Article:
Piperopoulos, P, Kafouros, M, Aliyev, M orcid.org/0000-0002-1457-094X et al. (2 more authors) (2021) How does informal entrepreneurship influence the performance of small formal firms? A cross-country institutional perspective. Entrepreneurship and Regional Development, 33 (7-8). pp. 668-687. ISSN 0898-5626

https://doi.org/10.1080/08985626.2021.1887371

How does informal entrepreneurship influence the performance of small formal firms? A cross-country institutional perspective

Abstract

We advance understanding of how competition from informal entrepreneurial firms influences the performance of small formal (registered) firms. We also investigate the role of tax and law related institutions in shaping differently the performance outcomes of the competition between informal and formal firms. Empirical evidence from the analysis of 11,988 observations in 110 emerging countries indicates that, on average, informal firms affect adversely the performance of small formal firms. These negative effects however are stronger in institutional environments with burdensome courts of law but tend to be weaker in environments with burdensome tax regulations. Our analysis extends the *rational exit* perspective of informality and shows how competition from informal firms affects the performance of small formal firms. It also specifies how contingencies associated with law- and tax-specific institutions across emerging countries influence this relationship.

Keywords: informal economy; informal entrepreneurship; informality; competition; institutional theory; emerging countries

Introduction

Informal entrepreneurship refers to business activities 'that take place partially or fully outside government regulations and laws, taxation, but inside a normative institutional frame which is based on implicit mutual understanding of society and communities of what is acceptable and tolerable' (Welter, Smallbone, and Pobol 2015, 294). Informality accounts for roughly 40-60% of the GDP in emerging countries and almost 15% in developed countries (Schneider and Williams 2013). In some emerging countries, like Indonesia for example, it is estimated that over 93% of all micro, small and medium-sized enterprises are informal, while in Pakistan the informal sector accounts for over 30% of the country's GDP (Rothenberg *et al*. 2016; Williams, Shahid and Martinez 2016).

Yet, despite the pervasiveness of informality, few studies theorize about the impact of informal entrepreneurial firms on their formal counterparts. This is particularly surprising given that a significant proportion of research comes to the conclusion that informality is a burden to national economies (e.g., not paying taxes, not complying with labour laws, etc.) and to formal firms (e.g., taking away market share, competing unfairly, etc.). As such, it is often presumed that 'informality' has to be eliminated (e.g., Distinguin *et al*., 2016; Rand and Torm, 2012; Webb *et al*., 2009). Indeed, one of the key theories of informality – namely, the *rational exit* (parasite) model – suggests that informal firms compete with formally registered businesses (e.g., La Porta and Shleifer 2008; 2014; Distinguin *et al*. 2016). Yet, prior research has mostly advanced knowledge of the forces (e.g. resources, legitimacy, motives and external pressures) that shape the creation of informal firms (hereafter IFs) (de Castro, Khavul, and Bruton 2014; Lee and Hung 2014; Siqueira, Webb, and Bruton 2016; Tokman 1978a; 1978b; Uzo and Mair 2014; Williams

and Nadin 2012; Williams and Shahid 2016), but has left largely unaddressed the question of how competition from IFs influences the performance of small (formally registered) firms[1].

Addressing the competition effects of informal versus formal firms is particularly important for theory development and management practice as both types of firms coexist in the market and frequently target similar customer groups. Informal firms take market share from formal firms, while by infringing intellectual property rights they reduce the incentives to innovate (OECD 2010, 13). However, small formal firms and informal entrepreneurs often create symbiotic relationships (Castells and Portes 1989; de Castro *et al*. 2014; McGahan 2012). For instance, registered firms interact with IFs to subcontract business, outsource labour-intensive work or sell to IFs lower quality products that could not be sold to other businesses (Castells and Portes 1989; OECD 2010). As the role of IFs in influencing the performance of small formal firms remains ambiguous, investigating whether this relationship is symbiotic or competitive can help us advance theory on the subject.

A second promising research opportunity is to identify what contingencies change the way competition from IFs affects the performance of small formal firms. Prior studies have recognized that the institutional environment of a country shapes entrepreneurial opportunities (Smallbone and Welter 2001; Welter and Smallbone 2011) and that institutions influence the entry to informal and formal entrepreneurship (e.g. Dau and Cuervo-Cazurra 2014: Kistruck *et al*. 2015; Loayza 1996; Tonoyan *et al*. 2009). Nevertheless, prior research has neither considered how two major institution-related reasons that entrepreneurs are drawn to informality (namely, tax and law-

[1] A notable exception is the study of Distinguin *et al*. (2016) that investigates the role of the institutional environment in moderating the relationship between competition by informal firms and credit constraints of registered SMEs.

enforcing institutions) change the way in which competition from IFs affects the performance of small formal firms, nor has examined how these effects vary across emerging countries that exhibit different levels of institutional development.

