

The role of institutions in latent and emergent entrepreneurship

Article

Accepted Version

Creative Commons: Attribution-Noncommercial-No Derivative Works 4.0

Audretsch, D. B., Belitski, M., Caiazza, R. and Desai, S.
(2022) The role of institutions in latent and emergent
entrepreneurship. *Technical Forecasting and Social Change*,
174. 121263. ISSN 0040-1625 doi:
10.1016/j.techfore.2021.121263 Available at
<https://centaur.reading.ac.uk/100873/>

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

To link to this article DOI: <http://dx.doi.org/10.1016/j.techfore.2021.121263>

Publisher: Elsevier

All outputs in CentAUR are protected by Intellectual Property Rights law, including copyright law. Copyright and IPR is retained by the creators or other copyright holders. Terms and conditions for use of this material are defined in the [End User Agreement](#).

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

The Role of Institutions in Latent and Emergent Entrepreneurship

David B. Audretsch

School of Public and Environmental Affairs, Indiana University Bloomington, 1315 E. 10th
Avenue SPEA Bloomington, IN 47405, USA

Email: daudrets@indiana.edu

Maksim Belitski

Henley Business School, University of Reading, Whiteknights campus, Reading, RG6 6UD, UK

Email: m.belitski@reading.ac.uk

ICD Business School, Rue Parodi 12, 75010, Paris, France

mbelitski@groupe-igs.fr

Rosa Caiazza

Dipartimento di Studi Aziendali e Quantitativi, Università di Napoli Parthenope, Via G.
Parisi, 13, 80132, Italy

rosa.caiazza@uniparthenope.it

Sameeksha Desai

School of Public and Environmental Affairs, Indiana University Bloomington, 1315 E. 10th
Avenue SPEA Bloomington, IN 47405, USA

Email: desai@indiana.edu

Abstract: Drawing from perspectives on institutional hierarchy (Williamson) and social embeddedness (Granovetter), we examine the role of embeddedness, formal institutions and governance in shaping latent and emergent entrepreneurship. We examine the role of heterogeneous institutional conditions - corruption, social relationships, property rights and government size – matter across 66 countries between 2005 and 2015. Our findings demonstrate that heterogeneity of institutional conditions and heterogeneity of entrepreneurship outcome are important and not monolithic. Notably, we find that while corruption impedes both latent and emergent entrepreneurship, this effect lasts almost three times as long for latent entrepreneurship. We also find that entrepreneurs in countries with more corrupt contexts have lower aspirations to start and own a business.

Keywords: Institutions, governance, corruption, property rights, entrepreneurship, networks

1. INTRODUCTION

A consensus has emerged in the research on institutions and entrepreneurship that institutions have an important role to play (Audretsch, Belitski, Chowdhury, & Desai, 2021; McMullen, Bagby, & Palich, 2008; Stenholm, Acs, & Wuebker, 2013; Colombo, Cumming, & Vismara, 2016). This raises “next generation” questions related to institutional heterogeneity, such as how, which and when institutions matter for entrepreneurs (Audretsch and Moog, 2020; Dutta and Sobel, 2016, 2018, 2020).

These questions sit at the intersection of three streams of research that are relevant to entrepreneurship. Firstly, the emergence of entrepreneurship is not strictly dichotomous (Mickiewicz, Nyakudya, Theodorakopoulos, & Hart, 2017), and there can be stages and activities that precede new business activities (Bennett & Chatterji, 2017). Related to this, not everybody who is interested in starting a business might ultimately do so.

Secondly, institutions are heterogeneous, as are their impacts on entrepreneurship (Granovetter, 1985; Aidis, Estrin, & Mickiewicz, 2012; Bennett, 2020). Some institutions may matter while others do not, and there may be nonlinearities or permutations of institutions that shape how entrepreneurs perceive and act on opportunity (Bergmann & Stephan, 2013; Braunerhjelm & Eklund, 2014; Elert, Henrekson, & Sanders, 2019; Audretsch et al., 2019, 2021; Amorós et al., 2019).

Thirdly, the nature and type of entrepreneurship outcomes and activities themselves can differ across institutional contexts (Autio et al., 2014; Acs, Autio, & Szerb, 2014; Audretsch & Belitski, 2017). The body of research on the allocation of entrepreneurship is growing, including research on formal and informal (North, 1990; Thai and Turkina, 2014), productive, unproductive and destructive, (Desai, Weitzel, & Acs. 2014, Sanders & Weitzel, 2013; Baumol, 1990), high-impact (Stenholm et al., 2013), and necessity and opportunity (Amoros et al., 2017; Angulo-Guerrero, Perez-Moreno, & Abad-Guerrero, 2017; Audretsch et al., 2021) entrepreneurship.

There has been relatively less research at the intersection of these three streams: how do different institutions affect different forms of entrepreneurship? In particular, there is a need for more insight on engagement in potential or aspirational entrepreneurship (latent) and newly formed ventures (emergent) (Parker, 2004, 2018; Caiazza et al., 2020).

Individuals may respond differently to heterogeneous institutions depending on their motivations and stage of emergence (see Van der Zwan, Thurik, & Grilo, 2010; Angulo-Guerrero et al., 2017; Audretsch et al., 2021). To understand the heterogeneity of institutions, we bring together Williamson's (2000) hierarchy of institutions and Granovetter's (1985) social embeddedness approach. This allows us to theorize on a framework of informal, formal, and governance settings alongside the role of entrepreneurial networks. We investigate how these institutional contexts and their interactions affect latent and emergent entrepreneurship using longitudinal data from 66 countries over the period 2005-2015. Our findings demonstrate entrepreneurship stages can be affected in different ways by specific institutional settings, and by the interplay between institutions.

In doing so, we respond to calls to study a variety of institutions to understand entrepreneurship (McMullen et al., 2008; Estrin et al., 2020) and a need for more fine-grained analysis of institutional context (see Estrin et al., 2013; Audretsch et al., 2021). We make several contributions to research on entrepreneurship and institutions. Firstly, we bring together social relationships (Granovetter, 1985) with an economic hierarchy of institutions (Williamson, 2000). We study the effects of heterogeneous institutions to answer questions about how and which

institutions matter (Dutta & Sobel, 2020; Audretsch et al., 2021). We address the role of government size and property rights, conditional on changes in informal institutions (corruption). Secondly, we consider the heterogeneity of entrepreneurship outcomes and how they may differ and respond to institutions. Our examination of latent and emergent entrepreneurship adds to growing research on the allocation of entrepreneurship, which has largely studied entrepreneurs who have already taken action (Baumol, 1990; Stenholm et al., 2013; Desai et al., 2014; Sanders & Weitzel, 2014; Amorós et al., 2017; Audretsch et al., 2021).

In the next section, we discuss the relevant literature and our hypotheses. In the third section, we discuss our data and method, followed by findings, discussion and conclusions.

2. LITERATURE AND HYPOTHESES

Although entrepreneurship is often treated as a binary outcome – that an individual either owns a business or does not – this treatment does not reflect the complicated process (see Minniti & Lévesque, 2010) and full spectrum of entrepreneurial engagement. The challenges facing potential or aspiring entrepreneurs and the challenges facing existing entrepreneurs can differ in type and magnitude (Looze and Desai, 2020), and individuals may be interested in starting a business long before ever taking action to do so (and may never do so).

Latent entrepreneurs represent the pool of potential future entrepreneurs whose future decisions to start a business have important consequences for economic dynamism. While latent entrepreneurs could go on to start the intended business, they could also decide to abandon their plans to do so. Emergent entrepreneurs represent the newest group of entrepreneurs, and their actions and outcomes are not only reflective of current conditions but can also serve as a signal to latent entrepreneurs about the business ownership experience and challenges. Research thus far has focused on emergent entrepreneurship, with little attention being paid to latent entrepreneurship (Caiazza et al., 2020)¹. The topic we address therefore reflects a gap in the literature and is an important policy question.

2.1. *Institutions matter*

Institutions affect entrepreneurial decision-making (Aidis et al., 2012; Autio et al., 2014; Webb et al., 2020) and incentives to start a business and engage in value-adding activities (Amorós et al., 2019), as well as switching (McMullen et al., 2008; Gohmann, 2012) and transaction costs (Coase, 1937). Considerable research shows that the structure, size and quality of institutions – which represent explicit and hidden rules that influence economic exchange (North 1990, 2005; Williamson, 2000) – shape the context in which entrepreneurs operate (Baumol, 1990; Elert et al., 2019; Audretsch et al., 2019).

Williamson (2000) identifies four levels of institutional settings. Embeddedness (level one) reflects informal institutions, such as norms and customs (North, 1990), which he considers are “noncalculative” and develop spontaneously. Embeddedness and informal norms can shape how people think about entrepreneurs as well as how they perceive and respond to other individual, legal and administrative factors (Anokhin and Schulze, 2009). For example, corruption can be deeply rooted in the economy and difficult to change (Nielsen 2003; Baumol, 1990). In addition to influencing entrepreneurship directly, the embeddedness level can also adapt to other conditions in the institutional environment. When thinking about embeddedness and norms, we also consider Granovetter (1985), who argued that social relations at the micro level are

¹ Research has also examined individuals who might be considered to be in between latent and emergent: these nascent entrepreneurs are “taking active steps to start a business” (van Stel, Storey, & Thurik, 2007).

important for incentives that drive entrepreneurship. These relationships can be important crucial in shaping norms and shared contexts among people, providing channels for information sharing. We therefore also consider the role of networks and relationships that can matter for entrepreneurship.

The formal institutional environment (level two) refers to the rules of the game, including those in the bureaucracy, judiciary, and polity (Williamson, 2000). Formal institutions mandate the requirements for entrepreneurship and provide guidance on what entrepreneurs can do to obtain a specific result. For example, a latent entrepreneur who decides to take the action of registering a limited liability company will have specific guidelines from the appropriate authority on the documents needed, steps in the process, and filing costs. The system of property rights defines ownership of assets and also how profits are appropriated, and in this way shapes incentives for entrepreneurship (see Acemoglu & Johnson, 2005; Fogel et al. 2006). For example, insecure property rights can increase uncertainty about being able to keep the gains from business ownership (see Desai et al., 2014).

Governance (level three) refers to the “play of the game”, which relates to transaction costs. This is important because even when there are rules, they may not tell the full story, as different countries may vary in their ability to enforce and implement the rules. For example, public administration capabilities can shape whether and how rules are acted upon. Registering property may be subject to guidelines which are well designed, but a government may not have the capability to staff, monitor, and manage them. Government size can serve as a type of knowledge filter for entrepreneurial ideas (Audretsch & Keilbach, 2008) which generates additional costs to entrepreneurs through a variety of mechanisms.

