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journal homepage: [www.elsevier.com/locate/jbusres](http://www.elsevier.com/locate/jbusres)Market-driven entrepreneurship and institutions<sup>☆, ☆ ☆</sup>Abdul Ali<sup>a,1</sup>, Donna J. Kelley<sup>a,\*</sup>, Jonathan Levie<sup>b</sup><sup>a</sup> Babson College, Arthur M. Blank Center for Entrepreneurship, Babson Park, MA 02457, United States of America<sup>b</sup> J.E. Cairnes School of Business & Economics, NUI Galway, Ireland

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## ABSTRACT

This research seeks to explain how particular conditions in the external environment are associated with market-driven entrepreneurship—more specifically, startup or early-stage business activity that addresses opportunities in the market (opportunity-driven entrepreneurship), and that which offers unique and novel products or services to customers (innovative entrepreneurship). We further acknowledge that environmental conditions can also affect existing organizations, and thereby identify a third form of entrepreneurial activity: corporate entrepreneurship. Analyses of 44 economies show that economies with basic institutional conditions (structures and rules that govern business activity), and efficiently functioning markets, have high rates of both innovative entrepreneurship and corporate entrepreneurship. However, external contexts that foster innovation are negatively linked to both opportunity-driven and innovative entrepreneurship, while exhibiting a positive association with corporate entrepreneurship.

## 1. Introduction

Market-driven entrepreneurship combines marketing and entrepreneurship logics, addressing opportunities in the market (opportunity-driven entrepreneurship) and introducing innovative products and services that are new and unique for customers (innovative entrepreneurship) (Collinson & Shaw, 2001; Hills, Hultman, & Miles, 2008; Hills & LaForge, 1992). While all entrepreneurs rely on customers for survival, those who are driven by perceived gaps in the market and who provide novel and unique offerings have new value creation for customers at their core, in contrast to entrepreneurs who are driven to start businesses by the absence of other forms of making a living (Fairlie & Fossen, 2018; Galindo & Méndez, 2014; Simón-Moya, Revuelto-Taboada, & Guerrero, 2014).

Entrepreneurial individuals may also choose to express their entrepreneurial talent for the benefit of their employers (Schumpeter, 1934, pp. 74–75; Stam, 2018), by initiating new forms of value creation as employees of established organizations that are already embedded in a competitive landscape. We refer to corporate entrepreneurship as a form of entrepreneurship where an individual plays a leading role in developing new activities for their main employer, such as developing

or launching new goods or services, or setting up a new business unit, a new establishment or subsidiary (Bosma, Wennekers, & Amorós, 2012). Whether individuals make such attempts in the organizations they work for may depend on conditions in the environment (Baker, Gedajlovic, & Lubatkin, 2005; Boettke & Coyne, 2009).

Market-driven entrepreneurship research has mainly focused on the impact of market-driven entrepreneurial behavior on sustainable competitive advantage at the firm level (e.g., Weerawardena & O’Cass, 2004). However, nations differ in the quality of their institutions (the structures and rules that govern business activity); and the study of the relationship of such conditions to entrepreneurship composes a promising research stream (Galindo & Méndez, 2014; Hoskisson, Covin, Volberda, & Johnson, 2011; Simón-Moya et al., 2014). As recent research has revealed (Simón-Moya et al., 2014), stage of economic development may partially account for national differences in prevalence rates of types of entrepreneurship; but a more fine-grained analysis should reveal underlying factors, such as the basic institutional environment and conditions more specifically associated with the functioning of business activity.

It is critical to note that the overall impact of entrepreneurship on a society is determined not just by the frequency with which its citizens

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\*\* Donna Kelley and Jonathan Levie would like to dedicate this paper to the memory of our dear friend and valued colleague, Abdul Ali.

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start businesses, but also by the quality of their efforts (Anokhin & Wincent, 2012; Suntuornpithug & Suntuornpithug, 2008). This includes the extent to which they are creating businesses out of newly perceived market opportunities and businesses that offer unique, novel products and services to customers. Additionally, it is important to recognize that entrepreneurship can be expressed not just in the form of startups, but also within organizations.

This research explores whether these different types of entrepreneurship are associated with conditions in the environment. In our research, we are guided by two distinct and novel questions that address important gaps in earlier work (Galindo & Méndez, 2014; Simón-Moya et al., 2014): (1) Are basic institutional conditions, market efficiency, and innovative context associated with market-driven entrepreneurial activity? (2) Do these conditions promote entrepreneurship via startups versus within established organizations?

Drawn from Global Entrepreneurship Monitor (GEM) and World Economic Forum (WEF) data in 44 economies, the results show that basic institutions and efficient market conditions are associated with innovative entrepreneurship, but not with opportunity-driven entrepreneurship. Strong conditions for innovation, however, show negative relationships with both innovative and opportunity-driven entrepreneurship. Corporate entrepreneurship, on the other hand, appears to thrive under all three conditions.

The results suggest two major implications. First, having a basic institutional infrastructure and efficiently operating markets matters little in predicting opportunity-driven entrepreneurship. Whether people take the steps to pursue an opportunity is irrespective of these conditions. On the other hand, improving the basic institutional and market context can enhance innovative entrepreneurship.

Second, corporate entrepreneurship activity benefits from basic institutions and efficient markets, but a substitution effect also appears to emerge under conditions that foster innovation, where corporate entrepreneurship thrives at the expense of market-driven entrepreneurial activity. From an opportunity-cost perspective, entrepreneurs have more incentive to operate in an organizational context under these conditions. In this manner, established organizations are more likely to reap the benefits of national efforts to enable innovative activity.

In the next section, we introduce the concept of market-driven entrepreneurship and develop hypotheses, drawing on institutional theory and literature on the link between institutions and forms of entrepreneurship.

## 2. Theory and hypothesis development

### 2.1. The marketing/entrepreneurship interface

Since Hills's pioneering work on the Entrepreneurship-Marketing Interface (see Hills & LaForge, 1992), the concept of entrepreneurial marketing has evolved over time (Hills et al., 2008). Scholars have examined elements of the entrepreneurial marketing process by studying various interrelationships between customers, markets, innovation, and entrepreneurial orientation (Matsuno, Mentzer, & Özsomer, 2002; Miles & Arnold, 1991; Miles & Darroch, 2006). Entrepreneurial marketing is described as “a synergistic opportunity-driven, innovation-oriented, proactive, risk-accepting set of processes for a marketer to gain competitive advantage” (Morrish, Miles, & Deacon, 2010, p. 311).

The process of marketing is relevant to entrepreneurship in encompassing the early stage recognition of opportunities (Hills & Hultman, 2011) and in creating competitive advantage for entrepreneurs who leverage their knowledge about customers, markets, and technologies (Hills et al., 2008). The entrepreneurship-marketing interface suggests a form of entrepreneurship that is, in particular, opportunity-driven and innovative (Collinson & Shaw, 2001; Hills et al., 2008; Hills & LaForge, 1992).

This research builds on this conceptualization, identifying market-

driven entrepreneurs as those distinguished by two types: (1) early-stage entrepreneurs with opportunity-driven motives, who have chosen to pursue an opportunity in a market; and (2) early-stage entrepreneurs who are innovative in the sense that they offer to the market something new which has not generally been offered by competitors. These constructs are viewed from a macro-level, which Hills and LaForge (1992) emphasize as important in understanding their economic impact. In this respect, entrepreneurship is a societal function which is influenced by conditions in the environment (Baker et al., 2005).

### 2.2. Institutional theory

The environment in which entrepreneurship occurs plays a key role in understanding how entrepreneurship originates and how it takes multiple forms and produces diverse outcomes (Autio, Kenney, Mustard, Siegel, & Wright, 2014; Levie, Autio, Acs, & Hart, 2014). From an entrepreneurship perspective, institutional theory describes processes and relationships where entrepreneurs perceive, and are affected by, changes in the institutional environment (Arshed, Carter, & Mason, 2014). “Institutions define the rules of the game in which organizations and entrepreneurs play,” according to North (1994, p. 360), who adds that “institutions are the humanly devised constraints that structure human interaction.”