Addressing these questions contributes to one of the three theories of informality, namely the *rational exit model* (e.g. La Porta and Shleifer 2008; 2014) and helps us explain the competition effects of the informal economy to formally registered businesses. It also answers recent calls (e.g. Welter *et al.,* 2015) to extend entrepreneurship theory by identifying the contextual factors (i.e. institutional or societal) that influence the consequences of informality on emerging countries and businesses within. We suggest that because the development and enforceability of tax and law-enforcing institutions differs across emerging countries, it changes the competitive dynamics between IFs and small formal firms and, in turn, leads to different performance outcomes.

The paper makes three key contributions. First, it contributes to research on informal entrepreneurship and institutions (e.g. Welter *et al* 2015; Welter and Smallbone 2011; Distinguin *et al*. 2016; Williams and Shahid 2016) by showing that compliance with formal institutional rules not only adds direct costs to formal firms but also influences, differently, the competitive dynamics between small formal firms and IFs. Second, it clarifies the ambiguous performance effects and dynamics of competition from IFs by showing how the economic activities of IFs that occur outside of formal institutions affect the performance of small formal firms that operate inside of these boundaries (Ketchen *et al*. 2014, 97; Hudson *et al.* 2012). Third, unlike single-country studies, the longitudinal analysis of 11,988 observations in 110 emerging countries enables us to study 'informality' in different institutional contexts, and to show that variations in the development of law-enforcing and tax institutions across countries change the competition effects between IFs and small formal firms.

Theoretical Perspectives of Informality

Extant literature on informality specifies three models that attempt to explain why an entrepreneur would choose to operate in the informal rather than the formal sector (La Porta and Shleifer 2008). The first theoretical explanation is the *exclusion model* (e.g. Castells and Portes 1989; De Soto 1989). The model suggests that burdensome government regulations and weak institutional environments (e.g. taxes, labour policies, corrupted officials etc.) exclude or push entrepreneurs to informality as they are unable to access market resources, credit/loans, expand their business or enter specific markets (Perry *et al*. 2007; Rothenberg *et al*. 2016). Proponents of this view argue that entrepreneurs would register their firms if governments improved the institutional environment by reducing barriers to entry, removing red tape and improving tax and legal environments (Distinguin *et al*. 2016). The *exclusion* model also suggests that formal firms may prefer governments to keep, at least a portion of IFs unregistered as they (a) can subcontract business (e.g. outsourcing expensive labour intensive work) to IFs to reduce their operational costs (Castells and Portes 1989) and (b) prevent IFs from becoming competitors in the same markets.

The second theory of informality is the *rational exit model* (e.g. Maloney 2004; Perry *et al*. 2007; Levy 2008), in which entrepreneurs are pulled to the informal sector to exploit opportunities (La Porta and Shleifer 2014) as they perceive the costs of formality (e.g. taxation and compliance with labour policies) to outweigh its benefits (De Soto 1989; Shabisigh 1995; Williams *et al.* 2016). Entrepreneurs capitalize on voids in formal institutions, such as low chances of being detected by authorities, as well as society's norms and beliefs that informality is not illegal but rather a form of resistance towards corrupted and inefficient governments (Siqueira *et al*. 2014; De Castro, Khavul and Bruton 2014; Williams and Shahid 2016). This model (also termed as the 'parasite

view') treats informal firms as direct competitors to formally registered businesses, because they gain unfair cost advantages undercut prices and grab market share from formal businesses (Distinguin *et al*. 2016).

Finally, the *dual economy model* (La Porta and Shleifer 2008; 2014) suggests that informal firms are inefficient, very small, run by less well-educated entrepreneurs who employ equally less educated and less efficient workers and inferior technologies (Rothenberg *et al*. 2016). As such, informal firms serve small local markets, do not attempt or cannot expand their businesses and generally produce products and serve customers different from the ones formal businesses cater for (Rothenberg *et al*. 2016); i.e. they do not pose a direct threat to formal businesses.