Williamson (2000) points out that formal institutions and governance (levels two and three) can be treated together as regulatory institutions, but for our purposes we treat them separately in line with the explicit layering in his framework. We are interested in disentangling rules from the capability to govern based on those rules.

Resource allocation and employment (level four) relate to incentive alignment, such as employment, pricing and quantities. These settings are important because they reflect the allocation of resources, including entrepreneurial talent, to various activities; the three levels of institutions can influence resource allocation by entrepreneurs and entrepreneurial decision-making about value creation.

Williamson's hierarchy of institutions offers a theoretical framework for institutional influences on entrepreneurship which also allows us to consider social relations in the line of Granovetter's (1985) work. Institutions can be non-linear in their influence on entrepreneurship activities and can interact with each other (Audretsch et al., 2021). Our focus considers institutions which are social, political and economic in nature by bringing together business climate research (Belitksi et al., 2016; Dutta & Sobel, 2016, 2020) with recent work demonstrating the relevance of democratic institutions, economic freedoms and regime durability (Guerrero et al., 2017; Audretsch & Moog, 2020).

2.2. Embeddedness layer: corruption and social networks, and entrepreneurship

Corruption varies across countries in its pervasiveness and effects, and reflects the use of public office in gaining a private benefit (see Rose-Ackerman, 2007; Mauro, 1995). People can face corruption in their daily lives as well as specifically when engaging in business-related transactions. For entrepreneurs in some countries, dealing with corruption may be embedded and assumed (see Estrin et al., 2013; Audretsch et al., 2021).

Corruption could affect people who are interested in starting a business directly by shaping how they assess potential profits and risk. These effects include diminished trust, which can increase the risk of engaging in transactions with the government. A latent entrepreneur in a highly corrupt context might not reliably know how much it will cost to start and run a business. If paying bribes is done frequently, then entrepreneurs can lose trust in formal institutions and may turn their attention to managing uncertainty due to increased cost of doing business. This can make it difficult to predict their expected profits in order to determine the feasibility of starting a business. More broadly, a high level of corruption means that funds that were meant to become public sector resources are instead diverted privately. This could lead to resource restrictions that can limit entrepreneurial opportunities and investment in infrastructure that may have otherwise been funded by tax revenues, discouraging latent entrepreneurs .

Corruption can raise the risk and cost of doing business, even if emergent entrepreneurs may engage in it, and can affect costs directly and indirectly. It redirects funds from other spending that the entrepreneur might undertake, so that those funds are not used for other purposes like growth-oriented activities in the business. While there has been debate about whether corruption might be a “grease” or “sand” for economic activities including entrepreneurship (Audretsch et al., 2021; Dreher & Gassebner, 2013, Méon & Sekkat, 2005; Shleifer & Vishny, 2002), the consequences of corruption transcend a single act. Corruption diverts time and effort, redirecting the entrepreneur to negotiating bribes and managing relationships with bureaucrats, instead of engaging in value creation and business activity. If a bribe can be used to achieve or facilitate an outcome, this reflects that stated rules are not the only way business is being conducted. This also means that corruption can expose entrepreneurs to a risk of continued future exploitation (see Audretsch et al., 2021). When corruption is high, emergent entrepreneurs may consider that corruption might be useful. For example, they may face short-term difficulties if their competitors pay bribes to reduce costs or gain access to resources or opportunities. However, they also face long-term disadvantages, such as a greater risk of exploitation, the effects of time and resource diversion on their ability to work on the business, and loss of trust in the systems which govern entrepreneurship (Desai et al., 2013; Audretsch et al., 2021).

The effects of corruption are therefore expected to be negative for latent and emergent entrepreneurs. We hypothesize that:

Hypothesis 1: Corruption discourages latent and emergent entrepreneurship.

In line with Granovetter’s (1985) work on the importance of social relationships in shaping economic decisions, it is important to consider social relationships when looking at embeddedness. Social networks, and business networks in particular, can help entrepreneurs find the resources required for business creation (Aidis et al., 2008, 2012) as well as via social learning (Minniti et al., 2005). Having networks with other entrepreneurs can open up opportunities to share information, learn about resources, processes and shared questions of interest, and pathways or programs for financing (see Belitski & Desai, 2019).

Latent entrepreneurs may tap into their networks to explore the entrepreneurial ecosystem (Audretsch & and Belitski, 2017), and access to entrepreneurial networks can help newcomers to the market obtain information about specifics (like norms, regulations, technical information, market opportunities) related to their business and industry. This can be especially important for latent entrepreneurs facing a confusing or opaque institutional context.

Emergent entrepreneurs already have relationships because of their time in business, which can give them advantages in accessing information and opportunities. For example, emergent

entrepreneurs may learn of partnership or market opportunities through other business owners, and may be able to organize their response using their existing business processes. Alternatively, entrepreneurs wishing to expand or who see new opportunities may seek partners among their networks, and people outside their networks may not learn about the opportunity. Accordingly, we posit that entrepreneurial networks benefit both latent and emergent entrepreneurs, but are more helpful for emergent entrepreneurs. We thus posit that:

Hypothesis 2A: Entrepreneurial networks encourage both latent and emergent entrepreneurship, with a stronger effect for emergent entrepreneurs.

Entrepreneurial networks may reduce transaction costs by allowing latent and emergent entrepreneurs to benefit from local contacts, knowledge, and opportunities (see Brown and Mason, 2017), and a low-corruption context should not interfere with this. Both latent and emergent entrepreneurs should be able to benefit from their entrepreneurial networks when they are not faced with corruption.

The relationship between corruption and entrepreneurial networks can be important if forms of corruption are tied to social networks and the nature of reciprocity (see Karhunen et al., 2018). In an institutional void (see Webb et al., 2020) where corruption may be high, other settings may compensate for one another. In a high-corruption context, this is relevant because latent and emergent entrepreneurs may attempt to leverage their entrepreneurial networks to cope with corruption. Latent entrepreneurs may turn to their networks to understand how to manage and navigate a corrupt environment. In a context of high corruption, emergent entrepreneurs may also try to use their networks to obtain information or complete transactions without engaging with corrupt officials. They might try to make deals which bypass the government, and work within their trusted relationships to stay off the radar.

However, the risks posed by a high level of corruption may make it difficult for a latent entrepreneur to complete early new business needs. In addition, even if latent entrepreneurs have entrepreneurial networks, those entrepreneurs are likely to also already have established business contacts with their own networks of emergent entrepreneurs with whom they have previously worked. This kind of environment may motivate emergent entrepreneurs to rely on tighter and smaller networks, which could limit their opportunities outside of their immediate networks. A highly corrupt context poses many other problems for latent entrepreneurs (as well as problems of information or navigating bureaucracy), such as dealing with the labor market consequences of underfunded education systems. Although corruption may mean that some latent and emergent entrepreneurs are able to use their entrepreneurial networks to their advantage, this is likely also to have the effect of concentrating resources and information among these networks. This can create stable sub-systems (see Nielson, 2003) that may ultimately limit opportunities for new entrepreneurs outside the network. Although some entrepreneurs might be able to leverage their networks in highly corrupt contexts, we posit that the larger effects of corruption will be harmful:

Hypothesis 2B: A higher corruption context will decrease the positive influence of entrepreneurial networks on latent and emergent entrepreneurship.

2.3. Formal institution layer: Property rights and entrepreneurship

Property rights are at the heart of economic activity (Williamson, 2000), and can play an important role in determining who appropriates the gains from entrepreneurship, as well as how and what entrepreneurs can leverage as resources. Effective government ensures the protection of property rights for small and large businesses and secures property (Weingast, 1995).

Property rights can influence entrepreneurs as they assess the risk of expropriation by government (“vertical”) and the quality of contracting institutions (“horizontal”) (Acemoglu and Johnson, 2005) that enforce them. Prospect theory (Kahneman & Tversky, 1979) suggests that the impact of strong property rights could matter when a latent entrepreneur evaluates potential expected gains and losses of the potential future business activity. A low risk of expropriation can reduce the cost of negotiating with the government and securing property, which can make starting a business more attractive for latent entrepreneurs. In the same way, the possibility of expropriation for emergent entrepreneurs should increase the risk of engaging in business activities if they have no mitigation or coping means, and may serve as a disincentive to stay in business. Insecure property rights may threaten work they have done or assets they have already acquired.

Property rights can influence investors, who may need to consider not only if the business idea is viable but also if their investment will be protected. Weaker protections for investors can increase their reluctance to invest in entrepreneurial ventures, which can hurt both latent and emergent entrepreneurs. Investors working in environments of insecure property rights face uncertainty over their investment and may be less willing to risk their money (Desai et al., 2013). We therefore expect:

Hypothesis 3A. Secure property rights will encourage latent and emergent entrepreneurship.

Considering corruption can be important in understanding the effectiveness of property rights (Chowdhury et al., 2019; Desai et al., 2014) because entrepreneurs navigate sources of finance, and potential investors may be less or more protected (Estrin et al., 2013). In a highly corrupt environment, entrepreneurs may not be able to rely on fair treatment, could lose business if favors or payments are part of decision-making among officials and they do not pay, and risk loss of investment into the business. This can mean that entrepreneurs will face higher costs of getting information and enforcing agreements, and also will have to manage the direct financial burden associated with corruption. We hypothesize that:

Hypothesis 3b. Higher levels of corruption will reduce the positive relationship between secure property rights and latent and emergent entrepreneurship.

2.4. Governance layer: government size and entrepreneurship

Governance is important because entrepreneurs can be affected by how and with what resources a country is able to oversee the formal rules of the game. Of particular interest is *government size*, because it represents the set of resources available for governance and to directly oversee the rules and norms facing entrepreneurs. This can be both a direct and indirect influence because it affects almost every dimension related to entrepreneurship.

Access to education and healthcare can support the development of a high-quality labor force, which benefits entrepreneurs in terms of their own abilities as well as being able to find skilled employees as they grow their businesses. In some countries government has become involved in financing for entrepreneurship, as well as access to debt and venture capital (see Colombo et al., 2016), which could mean more resources are available for the business sector. Emergent entrepreneurs who have already demonstrated the viability of their products in the market and incurred sunk costs of entry are likely to be in a position to obtain such funding (Sørensen, 2007).