The institutional environment is important to entrepreneurship because it facilitates business activity in general, but also influences the allocation of entrepreneurship in an economy (Baumol, 1990). The broader institutional environment contains political, economic, social, and legal structures and conditions that underlie business activities (Oxley, 1999). Institutions can be formal, in terms of the laws, regulations, and entities that regulate and enforce business activity, as well as informal, with regard to the beliefs, norms, and values that encompass socially acceptable behavior (Webb, Tihanyi, Ireland, & Sirmon, 2009).

Terjesen, Hessels, and Li (2016) emphasized the need to explore different institutional influences in order to identify their relative importance to comparative international entrepreneurship. Along this line, researchers have studied the influence of government size, finding that large government sectors lead to fewer business starts (Aidis, Estrin, & Mickiewicz, 2012; Estrin, Korosteleva, & Mickiewicz, 2009). Lower startup rates have also been associated with a higher level of business regulation (Bosma, Content, Sanders, & Stam, 2018; Murdock, 2012), and with greater complexity in legal systems, in administrative procedures, and in access to credit (Castaño, Méndez, & Galindo, 2016). Additionally, lower rates of innovative entrepreneurship have been associated with higher corporate taxes (Darnihamedani, Block, Hessels, & Simonyan, 2018). On the other hand, monetary policy that encourages savings may have a positive effect on entrepreneurial activity (Galindo & Méndez, 2014).

Su, Peng, Tan, and Cheung (2016) point to the difficulty of assessing the institutional environment when researchers have examined different aspects of that environment. A related issue arises when the focus is on entrepreneurship generally, or on one form of expression of entrepreneurship. This leaves little understanding about how an environmental condition may impact one form but not another, or favor one form to the exclusion of another, particularly for conditions that may be most relevant to certain forms. A further issue arises from high correlations between many institutional variables, which can make interpretation difficult (Simón-Moya et al., 2014).

To overcome these issues, we compare institutions associated with market-driven entrepreneurship, which covers different forms of expression of autonomous entrepreneurship by people running their own business, with institutions associated with entrepreneurship that occurs within organizations. Further, we consider the effect of relevant high-level, multi-dimensional constructs of the institutional environment (for example, market efficiency) rather than lower level, individual institutional variables (for example, corporate tax). The remainder of this

review develops hypotheses about the relationship between different forms of expression of market-driven entrepreneurship. These include opportunity-driven entrepreneurship and innovative entrepreneurship, as well as corporate entrepreneurship, and three particularly relevant multi-dimensional institutional constructs: basic institutions, market efficiency, and innovative contexts.

### 2.3. Institutional conditions and forms of entrepreneurship

Following Scott and Meyer (1983, p. 140), we differentiate between conditions which are characterized by “the elaboration of rules and requirements to which individual organizations must conform,” and “those within which a product or service is exchanged in a market.” We refer to the former as basic institutions: educational, financial and legal systems, and physical infrastructure, which make up a nation’s socio-economic foundations. The latter, which Scott and Meyer designate as technical conditions, denote conditions in the environment that are more directly associated with business activities. Technical conditions that seem most relevant to market-driven entrepreneurship are the efficient functioning of markets and conditions fostering innovation.

This institutional context, including cultural structures, impacts the nature of entrepreneurial opportunities and the people who recognize and pursue them, including how and where these opportunities are exploited (Baker et al., 2005). However, a deficiency in basic institutions will not restrict all entrepreneurship. In fact, these environments may contain many opportunities for entrepreneurs to exploit (Pacheco, York, Dean, & Sarasvathy, 2010). Legitimate business activities, including informal entrepreneurship, can arise out of imperfections in the formal economy (Webb et al., 2009). Potential entrepreneurs may not be deterred by factors like high regulation if other means enable their activity, such as social networks (De Clercq, Lim, & Oh, 2013), corruption (Dreher & Gassebner, 2013; Tonoyan, Strohmeyer, Habib, & Perlitz, 2006), and tax evasion or avoidance (Bruce & Deskins, 2012).

Additionally, entrepreneurship may represent the most viable means of obtaining an income for some groups in a society. Baker et al. (2005) propose that theories of social stratification can explain differences in entrepreneurship, not just within but also across nations. From this perspective, people who are excluded from attractive economic roles may seek other alternatives that more privileged groups do not see or care about. In poor or emergent institutional environments, starting a business may offer a better job option for such excluded groups and, as shown above, entrepreneurs can circumvent challenges by relying on other mechanisms.

Institutional theory is relatively silent on the extent to which some entrepreneurs can operate effectively outside the formal institutional context (Webb et al., 2009). In this respect, entrepreneurship, as a collective variety of forms, may have little relationship with the quality of the formal institutional environment.

Yet given that many types of entrepreneurs exist in a society, a strong institutional environment may enable some, while others will operate despite, or outside, this system. For example, Levie and Autio (2011) found that when rule of law was strong, a lower regulatory burden was associated with rates of high-growth-oriented, early-stage entrepreneurship, but not with rates of non-growth-oriented, early-stage entrepreneurship. This supports the notion that strengthening the institutional environment with the objective of simply increasing entrepreneurship rates is likely to be ineffective, as Shane (2009) emphasizes. According to Du and O’Connor (2018), early-stage entrepreneurship may help provide employment opportunities as a country develops, but in wealthy economies, it becomes a simple substitute for other job options. These authors add that, at a particular point, early-stage entrepreneurship stops driving growth of an economy.

### 2.4. Market-driven entrepreneurship

Market-driven entrepreneurship, as conceptualized in this paper,

involves particular forms of early-stage entrepreneurial activity: that which is opportunity-motivated, and that which is based on innovation. Entrepreneurs are often represented as opportunity-driven. For example, “To be an entrepreneur... is to act on the possibility that one has identified an opportunity worth pursuing” (McMullen & Shepherd, 2006, p. 132). Opportunity-motivated entrepreneurs may be conceptualized as “Kirznerian,” in that they are alert to opportunities that arise from market inefficiencies or gaps, and in pursuing them, restore the market to equilibrium (Kirzner, 1979). They are primarily self-determined, in that they choose to pursue this activity based on an opportunity, in contrast to necessity entrepreneurs, who have no better choice for work (McMullen, Bagby, & Palich, 2008).

Schumpeter’s (1934) entrepreneur, on the other hand, is an innovator, producing change that creates new needs in consumers. In this manner, entrepreneurs bring about new sources of value by combining resources in new ways (Baumol, 1990; Schumpeter, 1934). Innovation has both a differentiation component, where newness is represented relative to competitors, and a novelty component, where newness is determined from the customer perspective (Bradley, McMullen, Artz, & Simiyu, 2012). An innovative startup is therefore based on competitive uniqueness and market newness.

As empirical research has shown, most startup activity involves products or services which are familiar to at least some customers and which already exist in some form in the industry; innovative entrepreneurship is a rare occurrence in most economies (Darnihamedani et al., 2018; Kelley, Singer, & Herrington, 2016). Despite its rarity, innovation has been closely associated with entrepreneurship, leading many policy makers and other stakeholders to target entrepreneurs in their efforts to enhance economic growth through innovation (Autio et al., 2014). It is believed that innovative activity through entrepreneurship can be stimulated by national efforts to create a supportive environment for entrepreneurs (Leyden, 2016). To date, environmental conditions under which innovative entrepreneurship can prosper have received little attention and are therefore not well understood (Autio et al., 2014; Darnihamedani et al., 2018).

