

Who's Hiding in the Shadows? Organized Crime and Informal Entrepreneurship in 39 Economies

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Abstract:

Informal entrepreneurship represents a common mode of business formation globally and entails starting and operating a business without registering it with legal authorities. Despite the size of the informal sector in many countries, the motivations for entrepreneurs to operate nonregistered ventures are not well understood. Although formal institutions play an important role, we argue that the decision to operate a nonregistered new venture is influenced by a pervasive informal institution around the world: the practice of extortion payments to organized crime. Because criminal organizations foster the development of norms and beliefs cementing extortion payments as an institution, we posit that entrepreneurs will use nonregistration as a buffer to avoid extortion costs preemptively. We further explicate that this choice is contingent upon founders' access to resources and ventures' product-market strategy, which shape visibility to organized crime and the ability to resist extortion and, thus, alter the need for nonregistration as a buffer against institutionalized extortion. Our analysis of over 8,000 new ventures operating in 39 economies largely supports these arguments. This study identifies a novel causal mechanism in the nomological network of informal entrepreneurship, namely, the prevalence of organized crime, and informs a multilevel theory of how entrepreneurs choose the type of organizational form for their ventures. Finally, it illuminates the importance of shadow institutions—illegal and not widely accepted practices—which may operate as unique but often overlooked types of institutions that shape entrepreneurial and organizational decisions.

Keywords: informal entrepreneurship | organized crime | entrepreneurial/new venture strategy | institutional theory

Article:

The informal sector amounts to 10% to 20% of gross domestic product in developed nations and about 60% in emerging economies (Webb, Bruton, Tihanyi, & Ireland, 2013). Entrepreneurship in the informal sector, which entails starting and operating a business without formally registering it with legal authorities (Dau & Cuervo-Cazurra, 2014), therefore represents a pervasive and consequential form of business formation globally. Informal entrepreneurship can entail a social benefit by providing individuals with income and sometimes even spurring innovation (McCann & Bahl, 2017), but it can also negatively impact societies because it leads

to competition with registered businesses, loss of tax revenues, property protection vulnerabilities, and safety or health hazards due to the lack of oversight and regulation (Webb et al., 2013).

Scholars have suggested that formal institutions generally reduce the rate of informal entrepreneurship as they become more developed (e.g., Autio & Fu, 2015; Dau & Cuervo-Cazurra, 2014; Thai & Turkina, 2014), which is not surprising because informal economic activity is often associated with weaknesses in market-supporting and governmental institutions. Yet, despite this work and the prominence of the informal sector in many countries, we still have limited understanding of “why entrepreneurs choose to enter the informal economy instead of the formal economy” (Shepherd, Wennberg, Suddaby, & Wiklund, 2019: 167).

Two limitations contribute to this lack of understanding. First, informal economic activity often persists even as formal institutions and economic development improve over time, suggesting that scholarly discourse may have neglected aspects of the institutional fabric that represent distinct mechanisms driving informal entrepreneurship, particularly, the role of informal institutions (Thai & Turkina, 2014; Webb, Tihanyi, Ireland, & Sirmon, 2009). Second, comparative studies of informal entrepreneurship rates between countries implicitly assume that national institutions influence all entrepreneurs equally; however, institutional theory indicates that entrepreneurs embedded in the same institutional context might respond to institutions differently (Thornton, Ocasio, & Lounsbury, 2012; Webb, Ireland, & Ketchen Jr., 2014). Indeed, comparative international entrepreneurship research suggests that the organizational form employed to operate a new venture is a function of both national institutional context and the attributes of entrepreneurs and their ventures (Baker, Gedajlovic, & Lubatkin, 2005). Consequently, we have limited understanding of how the institutional context affects *individual* entrepreneurs’ choice of a nonregistered organizational form as a vehicle for their business activities.

In this study, we address these theoretical issues by proposing that the decision to operate a nonregistered new venture is influenced by a pervasive informal institution around the world: the practice of extortion payments to organized crime (Finckenauer, 2005; Milhaupt & West, 2000). Organized crime entails a well-coordinated, rent-seeking group or enterprise that engages in illegal and socially harmful activities to generate a monopoly-like status and that uses violence as a means of enforcement (Finckenauer, 2005). The literature suggests that entrepreneurs take into account the influence of criminal enterprises when making strategic decisions (Champeyrache, 2018), but why and how they do so remain unclear. We therefore pose the research question, How does the prevalence of organized crime affect entrepreneurs’ choice to operate nonregistered new ventures?

Drawing on the literature on organized crime as well as institutional theory, we posit that criminal organizations foster the development of norms and beliefs cementing extortion payments as a “shadow institution,” or an illegal and not widely accepted practice operating in parallel to more accepted institutions (Champeyrache, 2018: 171). In this way, prevalent organized crime can create significant costs for businesses by normalizing extortion payments. Consequently, because entrepreneurs exhibit interest-seeking strategic behavior when responding to institutional pressures (Hall & Taylor, 1996; Oliver, 1991), we proffer that institutionalized

extortion associated with organized crime makes entrepreneurs more likely to choose nonregistration as a buffer to avoid extortion costs. We further explicate that this choice is contingent upon founders' access to resources and ventures' product-market strategy, which shape visibility to organized crime and the ability to resist extortion and, thus, alter the need for nonregistration as a buffer (Webb et al., 2013). Our analysis of over 8,000 new ventures operating in 39 developed and developing economies largely supports these arguments.

This study makes several contributions to the literature. First, we develop a novel and nonobvious antecedent in the nomological network of informal entrepreneurship, namely, the prevalence of organized crime. Second, we contribute to a more nuanced, midrange theory of what drives informal entrepreneurship by theorizing across levels of analysis (Webb et al., 2013; Williams, Shahid, & Martínez, 2016), adding critical understanding of the individual- and venture-level motivations for operating informal new ventures (Shepherd et al., 2019; Short, Ketchen, Shook, & Ireland, 2010). Our actor-centric view of the institutions–entrepreneurship nexus demonstrates that entrepreneurs embedded in a similar institutional context may experience institutions differently, contributing an understanding of how entrepreneurs choose the type of organizational form for their ventures to the growing “context-sensitive, contingency-based” view of comparative international entrepreneurship (Baker et al., 2005: 501). Third, our theory demonstrates the importance of shadow institutions, which may operate as unique but often overlooked types of informal institutions that shape entrepreneurial and organizational decisions. Finally, we discuss the implications of our study for entrepreneurs and policy makers.

Institutions and Informal Entrepreneurship

Business Formation in the Informal Economy

Informal entrepreneurship entails starting and operating a new business that is engaged in the “paid production and sale of goods and services that are legitimate in all respects besides the fact that they are unregistered by, or hidden from the state” (Williams & Nadin, 2010: 363). There is a continuum of informality based on whether businesses register with authorities, pay taxes, and keep formal accounts (Williams & Shahid, 2016). However, a firm that is not legally registered is clearly informal because the lack of legal status may allow it to avoid taxation and regulation (De Castro, Khavul, & Bruton, 2014). By not registering, these firms run the risk of financial or legal penalties if detected by authorities (Williams, Martinez–Perez, & Kadir, 2017) and likely cannot benefit from police or judicial protection (Dau & Cuervo-Cazurra, 2014). They also face barriers to accessing financial and human capital (Kistruck, Webb, Sutter, & Bailey, 2015). Still, informal activities make up large parts of national economies and persist even as countries become more economically developed (Williams et al., 2017). Some scholars conservatively estimate that informal ventures make up half of all new businesses in the world and that about two-thirds of all new businesses begin as nonregistered firms (Williams et al., 2017).

There may be several motivations for choosing nonregistration, including viewing formal registration as being too complex, costly, or simply unnecessary (De Castro et al., 2014; Kim, 2005). Entrepreneurs' lifestyles can play a role. Female entrepreneurs who are also primary caregivers prefer informality because it allows them to coordinate more easily between their business and domestic lives (Babbitt, Brown, & Mazaheri, 2015). Finally, at least in the context

of an emerging economy, new ventures that delay formal registration and its associated costs can outperform those that register from the outset by deploying their resources in supplier and customer networks, which benefit the venture after registration (Williams et al., 2017). Thus, entrepreneurs approach registration strategically and register when they believe it will benefit them (De Castro et al., 2014).

Accordingly, the choice of nonregistration is at least partially driven by the larger institutional context (Webb et al., 2013). Institutions represent the socially created forces that shape human interactions, such as economic exchanges, and can be broken down into formal, codified rules (such as laws and regulations) as well as informal codes of conduct, such as norms and customs (North, 1990). Institutions create shared social expectations about how others will act, and individuals use this information to respond to institutions strategically in order to maximize certain goals (Hall & Taylor, 1996); in the case of new ventures, the goals would typically encompass survival, profit, and growth. Thus, higher-quality formal institutions encourage registration by reducing transaction costs and making it less uncertain and costly to do business legally than illegally (Khanna & Palepu, 2000). As governmental and market-supporting institutions improve in quality, formal entrepreneurship rates tend to increase and informal rates decrease (Autio & Fu, 2015; Dau & Cuervo-Cazurra, 2014).