At the same time, having more resources does not necessarily mean they are spent well. Larger government size could be associated with inefficiency in the distribution of public funds,

resource waste (see Estrin et al., 2013; Aidis et al., 2010; Bjørnskov & Foss, 2008), and socially negative outcomes such as corruption (Aidis et al., 2010). More government can mean more offices, more procedures, more oversight, more management, and generally more required interactions between entrepreneurs and government functions. This can lead to overregulation if too wide (Belitski et al., 2016). If this occurs, entrepreneurs could see higher costs related to compliance and uncertainty (Rothstein & Teorell, 2008). In such a scenario, entering the market could be complicated by additional red tape (Audretsch & Keilbach, 2008) and greater administrative burdens, which may discourage latent entrepreneurs.

Hypothesis 4a: Larger government has a negative effect on both latent entrepreneurship and emergent entrepreneurship, with the effect being larger for latent entrepreneurs.

As larger government means more officials and more levels of requirements and interactions, this could be viewed as difficult and expensive. Larger government size does not necessarily mean that the public sector can carry out its activities effectively and efficiently. In a highly-corrupt environment, larger government can be discouraging because it could also mean more opportunities for rent-seeking and bribes. An increase in corruption along with an increase in government size should deter latent and emergent entrepreneurs.

Given that emergent entrepreneurs are the most recent entrants to the market, the broad effect of more corruption and larger government should be largely negative. There are of course some entrepreneurs who could concentrate resources and ownership, making it more difficult for potential competitors. These could include emergent entrepreneurs who have recently entered the market, as well as latent entrepreneurs who may want to do so.

In addition, a larger government could mean that entrepreneurs have fewer market opportunities due to a dominant public sector presence. We thus hypothesize as follows:

Hypothesis 4b: More corruption will increase the negative effect of government size on latent and emergent entrepreneurship.

3. DATA AND METHOD

3.1. Sample

Our sample was constructed by matching data from several country level sources: the World Bank Group Entrepreneurship Snapshot, the World Bank Doing Business Project (DB), the World Development Indicators (WDI), the Global Entrepreneurship Monitor (GEM) and the World Governance Indicators (WGI). Our sample includes both developed and developing countries, as we are interested in capturing the diversity of country institutional contexts. The dataset is an unbalanced panel which covers 66 countries over the period 2005–2015, and includes 21 countries which were observed for less than 4 years (Table 1). Our final sample includes 299 observations.

Insert Table 1 about here

The variables differ across and within countries over time. This enables us to test for relationships between three levels of institutions and a fourth level of allocation to latent and emergent entrepreneurship. We use unbalanced panel data estimation, which includes other controls for institutional dynamics and broader conditions (Stenholm et al., 2013; Estrin et al., 2013; Cumming, Johan, & Zhang, 2014), such as media attention, capital, economic development, and democratic institutions.

3.2. Dependent variables

We measure *latent entrepreneurship* as the percentage of the population aged between 18 and 64 years old who intend to start a new venture or own a new business within the next 3 years, but have not yet taken action to start a business. This aligns with Gohmann's (2012) view of an individual with the aspirations and preference to become self-employed or own a business but who has not yet done so.

We measure *emergent entrepreneurship* as the percentage of the 18-64 population who have been the owner-manager of a business for at least 42 months (Caiazza et al., 2020). Both measures are taken from Global Entrepreneurship Monitor (GEM).

Latent and emergent entrepreneurship in our sample are positively correlated (0.28). A list of all variables, their descriptions and sources are presented in Table 2.

Insert Table 2 about here

3.3. Key explanatory variables

Corruption. In order to measure the level of corruption we use the control of corruption indicator available from the Worldwide Governance Indicators. It captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. The indicator varies between -2.5 (low corruption) to 2.5 (high corruption) and reflects perceptions of corruption in the business environment, including levels of governmental administrative, judicial and legal corruption. We divide the index into four quartiles, from very low corruption (quartile one) to very high corruption (quartile 4). We took the annual difference between the corruption quartiles over one, two, three and four years to demonstrate the *change* in the level of corruption in a country over time. More specifically, this allows us to test adjustment to corruption, and we therefore tracked this difference over a four-year period.

Entrepreneurial network. We standardize an individual-level measure from GEM which reflects if a respondent knows an entrepreneur involved in a start-up personally. It is measured from 0 to 100, and reflects entrepreneurial network (see Estrin et al., 2013) access and social ties.

Property rights. In line with Acemoglu and Johnson (2005), we use a measure of property rights that reflects the degree to which a country's laws protect private property rights and the extent to which those laws are respected (0 means no property rights; 100 means full protection of property rights). This comes from the World Development Indicators. In a supplementary test, we also investigate the role of intellectual property rights (IPR) using a continuous variable from 1 to 100. We take this from the World Economic Forum, and standardized it in our analysis.

Government size. We use tax revenue as a share of gross domestic product (GDP), taken from the World Development Indicators (McMullen et al., 2008; Aidis et al., 2012; Belitski et al., 2016; Braunerhjelm et al., 2019). Because the scale and scope of government activities relates to the public revenues base that enables implementation and enforcement of the rules of government, this measure reflects resource size capabilities for governance.

3.4. Control variables

Given the importance of capital for entrepreneurs (Cumming et al., 2014; Colombo et al., 2016), we use the variable *public credit bureau* from the World Bank Doing Business data. This

is calculated as the share of individuals and firms in the population listed by a private credit bureau with information on borrowing history from the past 5 years.

We use GDP per capita in constant 2010 USD prices (taken in logarithms) to generate our measure for economic development, taken from the World Bank. We use the binary variable *rich* which has a value of one for countries with GDP per capita above \$25,000 in 2010 constant prices, and 0 for countries below this threshold. The binary variable *rich* is used instead of GDP per capita due to multicollinearity with the corruption measure².

We account for relative differences in skills of the labor force from which entrepreneurs and potential employees come (Audretsch et al., 2019) with a *human capital* measure for enrollment in tertiary education, taken from UNESCO. We control for *unemployment* using World Bank data, because labor market changes can influence the supply of entrepreneurs (Thurik et al., 2008).

We include *tax time*, which reflects the number of days required to pay taxes, taken from the Doing Business data.

We include a measure of *social affinity* for entrepreneurship, measured as the share of the adult population who agree with the statement that they see stories in the media about successful new businesses (see Stenholm et al., 2013).

Finally, the broader environment for entrepreneurs can be shaped by the extent of freedom (Bennett, 2020) and democracy (Audretsch and Moog, 2020) in a country. We use the Polity5 measures of efficient constraints on the arbitrary power of government (Marshall and Jaggers, 2007; Acemoglu and Johnson, 2005; Estrin et al., 2013). To proxy for democratic institutions we include *democracy*, measured from zero to 10 (no democracy to full democracy), as well as *regime durability*, measured as the number of years since last political change (Dutta and Sobel, 2016, 2020; Bennett, 2020). These two measures of democratic institutions are positively correlated with the extent of property rights, and negatively correlated with corruption.

Insert Table 3 about here

3.5. Identification strategy

We use random effects panel data estimation with country and year fixed effects to address unobserved heterogeneity using time and country fixed effects. The following model was estimated:

$$y_{it} = f(\beta x_{it}, \Theta z_{it}, \alpha_i, \lambda_t, \mu_{it}) \quad i=1, \dots, N; \quad t=1, \dots, T \quad (1)$$

where y_{it} is latent or emergent entrepreneurship rate – our dependent variables of a country i at time t . β and Θ are parameters to be estimated, x_{it} is a vector of independent explanatory variables following the four levels of Williamson's (2000) institutions: corruption, entrepreneurial networks, property rights, government size; z_{it} is a vector of exogenous control variables; α_i presents time fixed effects to capture potential changes over time for all countries (e.g. economic crises, epidemics, changes in social provisions, etc.); and λ_t presents country fixed effects to measure the potential changes within each country over time (e.g. other cultural norms and dimensions, spatial effects and other). μ_{it} is an intercept which includes random effects. We estimate five

² Our model needs to address a multicollinearity issue as corruption was highly correlated with GDP per capita (−0.86). We therefore used the variable *Rich* to proxy the level of economic development as a \$25,000 cut-off point, which is less correlated with corruption (see Table 2).

specifications of (1) using four different year lags for the change in a country's level of corruption, starting from a one-year difference $t_0 - t_{-1}$ to up to a four year difference in corruption $t_0 - t_{-4}$.

All other independent variables are lagged by one year. In addition to the model (1) we estimate (2) adding interactions between differences in corruption level with each institutional characteristic – our independent variables (φ_{it}):

$$y_{it} = f(\beta x_{it}, \psi \varphi_{it}, \Theta z_{it}, \alpha_i, \lambda_t, \mu_{it}) \quad i=1, \dots, N; \quad t=1, \dots, T \quad (2)$$

where y_{it} is latent (emergent) entrepreneurship rate – our dependent variables of a country i at time t . β , ψ and Θ are parameters to be estimated, x_{it} is a vector of independent explanatory variables following the four levels of Williamson's (2000) institutions: corruption, property rights, government size and social networks; z_{it} is a vector of exogenous control variables; φ_{it} is a vector of interactions between institutional characteristics and changes in corruption; α_i presents time fixed effects; and λ_t presents country fixed effects; μ_{it} is an intercept which includes random effects. As in the previous model, changes in corruption were estimated from one-year differences $t_0 - t_{-1}$ to four-year differences $t_0 - t_{-4}$. Interaction effects were applied to check if the effect of the formal and governance institutions (levels two and three) on the rate of entrepreneurship activity is conditional on the slower-changing informal institutions (e.g., corruption) (Bell and Jones, 2014).

Our study may be subject to potential endogeneity if the country-year growth ambitions of latent and emergent entrepreneurs, when aggregated, affect some of the macro variables (for instance, unemployment rate or economic development). We alleviate this issue by lagging the control and independent institutional variables by one year - the longest available without reducing the sample size. To investigate potential multicollinearity, we calculated variance inflation factors (VIFs) for all our variables. Apart from the interaction term between corruption and entrepreneurial networks, we found no indication of multicollinearity problems. The VIFs for all other variables are well below the conventional level of 10. Moreover, to some extent the impact of multicollinearity is counterbalanced by the sample size (Goldberger, 1991) which can be another source of instability in coefficients. We took a cut-off of over 0.7 (for the correlation matrix in Table 3, as a robustness check, to exclude the variables that showed multicollinearity).

We lagged all independent and control variables by one year, as there may be a lag for entrepreneurs to observe and react to changes in policy, public spending, corruption, and so on. It is plausible to assume that some changes may affect outcomes in the years after.

