   | 0.029[0.058]       | 0.103[0.062]*   |
| Regulatory dimension | 0.093[0.088]    | 0.263[0.081]*** | 0.020[0.078]       | 0.135[0.083]    | 0.086[0.086]    | 0.258[0.081]*** | 0.013[0.078]       | 0.117[0.082]    |
| Cognitive dimension  | 0.095[0.056]*   | -0.060[0.052]   | -0.042[0.050]      | -0.132[0.053]** | 0.124[0.056]**  | -0.050[0.052]   | -0.027[0.050]      | -0.112[0.053]** |
| Normative dimension  | 0.091[0.052]*   | -0.072[0.046]   | -0.010[0.045]      | -0.016[0.048]   | 0.098[0.051]*   | -0.068[0.046]   | -0.006[0.045]      | -0.015[0.048]   |
| Regulatory*Cognitive |                 |                 |                    |                 | 0.111[0.049]**  | 0.040[0.045]    | 0.065[0.043]       | 0.054[0.046]    |
| Regulatory*Normative |                 |                 |                    |                 | 0.130[0.052]**  | 0.036[0.046]    | 0.047[0.045]       | 0.132[0.047]*** |
| Cognitive*Normative  |                 |                 |                    |                 | 0.047[0.039]    | -0.019[0.035]   | -0.001[0.034]      | 0.075[0.036]**  |
| const.               | 0.001[0.067]    | -0.035[0.073]   | -0.026[0.074]      | 0.003[0.075]    | 0.016[0.068]    | -0.013[0.075]   | -0.006[0.074]      | -0.004[0.074]   |
| N                    | 544             | 553             | 553                | 553             | 544             | 553             | 553                | 553             |
| Wald chi sq.         | 50.85***        | 42.41***        | 54.72***           | 78.15***        | 71.40***        | 45.34***        | 62.16***           | 99.00***        |

**Table 4. Estimations (Developed Countries)**

|                      | IE              | IE Low         | IE Moderate     | IE High         | IE              | IE Low           | IE Moderate     | IE High          |
|----------------------|-----------------|----------------|-----------------|-----------------|-----------------|------------------|-----------------|------------------|
| Exports              | 0.353[0.082]*** | 0.058[0.090]   | 0.294[0.082]*** | 0.560[0.098]*** | 0.356[0.082]*** | 0.052[0.085]     | 0.291[0.081]*** | 0.553[0.095]***  |
| GDP per capita       | 0.078[0.107]    | 0.034[0.108]   | 0.217[0.104]**  | -0.290[0.121]** | 0.028[0.106]    | 0.019[0.103]     | 0.192[0.103]*   | -0.310[0.117]*** |
| Soft Infrastructure  | -0.134[0.075]*  | -0.01[0.069]   | -0.033[0.069]   | -0.184[0.078]** | -0.146[0.072]** | -0.020[0.066]    | -0.044[0.069]   | -0.177[0.076]**  |
| Hard Infrastructure  | 0.104[0.081]    | -0.021[0.074]  | -0.021[0.075]   | 0.161[0.085]*   | 0.081[0.078]    | -0.019[0.071]    | -0.024[0.075]   | 0.149[0.083]*    |
| R&D for SMEs         | -0.107[0.090]   | -0.104[0.083]  | 0.109[0.084]    | 0.188[0.095]**  | -0.111[0.088]   | -0.125[0.081]    | 0.096[0.084]    | 0.179[0.094]*    |
| Regulatory dimension | -0.038[0.128]   | 0.175[0.124]   | -0.169[0.122]   | -0.038[0.140]   | 0.138[0.129]    | 0.225[0.122]*    | -0.085[0.124]   | 0.075[0.140]     |
| Cognitive dimension  | 0.153[0.079]*   | -0.02[0.075]   | 0.02[0.075]     | -0.144[0.085]*  | -0.021[0.101]   | -0.184[0.093]**  | -0.130[0.096]   | -0.214[0.107]**  |
| Normative dimension  | 0.227[0.081]*** | -0.003[0.076]  | 0.011[0.076]    | 0.167[0.086]*   | 0.116[0.092]    | 0.001[0.085]     | -0.024[0.088]   | 0.071[0.098]     |
| Regulatory*Cognitive |                 |                |                 |                 | 0.259[0.092]*** | 0.183[0.084]**   | 0.187[0.088]**  | 0.150[0.098]     |
| Regulatory*Normative |                 |                |                 |                 | 0.225[0.082]*** | 0.016[0.075]     | 0.088[0.078]    | 0.189[0.087]**   |
| Cognitive*Normative  |                 |                |                 |                 | -0.060[0.067]   | -0.168[0.062]*** | -0.125[0.064]*  | 0.001[0.071]     |
| const.               | 0.308[0.120]**  | 0.347[0.135]** | 0.281[0.122]**  | 0.477[0.147]*** | 0.219[0.126]*   | 0.393[0.132]***  | 0.282[0.125]**  | 0.394[0.147]***  |
| N                    | 308             | 308            | 308             | 308             | 308             | 308              | 308             | 308              |
| Wald chi sq.         | 43.81***        | 4.46           | 32.65***        | 48.58***        | 70.32***        | 14.25            | 42.97***        | 64.04***         |