Despite the growing literature, there are two consequential gaps in our understanding of informal entrepreneurship. First, research of informal entrepreneurship rooted in institutional theory has overlooked theoretically relevant differences among individual entrepreneurs that may affect registration decisions (Webb et al., 2009). Indeed, the comparative international entrepreneurship literature suggests that the choice of organizational form is conditioned by the interaction of factors at the founder or venture level and the institutional context (Baker et al., 2005). Thus, it is critical to take into account both individual and institutional influences because entrepreneurs may conform to or resist institutional constraints in order to achieve their own goals (Hall & Taylor, 1996; Oliver, 1991). Second, scholars have called for a greater understanding of the institutional drivers of informal entrepreneurship beyond formal institutions (Thai & Turkina, 2014; Webb et al., 2009). Next, we turn our attention to an informal institution that likely has a significant impact on entrepreneurs' decision to operate nonregistered new ventures: the prevalence of extortion payments to organized crime.

Organized Crime and Institutionalized Extortion

Organized crime is distinct from informal entrepreneurship because unlike the latter, its activities entail significant social harm (Webb et al., 2009). Although criminal organizations may engage in a myriad of illegal practices, extortion racketeering is "the defining activity of organized crime" (Konrad & Skaperdas, 1998: 462). Extortion involves demanding money, property, or favors with the threat of violence, and an extortion racket is the methodical and repeated use of extortion encompassing many victims (Elsenbroich, 2017). Extortion racketeering (hereafter, extortion) lends itself well to monopolistic and territorial control, increasing the profits for rent-seeking criminal enterprises (Milhaupt & West, 2000). Moreover, extortion is the activity of organized crime with the most direct and widespread effect on businesses like new ventures (Van Dijk, 2007). Consistent with institutional theory's notion that actors influence the development of institutions to their advantage (Hall & Taylor, 1996; North, 1990), organized criminals use

extortion to embed themselves into daily life by directly involving businesses and, indirectly, their customers. This embeddedness creates important benefits beyond the profitability of a single extortion transaction because it allows organized criminals to exert a degree of control over the social environment and shape the belief that organized crime is powerful and its practices should be followed “or else” (Vaccaro & Palazzo, 2015; van de Bunt, Siegel, & Zaitch, 2014). In this way, extortion becomes institutionalized as it is repeated (Stein, 1997), such as the practice of paying *pizzo* to the mafia in southern Italy (Vaccaro & Palazzo, 2015).

Clearly, widespread extortion cannot be considered a formal institution because it is against the law in virtually all countries. However, scholars have considered it an informal institution (e.g., La Rosa, Paternostro, & Picciotto, 2018; Vaccaro & Palazzo, 2015), or one that is developed and enforced outside the purview of official bodies (Helmke & Levitsky, 2004). It has also been called a “shadow institution,” or one that is illegal and not widely accepted socially yet is still prevalent (Champeyrache, 2018: 171). As such, institutionalized extortion is a unique type of informal institution relative to the widely accepted norms and practices often studied by management researchers utilizing institutional theory. Consistent with North’s (1990) view of institutions, practices or beliefs need not be widely accepted or grounded in shared social values to be informal institutions, so long as they create shared expectations about the consequences of violating them; in fact, actors often seek to develop informal institutions to achieve goals that are not sanctioned by formal institutions (Helmke & Levitsky, 2004). Extortion practices fit with this definition of informal institutions. In places where organized crime is widespread, many people share the expectation that extortion is practiced and noncompliance will be punished with violence or loss of property (Elsenbroich, 2017), even though extortion does not typically reflect a shared social value.

Studies suggest organized crime is pervasive worldwide: “It thrives in transition economies, it persists in developed nations; it prospers under globalization” (Milhaupt & West, 2000: 41). There are many reasons organized crime can be common in a country, including poor enforcement of laws, geographic location along smuggling routes, and cultural or historical reasons (Curtis, Gibbs, & Miró, 2004; Finckenauer, 2005; Lavezzi, 2008). Organized crime can thrive under weak formal institutions, but this context is not necessarily a precondition. Organized crime can negatively affect businesses independently of formal institutions because it increases the costs of doing business and may or may not attempt to subvert formal institutions in doing so (Neanidis, Rana, & Blackburn, 2017). Moreover, the voids left by weak formal institutions are often filled with informal institutions like trust and networking (Helmke & Levitsky, 2004), which are typically less tolerant of organized crime because it threatens the collective well-being (Steffensmeier, Zhong, & Lu, 2017).

Even ostensibly strong formal institutions and law-enforcement practices do not necessarily contain organized crime; for example, it was rampant in the United States during much of the 20th century. Its prevalence has been documented in many other countries, including parts of Latin America (Elsenbroich, 2017), Italy (La Rosa et al., 2018), Japan (Milhaupt & West, 2000), Russia (Elsenbroich, 2017), and Hong Kong (Skaperdas, 2001). Hence, although organized crime generally may be more widespread in contexts where formal institutions are weaker, the prevalence of organized crime cannot be explained solely by institutional aspects, such as corruption or weak rule of law. We might expect that strong formal institutions provide more

tools for combating organized crime, but prior literature suggests criminal organizations are adaptable and may be efficacious in such contexts (Champeyrache, 2018; Milhaupt & West, 2000).

Organized Crime and New Venture Nonregistration

Institutionalized extortion is likely highly consequential in the entrepreneurial process.

Because entrepreneurs or potential entrepreneurs are aware of the presence of the mafia both in illegal and legal businesses, economic agents incorporate the mafia presence into their entrepreneurial choices. They know that the mafia engages in appropriative activities aiming at taking control over existing thriving enterprises, or at least extorting part of legitimate incomes in exchange for a fictitious protection. (Champeyrache, 2018: 162)

In this way, extortion and other activities of organized crime create additional costs of doing business (Van Dijk, 2007).

Compared with other firms, new ventures are especially vulnerable because they typically operate with few financial resources, making them fragile and prone to failure (Chandler & Hanks, 1998). Moreover, extortion of new ventures is easier than that of the average firm due to the fact that there are fewer individuals to pressure, which also makes it less likely that the extortion would be revealed to the police (Lavezzi, 2008). Although extorting small new ventures may be less lucrative than extorting large firms, criminals are known to target easy victims even when the payoff is not sizable (Hough, 1987). As discussed, there are also important noneconomic benefits of targeting smaller businesses, in that organized crime can further institutionalize extortion and thereby embed itself into the social fabric (Vaccaro & Palazzo, 2015; van de Bunt et al., 2014). Thus, founders of new ventures are likely sensitive to the potential costs of extortion because they are easy targets for criminals, and the costs of extortion could cause business failure.

Entrepreneurs make a strategic choice in deciding whether to conform to institutions and are more likely to resist institutional pressures when there is little or no economic gain in conformance (Oliver, 1991). Considering that extortion creates the potential for significant economic loss (Van Dijk, 2007), we propose that founders will attempt to avoid it or “preclude the necessity of conformity” (Oliver, 1991: 154).¹ Specifically, they will use nonregistration as a *buffering* mechanism, an avoidance strategy that reduces visibility to the institution in question, in this case, extortion by organized crime (Oliver, 1991; Sutter, Webb, Kistruck, & Bailey, 2013). This argument is consistent with institutional theory: North (1990) viewed entrepreneurs as operating on the fringe of institutional systems, often evading institutions if such systems are used for rent seeking (Henrekson & Sanandaji, 2011).

¹ Although Oliver’s (1991) work is primarily derived from the sociological strain of institutional theory, which emphasizes legitimacy, the assumption that actors will seek to avoid institutions in order to maximize economic gains is consistent with the Northian strain of institutional theory applied here (e.g., Sutter et al., 2013).

All else being equal, when organized crime is prevalent, the benefits of using a nonregistered organizational form likely outweigh the disadvantages. This is because formally registering the business with legal authorities makes it easier for criminals to identify and extort. Criminals can simply scan rolls of registered businesses in order to find their next victims (De Castro et al., 2014). “Formal businesses are more vulnerable. The businesses that are registered regularly end up on a directory. . . . When criminals have this information, it’s easier to contact the business and extort them” (Kistruck et al., 2015: 440). Given organized criminals’ preference for easy targets (Hough, 1987; Schelling, 1971), formal registration is likely to increase significantly the venture’s potential exposure to extortion and thereby the risk of economic loss or business failure.

Moreover, organized criminals interpret formal registration and its trappings as a sign that the business is potentially a lucrative and therefore worthwhile target (De Castro et al., 2014). In one study, business owners removed logos from employee uniforms and asked employees to remove the name of the firm from their social media accounts in order to hide the identity of the firm from extortionists (Ramirez & Muñiz, 2018). Thus, formal registration of new ventures has the potential to increase the likelihood of extortion twofold: First, it makes the venture more visible to criminal organizations; second, this visibility signals to criminal organizations that the venture is worth extorting.

However, by not registering their new ventures, entrepreneurs might buffer themselves from organized criminal enterprises because the business would be harder to find and extort. Hence, in places where organized crime is prevalent, it is often economically rational not to register a new venture because founders’ calculus considers that registered businesses are more exposed to institutionalized extortion. By doing so, entrepreneurs give up some of the benefits of registration, such as improved access to financial and human capital, and they risk legal penalty (Webb et al., 2013). However, as organized crime becomes more prevalent, the potential costs and risks associated with institutionalized extortion likely outweigh the benefits of registration. Even in countries with relatively strong formal institutions, organized crime may induce nonregistration for many entrepreneurs. Although there may be greater benefits to registration in such places, the threat of violence and property loss is still likely to deter entrepreneurs from making themselves more visible to criminal organizations. Once extortion and the set of beliefs and practices associated with it become institutionalized, the threat of violence becomes more credible, and contacting the police can lead to retribution from criminals that may be “potentially devastating” to new ventures (Elsenbroich, 2017: 128). For example, in a study of German entrepreneurs, many reported that they were unwilling to contact the authorities for assistance with extortion threats because they did not think police would be able to help them (Ohlemacher, 1999). We therefore expect that, all else being equal, higher levels of organized crime in a country will influence entrepreneurs not to register their new ventures.