4. RESULTS

Our empirical results are presented in Table 4. We report a variety of specifications to indicate the robustness of our findings. First, we report the model for latent entrepreneurship (specifications 1-5) and then for emergent entrepreneurship (specifications 6-10).

Insert Table 4 about here

We report model (1) without interactions as specifications (1 and 6), and then add interaction terms for the change in corruption and each of the institutional variables. Specifications 2 and 7 report change in corruption quartiles for a country over the last year, while specifications 5 and 10 report change in corruption for the period of last 4 years. Specifications 1 and 6 correspond to our baseline regression of model (1). We next perform the Chi-square

likelihood ratio (LR) test to check whether the inclusion of the peer effects improves goodness of fit, and it does. The LR ratio test statistic (see beneath Table 4) informs us that adding all the peer effects improves the fit, with the exception of specification 5, so we thereafter use specifications 4 and 9 to model the predicted margins as the specifications with the best model fit.

Finally, we explore whether the general measure of protection of property rights holds for countries with different democratic contexts (Bennet, 2020), creating an omitted variable problem. To verify this, we add democracy and regime change in every specification, along with property rights. Specifications 2-5 and 7-10 report the interaction term results, testing Hypotheses 2b, 3b and 4b: in these three specifications, we augment our model with the interaction terms between corruption quartile change and the other institutional levels we study. Each model reports loglikelihood, sigma e and sigma u, r-square within, between and overall to indicate the goodness of fit. Considering our results, we find the coefficient on corruption to be highly significant, and with the expected sign between ($\beta=-0.379$, $p=0.05$ to $\beta=-2.082$, $p=0.01$) in specifications (2 and 4) for latent entrepreneurship. The results are also negative and significant for emergent entrepreneurship, and are between ($\beta=-0.815$, $p=0.01$ and ($\beta=-1.708$, $p=0.04$). The significance of time lag is shorter for emergent entrepreneurship, which means that short-term changes in corruption level will affect both emergent and latent entrepreneurs.

Our results support Hypothesis 1, which predicted that corruption discourages latent and emergent entrepreneurship. We find that the effect is more persistent and longer (up to 3 years) for latent entrepreneurship, while it is one year for emergent entrepreneurship. This implies that people in more corrupt contexts have lower aspirations to start and own a business.

We find mixed support for Hypothesis 2A, which predicted that entrepreneurial networks encourage both latent and emergent entrepreneurship, with a stronger effect for emergent entrepreneurs. In all five specifications (Table 4) for latent entrepreneurs, the entrepreneurial network coefficient is always positive and highly significant. However, it does not affect emergent entrepreneurs already running a business (specification 6-10, Table 4). Our Hypothesis 2B predicted that a higher-corruption context decreases the positive influence of entrepreneurial networks on latent and emergent entrepreneurship. We find mixed support since the relationship of the underlying variables to latent and emergent entrepreneurship were not as expected in Hypothesis 2A.

Hypothesis 3A predicted that secure property rights encourage latent and emergent entrepreneurship, and Hypothesis 4A predicted that larger government has a negative effect on both latent and emergent entrepreneurship, with the effect being larger for latent entrepreneurs. The results of estimations in Table 3 do not support either hypothesis. The coefficients in specifications 1-10 for both institutional constructs are insignificant. We do not find a significant impact of the strength of property rights and government size on latent and emergent entrepreneurs, which is partly in line with Estrin et al. (2013) on the growth aspirations of entrepreneurs. This finding points to a question about the potential non-linearity of property rights and government size on entrepreneurship activity (Audretsch et al., 2019), as both positive and negative slopes may cancel out the direct effect. This requires further testing using predictive margins (Williams, 2012).

Figure 1 (using specifications 4 and 9) shows that even at the national level, latent and emergent entrepreneurship do not match closely. Figure 1A illustrates the predictive margins of the effect of changes in corruption, supporting a negative effect on both types of entrepreneurial activity as expected in Hypothesis 1. The effect on latent entrepreneurship is larger than on

emergent entrepreneurship. Hypothesis 2A is supported as entrepreneurial networks increase latent entrepreneurship (Figure 1D). Figure 1B demonstrates that secure property rights matter for emergent entrepreneurship, while the direct coefficient is insignificant (Table 4). The more secure property rights are, the higher the rate of emergent entrepreneurship. We find partial support for Hypothesis 3A, which predicted that more secure property rights will encourage entrepreneurship, while the effect is not higher for latent entrepreneurship as expected. Figure 1C shows that government size has no effect on either type of entrepreneurship, not supporting H4a.

Insert Figure 1 about here

4.1. Interactive effects

To make the evaluation of interactions easier, we plot (Figure 2) the corresponding predictive margins separately for latent (left) and emergent entrepreneurship (right), and across the interaction effects. We use specifications 4 and 9 (Table 4) to construct predictive margins. Our Hypotheses 2B, 3B and 4B propose that changes in corruption may influence the effect of institutional context on entrepreneurship. We perform a series of regressions following model (2) in which we interacted our three institutional measures with the corruption variable (reported in Table 4, specifications 2-5 and 7-10).

Insert Figure 2 about here

For interactions with entrepreneurial networks and change in corruption, we see support for Hypothesis 2B, which expected that a change in corruption percentile from one to three will reduce the positive effects of entrepreneurial networks for latent entrepreneurship (from 5 to 3 percent) in countries when more people know entrepreneurs (compared to the mean value). On the contrary, in countries where entrepreneurial networks are less developed, corruption can increase the latent entrepreneurship rate from 5 to 6 percent (change in corruption from 1 to 3 quartile) (see Figure 2C, left).

Our Hypothesis 2B is not supported for emergent entrepreneurs, as an increase in the share of people with entrepreneurial networks does not increase emergent entrepreneurship in countries with small or large changes in corruption (see Figure 2C, right). At the same time, in countries where a lower share of emergent entrepreneurs have entrepreneurial networks, an increase in corruption reduces the rate of emergent entrepreneurship.

Hypothesis 3B predicted that higher corruption would reduce a positive relationship between property rights and latent and emergent entrepreneurship. This is supported, as in countries with weaker property rights (1 standard deviation below the mean) an increase in corruption over the period of three years is found to reduce latent entrepreneurship (Figure 2A, left). For countries where the level of property rights is below the mean value, an increase of corruption from the first to the second quartile will reduce latent entrepreneurship from 3 to 1 percent. On the contrary, in countries with weaker property rights, corruption is tied to higher levels of emergent entrepreneurship, somewhat similar to the findings of Méon & Sekkat (2005) and Méon & Weill (2010). In countries with weaker property rights, an increase in corruption from the first to second quartile, and then to the third quartile, is associated with an increase in emergent entrepreneurship (from 6 to 8 percent). Hypothesis 3B is supported for emergent entrepreneurship, as we see that

countries with both stronger property rights and an increase in corruption have less emergent entrepreneurship activity.

We find support for Hypothesis 4B, which predicted that more corruption should increase the negative effects of government size on both types of entrepreneurship. An increase in corruption further reduces latent entrepreneurship in countries with smaller government size (see Figure 2B). The effect is observed for both latent and emergent entrepreneurship. This means moving from the first to third quartile of corruption in countries with larger government size (tax revenue to GDP) from 2 to -5 percent can reduce latent entrepreneurship. This augments related findings of Estrin et al. (2013), Aidis et al. (2010) and Bjørnskov & Foss (2008). An increase in corruption reduces emergent entrepreneurship in countries with smaller and larger government sizes, demonstrating that corruption is a destructive force and an additional tax for emergent entrepreneurs - and that both an increase in government tax revenues and corruption will depress emergent entrepreneurship. In countries with smaller government size, a change in corruption from the first to the third quartile will reduce emergent entrepreneurship (from 6 to 5 percent); for those with large government size, it will decline from 7 to 6 percent (see Figure 2B).

4.2. Control variables

In Table 4, we see three controls are positive and significant for latent entrepreneurship: economic development ($\beta = -1.75$ (-2.758), $p = 0.01$) (specifications 2-5), capital ($\beta = 0.03$, $p = 0.02$) (specifications 2-5) and better democratic institutions ($\beta = 0.02$ -0.03, $p = 0.04$) (specifications 2-5). Regime durability is positive for latent entrepreneurship ($\beta = 0.20$ -0.32, $p = 0.03$) (specifications 2-4), but the effect disappears if we control for country fixed effects³. High status of entrepreneurs matters for latent entrepreneurship ($\beta = 0.22$ -0.25, $p = 0.03$) (specifications 2-5). A one percent increase in self-employment rate corresponds with 0.12 and 0.19 percent increases in latent ($\beta = 0.12$, $p = 0.01$) and emergent ($\beta = 0.19$, $p = 0.01$) entrepreneurship respectively.

5. DISCUSSION AND CONCLUSION

We developed a model to examine how institutional heterogeneity affects latent and emergent stages of entrepreneurship. In doing so, we addressed growing calls for more fine-grained analysis on the importance and relevance of institutional settings in explaining entrepreneurial activity (Audretsch et al., 2021; Estrin et al., 2013). We integrated the economic and sociological frameworks of Williamson (2000) and Granovetter (1985), and focused on the effects of corruption, entrepreneurial networks, property rights, and government size on latent and emergent entrepreneurship. Using a cross-country dataset of 66 countries over the period 2005-2015, we employed panel data analysis and other modelling methods to test our hypotheses.

Our findings show that both latent and emergent entrepreneurship can be affected differently by a combination of changes in institutional context, adding important nuance about stage of entrepreneurship to the extant research on types of (usually emergent) entrepreneurship (see McMullen et al., 2008; Stenholm et al., 2013; Estrin et al., 2013; Audretsch et al., 2021).

Increases in government size, corruption and entrepreneurial networks do not directly affect emergent entrepreneurship - but securing property rights does. In contrast, property rights and government size do not directly affect the stock of latent entrepreneurs, while corruption and entrepreneurial network do.

³ Slow change in political regimes could almost act as a type of country fixed effects.

We consider that corruption as an institutional deficiency will reduce the positive effects of secure property rights and entrepreneurial networks on latent and emergent entrepreneurs. We also demonstrate that the negative effects of government size on entrepreneurship (see Autio et al., 2014; Estrin et al., 2013) can be further accelerated by an increase in corruption for both latent and emergent entrepreneurs. We also found that when government size is small, corruption may grease the wheels of latent entrepreneurship.