Empirical research has found positive associations between conditions related to the basic institutional environment and both opportunity-motivated and innovative forms of entrepreneurship, for example, property rights protection (McMullen et al., 2008), national economic efficiency (Du & O’Connor, 2018), and government size and regulation (Yoon, Kim, Buisson, & Phillips, 2018). Conceptualizing these forms of entrepreneurship as market-driven, we position these as dependent on a well-functioning basic institutional environment.

Our first set of hypotheses thus proposes that basic institutions, such as educational, financial, and legal systems, and also physical infrastructure, enable opportunity-motivated entrepreneurs. Such institutions are also relevant to innovative entrepreneurs who need sophisticated and well-functioning property rights and well-educated workforces.

**H1a.** The rate of opportunity-driven entrepreneurship in an economy will be positively associated with the quality of its basic institutional conditions.

**H1b.** The rate of innovative entrepreneurship in an economy will be positively associated with the quality of its basic institutional conditions.

### 2.5. Market efficiency

The concept of market logic has been used to represent a specific focus of institutional theory on the strength of institutions supporting market efficiency (Meyer, Estrin, Bhaumik, & Peng, 2009; Zhao & Lounsbury, 2016). This includes such aspects as market position of firms, competitive strategy, the development and control of markets, competition for resources, and a profit and free-market focus

(Thornton, 2001).

By definition, market-driven entrepreneurship relies on well-functioning markets (McMullen & Shepherd, 2006). Efficiently operating markets, according to the WEF,<sup>2</sup> contain sophisticated buyers and a customer orientation. These markets address an economy's supply and demand characteristics by enabling the appropriate mix of products and services to be produced and traded. This includes minimal government impediments on business activity and market competition, both of which allow the most efficient firms to prosper. Such markets are most appropriate for firms that adopt customer-focused and innovative strategies in order to compete.

The second set of hypotheses therefore predicts that opportunity-motivated and innovative entrepreneurship rates will be higher in economies with efficient markets.

**H2a.** The rate of opportunity-driven entrepreneurship in an economy will be positively associated with its market efficiency.

**H2b.** The rate of innovative entrepreneurship in an economy will be positively associated with its market efficiency.

## 2.6. Innovative context

Contributors to innovative environments may include public and private entities that invest in research and development, high-quality scientific research institutions, and university/industry collaborations. These institutions enable the creation of new technological knowledge. This offers potential entrepreneurs a broad range of opportunities to introduce innovative products and services, filling market gaps created by this knowledge.

Empirical research in the United States shows that R&D investment, patents, economic concentration, pro-competition policy, and labor mobility are positively associated with the rate of new firm formation (Choi & Phan, 2006). Similarly, investment in R&D by higher education institutes is positively associated with the entry rate of new firms in 19 countries in the European Union (Murdock, 2012). In these relatively well developed countries, market-driven entrepreneurship is more prevalent than in the less developed world. Still, taking a global view, we hypothesize that a context for innovation will positively impact both forms of market-driven entrepreneurship in an economy.

**H3a.** The rate of opportunity-driven entrepreneurship in an economy will be positively associated with its innovative context.

**H3b.** The rate of innovative entrepreneurship in an economy will be positively associated with its innovative context.

## 2.7. Corporate entrepreneurship

Given that the institutional environment facilitates business activity in general (Baumol, 1990), it is logical to assume that external conditions will also impact established companies that need to remain competitive in order to survive. Efficient market conditions, for example, may unequally benefit large established organizations that have, over time, built up relationships with key value chain partners and refined their operations to provide competitive solutions to customers (Su et al., 2016). At the same time, these conditions may also affect the extent to which employees create new value propositions in these organizations (Stam, 2018), referred to here as corporate entrepreneurship.

Our justification for including corporate entrepreneurship in this study stems from Schumpeter (1934, 1965), who acknowledged that both business owners and employees can behave entrepreneurially (1934, pp. 74–75), and the observation that established firms — unless

they are monopolies — are subject to competition in the market. While the corporate entrepreneurship literature has often focused on the relationship of the organization's internal environment to entrepreneurial activity, studies have also accounted for external factors: for example, economic conditions (York & Lenox, 2014), environmental hostility (Covin & Slevin, 1989), and industry factors such as munificence, complexity, concentration, and dynamism (Dess & Beard, 1984). Aspects of the institutional environment are also seen as critical to corporate entrepreneurship. Empirical evidence shows that regulatory institutions (Gomez-Haro, Aragon-Correa, & Cordon-Pozo, 2011), and state-level research funding and IP protection (Holmes Jr., Zahra, Hoskisson, DeGhetto, & Sutton, 2016), are associated with corporate entrepreneurship levels.

Much corporate entrepreneurship research has been conducted at the firm level, seeking to predict the effect of the organizational environment on the level and nature of entrepreneurial activity in organizations. But it must also be acknowledged that these activities are launched by entrepreneurial individuals, who have chosen to work as employees and who have started businesses for their employers (Stam, 2018). According to Sharma and Chrisman (1999, p. 17), entrepreneurs are “individuals or groups of individuals, acting independently or as part of a corporate system, who create new organizations, or instigate renewal or innovation within an existing organization.”

When environmental conditions benefit established companies, these organizations can provide favorable job options with advantages such as stable incomes, attractive salaries, and other benefits. This may cause some people to choose work as employees over pursuing their own business. Improving these conditions could even cause entrepreneurs to leave their businesses and take jobs, as Bruhn (2013) found in her study of regulatory reform in Mexico. McMullen et al. (2008) point out that opportunity costs are an important consideration when examining differences in entrepreneurship rates across nations. They explain that lower levels of entrepreneurship may be due, not to hostile institutional environments, but instead to rising opportunity costs associated with more viable employment options. Interestingly, early attempts to compare innovativeness of entrepreneurial employees with early-stage entrepreneurs across countries found that the former were much more likely to be innovative, especially in more developed countries (Bosma et al., 2012, p. 68).

The next set of hypotheses predicts that national contexts which are well endowed with basic institutions, efficient markets, and innovative contexts may be conducive to corporate entrepreneurship. Employers may encourage these efforts because they recognize the need for new growth opportunities to maintain their strategic positions in these more competitive business environments. At the same time, employees may calculate that in these more competitive economic conditions, the resources needed to create new value may be more readily available, and the personal risk may be lower within an established organization than in a startup. Therefore, we hypothesize that the quality of basic institutions, market efficiency, and innovative contexts will be associated with higher levels of employee entrepreneurship.

**H4a.** The rate of corporate entrepreneurship in an economy will be positively associated with the quality of its basic institutional conditions.

**H4b.** The rate of corporate entrepreneurship in an economy will be positively associated with its market efficiency.

**H4c.** The rate of corporate entrepreneurship in an economy will be positively associated with its innovative context.

## 3. Method

### 3.1. Data

This study combines two unique data sets, from the WEF Global

<sup>2</sup> <https://www.weforum.org/>



Competitiveness Index (GCI) and from GEM. The GCI is the most comprehensive worldwide assessment of national competitiveness, rating and ranking 144 countries annually (Schwab & Sala-i-Martin, 2017). The GCI methodology has been independently assessed by the European Commission's Joint Research Centre (JRC).<sup>3</sup> The WEF defines “competitiveness as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the economy can achieve” (Schwab & Sala-i-Martin, 2017, p. 11). The GCI captures different aspects of competitiveness in 12 pillars (see Fig. 1).

GEM is the largest ongoing annual study of entrepreneurial activity in the world. Since 1999, it has explored the role of both formal and informal entrepreneurship across > 60 economies annually with random national surveys of at least 2000 adults (between 18 and 64 years of age) in each economy (Reynolds et al., 2005). Data collection is administered by national academic teams, and the entire process is supervised by a global data team who ensure quality of the data and “harmonize” it to enable cross-national comparisons.