**Table 5. Estimations (Developing Countries)**

|                      | <b>IE</b>        | <b>IE Low</b>   | <b>IE Moderate</b> | <b>IE High</b>   | <b>IE</b>        | <b>IE Low</b>   | <b>IE Moderate</b> | <b>IE High</b>   |
|----------------------|------------------|-----------------|--------------------|------------------|------------------|-----------------|--------------------|------------------|
| Exports              | 0.079[0.154]     | -0.069[0.163]   | -0.058[0.154]      | -0.008[0.121]    | 0.095[0.157]     | -0.043[0.165]   | -0.052[0.155]      | 0.020[0.123]     |
| GDP per capita       | 0.314[0.279]     | -0.211[0.279]   | 0.070[0.258]       | 0.295[0.211]     | 0.354[0.282]     | -0.165[0.282]   | 0.149[0.261]       | 0.371[0.213]     |
| Soft Infrastructure  | -0.011[0.074]    | 0.040[0.065]    | 0.115[0.056]**     | 0.125[0.051]**   | -0.019[0.076]    | 0.039[0.065]    | 0.108[0.055]*      | 0.118[0.051]**   |
| Hard Infrastructure  | -0.275[0.072]*** | -0.026[0.067]   | -0.030[0.060]      | -0.196[0.052]*** | -0.276[0.072]*** | -0.033[0.067]   | -0.038[0.059]      | -0.204[0.052]*** |
| R&D for SMEs         | -0.131[0.097]    | 0.063[0.083]    | -0.082[0.073]      | -0.046[0.066]    | -0.119[0.098]    | 0.063[0.084]    | -0.065[0.072]      | -0.033[0.065]    |
| Regulatory dimension | 0.050[0.121]     | 0.180[0.113]    | 0.058[0.100]       | 0.082[0.087]     | 0.023[0.13]      | 0.131[0.120]    | -0.017[0.106]      | 0.007[0.092]     |
| Cognitive dimension  | 0.069[0.072]     | -0.078[0.070]   | -0.065[0.064]      | -0.085[0.054]    | 0.079[0.121]     | -0.005[0.111]   | -0.098[0.098]      | -0.052[0.086]    |
| Normative dimension  | 0.095[0.068]     | -0.065[0.060]   | 0.071[0.052]       | -0.018[0.047]    | 0.093[0.087]     | -0.057[0.073]   | 0.134[0.063]       | 0.014[0.057]     |
| Regulatory*Cognitive |                  |                 |                    |                  | 0.038[0.100]     | 0.094[0.088]    | -0.012[0.076]      | 0.066[0.068]     |
| Regulatory*Normative |                  |                 |                    |                  | 0.011[0.096]     | 0.038[0.080]    | 0.124[0.068]*      | 0.085[0.062]     |
| Cognitive*Normative  |                  |                 |                    |                  | 0.051[0.055]     | 0.035[0.048]    | 0.062[0.042]       | 0.072[0.037]*    |
| const.               | -0.296[0.187]    | -0.494[0.205]** | -0.468[0.200]**    | -0.361[0.150]**  | -0.297[0.189]    | -0.503[0.206]** | -0.489[0.201]**    | -0.377[0.152]**  |
| N                    | 236              | 245             | 245                | 245              | 236              | 345             | 245                | 245              |
| Wald chi sq.         | 22.52**          | 8.03            | 6.83               | 22.66**          | 23.28**          | 10.38           | 11.65              | 29.48***         |

\*\*\*sig. at 1%, \*\* sig. at 5%, \* sig. at 10%. Std. Errors in brackets.