Access to entrepreneurship opportunity is important for inclusive economic development. Our results indicate that weaker property rights and corruption constrain latent entrepreneurs, whereas in contexts with weaker property rights, emergent entrepreneurs could use corruption as a type of “grease” (Méon & Sekkat, 2005; Méon & Weill, 2010). In countries characterized by a concentration of economic and financial resources among a small group, such as wealthy families and family networks (Morck et al., 2005), those who already own businesses could further enhance their advantages in accessing resources and new business opportunities by using corruption. This could deepen economic entrenchment and compound resource misallocation (see Morck et al., 2005). Not all emergent entrepreneurs benefit from this kind of entrenchment, of course. Our findings suggest that interventions in broader governance and anti-corruption can play a role, expanding opportunities for entrepreneurship could consider how in addition to direct or targeted interventions aimed specifically at increasing startup and growth opportunities for new businesses (e.g., business support services, technical assistance, business plan competitions, increasing lending to the business sector).

Unlike previous work (Aidis et al., 2010; Bjørnskov & Foss, 2008; Estrin et al., 2013), we do not find strong evidence that entrepreneurship will be crowded out by government size. The joint role of corruption and government size, and their effects independently on entrepreneurship, are an important question for future research because corruption itself has implications for government size (see Cuervo-Cazurra, 2006; Dutta & Sobel, 2016).

Overall, our findings line up with arguments which connect the impact of macro-level institutions as moderated by societal structures and networks (Meyer & Rowan, 1977; Suchman, 1995). Granovetter (1985) argued that formal governance structures and social networks drive entrepreneurship, and our findings show there are important relationships between them. Our results for latent entrepreneurship are consistent with this as the role of broader institutions (formal property rights and government size) are weaker for entrepreneurship than for entrepreneurial networks. However, we do not see this for emergent entrepreneurs. It could be the case that if an individual already owns a business, concerns about protection of property and appropriation rights are paramount.

We provide support for a nuanced understanding of how institutions for entrepreneurs are related in a complex way, as pointed out by Estrin et al. (2013, 2020), going beyond “weak” or “strong” institutions.

5.1. Limitations and future research

We consider our case for causality to come from a cross-country model with both macroeconomic and social embeddedness, allowing us to distinguish between different levels of institutions and their complexity. We were also able to examine the time effects of corruption, means how long it may take for an entrepreneur’s response to changing institutional context. (Williamson, 2000). Still, it would be useful for longer lags to be applied on other institutional variables should more extensive longitudinal data become available.

Secondly, some of our measures have limitations. GEM entrepreneurship measures can have varied comparability between developed and developing countries. We controlled for time-invariant systematic measurement errors using country-level fixed-effects, which helped to reduce concern but affected the goodness of fit of the model with limited sample size. Moreover, obtaining data on slow-changing informal institutions (Baumol, 1990) such as trust, traditions and cultural norms is inherently problematic, but worthwhile for future research. More research is needed to experiment with curvilinear relationships between institutional levels in Williamson's (2000) framework and beyond. Related to this, finding an effective proxy for governance is difficult because the "play of the game" (Williamson, 2000) is not an objective phenomenon that is easy to capture. Our measure is based on tax revenues, which allows insight broadly into resource size; however, future research could use a wide range of measures that capture governance in various dimensions.

Future research is needed on the relationship between latent, emergent and other types (e.g., high-growth) of entrepreneurs. Examining transitions from one stage to another would allow for insight on determinants of the stock of specific entrepreneurial activity and the factors influencing transitions across stages. Heterogeneity in other institutions related to intellectual property rights, appropriability of innovation, and cultural norms are useful topics for study, as well as active government, including taxes and government size (see Mickiewicz et al., 2017).

Future work could also investigate institutional characteristics and entrepreneurship under different settings of political systems (Audretsch & Moog, 2020; Dutta & Sobel, 2016) and economic access and freedoms (see Dutta & Sobel, 2020).

References

- Acemoglu, D., Johnson, S., 2005. Unbundling institutions. *Journal of Political Economy* 113, 943–995
- Acs, Z., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, 43(3), 476-494.
- Aidis, R., Estrin, S., & Mickiewicz, T. (2010). Institutions, finance and the level of development: the impact on entrepreneurship in transition. *Review of economics and institutions*, 1(1).
- Aidis, R., Estrin, S., & Mickiewicz, T. (2012). Size matters: entrepreneurial entry and government. *Small Business Economics*, 39, 119–139.
- Amorós, J., Ciravegna, L., Mandakovic, V., & Stenholm, P. (2019). Necessity or opportunity? The effects of state fragility and economic development on entrepreneurial efforts. *Entrepreneurship Theory and Practice* 43 (4), 725–750.
- Angulo-Guerrero, M., Perez-Moreno, S. and Abad-Guerrero, I. (2017) How economic freedom affects opportunity and necessity entrepreneurship in the OECD countries. *Journal of Business Research*, 73: 30-37.
- Audretsch, D. & Keilbach, M. (2008). Resolving the knowledge paradox: Knowledge-spillover entrepreneurship and economic growth. *Research Policy*, 37(10), 1697-1705.
- Audretsch, D., Belitski, M., & Desai, S. (2019). National business regulations and city entrepreneurship in Europe: A multilevel nested analysis. *Entrepreneurship theory and Practice*, 43(6), 1148-1165.
- Audretsch, D. & Moog, P. (2020). Democracy and entrepreneurship. *Entrepreneurship Theory and Practice*, 1042258720943307.
- Audretsch, D. & Belitski, M. (2017). Entrepreneurial ecosystems in cities: establishing the framework conditions. *The Journal of Technology Transfer*, 42(5), 1030-1051.

- Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097-1108.
- Baumol, W. (1990). Entrepreneurship, Productive, unproductive, and destructive. *Journal of Political Economy*, 98(5), 893-921.
- Bennett, D. (2020). Local institutional heterogeneity & firm dynamism: Decomposing the metropolitan economic freedom index. *Small Business Economics*, 1-19.
- Belitski, M., Chowdhury, F., & Desai, S. (2016). Taxes, corruption, and entry. *Small Business Economics* 47(1), 201-216.
- Bell A. & Jones K. (2014). Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data, *Political Science Research and Methods*, pp. 1-21. doi:10.1017/psrm.2014.7
- Bergmann, H. & Stephan, U. (2013). Moving on from nascent entrepreneurship: Measuring cross-national differences in the transition to new business ownership. *Small Business Economics*, 41(4), 945–959.
- Bjørnskov, C. & Foss, N. (2008). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice*, 134(3-4), 307-328.
- Braunerhjelm, P. & Eklund, J. (2014). Taxes, tax administrative burdens and new firm formation. *Kyklos*, 67(1), 1-11.
- Braunerhjelm, P., Eklund, J., & Thulin, P. (2019). Taxes, the tax administrative burden and the entrepreneurial life cycle. *Small Business Economics*, 1-14.
- Brown, R. & Mason, C. (2017). Looking inside the spiky bits: a critical review and conceptualisation of entrepreneurial ecosystems. *Small Business Economics*, 49(1), 11-30.
- Caiazza, R., Belitski, M. & Audretsch, D. (2019). From latent to emergent entrepreneurship: the knowledge spillover construction circle. *The Journal of Technology Transfer*, 1-11.
- Casson, M. (1982). *The Entrepreneur*. Barnes and Noble Books, Totowa, NJ.
- Chowdhury, F., Audretsch, D., & Belitski, M. (2019). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, 43(1), 51-81.
- Coase, R. (1937). The nature of the firm. *Economica* 4(16), 386–405.
- Colombo, M., Cumming, D., & Vismara, S. (2016). Governmental venture capital for innovative young firms. *The Journal of Technology Transfer*, 41(1), 10-24.
- Cuervo-Cazurra, A. (2006). Who cares about corruption? *Journal of International Business Studies*, 37, 803–822.
- Cumming, D., Johan, S., & Zhang, M. (2014). The economic impact of entrepreneurship: Comparing international datasets. *Corporate Governance: An International Review*, 22(2), 162–178.
- Djankov, S., Ganser, T., McLiesh, C., Ramalho, R., & Shleifer, A. (2010). The Effect of Corporate Taxes on Investment and Entrepreneurship. *American Economic Journal: Macroeconomics*, 31-64.
- Dreher, A. & Gassebner, M. (2013). Greasing the wheels? The impact of regulations and corruption on firm entry. *Public Choice*, 155(3-4), 413-432.
- Dutta, N. & Sobel, R. (2016). Does corruption ever help entrepreneurship?. *Small Business Economics*, 47(1), 179-199.
- Dutta, N. & Sobel, R. (2020). Entrepreneurship, fear of failure, and economic policy. *European Journal of Political Economy*, 101954.
- Estrin, S., Korosteleva, J., & Mickiewicz, T. (2013). Which institutions encourage entrepreneurial growth aspirations?. *Journal of Business Venturing*, 28, 564-580.

- Estrin, S., Korosteleva, J., & Mickiewicz, T. (2020). Schumpeterian entry: innovation, exporting, and growth aspirations of entrepreneurs. *Entrepreneurship: Theory and Practice*.
- Granovetter, M. (1985). Economic action and social structure. The problem of embeddedness. *The American Journal of Sociology* 91 (3), 481–510.
- Gohmann, S. (2012). Institutions, Nascent Entrepreneurship, and Self–Employment: An International Comparison. *Entrepreneurship Theory and Practice*, 36(2), 295–321.
- Grilo, I. & Irigoyen, J. (2006). Entrepreneurship in the EU: To wish and not to be. *Small Business Economics* 26(4), 305–318.
- Kahneman, D. & Tversky, A. (1979). Prospect Theory: an analysis of decision under risk. *Econometrica* 47 (2), 263–291.
- Looze, J. & Desai, S. (2020) Challenges along the entrepreneurial journey, Ewing Marion Kauffman Foundation.
- Marshall, M. & Jagers, K. (2007). Polity IV Project. Centre for Systemic Peace.
- McMullen, J., Bagby, D. & Palich, L. (2008). Economic freedom and the motivation to engage in entrepreneurial action. *Entrepreneurship Theory and Practice*, 32(5), 875–895.
- Méon, P. & Sekkat, K. (2005). Does corruption grease or sand the wheels of growth?. *Public choice*, 122(1-2), 69–97.
- Méon, P. & Weill, L. (2010). Is corruption an efficient grease?. *World Development*, 38(3), 244–259.
- Mickiewicz, T., Nyakudya, F., Theodorakopoulos, N. & Hart, M. (2017). Resource endowment and opportunity cost effects along the stages of entrepreneurship. *Small Business Economics*, 48(4), 953–976.
- Méon P. & Sekkat, K. (2005). Does corruption grease or sand the wheels of growth? *Public Choice* 122(1-2): 69–97.
- Meyer, J. & Rowan, B. (1977). Institutionalised organisations: formal structures as myth and ceremony. *The American Journal of Sociology* 83 (2), 340–363.
- Minniti, M. & Lévesque, M. (2010). Entrepreneurial types and economic growth. *Journal of Business Venturing* 25, 305–314.
- Minniti, M., Arenius, P. & Langowitz, N. (2005) Global Entrepreneurship Monitor: 2004 Report on women and entrepreneurship.
- Morck, R., Wolfenzon, D. & Yeung, B. (2005). Corporate governance, economic entrenchment, and growth. *Journal of Economic Literature*, 43(3): 655–720.
- Nielsen, R. (2003). Corruption networks and implications for ethical corruption reform. *Journal of Business Ethics*, 42(2): 125–149.
- North, D. (1990). Institutions, institutional change and economic performance. Cambridge University Press, Cambridge, U.K.
- North, D. (2005). Understanding the process of economic change. Princeton University Press, Princeton, NJ.
- Parker, S. (2004). The economics of self-employment and entrepreneurship. Cambridge University Press.
- Parker, S. (2018). The economics of entrepreneurship. Cambridge University Press.
- Rothstein, B. & Teorell, J. (2008). What is quality of government? A theory of impartial government institutions. *Governance*, 21(2), 165–190.
- Rose-Ackerman S. (2007). International handbook on the economics of corruption. Edward Elgar Publishing.
- Scott, W. (2001). Institutions and organizations. Thousand Oaks, CA: Sage