To test the study's hypotheses regarding relationships between forms of entrepreneurship and the three conditions (basic institutions, market efficiency, and innovative context), we focused on time series data from the WEF and GEM spanning the years 2012 through 2017, including only those economies for which we have data for at least five of the six years. Our sample contains 44 economies for which data were available from both the GCI and GEM databases. Table 1 shows these economies by geographical region and stage of economic development.<sup>4</sup>

### 3.2. Measures

#### 3.2.1. Entrepreneurship

The three different forms of entrepreneurship were operationalized from GEM as follows:

1. Opportunity-driven entrepreneurship refers to the percentage of the adult population between the ages of 18 and 64 years who are starting or running a new business, and who stated that they chose to pursue an opportunity as a basis for their entrepreneurial motivations, rather than starting out of necessity.
2. Innovative entrepreneurship is measured in the study as the percentage of the adult population between the ages of 18 and 64 years who are starting or running a new business with products or services that are both new to some or all customers and offered by few or no other competitors.
3. Corporate entrepreneurship refers to the percentage of the adult population aged between 18 and 64 years who, as employees, are taking a leading role in an entrepreneurial activity for their employer, such as developing or launching new goods or services, or setting up a new business unit, a new establishment, or subsidiary.

#### 3.2.2. Environmental conditions

To measure basic institutions, market efficiency, and innovative context, the following indicators from the WEF GCI were used:

4. Quality of Basic Institutional Conditions is operationalized as GCI's first pillar: “the legal and administrative framework within which

individuals, firms, and governments interact to generate wealth.” This measure is a composite sub-index that operationalizes the multi-dimensional nature of the construct “basic institutions.” It includes the extent to which government is trustworthy and transparent, minimizes bureaucracy and regulation, and eliminates corruption. It also represents the extent to which the legal and judicial system protects the rights of business.

5. Market Efficiency is measured using the Goods Market Efficiency composite sub-index (sixth pillar) of the GCI, which captures different dimensions including “customer orientation and buyer sophistication.”
6. Innovative Context is measured using the Innovation composite sub-index (12th pillar) of the GCI, which includes different dimensions of innovation, investment in research and development, partnership between universities and industries, and the protection of intellectual property.

### 3.3. Statistical approach

#### 3.3.1. Model specification

This paper controls for other factors that may impact the relationship between basic institutions and forms of entrepreneurship. Past research has found linkages between entrepreneurial activities and differences in industrial sectors (Kolvereid, 1992; Gundry, & Welsh, 2001), education and experience (Wiklund & Shepherd, 2003), organizational characteristics and localization (Kolvereid, 1992), and ownership forms (Davidsson & Henrekson, 2002). Further, several studies have found a link between entrepreneurial activities and societal values or norms, and suggested that individual attributes influence startup activities (Bosma et al., 2018). Audretsch and Peña-Legazku (2012) state that the concentration of individuals willing to take a risk to start a business, informal and formal networks, and social acceptance of entrepreneurship in a region boosts the region's ability to create new businesses. Consequently, to reduce specification error, the model included control variables relating to age, gender, opportunity perceptions, skill perceptions, and societal values toward entrepreneurs, as well as industrial sectors, and regional and yearly dummy variables to capture geographic diversity and longitudinal data.

**3.3.1.1. Functional form.** The hypotheses propose that three distinct forms of market-driven entrepreneurship are each associated with three environmental conditions. These three different forms of entrepreneurship — opportunity-driven (OPP), innovative (INNOV), and corporate entrepreneurship (CE) — and environmental conditions — basic institutional conditions (INST), market efficiency (ME), and innovation context (IC) — were measured. Consequently, nine equations were used to test the hypotheses. The equations also include specification variables ( $X_j$ : perceived capability, opportunity perception, age, gender, industrial sector, regions, and year). Below are the three representative equations:

$$Opp_i = \alpha_0 + \alpha_1 INST_i + \sum_j \alpha_j X_j \quad (1)$$

$$INNOV_i = \beta_0 + \beta_1 ME_i + \sum_j \beta_j X_j \quad (2)$$

$$CE_i = \gamma_0 + \gamma_1 IC_i + \sum_j \gamma_j X_j \quad (3)$$

**3.3.1.2. Heteroscedasticity.** In investigating the relationship between entrepreneurial activities and environmental conditions using ordinary least square (OLS) regression analysis, the variance for economies with low levels of these conditions may be higher than for economies with high levels. This is because, as suggested in the previous section, many types of entrepreneurs exist in a society. Some

<sup>3</sup> <https://ec.europa.eu/jrc/en/research-topic/composite-indicators>.

<sup>4</sup> Classification of economies by economic development level is adapted from the WEF. According to WEF classification, the factor-driven phase is dominated by subsistence agriculture and extraction businesses, with a heavy reliance on (unskilled) labor and natural resources. In the efficiency-driven phase, an economy has become more competitive with more-efficient production processes and increased product quality. As development advances into the innovation-driven phase, businesses are more knowledge-intensive, and the service sector expands (<http://weforum.org>).

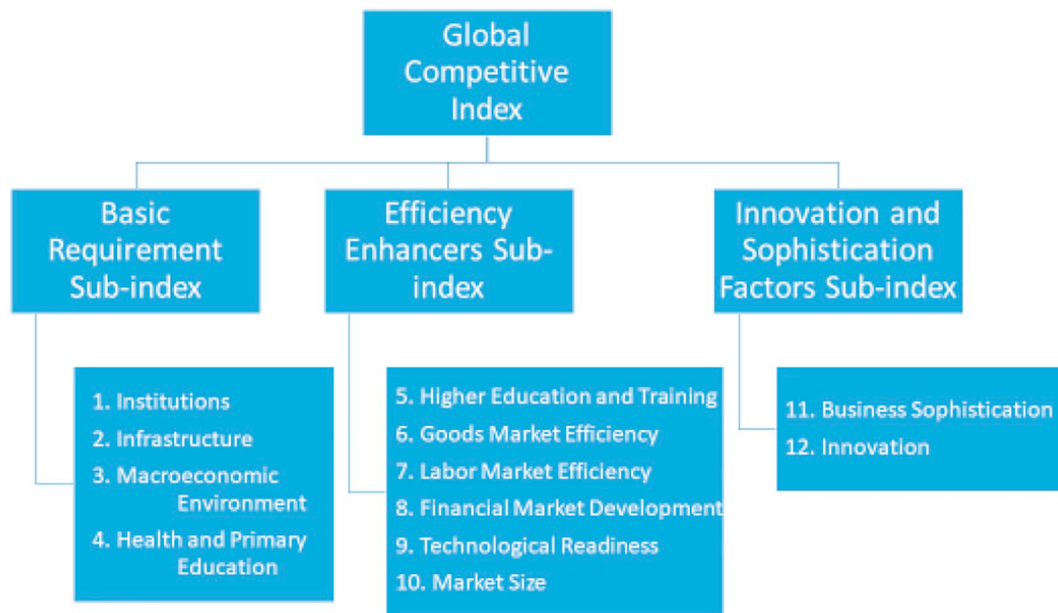


Fig. 1. Twelve pillars of the WEF global competitive index.

Table 1  
Research sample of 44 economies, classified by geographical region and stage of economic development.<sup>a</sup>

Region	Factor-driven stage	Efficiency-driven stage	Innovation-driven stage
Africa and Asia	India	<b>China, Indonesia, Iran, Malaysia, South Africa, Thailand</b>	Israel, <b>Japan</b> , Republic of Korea, Taiwan
Eastern Europe		<b>Croatia, Hungary, Latvia, Poland, Slovakia</b>	<b>Estonia, Slovenia</b>
Western Europe			Finland, France, <b>Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom</b>
Latin America and Caribbean		<b>Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Panama, Peru, Uruguay</b>	Puerto Rico
North America			Canada, <b>United States</b>

<sup>a</sup> Economies with the six-years of data available (2012 through 2017) are in boldface. Five years of data were available for the remaining economies.