## APPENDIX I. SUMMARY STATISTICS

| Variable                          | Full Sample |           |           |          |            | Developing countries |           |           |          |           | Developed Countries |           |           |          |            |
|-----------------------------------|-------------|-----------|-----------|----------|------------|----------------------|-----------|-----------|----------|-----------|---------------------|-----------|-----------|----------|------------|
|                                   | Obs         | Mean      | Std. Dev. | Min      | Max        | Obs                  | Mean      | Std. Dev. | Min      | Max       | Obs                 | Mean      | Std. Dev. | Min      | Max        |
| International entrepreneurship    | 633         | 0.989     | 0.786     | 0.004    | 6.504      | 268                  | 0.828     | 0.804     | 0.004    | 6.504     | 365                 | 1.107     | 0.752     | 0.025    | 5.607      |
| IE low                            | 645         | 30.295    | 16.372    | 0.000    | 75.337     | 279                  | 21.223    | 13.611    | 0.000    | 71.606    | 366                 | 37.210    | 14.865    | 0.462    | 75.337     |
| IE moderate                       | 645         | 10.142    | 7.043     | 0.000    | 45.754     | 279                  | 7.086     | 6.520     | 0.000    | 37.190    | 366                 | 12.472    | 6.523     | 0.000    | 45.754     |
| IE high                           | 645         | 6.157     | 5.252     | 0.000    | 44.846     | 279                  | 3.392     | 3.721     | 0.000    | 23.057    | 366                 | 8.266     | 5.274     | 0.000    | 44.846     |
| Regulatory Quality                | 1,056       | 0.487     | 0.883     | -1.997   | 2.261      | 528                  | -0.198    | 0.570     | -1.997   | 0.838     | 528                 | 1.172     | 0.544     | -0.416   | 2.261      |
| Government Effectiveness          | 1,056       | 0.492     | 0.894     | -1.424   | 2.437      | 528                  | -0.221    | 0.467     | -1.424   | 1.267     | 528                 | 1.205     | 0.602     | -0.332   | 2.437      |
| Policies 1                        | 603         | 2.560     | 0.484     | 1.560    | 4.550      | 267                  | 2.450     | 0.470     | 1.560    | 4.550     | 336                 | 2.647     | 0.477     | 1.590    | 3.960      |
| Policies 2                        | 603         | 2.380     | 0.555     | 1.280    | 4.270      | 267                  | 2.198     | 0.424     | 1.280    | 3.420     | 336                 | 2.524     | 0.604     | 1.350    | 4.270      |
| Entrepreneurial skills            | 645         | 50.233    | 14.799    | 8.652    | 87.933     | 279                  | 56.569    | 15.700    | 8.652    | 87.933    | 366                 | 45.403    | 12.026    | 9.000    | 82.758     |
| Entrepreneurial training          | 603         | 2.838     | 0.344     | 1.790    | 3.860      | 267                  | 2.830     | 0.361     | 1.790    | 3.830     | 336                 | 2.844     | 0.331     | 2.050    | 3.860      |
| High status to entrepreneurs      | 607         | 69.661    | 10.569    | 31.500   | 95.300     | 261                  | 72.093    | 10.400    | 31.500   | 95.300    | 346                 | 67.826    | 10.336    | 41.700   | 92.300     |
| Entrepreneurship as career choice | 604         | 64.103    | 13.910    | 16.700   | 96.200     | 260                  | 71.695    | 11.659    | 29.500   | 96.200    | 344                 | 58.365    | 12.681    | 16.700   | 87.400     |
| Media attention                   | 604         | 61.645    | 30.047    | 19.225   | 717.722    | 262                  | 68.095    | 42.438    | 19.225   | 717.722   | 342                 | 56.703    | 12.708    | 19.373   | 84.795     |
| Social norms                      | 603         | 2.828     | 0.485     | 1.620    | 4.470      | 267                  | 2.853     | 0.383     | 2.020    | 3.800     | 336                 | 2.808     | 0.554     | 1.620    | 4.470      |
| Exports                           | 1,041       | 46.603    | 35.333    | 8.257    | 228.994    | 525                  | 34.120    | 17.395    | 8.257    | 112.186   | 516                 | 59.304    | 43.506    | 10.660   | 228.994    |
| GDP per capita                    | 1,050       | 25939.390 | 21501.040 | 1291.486 | 141634.700 | 522                  | 11171.650 | 6101.393  | 1291.486 | 30446.840 | 528                 | 40539.320 | 21303.060 | 6708.576 | 141634.700 |
| R&D for SMEs                      | 603         | 2.371     | 0.385     | 1.570    | 3.730      | 267                  | 2.172     | 0.302     | 1.570    | 2.940     | 336                 | 2.530     | 0.371     | 1.640    | 3.730      |
| Soft Infrastructure               | 603         | 3.027     | 0.365     | 1.260    | 4.060      | 267                  | 2.869     | 0.306     | 1.260    | 3.990     | 336                 | 3.152     | 0.359     | 2.000    | 4.060      |
| Hard Infrastructure               | 603         | 3.744     | 0.468     | 2.100    | 4.820      | 267                  | 3.505     | 0.418     | 2.240    | 4.440     | 336                 | 3.935     | 0.416     | 2.100    | 4.820      |

## **APPENDIX II. List of Countries**

### **Developed (44)**

Austria, Australia, Barbados, Belgium, Canada, Chile, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Indonesia, Israel, Ireland, Italy, Japan, Korea, Rep., Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Qatar, Puerto Rico, Saudi Arabia, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Trinidad and Tobago, United Kingdom, United States, United Arab Emirates, Uruguay.

### **Developing (44)**

Angola, Algeria, Argentina, Bosnia and Herzegovina, Bolivia, Botswana, Brazil, Burkina Faso, Bulgaria, Cameroon, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, El Salvador, Ghana, Guatemala, India, Iran, Jamaica, Kazakhstan, Lebanon, North Macedonia, Malaysia, Morocco, Mexico, Nigeria, Pakistan, Panama, Peru, Philippines, Romania, Russian Federation, Serbia, South Africa, Thailand, Tunisia, Turkey,