Scott, W. R. (1995). Institutions and organizations. Foundations for organizational science. *London: A Sage Publication Series*.

Shleifer, A., & Vishny, R. (2002). The grabbing hand: Government pathologies and their cures. Harvard University Press.

Sørensen, J. (2007). Bureaucracy and entrepreneurship: Workplace effects on entrepreneurial entry. *Administrative Science Quarterly*, 52(3), 387-412.

Stenholm, P., Acs, Z. & Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *Journal of Business Venturing*, 28(1), 176-193.

Suchman, M. (1995). Managing legitimacy: strategic and institutional approaches. *Academy of Management Review* 20 (3), 571–610

Thai, M. & Turkina, E. 2014. Macro-level determinants of formal entrepreneurship versus informal entrepreneurship. *Journal of Business Venturing*, 29(4), 490-510.

Thurik, A., Carree, M., van Stel, A., & Audretsch, D. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing* 23(6), 673–686.

Van Stel, A., Storey, D., & Thurik, R. (2007). The effect of business regulations on nascent and young business entrepreneurship. *Small business economics*, 28(2-3), 171-186.

Webb, J., Khoury, T. & Hitt, M. (2020). The influence of formal and informal institutional voids on entrepreneurship. *Entrepreneurship Theory and Practice*, 44(3), 504-526.

Weingast, B. (1995). The economic role of political institutions: market-preserving federalism and economic development. *Journal of Economics, Law and Organization* 11 (1), 1–31

WGI (2018). Worldwide governance indicators, World Bank, Retrieved at: <https://datacatalog.worldbank.org/dataset/worldwide-governance-indicators>

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *Stata Journal*, 12(2), 308.

Williamson, O. (2000). The new institutional economics: taking stock, looking ahead. *Journal of economic literature*, 38(3), 595-613.

World Bank (2019). Doing Business. Measuring business regulation. Retrieved at: <http://www.doingbusiness.org> on 12 April 2020.

David B. Audretsch is the Ameritech Chair of Economic Development, Distinguished Professor, and Director of the Institute for Development Strategies at Indiana University. His research focuses on the links between entrepreneurship, government policy, innovation, and economic development and competitiveness.

Maksim Belitski is an Associate Professor at Henley Business School, University of Reading and Professor at IC Business School. His research activities are related to entrepreneurship and innovation in regional economies, knowledge spillovers and creativity, and comparative entrepreneurship outcomes.

Rosa Caiazza is a Professor in Management in the Department of Business and Quantitative Studies at the Parthenope University of Naples. Her research activities are related to corporate and business strategies, entrepreneurship, internationalization, cross-cultural management, M&A, and corporate governance.

Sameeksha Desai is an Associate Professor at the School of Public and Environmental Affairs, and Director of the Manufacturing Policy Initiative at Indiana University. Her research focuses on entrepreneurship recovery and resilience under crisis, and on access to entrepreneurship opportunity.

Table 1: List of countries included in the study

Country	obs	Country	obs	Country	obs
Algeria	3	Guatemala	3	Poland	4
Angola	3	Hungary	9	Portugal	3
Australia	8	Iran, Islamic Rep.	2	Romania	8
Bangladesh	2	Ireland	9	Serbia	2
Belgium	6	Israel	6	Singapore	6
Botswana	2	Italy	9	Slovak Republic	4
Brazil	2	Jamaica	8	Slovenia	8
Canada	4	Japan	2	South Africa	9
Chile	9	Jordan	2	Spain	8
China	2	Korea, Rep.	4	Sweden	7
Colombia	7	Latvia	6	Switzerland	6
Costa Rica	3	Lebanon	2	Thailand	7
Croatia	7	Lithuania	3	Trinidad and Tobago	2
Czech Republic	2	Malaysia	5	Tunisia	2
Denmark	5	Morocco	2	Turkey	4
Dominican Republic	3	Netherlands	6	Uganda	2
Egypt, Arab Rep.	2	New Zealand	2	United Arab Emirates	2
El Salvador	2	Nigeria	2	United Kingdom	8
Estonia	2	Norway	7	United States	2
Germany	7	Pakistan	2	Uruguay	7
Ghana	2	Peru	7	Venezuela, RB	3
Greece	9	Philippines	2	Zambia	3

Table 2: Variables, descriptions and sources

Variable	Description	Source	Mean	Std. Dev.	Min	Max
Latent	Percentage of 18-64 population who intend to start a new venture within the next 3 years (Gohmann, 2012).	GEM	5.93	4.31	1.06	29.95
Emergent	Percentage of 18-64 population who are currently owning and managing a running business that has paid salaries, wages, or any other payments to the owners for at least 42 months	GEM	7.40	4.72	1.30	35.51
Public credit	Public credit registry coverage: individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years (% of population).	WGI	11.17	19.70	0.00	100.00
Democracy	Democracy in a country from zero (no democracy) to 10 (full democracy)	Polity5	8.53	2.53	0.00	10.00
Regime Durability	Number of years since most recent regime change	Polity5	43.62	38.49	0.00	205.00
Media Attention	Media attention measures the percentage of the adult population who agree with the statement that in their country they will often see stories in the public media about successful new businesses	GEM	58.33	14.49	19.37	88.00
Rich	Binary variable=1 for countries with GDP per capita in 2010 USD constant prices greater or equal 25,000USD; zero otherwise.	WDI	0.51	0.50	0.00	1.00
Human Capital	Total enrollment in tertiary education (ISCED 5 and 6), regardless of age, five-year age group following on from secondary school leaving (% of total population).	UNESCO	54.26	22.33	2.30	98.09
Tax Time	Time required to prepare and pay taxes (hours)	DB	230.7	178.61	12.00	2600.00
Unemployment	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. (% of total labor force)	WDI	8.60	5.20	0.70	27.20
Corruption	Change in the quartile of corruption score ($t_0 - t_{-1}$) derived using the corruption score. Corruption score = perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. The score is reversed and ranges from -2.5 to 2.5. We reversed the order by multiplying by -1 (2.5= least corrupt, -2.5= most corrupt).	WGI	0.026	0.230	-1.00	1.00
Property rights	Property rights standardized indicator. The degree to which a country's laws protect private property rights and the extent to which those laws are respected (0- no property rights; 100- full protection of property rights)	WDI	0.76	0.92	-1.47	2.05

Government size	Tax revenue (% of GDP)	WBI	0.21	0.80	-2.08	2.49
Knows entrepreneur	Knows an entrepreneur indicates the percentage of the non-entrepreneurial adult population who knows an entrepreneur personally who started a business in the previous two years.	GEM	-0.11	0.91	-2.06	3.75

Note: Number of observations: 299. Source: Calculation based on GEM – Global Entrepreneurship Monitor (GEM); DB= World Bank Doing Business; WDI= World Bank World Development Indicators; WGI= World Governance Indicator World Bank (WGI, 2018); UNESCO= United Nations Educational, Scientific and Cultural Organization.

Table 3: Correlation matrix

	Latent	Emergent	Public credit	Democracy	Regime Durability	Media Attention	Rich	Human Capital	Tax Time	Unemployment	Corruption	Property rights	Government size
Latent	1												
Emergent	0.36*	1											
Public credit	-0.09*	-0.04	1										
Democracy	-0.13*	-0.09*	0.15*	1									
Regime durability	-0.18*	-0.10*	0.01	0.26*	1								
Media attention	0.34*	0.34*	-0.05	-0.29*	0.05	1							
Rich	-0.37*	-0.23*	0.04	0.28*	0.61*	-0.19*	1						
Human capital	-0.39*	-0.21*	0.17*	0.49*	0.40*	-0.36*	0.52*	1					
Tax time	0.17*	0.17*	0.09*	-0.10*	-0.17*	0.17*	-0.22*	-0.10*	1				
Unemployment	-0.01	-0.13*	0.06*	0.04*	-0.16*	-0.20*	-0.20*	-0.02	0.02	1			
Corruption	-0.03	-0.02	0.01	-0.02	0.01	0.01	0.04	0.07	0.09	-0.02	1		
Property rights	-0.29*	-0.20*	0.04	0.56*	0.57*	-0.14*	0.65*	0.50*	-0.28*	-0.08*	0.01	1	
Government size	-0.11*	-0.16*	-0.02	0.31*	0.18*	-0.10*	0.25*	0.07*	-0.08*	0.16*	-0.02	0.35*	1
Knows entrepreneur	0.43*	0.32*	-0.10*	-0.33*	-0.22*	0.36*	-0.34*	-0.43*	0.11*	-0.11*	-0.01	-0.33*	0.05

Note: Level of statistical significance * 0.05%. Number of observations: 299. Source: Calculation based on GEM – Global Entrepreneurship Monitor (GEM); DB= World Bank Doing Business; WDI= World Bank World Development Indicators; WGI= World Governance Indicator World Bank (WGI, 2018); UNESCO= United Nations Educational, Scientific and Cultural Organization.