Hypothesis 1: The prevalence of organized crime in a country will increase the likelihood that new ventures operate as nonregistered businesses.

Differentiated Need for Buffering: The Role of Resource Access and Product-Market Strategy

Although nonregistration can be a buffer for new ventures, the literature on strategic responses to institutional pressures suggests that firms will experience varying levels of need for buffering (Kistruck et al., 2015; Oliver, 1991; Sutter et al., 2013). Two mechanisms are pertinent in shaping this need: First, restricted access to resources compromises organizations' ability to conform to institutional pressures and thereby leads to buffering as a strategic choice to reduce the potential for economic loss (Oliver, 1991). Second, certain product-market strategies can make organizations less exposed to institutional pressures. Because institutions arise to provide a specific function, institutional pressures are heterogeneously distributed among firms (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011), meaning firms can avoid institutional pressures by shifting away from products or markets where the pressures are greater (Ahuja & Yayavaram, 2011). Thus, product-market strategies that position the business at the periphery or outside the typical purview of the institution will experience a decreased need to choose buffering as a means of mitigating economic loss (Ramirez & Muñiz, 2018; Welter & Smallbone, 2011).

The mechanisms of resource access and product-market strategy are particularly relevant because they align with known extortion strategies and capabilities of organized crime, enabling us to develop a more granular explanation of new ventures that would be more or less likely to benefit from nonregistration when organized crime is prevalent. Criminal enterprises prefer to extort individuals who would have difficulty accessing resources and receiving assistance from others, as these attributes facilitate control and lessen the risk of external intervention (Lavezzi, 2008). Additionally, criminal enterprises prefer to target firms with certain product-market strategies, particularly, those with well-established products/services, because firms with high-tech or otherwise complex outputs are more difficult to understand and exploit (Schelling, 1971). Finally, criminal organizations prefer to extort businesses with a high level of territorial specificity, which enables the criminals to create monopolistic conditions in a given geographic area (Lavezzi, 2008). Accordingly, we propose that access to resources and product-market strategy shape the need for buffering based on how these two attributes align with the typical extortion strategies and capabilities of organized crime.

Resource access

Integrating entrepreneurship and organized-crime studies, we focus on two types of entrepreneurs who generally exhibit restricted access to resources—necessity entrepreneurs and solo founders—because their lack of access to resources compared with other entrepreneurs makes them more exposed to extortion (Lavezzi, 2008; Schelling, 1971). Necessity entrepreneurs are those who start a venture because they lack other opportunities to make a living (Williams & Nadin, 2010). Although they are often less likely to register their ventures in general (Webb et al., 2013), we argue that they are particularly less likely to register in places where organized crime is prevalent. Necessity entrepreneurs are often marginalized members of society who lack human and social capital resources that would allow them to find gainful employment (Block, Kohn, Miller, & Ullrich, 2015). The lack of such resources limits their ability to resist extortion in two critical ways.

First, marginalization and a lack of resources hinder access to institutions that might help resist extortion, because such “entrepreneurs assume that the ability and willingness of the police and

the local and national governments to protect them are limited” (Vaccaro & Palazzo, 2015: 1079; see also Ohlemacher, 1999). This makes them easy targets because the “first criterion for target selection by organized extortionists is that the victims should be poor at protecting themselves” (Schelling, 1971: 647). Given their lack of access to resources and supportive institutions, necessity entrepreneurs are likely motivated to operate nonregistered businesses to reduce their visibility to organized crime. Second, if necessity entrepreneurs become the target of criminal enterprises, their new venture could fail because they lack the resources to offset losses, which also creates the risk of personal financial ruin because these entrepreneurs lack other options for gainful employment. Indeed, economic insecurity is one motivation for some entrepreneurs not to pay extortion money (La Rosa et al., 2018), so necessity entrepreneurs may be especially willing to operate nonregistered new ventures to limit visibility to organized crime and avoid the costs associated with extortion.

Although necessity entrepreneurs may not seem like worthwhile targets for organized crime due to their financial insecurity, as mentioned, criminals prefer victims who cannot defend themselves, regardless of the payoff (Hough, 1987; Schelling, 1971), and extortion can have important benefits for organized crime besides short-term profits. Criminals may wish to extort businesses to institutionalize the practice or to support other illicit activities in ways that do not involve cash payments from the business owners. For example, confiscating property or goods from the business and taking up entrepreneurs’ time by making them do favors represent ways that organized criminals can create significant costs for new ventures (Champeyrache, 2018). In national contexts where organized crime is prevalent and extortion is therefore institutionalized, necessity entrepreneurs likely understand their exposure and may even have witnessed the extortion of similar businesses. It is reasonable to expect they will be more likely to use nonregistration as a means of reducing visibility and thereby buffering their ventures against extortion in such contexts.

Hypothesis 2: The positive effect of organized crime on the likelihood of operating a nonregistered new venture will be stronger for necessity entrepreneurs.

Similarly, new ventures with a solo founder ought to be more likely to use nonregistration as a buffer when compared with ventures with partners. In general, new ventures with partners instead of a solo founder can have an advantage because multiple people can bring more resources to bear (Cooper, Gimeno-Gascon, & Woo, 1994), making the venture better positioned to absorb financial losses and thereby altering the calculus regarding the costs and benefits of registration in the face of extortion (Williams & Shahid, 2016). In addition to greater financial resources, new ventures with partners may also have a broader social network (Florin, Lubatkin, & Schulze, 2003), which can be tapped to help resist criminal enterprises if the firm is registered and becomes targeted for extortion. “Rather than responding to illegitimate institutional actors as an individual entrepreneur, the cohesive unit can respond as a whole, changing the balance of power in the entrepreneurs’ favor” (Sutter et al., 2013: 750). Thus, new ventures that are partnerships are inherently more buffered because they tend to have more access to financial and social capital, whereas solo founders tend to have more limited access to such resources.

Because they lack resources relative to new ventures with partners, new ventures with solo founders are more appealing to organized criminals. Criminals know that having more owners

means more resources can be deployed to resist extortion, making it more complicated and uncertain (Lavezzi, 2008). Thus, solo founders' limited access to resources increases the ease of extortion and motivates them to reduce their visibility as much as possible to forestall the risks associated with extortion.

Hypothesis 3: The positive effect of organized crime on the likelihood of operating a nonregistered new venture will be stronger for ventures with a solo founder rather than multiple founders.

Product-market strategy

Product-market strategy encompasses such choices as what kinds of product/service to sell and in which market(s) to sell them in order to achieve a competitive advantage (Zott & Amit, 2008). Building on the organized-crime literature suggesting different products or markets shape exposure to extortion (e.g., Milhaupt & West, 2000; Ramos & Ashby, 2013), we argue that two types of product-market strategies—novel products/services and exporting—insulate the firm from extortion pressures and thereby reduce the need for nonregistration. For firms selling well-known products or services, it is easier for criminals to understand how business is done and exploit any weaknesses. Criminals prefer “traditional and/or low-tech sectors” because they can easily monitor and exploit the activities of such businesses, facilitating extortion (Lavezzi, 2008: 202). Additionally, criminal enterprises often develop experience dealing with the same kinds of businesses, leading to standardized extortion methods and agreements that are relatively easy for the criminals to replicate across many firms (Schelling, 1971). For these reasons, entrepreneurs in traditional or low-tech sectors have more incentives to use nonregistration to reduce visibility.

On the other hand, new ventures that sell novel products or services will be less visible to organized crime because their products/services are relatively unknown. If criminals are aware of such businesses, monitoring and exploiting them will be more difficult because criminals lack an understanding of how the business operations work as well as experience extorting similar businesses (Lavezzi, 2008; Schelling, 1971). These attributes provide an inherent buffer against extortion. Thus, new ventures that sell novel products or services, which typically are more likely to be registered in order to access human and financial capital (Dau & Cuervo-Cazurra, 2014), are likely to continue being registered even if organized crime is prevalent because their product-market strategy already acts as a buffer, reducing the need to use nonregistration. In other words, visibility is much less risky for such ventures because their product-market strategy makes them more difficult to extort.

Hypothesis 4: The positive effect of organized crime on the likelihood of operating a nonregistered new venture will be weaker for ventures that sell novel products or services.

Finally, new ventures that export to higher degrees are also less likely to be nonregistered despite the extortion threat posed by organized crime. The distinction between domestic or foreign markets is particularly relevant because exporting is a market strategy that necessitates the involvement of third parties to complete transactions. If entrepreneurs choose to export using their venture, it typically requires procuring a license to send goods abroad (Kotabe & Czinkota, 1992). Even if entrepreneurs send goods abroad as individuals rather than as a business entity,

post offices or shipping companies must be used and international customs forms must be filled out. Alternatively, it is common for entrepreneurs to use the services of an intermediary who has the necessary legal licenses and expertise to send goods abroad (Knight & Cavusgil, 2004). Regardless of the method entrepreneurs use to sell goods to customers in other countries, the involvement of third-party actors to complete business transactions makes extorting such entrepreneurs less appealing for criminals because any attempted extortion carries a heightened risk of discovery by individuals or organizations that are not the extortionists or victims (Lavezzi, 2008). In this way, new ventures that export have less need of nonregistration as a buffer because their product-market strategy naturally puts the venture in a position that is outside the typical purview of extortionists. In other words, reducing visibility via nonregistration is less important.