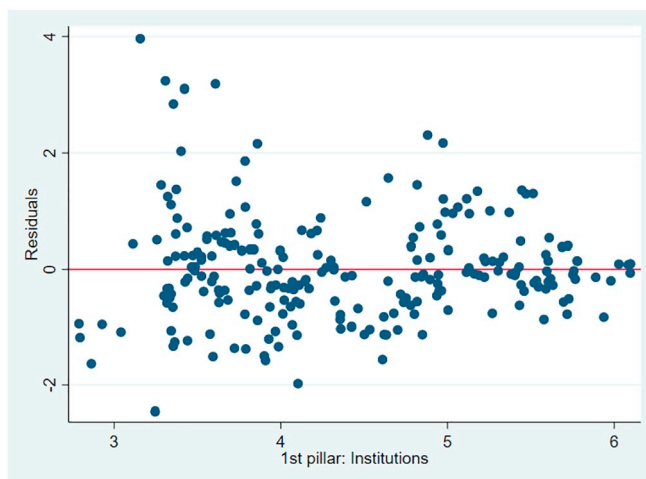


Fig. 2. Residual plots of opportunity-driven entrepreneurship against institutional conditions.

may be enabled by a strong, basic institutional environment, while others will operate despite or outside this system. The residual plot of the OLS residuals against the values of the basic institutions measure suggested a relationship between this indicator and opportunity-driven

entrepreneurial activities (see Fig. 2). The Breusch and Pagan (1979) test further confirmed the presence of heteroscedasticity with respect to opportunity-driven and innovative entrepreneurship, but not corporate entrepreneurship (see Section 4.2 below). Consequently, heteroscedastic regression analyses, as suggested by Harvey (1976), were run for these two measures of entrepreneurship.

3.3.1.3. *Method variance.* Use of self-reported data in a cross-sectional survey like GEM may lead to a “common method variance” (CMV) problem (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The Harman’s single factor test, a widely used statistical technique, was used to address the common method variance problem. If a CMV problem exists in the dataset, all 23 variables would load on a single factor. The results of the un-rotated factor solution of the 23 items resulted in the first factor accounting for 25.4% of the variances and a clear indication of nine total factors, which suggests a relative lack of common method variance (Podsakoff & Organ, 1986). However, as Podsakoff et al. (2003) noted, Harman’s test is a diagnostic technique for assessing the extent to which common method variance may be a problem and does nothing to statistically control for method effects. Given that this study examined concrete and externally oriented dependent and independent variables sourced from different databases (GEM and WEF), employed multiple measurement formats and scales, and developed constructs that are strongly rooted in theory, the common method variance problem should not be a significant issue in the current study.

**Table 2**  
Descriptive statistics.

	Mean or %	Standard deviation	Min.	Max.
Opportunity-driven entrepreneurship	1.32	1.51	0.07	8.17
Innovative entrepreneurship	3.24	2.46	0.13	14.80
Corporate entrepreneurship	2.71	1.93	0.00	8.77
Institutional conditions	4.36	0.84	2.79	6.10
Market efficiency	4.58	0.50	3.06	5.54
Innovation context	4.06	0.93	2.69	5.80
Perceived opportunity	39.15	14.93	6.37	79.49
Self-efficacy	46.60	12.23	9.00	74.27
Know other entrepreneurs	35.93	9.71	13.97	71.32
Desirable career	59.12	14.18	16.73	95.62
High status	66.97	10.52	41.73	86.24
Media stories	59.98	13.02	28.39	87.07
GDP per capita in US \$ (log)	9.80	0.91	7.30	11.70
Western Europe	29.50			
Eastern Europe	15.90			
Asia and Africa	24.70			
Latin America and Caribbean	25.50			
Year 2013	17.53			
Year 2014	16.33			
Year 2015	17.13			
Year 2016	17.53			
Year 2017	16.33			

## 4. Results

### 4.1. Descriptive statistics

Table 2 lists descriptive statistics for the sample. The descriptive statistics indicate that entrepreneurship-related variables vary widely across 44 economies, although most data came from European countries.

Table 3 shows the inter-correlations among the study's variables. Most of the variables showed a strong correlation ( $p < 0.01$ ) with forms of entrepreneurship. Correlations among the independent variables, while significant in some cases, were low or moderate, thereby suggesting no multi-collinearity among hypothesized constructs.

### 4.2. Results from OLS and heteroscedastic regression analyses

This subsection reports the direct effect of the three institutional contexts on the three forms of entrepreneurship through ordinary least square (OLS) regression analyses of Eqs. (1) to (3). Following Breusch and Pagan (1979), the test for heteroscedasticity suggests there were heteroscedasticity problems in the data for opportunity-driven entrepreneurship (e.g.,  $\text{Chi2}(1) = 123.43$ ,  $p = 0.00$  for Eq. (1)), as well as for innovative entrepreneurship (e.g.,  $\text{Chi2}(1) = 148.89$ ,  $p = 0.00$  for Eq. (2)), but not for corporate entrepreneurship (e.g.,  $\text{Chi2}(1) = 0.01$ ,  $p = 0.91$  for Eq. (3)). Heteroscedastic regression analyses were thus run for opportunity-driven and innovative entrepreneurship.

Further, Du and O'Connor (2018) observed that total early-stage entrepreneurship (TEA) might not be “a driver of economic efficiency,” unlike specific forms such as innovative entrepreneurship. Therefore, a regression analysis was run for the TEA variable in addition to the other three forms of entrepreneurship. Table 4 presents the coefficient estimates, significance values, and the adjusted R squared from all 12 OLS regression analyses.

The first set of three regression analyses for opportunity-driven entrepreneurship (see Eq. (1)) shown in the first three columns of Table 4 (models 1a, 2a, and 3a) demonstrate that opportunity-driven entrepreneurship was negatively associated with innovative context (estimated  $\alpha_1 = 0.18$ ,  $p < 0.05$ ). The results do not support hypothesis H1a and H2a, whereas H3a suggests a positive impact, but the significant result has an opposite negative impact.

The findings from the second set of three regression analyses for innovative entrepreneurship (see Eq. (2) and models 1b, 2b and 3b) suggest that while basic institutional conditions (estimated  $\beta_1 = 0.778$ ,  $p < 0.01$ ) and market efficiency (estimated  $\beta_1 = 0.810$ ,  $p < 0.05$ ) had a positive impact on innovative entrepreneurship, innovation context had a significant negative impact on innovative entrepreneurship (estimated  $\beta_1 = -0.964$ ,  $p < 0.01$ ). Therefore, the results found support for hypotheses H1b and H2b, but not for H3b.

Finally, Table 4 provides the results for the third set of three regression analyses for corporate entrepreneurship (see Eq. (3) and models 1c, 2c and 3c). As hypothesized, all three environmental conditions measures — basic institutional conditions (estimated  $\gamma_1 = 0.879$ ,  $p < 0.01$ ), market efficiency (estimated  $\gamma_1 = 0.680$ ,  $p < 0.05$ ), and innovation context (estimated  $\gamma_1 = 1.02$ ,  $p < 0.01$ ) — have significant positive impact on corporate entrepreneurship. Thus, the results support hypotheses H4a, H4b and H4c.

The results for the TEA variable (models 1d, 2d, and 3d in Table 4) are similar to the results for opportunity-driven entrepreneurship in the sense that innovative context has a negative influence on entrepreneurship. But as Du and O'Connor (2018, p.93) suggest, “entrepreneurship is far more nuanced.” Other environmental conditions have a positive impact on both innovative entrepreneurship and corporate entrepreneurship, and this would not be revealed if the TEA rate alone was used.