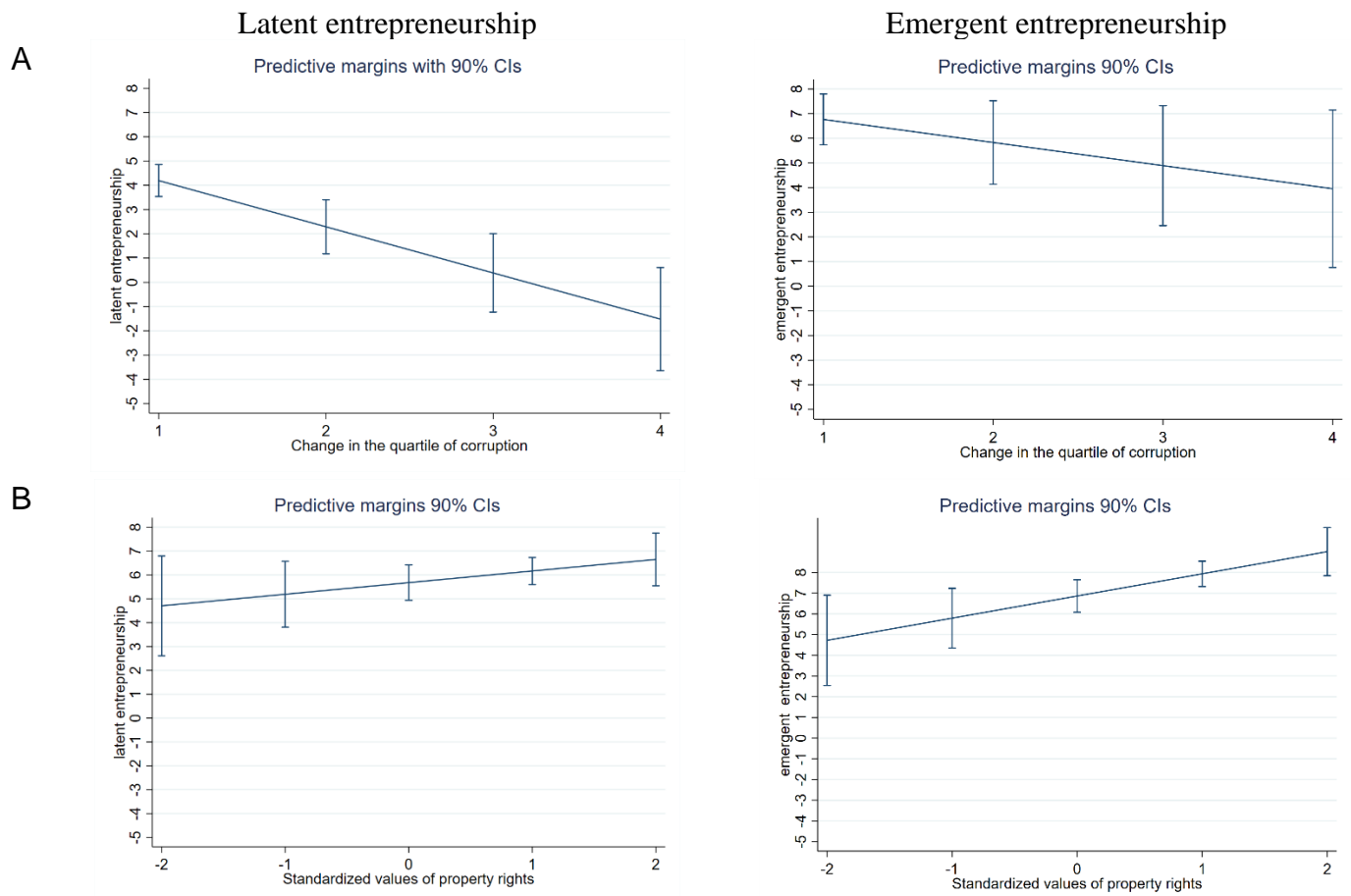
Table 4: Random effects panel estimation for latent and emergent entrepreneurship.

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable	Latent entrepreneurship					Emergent entrepreneurship				
Changes in corruption quartile	$t_0 - t_{-1}$	$t_0 - t_{-1}$	$t_0 - t_{-2}$	$t_0 - t_{-3}$	$t_0 - t_{-4}$	$t_0 - t_{-1}$	$t_0 - t_{-1}$	$t_0 - t_{-2}$	$t_0 - t_{-3}$	$t_0 - t_{-4}$
Public credit t_{-1}	0.033** (0.01)	0.031** (0.01)	0.033** (0.01)	0.030** (0.01)	0.025* (0.02)	0.055 (0.04)	0.010 (0.03)	0.019 (0.03)	0.015 (0.03)	0.018 (0.03)
Democracy t_{-1}	0.222* (0.12)	0.262** (0.11)	0.242** (0.11)	0.245** (0.12)	0.254** (0.12)	-0.030 (0.15)	-0.040 (0.15)	-0.039 (0.15)	-0.027 (0.15)	0.257 (0.16)
Regime durability t_{-1}	0.020* (0.01)	0.025** (0.01)	0.032** (0.01)	0.028* (0.01)	0.014 (0.01)	-0.009 (0.02)	-0.008 (0.02)	-0.009 (0.02)	-0.009 (0.02)	-0.008 (0.02)
Media attention t_{-1}	0.047*** (0.02)	0.045*** (0.02)	0.042*** (0.02)	0.044*** (0.02)	0.054*** (0.02)	0.024 (0.02)	0.022 (0.02)	0.023 (0.02)	0.022 (0.02)	0.038* (0.02)
Rich t_{-1}	-2.758** (1.00)	-2.515** (1.12)	-2.504** (1.15)	-2.334** (1.16)	-1.705* (1.04)	1.305 (1.55)	1.107 (1.54)	1.293 (1.55)	1.392 (1.55)	1.029 (1.57)
Human capital t_{-1}	-0.010 (0.02)	-0.017 (0.02)	-0.016 (0.02)	-0.012 (0.02)	-0.012 (0.02)	0.010 (0.02)	0.009 (0.02)	0.011 (0.02)	0.013 (0.02)	0.008 (0.02)
Tax time t_{-1}	0.007 (0.00)	0.005 (0.00)	0.006 (0.00)	0.007 (0.00)	0.002 (0.00)	0.005 (0.00)	0.005 (0.00)	0.005 (0.00)	0.006 (0.00)	0.007 (0.00)
Unemployment t_{-1}	-0.016 (0.04)	-0.033 (0.04)	-0.035 (0.04)	-0.020 (0.05)	-0.008 (0.05)	-0.014 (0.05)	-0.023 (0.06)	-0.021 (0.06)	-0.018 (0.05)	-0.010 (0.06)
Corruption (H1)	-1.903** (0.51)	-2.082** (0.65)	-1.597*** (0.41)	-0.379* (0.24)	0.076 (0.12)	-0.815** (0.47)	-1.708* (0.80)	-0.690 (0.51)	-0.012 (0.29)	0.159 (0.13)
Property rights t_{-1} (H3a)	0.526 (0.58)	0.505 (0.57)	0.485 (0.55)	0.452 (0.50)	0.701 (0.41)	1.070 (0.75)	1.085 (0.72)	1.088 (0.70)	1.065 (0.65)	0.688 (0.45)
Government size t_{-1} (tax to GDP) (H4a)	-0.359 (0.36)	-0.246 (0.35)	-0.236 (0.35)	-0.290 (0.36)	-0.541 (0.40)	0.285 (0.40)	0.305 (0.45)	0.244 (0.32)	0.298 (0.32)	0.055 (0.12)
Knows entrepreneur t_{-1} (H2a)	0.561** (0.26)	0.555** (0.21)	0.516** (0.21)	0.558** (0.20)	0.615** (0.20)	0.351 (0.33)	0.329 (0.24)	0.350 (0.35)	0.355 (0.28)	0.274 (0.28)
Interaction analysis for corruption and other levels of institutions										
Corruption x Property rights t_{-1} (H3b)		0.484 (1.15)	1.581* (0.92)	0.412 (0.55)	-0.216 (0.30)		0.445 (1.40)	0.185 (1.10)	0.515 (0.55)	0.575 (0.45)
Corruption x Government size t_{-1} (H4b)		-2.954** (1.45)	-3.434*** (1.20)	-1.770** (0.89)	-0.293 (0.49)		-1.958 (1.86)	-1.028 (1.50)	-0.008 (1.07)	0.100 (0.56)
Corruption x Knows entrepreneur t_{-1} (H2b)		-2.011** (0.68)	-0.679* (0.38)	-0.368** (0.13)	-0.161** (0.08)		0.626 (0.84)	0.534 (0.47)	0.241 (0.27)	-0.007 (0.15)
Constant	-1.851 (2.00)	-1.125 (1.75)	-1.589 (1.85)	-1.619 (1.89)	-2.105 (1.99)	-0.913 (2.14)	-0.352 (2.22)	-0.489 (2.00)	-1.528 (2.05)	-3.318 (2.50)
Country fixed effects	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Number of obs.	299	299	299	299	299	299	299	299	299	299
r2 within	.18	.27	.25	.17	.14	.10	.11	.10	.10	.12
r2 overall	.56	.57	.55	.56	.58	.34	.34	.36	.36	.32
r2 between	.55	.51	.51	.54	.59	.37	.37	.39	.39	.38
chi-squared	131.57	158.36	145.35	135.52	120.46	64.35	67.02	66.79	67.23	68.55

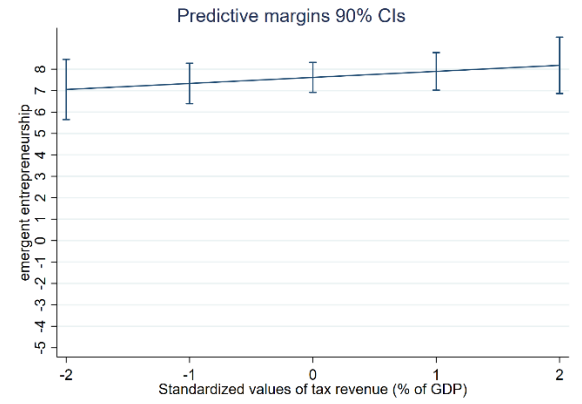
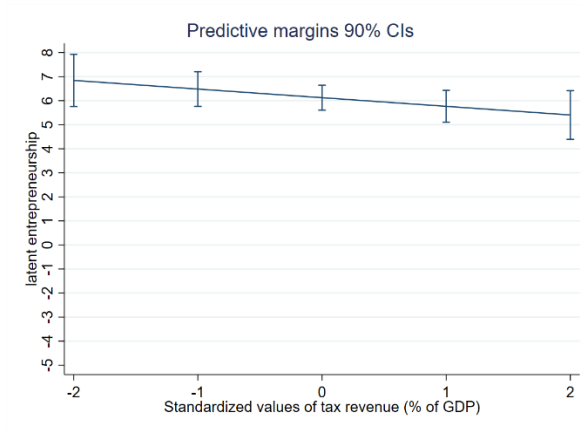
Sigma u	2.78	2.53	2.68	2.72	2.64	3.74	3.64	3.72	3.73	3.76
Sigma e	1.71	1.61	1.65	1.74	1.79	2.03	2.02	2.04	2.04	1.93
Rho	.72	.71	.72	.70	.68	.77	.76	.76	.76	.79

Note: Level of statistical significance * 0.05%; ** 0.01%. and *** 0.001%. Standard errors are robust for heteroskedasticity and clustered by country are in parenthesis Reference year 2005. Reference country = Algeria.
Source: Author calculations.