Additionally, organized criminal enterprises prefer to extort firms that have defined geographical territories so that the criminals can approach monopolistic status across a concrete area, in the sense that most or all transactions involve the criminal enterprise or legitimate firms that it extorts (Lavezzi, 2008). Hence extorting a firm that exports does relatively little to enhance organized crime's economic control over its territory because the goods are sold in markets where the criminals likely cannot exert much, if any, control over economic exchanges. For example, criminals cannot force foreign customers to buy from firms that pay extortion instead of from those that do not pay extortion. All told, because firms that export to higher degrees necessarily involve third-party actors and sell in territories not under the sway of organized crime, reducing visibility via nonregistration is likely less needed to avoid extortion. We therefore expect the following:

Hypothesis 5: The positive effect of organized crime on the likelihood of operating a nonregistered new venture will be weaker for ventures with higher export intensity.

Methods

Sample

To test our hypotheses, we needed data that reliably measured nonregistration and that spanned multiple institutional contexts that differed in the prevalence of organized crime. Accordingly, the sample was primarily drawn from the Global Entrepreneurship Monitor (GEM) database, which features annual survey data from individuals around the world regarding their entrepreneurship-related attitudes and behaviors. The GEM database surveys a representative portion of the population in each country and, as such, captures the breadth of entrepreneurial activity across countries to the greatest extent currently possible. "The broad and randomized nature of sampling in GEM . . . greatly improves the trustworthiness, generalizability, and repeatability" of findings produced using it (Young, Welter, & Conger, 2018: 417). Moreover, the GEM data have been widely used in studies of informal entrepreneurship (e.g., Dau & Cuervo-Cazurra, 2014; Moore, Alfonso Dau, & Doh, 2020; Thai & Turkina, 2014).

Table 1. Country Characteristics

Country	GDP per Capita (in US\$)	Nonregistration Rate	Organized-Crime Level	Observations
Algeria	12,990	.41	3.53	148
Bosnia and Herzegovina	9,902	.48	3.83	74
Botswana	13,889	.67	2.19	267
Brazil	14,973	.75	4.03	1,872
Chile	20,438	.37	2.43	472
China	10,384	.42	3.10	397
Colombia	11,496	.35	5.27	624
Costa Rica	13,397	.53	3.91	75
Ecuador	9,927	.97	4.15	191
Egypt	9,824	.50	1.22	54
El Salvador	7,428	.68	6.08	74
Estonia	24,543	.09	1.41	47
Ethiopia	1,163	.49	1.98	191
Ghana	3,404	.90	2.84	295
Indonesia	8,838	.94	3.76	451
Iran	18,192	.36	3.22	343
Jamaica	8,099	.75	4.91	80
Latvia	19,773	.20	2.50	64
Lithuania	22,854	.36	2.27	66
Malaysia	21,819	.55	2.46	145
Mexico	15,923	.75	5.31	93
Namibia	8,721	.84	2.72	178
Nigeria	5,259	.92	4.04	528
Norway	62,145	.08	1.62	24
Pakistan	4,310	.88	4.46	31
Peru	10,449	.68	3.91	107
Philippines	5,707	.92	3.53	140
Puerto Rico (U.S.)	34,196	.58	3.01	12
Romania	18,095	.24	3.09	80
South Africa	12,244	.81	3.84	153
South Korea	31,229	.14	2.81	49
Spain	32,068	.22	2.34	499
Suriname	14,888	.53	2.41	15
Thailand	13,535	.72	2.83	394
Trinidad and Tobago	31,013	.68	3.91	176
Tunisia	10,121	.44	2.41	9
Uruguay	17,905	.35	1.72	40
Vietnam	4,716	.54	3.27	200
Zambia	3,361	.51	2.30	158

The 2012 and 2013 GEM survey waves included a module regarding registration, so we used these survey years to construct our sample of new ventures. Each of the two waves included a different set of entrepreneurs (i.e., we did not have panel data). Consistent with other studies of informal entrepreneurship, we sampled new ventures that had begun paying salaries and were therefore beyond the nascent phase but were less than 5 years old and therefore not established organizations (Autio & Fu, 2015; Thai & Turkina, 2014). Nascent ventures were excluded

because they might be nonregistered not in response to institutions but because they are still gestating (Williams et al., 2017). Country-level variables were drawn from other archival data sources, as delineated next. This procedure resulted in a sample of 8,816 new ventures operating in a diverse range of 39 countries in Africa, Asia, Europe, North America, and South America. Table 1 presents characteristics of the sampled countries.

Measures

Dependent variable

The GEM module on registration asks whether the entrepreneur registered his or her business with the requisite official agency in his or her country. Although some entrepreneurs may be reluctant to answer the survey question truthfully due to the legalities of operating an unregistered business, GEM surveyors assured respondents of their anonymity and, as we describe later, we controlled for how the survey delivery may have affected responses. This question formed the basis of our dependent variable indicating nonregistration, which had a value of 1 if the venture was not registered and a value of 0 if it was officially registered. Although some scholars have argued that there are shades of informality, our measurement has the advantage of indicating only new ventures that are clearly and unambiguously operating informally. When the number of informal new ventures as a total of all new ventures in each country is aggregated for the 39 countries in the sample (shown in Table 1), it correlates significantly with recent measures of the size of the informal economy in these countries ($r = .50$; $p = .001$; Medina & Schneider, 2018), lending additional validity to this measurement.

Independent variable

To measure the prevalence of organized crime in each country, we used the organized-crime perception item from the World Economic Forum's Global Competitiveness Index (GCI), which has been used in prior studies and which positively correlates with other indicators of organized crime (Ramos & Ashby, 2013; Van Dijk, 2007). In particular, the Executive Opinion Survey in the GCI asked a random sample of business leaders from both large and small companies in each country the following question: "In your country, to what extent does organized crime (mafia-oriented racketeering, extortion) impose costs on businesses?" The responses were then averaged to assign a value to each country and create the organized-crime perception item, which ranges from 1 to 7. Because the GCI is meant to indicate economic competitiveness, a higher score on this item was associated with lower levels of organized crime. We therefore reverse-coded it to be consistent with our theorizing, such that a higher score meant greater levels of organized crime. We used the GCI item from 2011 so that there was temporal precedence of our independent variable vis-à-vis the dependent variable. This measure tends to be very consistent across years (Van Dijk, 2007) and is particularly relevant to our study because it captures not just the presence of organized crime but also the costs it imposes on businesses through institutionalized extortion.

Moderators

Moderating variables were measured using GEM items. A necessity entrepreneur was measured using a dichotomous variable whereby a value of 1 indicated that the entrepreneur responded that he or she started the venture because there were no better options for work and a value of 0 if it was in pursuit of a business opportunity. Likewise, new ventures with a solo founder were coded as 1 and ventures with partners as 0. Ventures that sold a novel product or service were indicated with a 1 if the founder reported that the product or service was new and unfamiliar to all or some customers and a 0 if none would find it new or unfamiliar. Finally, export intensity was measured using a categorical GEM survey item regarding the percentage range of the venture's customers who lived outside of the country. The range categories ascended from 1 to 7 with 1 indicating 90% of customers lived outside of the country, 2 indicating more than 75%, 3 indicating more than 50%, 4 indicating more than 25%, 5 indicating more than 10%, 6 indicating 10% or less, and 7 indicating 0%. We reverse-coded the GEM item such that a higher value meant greater export intensity.

Control variables

When testing our hypotheses, the four variables serving as moderators acted to control for alternative explanations at the founder/venture level. Specifically, we included necessity entrepreneur, solo founder, novel product or service, and export intensity in all models regardless of whether they were part of a hypothesis test because these factors can influence registration regardless of the level of organized crime (De Castro et al., 2014; Lavezzi, 2008). Furthermore, we included additional variables that have been suggested to shape the decision not to register a new business. At the country level, we included GDP per capita and GDP per capita growth to capture the level and trend of economic development, as higher development tends to encourage registration (Autio & Fu, 2015; Dau & Cuervo-Cazurra, 2014). Along similar lines, to capture the effect of formal institutions, we included the ease-of-doing-business distance-to-frontier index, which measures aspects related to how quickly and easily one can start and register a business, pay taxes, and engage in trade and legally binding contracts, among other aspects. Consistent with prior research, we used an average of the six Worldwide Governance Indicators (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption) to indicate governance quality because higher quality of public governance tends to promote registration and discourage nonregistration (Dau & Cuervo-Cazurra, 2014; Thai & Turkina, 2014). These variables account for alternative explanations to organized crime, encompassing aspects such as property protection, tax burden, regulatory complexity, and corruption. We obtained these variables for the year 2011 from the World Bank.

We captured potential industry effects by using dichotomous variables based on the International Standard Industrial Classification system, which categorizes businesses into manufacturing, construction, agriculture, mining/utilities, nonmarket services (e.g., community organizations), and market services. Because the last category was very broad and encompassed many of the firms in our sample, we further divided it into professional services and consumer/trade services (trade, transportation, and food services), with the latter serving as the baseline category.