### 4.3. Results from simultaneous causality analyses

The results provided in Table 4, however, may have biased estimates of the hypothesized effects since a simultaneous causality may exist between environmental conditions and entrepreneurial activity. González-Pernía, Peña-Legazkue, and Vendrell-Herrero (2012) as well as Audretsch and Peña-Legazkue (2012) hinted that a bi-directional relationship seems to exist between entrepreneurship and economic development, and Galindo and Méndez (2014) found evidence supporting this. Just as environmental conditions can drive entrepreneurship, entrepreneurial activities can also bring about improvements in environmental conditions. A standard method to correct for this simultaneous causality is to use an instrumental variable (IV) method. A two-stage least square (2SLS) regression analysis was therefore performed as an additional test of the hypotheses, where instrumental variables could be found.

In the first stage, the aforementioned covariates and a set of instrumental variables were used to predict forms of entrepreneurship (see Eq. (4)). We used the entrepreneurship variables in the first stage of the 2SLS regression analysis because of the availability of instrument variables in the GEM dataset, and given the fact that any one of the two sets of variables involved in a bi-directional relationship may be used to predict the other.

For the IV method to be a valid approach in testing simultaneous causality, it is crucial to find a set of instruments that have strong predictive power for entrepreneurial activities, but with no direct relation to the outcome variable of interest (environmental conditions). Two instrumental variables that were expected to influence entrepreneurial activity, but with no significant relationship to environmental conditions, include: fear of failure (FF) as a measure of risk acceptance, and knowing other entrepreneurs (KE) as a measure of network effects.

In the second stage, the predicted values of entrepreneurial activity were used in the regression for environmental conditions (see Eq. (5)). The hypotheses were then tested through the following two equations in a two-stage least square (2SLS) regression analysis:

$$OPP_i = \delta_0 + \delta_1 FF_i + \delta_2 KE_i + \sum_{j=4}^n \delta_j X_{ji} \quad (4)$$

$$INST_i = \lambda_0 + \lambda_1 \widehat{OPP}_i + \sum_{j=2}^n \lambda_j X_{ji} \quad (5)$$

**Table 3**  
Correlation matrix.

	1	2	3	4	5	6	7	8	9	10	11
1 Opportunity-Driven Entrepreneurship	1.00										
2 Innovative Entrepreneurship	0.72**	1.00									
3 Corporate Entrepreneurship	-0.18**	0.12	1.00								
4 Institutional Conditions	-0.33**	-0.07	0.58**	1.00							
5 Market Efficiency	-0.28**	-0.07	0.49**	0.86**	1.00						
6 Innovation Context	-0.42**	-0.24**	0.52**	0.84**	0.76**	1.00					
7 Perceived Opportunity	0.53**	0.52**	0.20**	0.16**	0.12	0.06	1.00				
8 Self-Efficacy	0.34**	0.52**	-0.09	-0.47**	-0.47**	-0.60**	0.46**	1.00			
9 Know Other Entrepreneurs	0.34**	0.15*	-0.10	-0.12	-0.09	-0.17**	0.42**	0.36**	1.00		
10 Fear of Failure	-0.31**	-0.25**	0.10	-0.01	-0.04	0.03	-0.38**	-0.29**	-0.19**	1.00	
11 Desirable Career	0.41**	0.35**	-0.11	-0.37**	-0.30**	-0.39**	0.40**	0.41**	0.26**	0.26**	1.00
12 High Status	0.11	0.08	0.14	0.16	0.14*	0.23**	0.33**	0.08	0.26**	0.11	0.35**
13 Media Stories	0.39**	0.23**	-0.09	0.04	0.14*	0.04	0.35**	0.17**	0.26**	0.31**	0.33**
14 GDP Per Capita in US \$ (log)	-0.43**	-0.20**	0.67**	0.68**	0.59**	0.73**	-0.10	-0.42**	-0.35**	0.18**	-0.42**
15 Western Europe	-0.39**	-0.28**	0.50**	0.50**	0.37**	0.47**	-0.08	-0.30**	-0.29**	0.33**	-0.17**
16 Eastern Europe	-0.15*	-0.07	0.21**	-0.21**	-0.15*	-0.30**	-0.26**	0.05	-0.01	0.23**	-0.09
17 Asia and Africa	-0.11	-0.18**	-0.34**	0.00	0.09	0.14*	-0.16**	-0.40**	0.21**	0.04	0.02
18 Latin America and Caribbean	0.62**	0.45**	-0.29**	-0.44**	-0.46**	-0.50**	0.37**	0.61**	0.15**	-0.54**	0.23**
19 Year 2013	0.00	-0.02	0.02	0.01	-0.03	-0.01	-0.03	0.01	-0.04	0.02	0.01
20 Year 2014	0.03	0.01	-0.05	0.00	-0.04	-0.02	0.00	0.02	-0.04	-0.05	-0.01
21 Year 2015	-0.01	0.02	-0.04	-0.02	0.05	0.00	-0.01	0.00	0.04	-0.01	-0.06
22 Year 2016	0.00	-0.01	0.03	-0.01	0.03	0.02	0.00	-0.02	0.04	0.03	-0.04
23 Year 2017	0.04	0.02	0.06	0.01	0.07	0.03	0.13*	0.03	0.08	-0.02	0.02

	12	13	14	15	16	17	18	19	20	21	22	23
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	1.00											
13	0.29**	1.00										
14	0.07	-0.19**	1.00									
15	0.23	-0.30**	0.64**	1.00								
16	-0.25**	-0.32**	-0.06	-0.28**	1.00							
17	0.09	0.34**	-0.38**	-0.37**	-0.25**	1.00						
18	-0.15*	0.19**	-0.36**	-0.38**	-0.25**	-0.34*	1.00					
19	0.03	-0.04	0.01	0.00	0.00	0.00	1.00					
20	-0.01	0.03	0.01	-0.02	-0.02	-0.03	-0.01	1.00				
21	-0.04	-0.01	-0.03	0.02	0.00	0.01	0.01	-0.20**	1.00			
22	-0.04	0.01	-0.02	-0.01	0.00	0.00	-0.01	-0.20**	-0.21**	1.00		
23	0.01	0.06	0.00	-0.03	-0.02	0.02	0.01	-0.20**	-0.20**	-0.20**	1.00	

\* Correlation is significant at the 0.01 level (2-tailed)  
 \*\* Correlation is significant at the 0.05 level (2-tailed).



**Table 4**  
Results from ordinary least squares regression analysis.

Independent variables	Dependent variable											
	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3b	Model 1c	Model 2c	Model 3c	Model 1d	Model 2d	Model 3d
	Opportunity-driven entrepreneurship			Innovative entrepreneurship			Corporate entrepreneurship			Early-stage entrepreneurship		
Institutional conditions	0.201			0.778**			0.879**			0.529		
Market efficiency		-0.030			0.810*			0.68*			-0.118	
Innovation context			-0.18*			-0.964**			1.02**			-1.18**
Perceived opportunity	0.016**	0.022**	0.01**	0.051**	0.058*	0.038*	0.016	0.03**	0.023**	0.082**	0.100**	0.082**
Self-efficacy	0.056**	0.054**	0.035**	0.098**	0.096**	0.054**	0.027**	0.015	0.041**	0.266**	0.259**	0.203**
Know other entrepreneurs	-0.007	-0.010	-0.005	-0.058**	-0.055**	-0.013	0.000	0.001	-0.004	-0.025	-0.037	-0.024
Desirable career	0.008*	0.007	0.002	0.034**	0.026**	0.003	0.024**	0.015	0.022**	0.051**	0.046**	0.027*
High status	0.002	0.003	-0.001	-0.002	0.005	0.005	0.002	0.002	-0.011	0.012	0.018	0.007
Media stories	-0.001	0.002	0.005	-0.021	-0.026*	-0.009	-0.008	-0.006	-0.003	-0.001	0.006	0.021
GDP per capita in US \$ (log)	0.122	0.150	0.071	0.476*	0.656**	1.09**	1.345**	1.51**	1.14**	0.618	0.676	0.972*
Dummy variables (regions, years)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(Constant)	-3.824**	-3.13*	-0.56	-8.99**	-10.77**	-3.54**	-17.04**	-17.52**	-15.4**	-12.95**	-11.03**	-6.25
Adjusted R <sup>2</sup>	0.6	0.59	0.6	0.45	0.45	0.44	0.64	0.60	0.63	0.73	0.72	0.73
Heteroscedasticity	Yes and corrected			Yes and corrected			No			Yes and corrected		
Sample size	234			234			195			234		

\*\* Significant at the 0.01 level

Tables 3 and 5 provide the results of this analysis. The correlation matrix in Table 3 clearly shows that the set of instruments used, knowing other entrepreneurs and fear of failure, has strong correlation with opportunity-driven or innovative entrepreneurship, but no direct correlation with environmental conditions. Table 5 reports the results for these two forms of entrepreneurship from the IV method of 2SLS analysis using StataMP 15 software. Semadeni et al. (2014, p.1070) cautioned researchers about the “perils of endogeneity and instrumental variables in strategy research.” Following their recommendations, we conducted several tests to examine the endogeneity between

environmental conditions and forms of entrepreneurship.