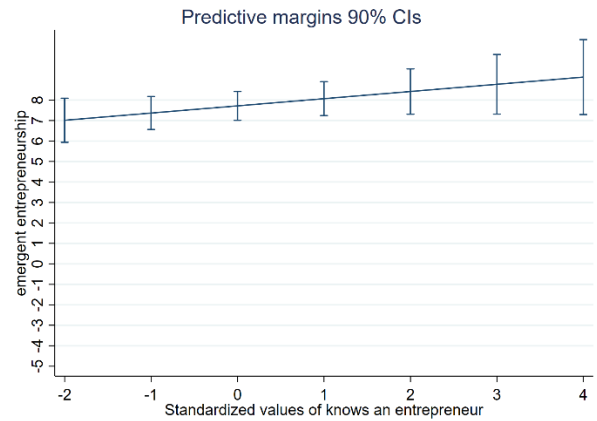
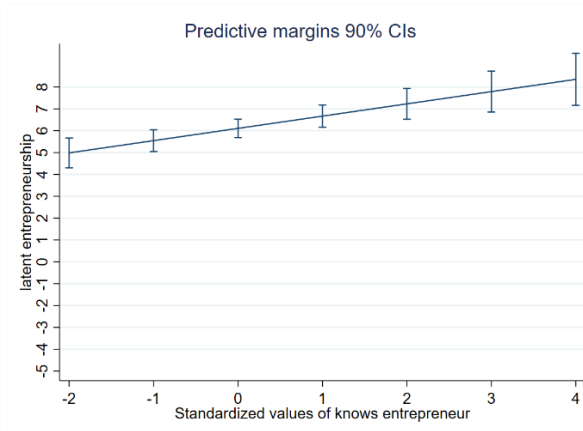
Figure 1: Predictive margins of the direct effect of institutions on latent (left) and emergent entrepreneurship (right) with 95% confidence intervals (CIs)



C



D



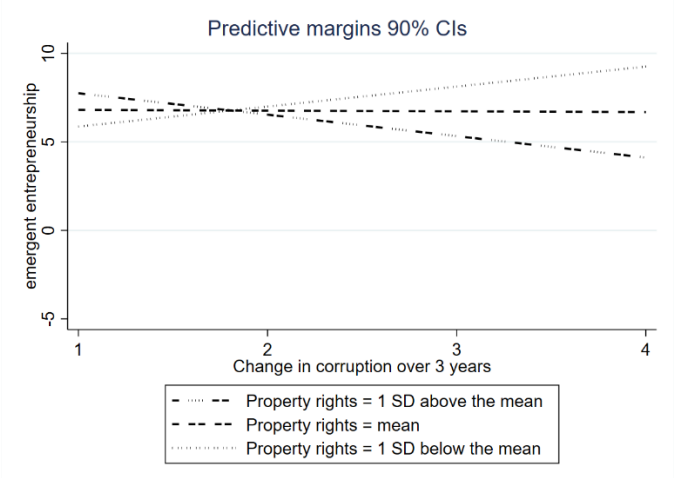
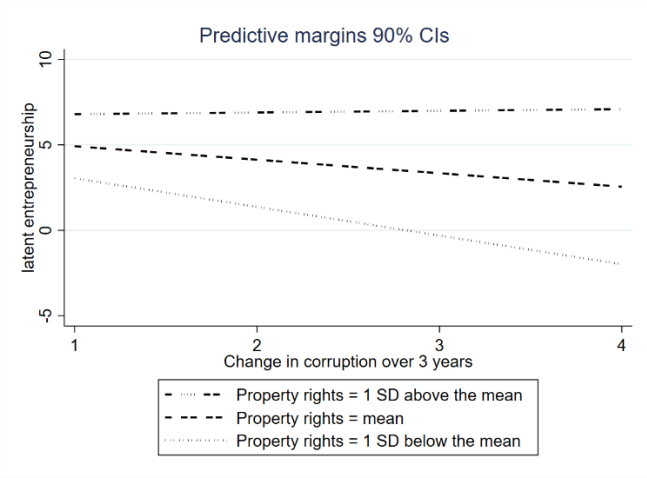
Note: CI stands for confidence intervals. All variables with exception of dummy variables are standardized. We tested the significance of difference knows entrepreneur, government size, property rights and corruption by contrasting the two entrepreneurship rates.

Figure 2: Predictive margins of the effect of corruption on latent (left) and emergent entrepreneurship (right) conditional on changes in other institutional characteristics with 90% CIs

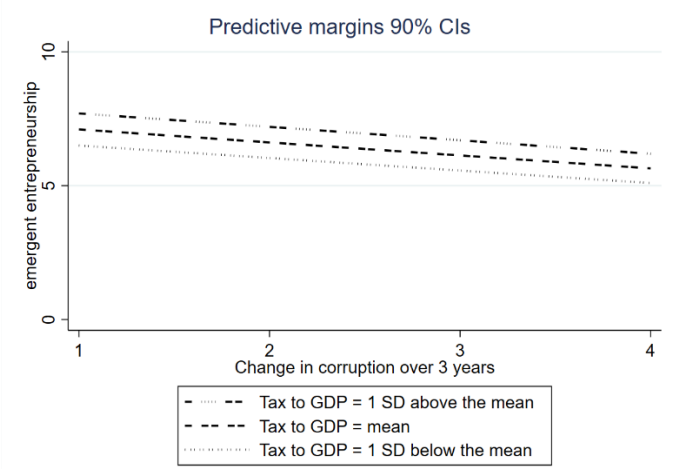
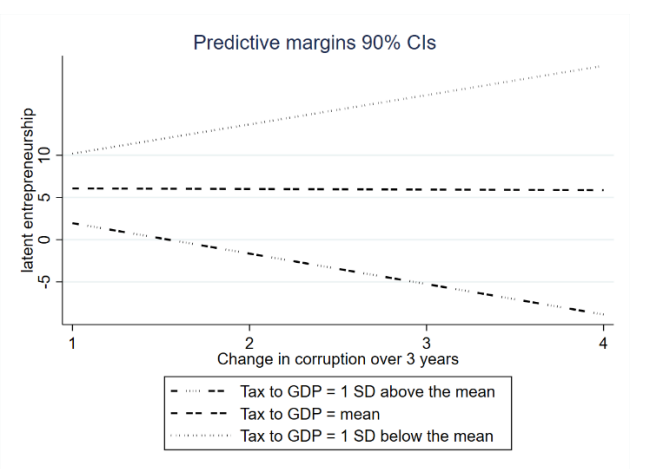
Latent entrepreneurship

Emergent entrepreneurship

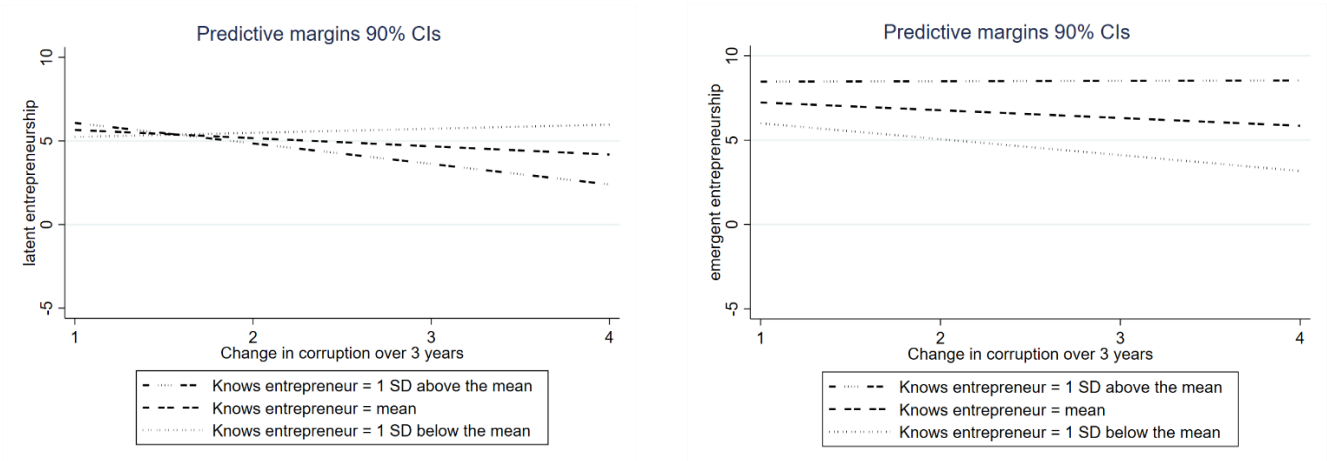
A



B



C



Note: CI stands for confidence intervals. All variables with exception of dummy variables are standardized.

Table 5: Hypothesized Relationships and Empirical Results

H1: Corruption discourages latent and emergent entrepreneurship.	Supported
H2A: Entrepreneurial networks encourage both latent and emergent entrepreneurship, with a stronger effect for emergent entrepreneurs.	Mixed / partial support
H2B: A higher corruption context will decrease the positive influence of entrepreneurial networks on latent and emergent entrepreneurship.	Mixed / partial support
H3A: Secure property rights will encourage latent and emergent entrepreneurship.	Not supported
H3B: Higher levels of corruption will reduce the positive relationship between secure property rights and latent and emergent entrepreneurship.	Supported
H4A: Larger government has a negative effect on both latent entrepreneurship and emergent entrepreneurship, with the effect being larger for latent entrepreneurs.	Not supported
H4B: More corruption will increase the negative effect of government size on latent and emergent entrepreneurship.	Supported