We also included theoretically relevant controls at the venture/founder level. To account for entrepreneurs' financial resource availability in circumventing the potential costs of registration

and/or extortion, we controlled for income by including two dichotomous variables denoting whether entrepreneurs were in the middle third or top third of income distribution in their country. The bottom third served as the baseline category. Additionally, we controlled for female entrepreneurs using a dummy variable because they may be less likely to register their businesses (Babbitt et al., 2015). We also controlled for the entrepreneurs' age and education based on degree achievement (e.g., primary, secondary, postsecondary), as prior research suggests that older and more educated entrepreneurs are more likely to register new businesses (Williams & Shahid, 2016). Additionally, we controlled for founders' general perceptions of entrepreneurship in their country, as such perceptions and the associated cultural values may shape the willingness to start a business and keep it unregistered (Webb et al., 2013). Specifically, we included two dichotomous variables: good career, denoting whether founders believed that in their country, most people consider starting a new business a desirable career choice; and high status, denoting whether founders believed that in their country, those successful at starting a new business have a high level of status and respect. We included firm size in terms of employees, as it is naturally more challenging to keep a business informal as it grows larger. Using a GEM survey question, we controlled for competitive intensity via founders' assessment of whether there was no competition offering the same products or services to potential customers in order to account for the fact that some businesses may not register because they do not experience competitive pressures to do so (Williams et al., 2017).

Finally, we included survey-related variables that might potentially shape responses to the registration question. First, we controlled for survey year to ensure that there was no systematic difference between the 2 years of the survey waves we utilized for our sample. Second, we controlled for the method with which the responses were obtained. Specifically, we used a dichotomous variable to distinguish between in-person interviews and phone interviews with founders. Given the potentially sensitive nature of informal entrepreneurship in many institutional contexts, founders might be more likely to disclose informality to an interviewer in a setting that reduces potential exposure.

Results

Descriptive statistics are displayed in Table 2, indicating that nonregistration is positively correlated with organized crime, necessity entrepreneurs, and solo founders but negatively associated with novel products/services and export intensity, in line with theoretical expectations. Consistent with prior research, ease of doing business, economic development in the form of GDP per capita, and governance quality were negatively correlated with nonregistration. Nonregistration was more likely in agriculture and less likely in professional services compared with consumer and trade services. No pairwise correlations were large enough to warrant concern, and the maximum variance inflation factor (VIF) was 3.00 (average VIF = 1.37), indicating multicollinearity was not a major concern. Approximately 60% of the sampled ventures were nonregistered, which is expected considering they were very young—sampling older firms would likely have resulted in a bias toward registration. Additionally, the GEM registration module primarily sampled middle- and lower-income countries with relatively fewer advanced countries. More advanced economies in the sample, such as Norway, Estonia, and South Korea had lower nonregistration rates, whereas less-developed countries had higher rates, consistent with prior research (e.g., Dau & Cuervo-Cazurra, 2014; Thai & Turkina, 2014).

Hypotheses Testing

Because ventures were nested within countries and our dependent variable was binary, we used a two-level mixed-effects logistic model using the Stata software. This modeling accounted for the nonindependence of observations of ventures within the same country (Raudenbush & Bryk, 2002). We included country-level variables at the second level. Model 1 in Table 3 shows an analysis with control variables only. Entrepreneurs who had high incomes, had more education, and were older were less likely to operate nonregistered businesses, probably because such entrepreneurs are more likely to seek high growth and therefore need formal registration to access financial and human capital (Kistruck et al., 2015). On the other hand, new ventures with no perceived competition tended to operate informally, likely because such firms might not feel the pressure to register as a means of gaining access to human and financial capital needed to compete (Kistruck et al., 2015). Similarly, female entrepreneurs were more likely to choose nonregistration, consistent with prior research (Babbitt et al., 2015).

When the organized-crime variable was added in Model 2, it had a positive coefficient of 0.50 with a standard error of 0.19. A value of zero did not fall within the 95% confidence interval, suggesting that the probability of this effect being due to chance is less than 5% ($p = .01$). Converted to an odds ratio, the coefficient is 1.65. An odds ratio coefficient captures the change in probability of an outcome's occurrence resulting from a one-unit change in the independent variable, such that a value of 1.00 indicates no change in probability, values greater than 1.00 indicate a greater probability of occurrence, and values less than 1.00 indicate a lower probability of occurrence. A one-unit increase in the organized-crime level therefore means the average firm is 1.65 times more likely to choose nonregistration. Thus, Hypothesis 1, which stated that organized crime would induce entrepreneurs to operate nonregistered ventures, received empirical support.

Hypothesis 2 stated that this relationship would be amplified for necessity entrepreneurs and also received empirical support. The interaction of organized crime and necessity entrepreneur was positive when added in Model 3 ($B = 0.13$, $SE = 0.06$, $p = .04$), and the 95% confidence interval did not include zero, indicating a very low probability of a null effect. However, when testing interaction effects, "the nonlinearity of logit and probit models means that the relationship between a change in the value of an independent variable and the estimated change in the probability of a positive outcome cannot be directly discerned from the variable's coefficient" (Zelner, 2009: 1336). Thus, to assess this interaction effect more accurately, we used a specialized Stata package that simulates a model 1,000 times and then graphs the predicted probability of the outcome based on different values of the moderating and independent variables (King, Tomz, & Wittenberg, 2000; Zelner, 2009). Figure 1 shows the predicted probability of choosing nonregistration (along the y -axis) when the founder is a necessity entrepreneur compared to an opportunity entrepreneur. The x -axis shows how this probability varies according to the level of organized crime. Vertical bars along the trend lines indicate the 95% confidence intervals to assess statistical difference. Where the vertical bars overlap, there is no statistical difference between the two types of entrepreneurs in terms of the predicted probability of choosing nonregistration. As shown in Figure 1, necessity entrepreneurs are increasingly likely to choose nonregistration compared to opportunity entrepreneurs as the prevalence of organized crime increases.

Table 2. Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Nonregistration	0.62	0.49	—																											
2. Organized crime	3.47	0.94	.16	—																										
3. Necessity ^a	0.30	0.46	.13	−.01	—																									
4. Solo founder ^a	0.71	0.45	.18	.00	.10	—																								
5. Novel product ^a	0.36	0.48	−.14	−.01	−.09	−.11	—																							
6. Export intensity	1.53	1.13	−.14	−.03	−.07	−.12	.24	—																						
7. GDP per capita	13853.90	7781.36	−.27	−.26	−.04	−.08	−.03	.04	—																					
8. GDP growth	3.61	2.87	.03	−.03	−.02	.03	.15	−.05	−.49	—																				
9. Ease of doing business	59.61	8.18	−.24	−.32	−.08	−.13	.29	.18	.52	−.03	—																			
10. Governance quality	−0.07	0.63	−.17	−.35	−.04	−.07	.05	.11	.65	−.08	.61	—																		
11. Entrepreneurship good career ^a	0.78	0.42	.08	.14	.01	.05	−.04	−.03	−.11	.05	−.10	−.06	—																	
12. Entrepreneurship high status ^a	0.78	0.41	.06	.06	.01	.04	−.05	−.05	−.14	.08	−.12	−.09	.17	—																
13. Construction/trade services ^a	0.54	0.50	.06	−.01	.04	.05	.00	−.04	−.17	.07	−.05	−.12	.03	.02	—															
14. Manufacturing ^a	0.09	0.29	.00	.02	.00	−.04	.00	.02	−.02	.07	.00	.00	.01	.00	−.35	—														
15. Construction ^a	0.05	0.22	−.01	−.01	.01	−.02	−.04	−.01	.09	−.05	.01	.07	.02	.00	−.25	−.07	—													
16. Agriculture ^a	0.06	0.24	.06	−.02	.01	.01	−.01	.00	−.03	−.03	.01	−.04	−.02	.01	−.28	−.08	−.06	—												
17. Mining/utilities ^a	0.01	0.09	.01	.02	−.01	.00	.00	.00	−.01	−.01	−.01	−.02	−.03	−.01	−.10	−.03	−.02	−.02	—											
18. Nonmarket services ^a	0.13	0.33	.00	.02	−.01	.04	−.02	−.03	.06	−.03	−.04	.04	.00	.00	−.42	−.12	−.09	−.10	−.03	—										
19. Professional services ^a	0.11	0.32	−.14	−.01	−.07	−.07	.06	.09	.18	−.08	.11	.13	−.04	−.03	−.40	−.11	−.08	−.09	−.03	−.14	—									
20. Firm size	6.98	225.25	.00	.00	−.01	.00	.02	.05	.00	−.01	.02	.01	−.03	.00	−.01	−.01	.00	.00	.00	−.01	.04	—								
21. No competition ^a	0.07	0.25	.02	.00	.00	−.01	.05	.02	.02	−.01	.04	.05	.01	−.02	−.01	.00	−.04	.01	.01	.01	.02	.00	—							
22. Bottom income ^a	0.28	0.45	.15	−.01	.17	.11	−.10	−.11	−.01	−.03	−.05	.02	.04	−.01	.04	.01	−.01	.00	.00	.03	−.10	−.01	.01	—						
23. Middle income ^a	0.30	0.46	.08	.01	.01	.03	−.01	−.04	−.06	.06	−.03	−.05	.02	.03	.03	.01	−.01	.02	.00	−.01	−.05	.01	.01	−.14	—					
24. Top income ^a	0.42	0.49	−.21	.00	−.17	−.13	.11	.14	.06	−.06	.08	.03	−.05	−.03	−.06	−.01	.02	−.02	−.01	−.02	.13	.00	−.02	−.53	−.56	—				
25. Education	2.91	1.45	−.29	−.07	−.20	−.19	.19	.18	.23	−.17	.21	.06	−.11	−.11	−.10	−.06	−.02	−.06	.01	.05	.22	.01	.00	−.28	−.08	.33	—			
26. Age	36.51	11.15	−.04	.01	.05	.07	.02	.02	.09	−.07	.09	.10	.01	−.01	.01	.04	−.01	.06	.01	−.07	−.01	−.01	.02	.02	−.02	.00	−.10	—		
27. Female ^a	0.46	0.50	.15	.05	.06	.10	−.05	−.07	−.09	.04	−.08	−.02	.04	.01	.12	−.10	−.16	.05	−.03	.08	−.09	−.01	.01	.11	.01	−.11	−.10	.01	—	
28. Survey year	2012.51	0.50	.00	−.01	−.03	.01	.05	.02	.05	−.05	.05	.07	−.04	−.04	.03	−.05	.03	−.02	.04	.02	−.04	.01	.00	.10	−.03	−.06	.10	.02	.02	—
29. In-person interview ^a	0.77	0.42	.26	.27	.05	.16	−.27	−.23	−.47	.18	−.54	−.47	.10	.12	.11	.01	−.02	.00	.01	.00	−.18	.00	−.01	.14	.04	−.16	−.29	−.10	.08	.06

Note: *N* = 8,816. Bolded values significant at least at the .05 level.