Institutional Variations and Entrepreneurship

Institutions, often defined as the 'rules of the game' (North 1990), play a major role in explaining (formal and informal) entrepreneurial behaviour and outcomes (Welter and Smallbone 2011; Siqueira *et al*. 2014; De Castro, Khavul and Bruton 2014; Distinguin *et al*. 2016; Williams and Shahid 2016). Institutional arrangements both open up opportunities for informal entrepreneurs (as predicated by the rational exit perspective), but also hamper formal entrepreneurial activity, particularly in countries in which firms have to comply with many rules and requirements (Bruton *et al*., 2010). Because each emerging country experiences a different level of institutional development – i.e. how effective formal institutions are in supporting business activity - (Hoskisson *et al*. 2013; Kafouros and Aliyev 2016a; b) it is important for the development of the theories of informality to consider how such cross-country variations in institutional development may influence (often differently) performance outcomes (Kafouros and Aliyev 2016a; North 1991). For instance, such variations in institutional development could double or halve the

rates of formal and informal entrepreneurship, respectively (Autio and Fu 2015), and this can have a profound impact on the dynamics of the competition between IFs and small formal firms.

As suggested by the rational exit perspective, IFs and small formal firms compete in the same industries and markets. Therefore, institutional variations can affect the dynamics of the competition between IFs and small formal firms. For example, as institutions develop in emerging countries and become more effective in protecting property rights, small formal firms can better protect themselves from counterfeit products that IFs sell in the market. Conversely, over-regulation with respect to the preservation of property rights and contract enforcements can give rise to a larger informal economy and therefore increase the competition small formal firms face from IFs (Friedman *et al*. 2000).

On the other hand, although small formal firms' governance by formal institutions may give them some competitive leverage against IFs, compliance to formal institutional prescriptions can also be costly and disruptive. For example, the costs of staying formal (e.g. paying taxes and dealing with labour-related and bureaucratic requirements) represent an average of 348% of after-tax profits (de Soto 1989). Furthermore, in addition to the direct effect of institutions on the performance of small firms (e.g. Khavul *et al*. 2009), they may also have an indirect effect by moderating how competition from IFs affects the performance of small formal firms. For instance, IFs can put extra pressure on small formal firms' sale performance because not only they avoid the costs of compliance and governance with formal institutions (e.g. avoid taxes and regulatory constraints) but they can also extend business hours long after small formal firms need to shut (Tokman 1978b).

Hypotheses

Informal Entrepreneurship and the Performance of Small Formal Firms

It has long been established in the literature that competitors can be involved in both cooperative and competitive relationships (i.e. coopetition) and benefit from both (Bengtsson and Kock 2000; Brandenburger and Nalebuff 1996; Porter 1980). Nevertheless, extant research is inconclusive about the benefits and costs that competition has on firms. For instance, competition can reduce profitability but increase productivity (Capon *et al.* 1990; Nickell 1996). Given the uncertainty of the interactions that IFs and small formal firms create, symbiotic or competing (de Castro *et al*. 2014; McGahan 2012), we develop two contrasting hypotheses; one which suggests that competition from IFs has a positive effect on the performance of small formal firms, and another one which posits that competition from IFs has an adverse effect on the performance of small formal firms.

First, coopetition is a strategy that capitalizes on the benefits of collaboration and competition between rival companies (Gnyawali and Park 2011; Luo 2007). As the informal economy often complements the formal sector (*exclusion* perspective of informality), IFs have access to certain consumer segments. These can provide credit on a personal basis, sell lower quantities, and provide transportation where the public infrastructure is insufficiently developed (Tokman 1978a). Furthermore, under the *exclusion* perspective of informality, formally registered firms may subcontract or outsource labour intensive (and therefore expensive) business to IFs, sell lower quality products (i.e. with slight defects), and/or sell close to expire products that formal businesses are not allowed to sell in their stores (Castells and Portes 1989; OECD 2010). In addition, IFs often produce intermediate goods for formal firms (Chaudhuri 1989). In such a collaborative and symbiotic relationship, IFs strive to develop capabilities and respond to needs of small formal firms, which can result in evolution of co-developed capabilities (McGahan 2012).

In line with the exclusion model, such symbiotic relationships may benefit small formal firms and encourage IFs to work with, rather than compete against formal firms (Castells and Portes 1989).

Second, as emerging countries aim to foster economic freedom and growth, they regulate or deregulate formal markets, increase industrial competitiveness and encourage formal entrepreneurship (Saunoris and Sajny 2017). This can unintentionally lay the path for IFs to exploit institutional imperfections and compete in the same industries with small formal firms (Levy 2008; OECD 2010; La Porta and Shleifer 2014). Entrepreneurs are pulled to the informal economy as a steppingstone to test ideas in market niches, increase profitability and capital accumulation and generally 'experiment cheaply in uncertain environments' (Welter *et al.* 2015; Distinguin *et al*. 2010), which is consistent with the *rational exit* perspective. In the face of increased competition from IFs, we expect small formal firms to enhance their performance as they are 'forced' to become more efficient and build competitive and differentiating advantages rather than rely on low pricing strategies. Furthermore, the existence of many firms competing in the same industry sharpens managerial efficiency and workers' effort, resulting in improvements in productivity (Nickell 1996) and subsequently benefiting small formal firms.