The test statistics are summarized in the bottom of Table 5. First, both Durbin score (Chi Square = 16.04, p < 0.01 for opportunity-driven, 7.11, p < 0.01 for innovative entrepreneurship) and Wu-Hausman tests for basic institutional conditions (15.89, p < 0.01 for opportunity-driven, 6.77, p < 0.01 for innovative entrepreneurship) suggest that we reject the null hypothesis that entrepreneurial activity is an exogenous variable.

Second, we performed the Staiger and Stock (1997) weak-instruments test to establish empirical relevance of the two instruments

**Table 5**  
Results from two-stage least squares regression analysis.

Independent variables	Dependent variables								
	Institutional conditions			Market efficiency			Innovation context		
Opportunity-driven entrepreneurship	-0.775*			-0.521*			-0.764*		
Innovative entrepreneurship		-0.138			-0.086			-0.129	
Corporate entrepreneurship									
Early-stage entrepreneurship			-0.223*			-0.149*			-0.219*
Perceived opportunity	0.042**	0.034**	0.046**	0.023**	0.017**	0.026**	0.035**	0.027**	0.039**
Self-efficacy	0.016	-0.006	0.029	0.011	-0.005	0.019	0.006	-0.016**	0.019
Desirable career	-0.012*	-0.010**	-0.008	-0.004	-0.003	-0.001	-0.008	-0.006*	-0.003
High status	0.001	-0.005	0.002	-0.001	-0.004	0.001	0.010	0.006	0.013*
Media stories	0.021**	0.001	0.019	0.017**	0.008**	0.016**	0.014	0.000	0.012
GDP per capita in US \$ (log)	0.356**	0.506**	0.359**	0.204**	0.302**	0.206**	0.535**	0.678**	0.537**
Dummy variables (regions, years)									
(Constant)	-1.345	-0.519	-0.812	0.756	1.350	1.113	-3.290	-2.44**	-2.77
Number of obs	234	234	234	234	234	234	234	234	234
Wald chi2 (19)	183.60**	384.969**	176.19*	114.60**	368.77**	112.70*	294.18**	932.15**	294.27**
R-squared	0.06	0.56	0.02		0.45		0.33	0.79	0.32
Endogeneity test									
Durbin score chi2(1)	16.04**	7.11**	16.45**	17.34**	5.65**	17.16**	21.57**	3.50	21.01**
Wu - Hausman	15.89**	6.77**	16.33**	17.28**	5.34**	17.09**	21.93**	3.28	21.31**
First-stage regression summary statistics									
Adjusted R-sq.	0.62	0.43	0.74	0.62	0.43	0.74	0.62	0.43	0.74
Robust F(2, 216)	3.17*	5.28**	3.07*	3.17*	5.28**	3.07*	3.17*	5.28**	3.07*
Test of overidentifying restrictions									
Sargan (score) Chi2 (1)	0.014	8.10**	0	0.038	8.81*	0.01	0.035	13.85**	0.007
Basman Chi2 (1)	0.013	7.75**	0	0.035	8.45**	0.009	0.033	13.62**	0.006

\*\* Significant at the 0.01 level.

(knowing other entrepreneurs and fear of failure). In the first-stage regression, the joint F-test statistics (3.17 or 5.28) for the two instruments was less than the rule-of-thumb recommended value of 10, suggesting that both instruments were not strong.

Third, the validity of the instruments was tested via the usual over-identification tests. Both Sargan (Chi Square = 0.014,  $p = 0.91$ ) and Basman test statistics (Chi Square = 0.013,  $p = 0.91$ ) suggest that the null hypothesis of valid instruments could not be rejected for opportunity-driven entrepreneurship. Thus, both instruments are not correlated with the error term of Eq. (5). The same cannot be said for the innovative entrepreneurship case. Hence, strong evidence was found for simultaneous causality between the environmental conditions and opportunity-driven entrepreneurship, and weak support for endogeneity with regard to innovative entrepreneurship. Due to a lack of instrument variables in the GEM dataset, endogeneity could not be tested for corporate entrepreneurship.

Table 5 presents the results for the second-stage of the 2SLS analysis (see Eq. (5)). In the first stage, the instrument variable, fear of failure (estimated  $\delta_1 = 0.022$ ,  $p = 0.01$  in Eq. (4)) is found to be a significant predictor of opportunity-driven entrepreneurship, but not the other instrument variable, knowing other entrepreneurs (estimated  $\delta_2 = -0.002$ ,  $p = 0.75$ ). In the second stage of 2SLS, opportunity-driven entrepreneurship (estimated  $\lambda_1 = -0.775$ ,  $p < 0.05$ ) shows significant impact on basic institutional conditions, similar to the OLS results reported in Table 4; and it was also found to be significant for the other two measures of environmental conditions, market efficiency (estimated  $\lambda_1 = -0.521$ ,  $p < 0.05$ ) and innovation context (estimated  $\lambda_1 = -0.764$ ,  $p < 0.05$ ). The significant impact of opportunity-driven entrepreneurship on all three types of environmental conditions could only be observed when we controlled for endogeneity, thereby validating the importance of investigating simultaneous causality in the relationship between environmental conditions and forms of entrepreneurship.

## 5. Conclusions

### 5.1. Discussion

Market-driven entrepreneurship is valuable to a society in providing business opportunities for those who perceive gaps in the market, and novel and unique products and services for customers (Fairlie & Fossen, 2018; Galindo & Méndez, 2014; Simón-Moya et al., 2014). Understanding what promotes these valuable activities is therefore useful, especially given that nations differ in the quality of their institutions (Galindo & Méndez, 2014), and that less attention has been paid to conditions that can promote these activities specifically. Our findings show that innovative entrepreneurs appear to thrive under conditions of higher quality institutions and market efficiency, but entrepreneurial individuals will seek opportunities regardless of these conditions. On the other hand, the results indicate that market-driven entrepreneurial behavior is lower in environments fostering innovation, perhaps because established organizations appropriate these benefits.

This research adds a contextual focus to the literature on entrepreneurial marketing, which has heretofore focused mainly on the role that market-driven entrepreneurial behavior contributes to sustainable competitive advantage at the firm level (Weerawardena & O’Cass, 2004), rather than how the external environment might affect the expression of this behavior, or even how market-driven behavior might affect the external environment. Given the importance of innovative and opportunity-driven entrepreneurship to an economy (Du & O’Connor, 2018), it is imperative to increase our understanding of the interplay between these forms of entrepreneurship and the environmental factors that foster them. Additionally, our focus on individuals rather than on the firm-level, and our inclusion of corporate entrepreneurship, enable us to apply institutional theory with an opportunity-cost perspective, and to demonstrate how different forms of

entrepreneurship are associated with different relevant institutional conditions. Our findings show that these associations differ across the three forms of entrepreneurship (opportunity-driven, innovation-based, and corporate entrepreneurship).