^aDummy variable.

Table 3. Mixed-Effects Logistic Models Predicting Nonregistration of New Ventures

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	4.72 (1.98)	3.09 (1.92)	3.20 (1.92)	2.79 (1.91)	2.98 (1.92)	3.14 (1.92)
GDP per capita	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
GDP growth	−0.05 (0.07)	−0.02 (0.07)	−0.02 (0.07)	−0.02 (0.07)	−0.01 (0.07)	−0.01 (0.07)
Ease of doing business	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)	−0.02 (0.03)
Governance quality	−0.32 (0.49)	−0.13 (0.46)	−0.13 (0.45)	−0.14 (0.45)	−0.14 (0.45)	−0.13 (0.46)
Entrepreneurship good career	0.07 (0.07)	0.07 (0.07)	0.07 (0.07)	0.07 (0.07)	0.07 (0.07)	0.07 (0.07)
Entrepreneurship high status	−0.04 (0.07)	−0.04 (0.07)	−0.04 (0.07)	−0.04 (0.07)	−0.04 (0.07)	−0.04 (0.07)
Manufacturing	0.29 (0.10)	0.29 (0.10)	0.29 (0.10)	0.29 (0.10)	0.29 (0.10)	0.29 (0.10)
Construction	0.37 (0.12)	0.37 (0.12)	0.37 (0.12)	0.36 (0.12)	0.37 (0.12)	0.37 (0.12)
Agriculture	0.65 (0.12)	0.65 (0.12)	0.65 (0.12)	0.65 (0.12)	0.65 (0.12)	0.65 (0.12)
Mining/utilities	−0.10 (0.32)	−0.10 (0.32)	−0.10 (0.32)	−0.12 (0.31)	−0.09 (0.32)	−0.10 (0.32)
Nonmarket services	0.17 (0.08)	0.17 (0.08)	0.17 (0.08)	0.16 (0.08)	0.17 (0.08)	0.17 (0.08)
Professional services	−0.09 (0.09)	−0.09 (0.09)	−0.09 (0.09)	−0.09 (0.09)	−0.09 (0.09)	−0.09 (0.09)
Firm size	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
No competition	0.28 (0.11)	0.28 (0.11)	0.27 (0.11)	0.27 (0.11)	0.28 (0.11)	0.28 (0.11)
Middle income	−0.14 (0.07)	−0.14 (0.07)	−0.14 (0.07)	−0.14 (0.07)	−0.14 (0.07)	−0.14 (0.07)
Top income	−0.59 (0.07)	−0.59 (0.07)	−0.59 (0.07)	−0.59 (0.07)	−0.59 (0.07)	−0.59 (0.07)
Education	−0.22 (0.02)	−0.22 (0.02)	−0.22 (0.02)	−0.22 (0.02)	−0.22 (0.02)	−0.22 (0.02)
Age	−0.02 (0.01)	−0.02 (0.01)	−0.02 (0.01)	−0.02 (0.01)	−0.02 (0.01)	−0.02 (0.01)
Female	0.38 (0.06)	0.38 (0.06)	0.38 (0.06)	0.38 (0.06)	0.38 (0.06)	0.38 (0.06)
Survey year	−0.13 (0.06)	−0.13 (0.06)	−0.13 (0.06)	−0.13 (0.06)	−0.13 (0.06)	−0.13 (0.06)
In-person interview	−0.97 (0.13)	−0.97 (0.13)	−0.97 (0.13)	−0.96 (0.13)	−0.97 (0.13)	−0.97 (0.13)
Necessity entrepreneur	0.51 (0.06)	0.51 (0.06)	0.06 (0.22)	0.51 (0.06)	0.50 (0.06)	0.51 (0.06)
Solo founder	0.35 (0.06)	0.35 (0.06)	0.35 (0.06)	0.26 (0.21)	0.35 (0.06)	0.35 (0.06)
Novel product/service	−0.17 (0.07)	−0.17 (0.07)	−0.17 (0.07)	−0.17 (0.07)	0.03 (0.23)	−0.17 (0.07)
Export intensity	−0.09 (0.03)	−0.09 (0.03)	−0.08 (0.03)	−0.09 (0.03)	−0.09 (0.03)	−0.12 (0.09)
Organized crime		0.50 (0.19)	0.47 (0.19)	0.57 (0.19)	0.53 (0.19)	0.49 (0.49)
Organized Crime × Necessity			0.13 (0.06)			
Organized Crime × Solo Founder				0.18 (0.06)		
Organized Crime × Novel Product					−0.06 (0.07)	
Organized Crime × Export Intensity						0.01 (0.02)
<i>Log likelihood</i>	−4,465.52	−4,462.10	−4,459.95	−4,457.39	−4,461.67	−4,462.03
Wald χ^2	641.27	648.58	649.79	655.12	649.3	648.61

Note: $N = 8,816$ for all models. Log-odds coefficients shown. Standard errors in parentheses.

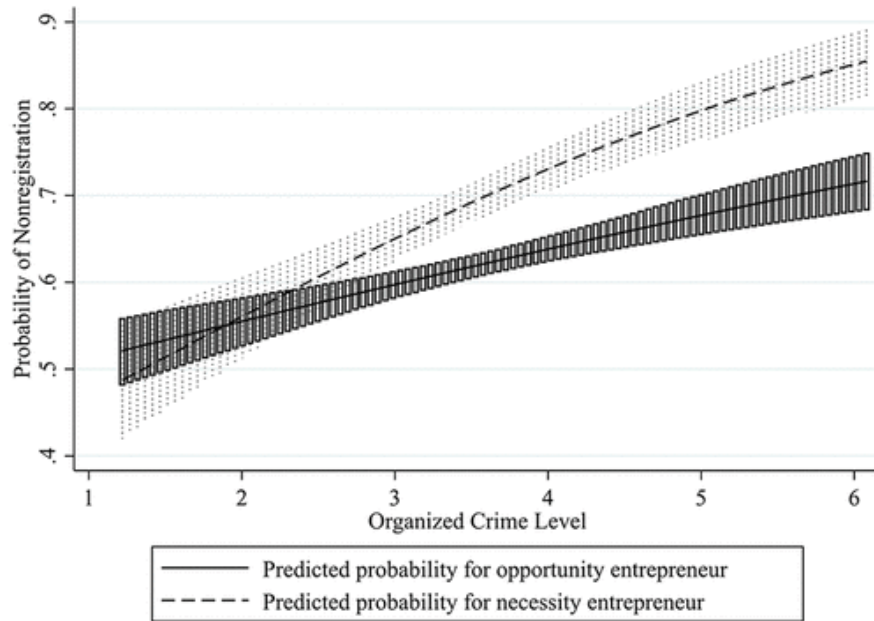


Figure 1. Effect of Organized Crime on Necessity Entrepreneurs' Nonregistration

Note: Vertical bars represent 95% confidence intervals.

Hypothesis 3 stated that the relationship between organized crime and nonregistration would be stronger for solo founders and was supported, as shown by the positive interaction of organized crime and solo founder in Model 4 ($B = 0.18$, $SE = 0.06$, $p = .002$). As shown in Figure 2, which displays the graph from the simulation procedure described previously, solo entrepreneurs become increasingly likely to choose nonregistration as the organized-crime level increases, whereas organized crime appears to have almost no effect on registration decisions for new ventures with partners.

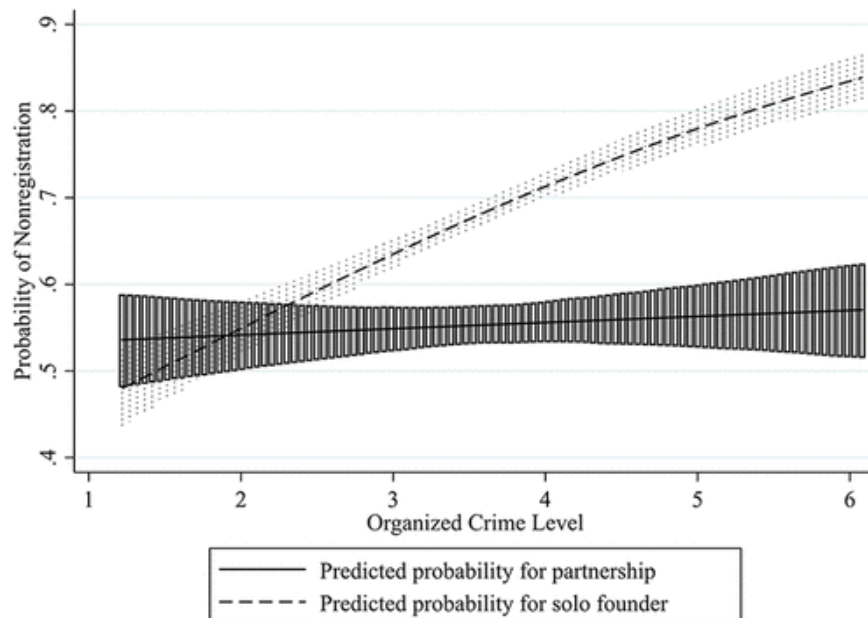


Figure 2. Effect of Organized Crime on Solo Founders' Nonregistration

Note: Vertical bars represent 95% confidence intervals.

We hypothesized that ventures selling novel products or services would be less likely to be nonregistered when organized crime was prevalent (Hypothesis 4). The interaction of organized crime and novel product or service had the expected negative coefficient in Model 5 of Table 3 ($B = -0.06$, $SE = 0.07$), but it did not reach conventional levels of statistical significance ($p = .36$). However, using the simulation procedure described previously, Figure 3 indicates that firms with novel products or services are less likely to choose nonregistration than firms with established products or services when organized crime reaches average to above-average levels. Interestingly, at low levels of organized crime, new ventures with novel products or services are actually more likely to choose nonregistration, perhaps because when the costs associated with extortion are mostly absent, such firms stay nonregistered as a means to gestate or to protect ideas for new products or services (Williams et al., 2017). This reversing of the effect of organized crime could explain why the interaction effect in the mixed-effects logistic model was not statistically different from zero. Hypothesis 4 therefore received support, conditional on the organized-crime level being at average to above-average levels.

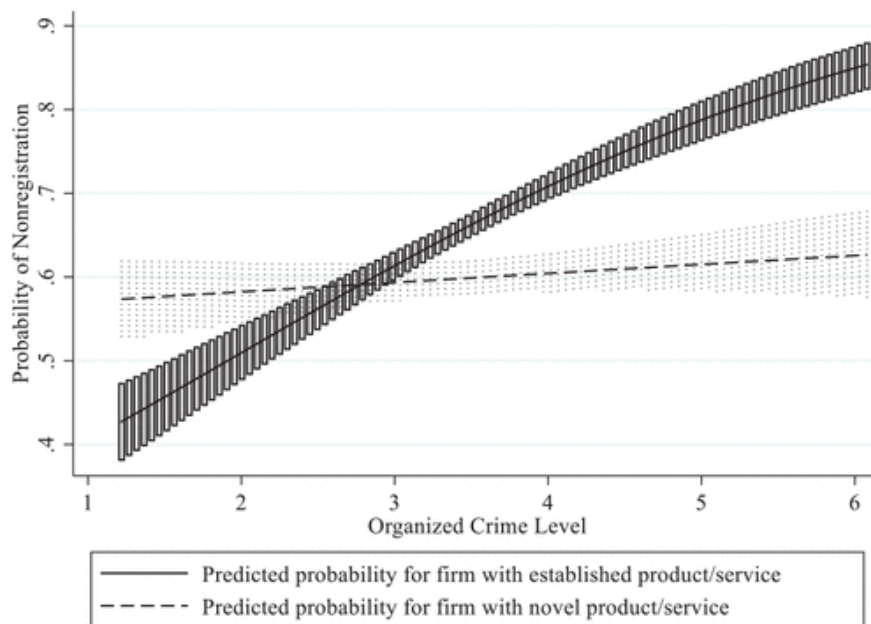


Figure 3 Effect of Organized Crime on Novel Product Ventures' Nonregistration

Note: Vertical bars represent 95% confidence intervals.

Likewise, the interaction of organized crime and export intensity had a slightly positive coefficient in Model 6 ($B = 0.01$, $SE = 0.02$) but also did not reach conventional levels of statistical significance ($p = .72$). However, Figure 4 displays the results of the simulation procedure and shows that firms that have greater than 25% of sales from exporting (indicating the firm may be born-global; Knight & Cavusgil, 2004) are less likely to choose nonregistration compared with nonexporting firms but only when organized crime is at an average to above-average level. Further analyses indicated that this moderation pattern is evident for any level of nontrivial export intensity (i.e., once new ventures reach export levels of about 10% of total sales). Hypothesis 5 therefore also received conditional support.

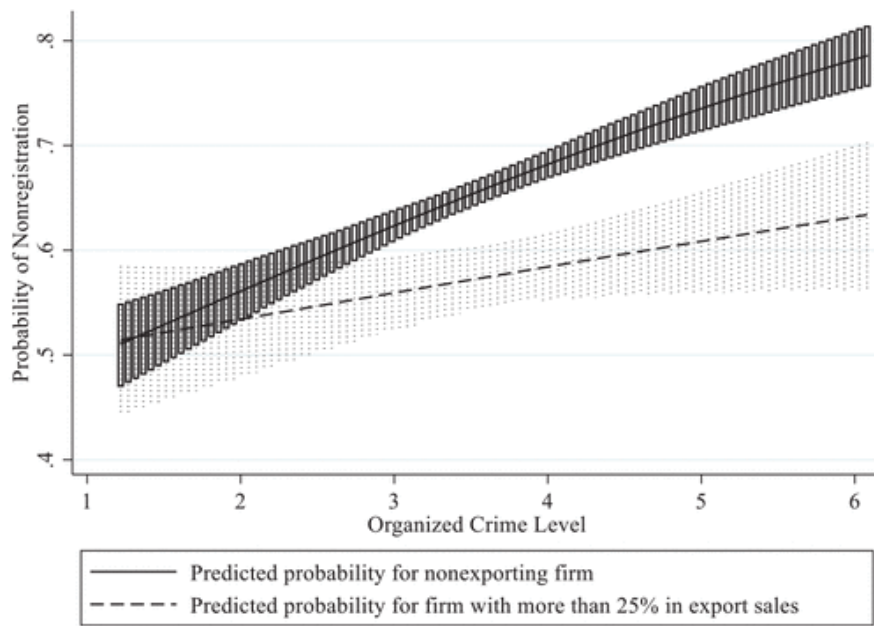


Figure 4 Effect of Organized Crime on Exporting Ventures' Nonregistration

Note: Vertical bars represent 95% confidence intervals.

Additional Analyses

The relationship between organized crime and formal governance quality has been the subject of significant scholarly inquiry, with some arguing that prevalent organized crime promulgates corruption and weakens the rule of law (Van Dijk, 2007), while others suggest organized crime thrives because of formal institutional weaknesses (Neanidis et al., 2017). The former view implies that low-quality formal institutions are a more proximal antecedent to nonregistration. If so, formal institutional quality should explain nonregistration decisions due to prevalent organized crime; our control variables account for this possibility, as the shared variance of organized crime and formal institutional quality is captured by our governance quality variable. The organized-crime variable then captures a direct effect on nonregistration in addition to a possible indirect effect via governance quality. The latter view implies that the effects of organized crime we observe are driven by weaknesses in formal institutional quality. That is, organized crime affects nonregistration decisions because weak formal institutions—or an omitted variable covarying with formal institutions—enabled it to thrive. If so, the shared variance between governance quality and organized crime should explain nonregistration, but the rest of the variance in organized crime should not.

Accordingly, we regressed organized crime on governance quality and then used the residuals from this equation to create a new variable capturing the portion of variance in organized crime that is unrelated to formal institutional quality. Next, we tested this variable in the main model predicting nonregistration, similar to how we tested Hypothesis 1. Results (available upon request) indicated that the residuals variable had a positive, statistically significant effect on nonregistration ($B = 0.50, p = .007$), while governance quality—which now captures the portion of variance in organized crime that is attributable to formal institutions or an omitted variable correlated with formal institutions—was not a significant predictor of nonregistration. This finding indicates that the variance in organized crime that is correlated with governance quality

does not explain nonregistration; rather, it is the residual, independent portion of variance in organized crime that does so.

Nonetheless, the effect of organized crime on nonregistration could still be driven by an unobserved factor at the country level that does not covary with governance quality. Several of our control variables are useful in ameliorating this concern, but we also used a two-stage residual inclusion test for endogeneity to improve confidence that the observed effects were not confounded by omitted-variable bias (Wooldridge, 2013). This approach is preferable to a two-stage predictor substitution approach when the dependent variable is nonlinear (Terza, Basu, & Rathouz, 2008). In this approach, the first step is to choose an instrumental variable, which is unrelated to the dependent variable except through the influence of the independent variable. In the context of this study, an appropriate instrumental variable would be related to organized crime but would not influence new venture nonregistration by itself. We therefore chose the national homicide rate as our instrumental variable, measured using data from the Global Burden of Disease Study conducted by the Institute for Health Metrics and Evaluation. Although homicide rates are not entirely exogenous to our models, they provide a viable solution: The homicide rate variable was significantly correlated with organized crime ($r = .78$) but not with the error term of our equation predicting the effect of organized crime on new venture nonregistration ($r = .07$) or with the nonregistration variable ($r = .04$), making it an appropriate instrument (Wooldridge, 2013). Moreover, homicide rates were not correlated with governance quality ($r = -.05$). Indeed, homicide rates have been used as an instrument for organized crime in previous studies (Pinotti, 2011). Next, we regressed organized crime on the homicide rate and saved the residuals from this equation as a new variable that captures the variance in organized crime that is not exogenous. In the second stage, we retested Hypothesis 1 with this variable in the model. Because it was not statistically significant ($p = .54$), the endogenous variance in organized crime attributable to potentially confounding unobserved variables does not appear to influence nonregistration.