Prior research found that different aspects of the environment, such as small government (Aidis et al., 2012; Estrin et al., 2009), low regulation (Murdock, 2012), and less complexity in legal, administrative, and financial systems (Castaño et al., 2016), have a positive impact on entrepreneurship in general. Additionally, McMullen et al. (2008) found that property-rights protection was associated with opportunity-driven entrepreneurship. In contrast, this study found that the basic institutional environment and market efficiency play little role in predicting opportunity-driven entrepreneurship rates.

These results confirm that, even in environments which are deficient in these conditions, there may still be many opportunities for entrepreneurs to exploit in a Kirznerian sense (Pacheco et al., 2010; Webb et al., 2009). In fact, where basic institutions are lacking or poorly functioning, entrepreneurship may represent the best job option for those who are shut out of roles taken by more privileged groups in society (Baker et al., 2005). Intriguingly, our results hint at reverse causality: opportunity-driven entrepreneurship may impact the institutional environment, altering the conditions that would enable other forms of entrepreneurship to emerge.

Innovative entrepreneurs, on the other hand, do appear to benefit in general from basic institutions and from market efficiency. The results of our study suggest that opportunity-driven entrepreneurs behave differently from innovative entrepreneurs in particular institutional or market contexts. It could be the case that some entrepreneurs see many opportunities to fill gaps in markets functioning inefficiently, thereby acting as Kirznerian entrepreneurs (Kirzner, 1979), but not necessarily with a requirement to be innovative. Innovative entrepreneurs, who bring something novel and unique into the market, in line with Schumpeter’s (1934) theorizing, appear to operate more frequently when there are healthy institutions and efficiently functioning markets. This suggests particular domains for the two conceptualizations of entrepreneurs.

However, like opportunity-driven entrepreneurs, innovative entrepreneurs are less likely to function in environments that foster innovation. This result appears counter-intuitive, but makes sense when one considers the context in the round, and the economic alternatives open to entrepreneurial individuals in innovative contexts. Specifically, all three conditions—basic institutions, market efficiency, and innovative context—were positively linked with corporate entrepreneurship, consistent with firm-level studies examining state-level research funding, IP protection (Holmes Jr. et al., 2016), and regulatory institutions (Gomez-Haro et al., 2011). In particular, when the environment supports innovative activity, corporate entrepreneurship may substitute for startup activity. Innovation is much more high stakes than Kirznerian arbitrage. It is very rational for individuals to hedge this risk by being employees, if that is possible, rather than assuming the risk personally.

While it might be expected that an environment enabling innovation would generate innovative startups (Leyden, 2016), it appears from our results that on the contrary, many entrepreneurial individuals may prefer to innovate within an organization rather than venture out on their own. Theoretically, this result exemplifies the idea of opportunity costs, consistent with McMullen et al.’s (2008) suggestion that lower levels of entrepreneurship may be due to rising opportunity costs associated with more viable employment options. On a practical level, it corroborates Bruhn’s (2013) finding that improvements in external conditions lead some people to prefer work as employees, rather than run their own businesses. However, we add that these conditions may also encourage entrepreneurship to take place in organizations.

## 5.2. Limitations and future research directions

This study has several limitations that merit discussion. First, this paper studied a limited set of environmental factors. Future research could explore other factors that contribute to different forms of entrepreneurship: for example, conditions that enable opportunity-based entrepreneurship when institutions and markets function effectively versus poorly. Second, economies in the earliest stages of economic development were underrepresented in the sample. There is ample scope for further research to address this sample-related limitation, particularly to the extent there is available data in these countries. Third, as Yoon et al. (2018) have shown recently, different subsets of innovative entrepreneurs may gain or lose from the same basic institutional conditions. While we believe our classification of market-driven entrepreneurship captures the main forms, there may be important subsets of each form that are influenced differently by certain institutional conditions.

Fourth is the issue of untested but possible endogeneity, in the case of corporate entrepreneurship, and the weak support for endogeneity for innovative entrepreneurship. Despite these limitations, our results point to future opportunities to explore more fully the interplay between market-driven entrepreneurship and different environmental conditions. Our results hint at a much more complex association than heretofore discussed in the literature. Such studies will help to explain why the mix of entrepreneurship forms varies so widely at the national level.

Future research could also investigate the role of government and universities versus corporations in enhancing the environment for innovation in a country, particularly given the fact that our results show a negative association between innovative context and market-driven entrepreneurship. If organizations are primarily responsible for producing a society's science and technology, then it would make sense that they reap the rewards from this. However, does investment in R&D by government and universities also benefit corporations more than entrepreneurs? Whichever is the case, future research could examine the benefits to society, for example the level of value generated for stakeholders when entrepreneurship occurs in startups versus in organizations.

## 5.3. Implications

Implications for institutional theory include recognizing that basic institutional conditions do not necessarily influence all aspects of entrepreneurship evenly. Entrepreneurs can rely on other mechanisms to get their businesses started, or they may nonetheless have the motivation or means to act, even when the institutional environment is not well developed. However, certain forms of entrepreneurship will benefit from basic institutions, such as innovative entrepreneurship.

Institutional theory also needs to consider the impact of the environment on individual preferences and behavior, particularly when a well-functioning environment poses opportunity costs on autonomous entrepreneurship. Where basic institutions and efficient markets are well developed, but the environment for innovation is rather hostile, innovative entrepreneurs arise and seize opportunities others cannot see. The combination of strong institutions, efficient markets, and conditions that favor innovation, however, benefits corporations, as they can offer attractive jobs to those who might otherwise consider starting a business on their own. Innovative entrepreneurship in a startup may look less attractive than taking a stable, well-paying job as an innovator inside an established and resource-rich organization, when a country has an innovation-friendly context and innovation is promoted in society.

Finally, institutional theory should account for the power of organizations in changing and leveraging the environment for entrepreneurship. For example, it has long been understood that large and powerful organizations have the means to influence the environment

and appropriate resources from it (Aldrich, 1979; Pfeffer & Salancik, 1978). While startup entrepreneurship is often seen as leaping over slowly moving, inertial giants, this study shows that organizations can attract entrepreneurs and engage in entrepreneurial activity. Yet to the extent the environment, and powerful large organizations, deter startup entrepreneurs, society may miss out on this latter form of business activity.

For policy, the findings suggest that a simple examination of startup rates, or a limited focus on particular forms of this activity, does not provide a complete understanding of the environmental impact on different types of entrepreneurs. Improving conditions in the environment can encourage innovative entrepreneurship, which provides benefits for societies from the introduction of new and unique products and services. However, policy makers need to be aware that investments directed toward enhancing the context for innovation may favor corporate entrepreneurship over innovative startup activity, given the risks attached to innovative entrepreneurship.

Our results stress the need for policy makers to be very specific about the types of entrepreneurship they want to encourage, rather than press for more entrepreneurship generally, and to recognize that in particularly favorable institutional contexts, a significant amount of innovative entrepreneurship may occur within established organizations. For business leaders in competitive economies, attracting and enabling employees with an entrepreneurial mindset will increasingly become a key to corporate survival. Entrepreneurship educators need to think beyond their traditional context of early-stage entrepreneurship and engage much more deeply in the world of corporate entrepreneurship. It may be the case that encouraging a mix of entrepreneurship forms is key to the development and continued health of an economy.

For practice, market-driven entrepreneurs might examine the quality of institutions and markets around them, perhaps considering where they should conduct their business activities and how they can leverage strengths and overcome constraints in their environment. At the same time, for those who are weighing the advantages of starting businesses for their employers, versus launching innovative startups, an assessment of conditions in the environment will be key. Particularly where external factors promoting innovation are a limitation for startups, they may opt for a corporate venture, or they will need to identify how they can build thriving businesses that cultivate their society's science and technology foundations.

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