We repeated the above two-stage residual inclusion test including a second instrumental variable in the form of the total volume of illegal drugs (in kilograms) seized by authorities in the year 2011 in 34 out of the 39 countries in our sample for which data were available from the United Nations Office on Drugs and Crime. To avoid country-size effects in volumes of seized drugs, we normalized the original values by country population. This variable covers all drugs seized and likely reflects historical, geographical (e.g., smuggling routes), and other drivers of organized crime activity that are not endogenously determined by the variables in our model. Indeed, it was correlated with organized crime ($r = .47$) but not with governance quality ($r = -.07$). Results of the two-stage residual inclusion test again indicated the endogenous part of the variance was not statistically different from zero ($p = .49$). Finally, we reran the analyses but also included all country-level control variables in our data when calculating the endogenous residuals in the first step of the two-step test (Ullah, Akhtar, & Zaefarian, 2018), and the results were substantively the same ($p = .49$).

Taken together, these results indicate that (a) organized crime exerts a direct effect on nonregistration decisions, above and beyond a potential indirect effect due to or via weak formal institutions, and (b) it is not likely that the effect of organized crime is driven by an omitted variable affecting both organized crime and nonregistration. These patterns echo arguments in

prior literature that organized crime may have multiple effects on society—corruption and the weakening of formal institutions may be among them, but institutionalized extortion represents a distinct influence on new venture nonregistration.

Finally, we reran all models using a separate sample of ventures that the GEM survey considered established firms rather than new ventures, in that they were at least 5 years old but not necessarily bigger (8,135 established firms total). Results using this sample (available upon request) were substantively similar to those reported already, indicating that the observed effects of organized crime on nonregistration are not likely biased by the age or entrepreneurial phase of the firms in our sample. The fact that the results hold for established firms as well as new ventures helps eliminate alternate explanations, such that new ventures may not register in order to gestate.

Discussion

We sought an answer to the question, How does the prevalence of organized crime affect entrepreneurs' choice to operate in the informal economy? Because institutionalized extortion imposes costs on new ventures, we theorized that organized crime would induce founders to operate nonregistered businesses as a buffer to avoid these costs, with necessity entrepreneurs and solo founders being more likely to choose nonregistration because they lack access to resources that may help them resist extortion or absorb the costs. Conversely, new ventures with novel products/services or an export orientation are less likely to be targeted by organized crime, meaning such ventures should be less likely to choose nonregistration because their product-market strategy provides an inherent buffer against institutionalized extortion. Our analysis of 8,816 new ventures in 39 countries largely supported these predictions. Next, we discuss the implications for theory and practice.

Implications for Theory and Research

This study enhances understanding of entrepreneurs' motivations to operate a new venture in the informal economy, which has been lacking in entrepreneurship research (Shepherd et al., 2019; Short et al., 2010). Many studies have focused on formal national institutions and their influence on country-level rates of nonregistration, which is not surprising because governmental and market-supporting institutions play a critical role in regulating transactions in order to build trust in the economy and thereby foster economic development (e.g., Autio & Fu, 2015; Dau & Cuervo-Cazurra, 2014; Thai & Turkina, 2014). Yet, as our study has shown, it is important to consider other types of institutions as part of the nomological network surrounding informal entrepreneurship because they can act as separate and distinct mechanisms from formal ones (De Castro et al., 2014). In particular, the level of organized crime in a given country is a novel and nonobvious antecedent of informal entrepreneurship because it creates institutionalized extortion costs that entrepreneurs may seek to avoid via nonregistration. Informal entrepreneurship across countries ought to be understood based on the underlying drivers so that its causes are not conflated. This heterogeneity in the antecedents of informal entrepreneurship means that scholarly understanding of informal entrepreneurship is incomplete without considering the effects of organized crime and the institutionalized extortion that it fosters. Although improvements in governmental and market-supporting institutions can increase formal

entrepreneurship rates (Autio & Fu, 2015; Thai & Turkina, 2014), organized crime could counteract these effects.

Moreover, comparative studies of informal entrepreneurship rates in this stream of research implicitly assume that national institutions influence all entrepreneurs equally. However, informal entrepreneurship is a multilevel phenomenon wherein “institutions regulate behaviors and thereby construct individual-level trade-offs that influence alternative courses of action” (Ketchen, Ireland, & Webb, 2014: 96). Our theory and results indicate that individual entrepreneurs in the same or similar institutional context make different choices regarding business registration based on their access to resources and product-market strategy. Institutional influences can be nuanced and contingent on the attributes of the founder and venture, so these must be considered alongside institutions in order to arrive at a more accurate understanding of informal entrepreneurship.

Our analysis may be among the first to demonstrate the systematic use of a specific strategic buffer in response to institutional pressures across a large number of ventures and countries. Although the focus herein was on extortion, it is possible that nonregistration could be used as a buffer against other institutional pressures, expanding our knowledge of motivations driving informal entrepreneurship. For example, nonregistration could be employed by entrepreneurs as a buffer against other informal or shadow institutions, such as exploitative business practices (Welter & Smallbone, 2011; Williams & Nadin, 2010). Examining such potential patterns can break new ground in the theoretical understanding of informal entrepreneurship as well as the institutions–entrepreneurship nexus more broadly.

Finally, our study has implications for the wider fields of entrepreneurship and management. First, there is a burgeoning stream of research in comparative international entrepreneurship that seeks to understand how entrepreneurship differs across national contexts. Many studies within this stream of research are atheoretical, and multilevel theory and analyses can break new ground (Terjesen, Hessels, & Li, 2016). We contribute a novel institutional factor to this literature while simultaneously heeding the call for more midrange theories whereby comparative entrepreneurship research “must account for both within- and across-nation variance in order to account for how and where enterprising individuals exploit entrepreneurial opportunities” (Baker et al., 2005: 501).

Second, although the framework of formal and informal institutions has been widely applied to understand organizational decisions, shadow institutions, like extortion practices, represent a unique type of informal institution because they are not legally sanctioned or widely accepted, yet they create shared expectations that have a demonstrable effect on entrepreneurs’ choices. There is often a clear distinction between the legitimate economy and the “renegade economy” (Webb et al., 2009), and institutional theory typically focuses on the former. However, our study suggests that informal, shadow institutions from the “renegade economy” can affect organizational and entrepreneurial decisions within the legitimate economy. Hence, echoing Shepard et al. (2019: 167), our study suggests more research of shadow institutions and informal economic activity is “particularly promising” in management and entrepreneurship literature.

Practical Implications

This study also has implications for founders and policy makers. Founders ought to consider how their venture might be exposed to extortion and take concrete steps to protect their business. Although the research design did not take into account the efficacy of greater resource access or distinct product-market strategies, because the results show that ventures with these attributes were less likely to choose nonregistration when organized crime was prevalent, it implies that adding partners or altering product-market strategy could help founders protect their ventures from extortion.

An important policy goal of many national governments is the reduction of informal entrepreneurship due to the loss of tax revenues, property protection vulnerabilities, and safety or health hazards that can result from high rates of nonregistration (Webb et al., 2013). Although previous studies have shown that improving formal institutions can increase formal entrepreneurship rates (Autio & Fu, 2015; Dau & Cuervo-Cazurra, 2014), such improvements do not necessarily reduce the prevalence of organized crime, which could mitigate or offset the benefits of formal institutions. Thus, improvement in formal institutions should be accompanied with the targeted reduction of organized crime—particularly, extortion rackets—in order to maximize economic benefits.

Limitations and Future Research

This study is not without limitations that suggest fruitful avenues for further research. Although there may be a continuum of informality (Williams & Shahid, 2016), this study measured only whether new ventures were nonregistered. However, this measurement captured ventures that were unambiguously informal (De Castro et al., 2014). Use of this measure and the GEM data set also allowed for comparisons across multiple countries with differing levels of organized crime. Another limitation was that individual entrepreneurs' perceptions of organized crime and their decision-making processes could not be captured. Future research could use surveys or other finer-grained methods to assess how organized crime affects shades of informality and the choice of organizational form. Finally, due to the nature of the GEM survey data, we could not measure whether any new ventures that were nonregistered eventually became registered. We were able to capture between-country differences but not within-country differences over time, although we were able to establish that the hypothesized effects were evident among older ventures using a robustness test. Still, longitudinal studies are needed regarding what might induce founders to register even when organized crime is present, such as anticrime business groups (e.g., La Rosa et al., 2018; Vaccaro & Palazzo, 2015).

Conclusion

Despite these limitations, this study provides novel insights to the literature on informal entrepreneurship, comparative international entrepreneurship, and institution-based theory of new ventures. Organized crime stretches across the world and has significant effects on business decisions. Herein, we argued that organized crime can institutionalize extortion and thereby lead entrepreneurs to operate nonregistered businesses as a buffer to avoid being extorted. However, this response to the institutional context is conditional on founder resource access and venture

product-market strategy, which can make businesses more or less likely to need this form of buffering. Overall, shadow institutions, like institutionalized extortion, ought to be considered an important antecedent in the nomological network surrounding entrepreneurship.

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