On the other hand, competition from IFs can negatively impact the performance of small formal firms. First, operating in the formal market involves not only registration and compliance costs (e.g. setting up the required accounting systems, recording data, paying professional advisors, etc.) that IFs avoid, but also requires small business entrepreneurs to spend time, effort and managerial attention to satisfy regulatory requirements and deal with changing rules (Bird and Zolt 2008; Khavul *et al*. 2009). IFs also enjoy greater flexibility, such as for example, staying open for longer, cutting prices of competing products and sell in smaller units (e.g. Tokman 1978b; Rothenberg *et al*. 2016; William *et al*. 2016). This creates competitive disadvantages for small

formal firms that may severely damage their performance (Tokman 1978b; Perry *et al*. 2007; OECD 2010).

Second, IFs may achieve significant levels of legitimacy with their stakeholders (e.g. customers, suppliers and employees) as they provide large shares of employment (Honig 1998) and frequently employ relatives and family members who might otherwise not find jobs in the formal sector. For example, more than half of Ukranian household income comes from family members' employment in the informal sector (Welter *et al*. 2015). Enhanced legitimacy in their communities (Williams *et al*. 2017) and good relationships with clients allows IFs to evaluate their customers' worthiness and offer credit (Tokman 1978b), which becomes another competitive advantage that can further deteriorate the performance of small formal firms.

Third, because emerging countries experience long transitionary periods where regulations keep changing, formal markets suffer from uncertainty and emergence of parallel (grey) markets (Dau and Cuervo-Cazurra 2014; Smallbone and Welter 2001; Welter and Smallbone 2011). IFs can take advantage of such institutional ambiguity, identify opportunities and compete with small formal firms by offering innovative solutions and importing 'grey' or restricted products that can be more appealing to customers and/or come at a lower price (Uzo and Mair 2014; Welter *et al*. 2015). This practice negatively affects the sales of small formal firms.

The above discussion shows that there is not a clear prediction regarding the performance effects of IFs on small formal firms. Therefore, we propose the following competing hypotheses:

Hypothesis 1a: Competition from IFs has an adverse effect on the performance of small formal firms.

Hypothesis 1b: Competition from IFs has a positive effect on the performance of small formal firms.

The Role of Courts of Law

Regulatory institutions, which guide behaviour and govern business transactions and operations through government legislation, industrial agreements and standards (Scott 2001), are typically less developed and enforced in emerging countries (Welter and Smallbone 2011). We argue that the effects of IFs' competition on the performance of small formal firms are less positive (or more negative) for small formal firms that face problems with the courts of law.

Courts of law in emerging countries are less effective in protecting property rights, enforcing contracts and resolving business disputes (Kafouros *et al.* 2015). Small formal firms operating in weak regulatory institutional environments cannot therefore effectively protect themselves from IFs (e.g. protect their capital and output) and perceive courts as a burden to their operations. In such situations, small formal firms not only lose market share to IFs but also spend resources and managerial attention ineffectively pursuing justice at courts of law. The lower efficiency of the courts and weak regulatory institutions are also associated with a pull to the informal economy (i.e. the *rational exit* perspective) as more entrepreneurs go 'underground' (Friedman *et al*. 2000; Quintin 2008), increasing competition in markets that small formal firms operate (Fadahunsi and Rosa 2002; Distinguin *et al*. 2016).

Second, due to government led institutional transitions, registered formal businesses must respond to institutional pressures and changes to maintain their legitimacy and use the market for transactions (Kafouros and Aliyev 2016a). Small formal firms that are governed by such volatile regulatory environments, cumbersome regulations and burdensome rules and laws experience increased operational costs (Estrin *et al*. 2013). For instance, in some emerging countries, the cost to remain legal is equivalent to 10% of the annual profits (de Soto 1989; Loayza 1996). On the

other hand, IFs make use of informal institutions, such as, extensive networks of connections, kinship and relationships with corrupt bureaucrats and public authorities, and can partly bypass the formal regulatory systems and the courts of law (Williams and Shahid 2016; Welter and Smallbone 2011). For instance, because personal networks in emerging countries, can facilitate economic exchanges and determine firms' success (Peng and Luo 2000), they enable IFs to delay (or even influence) court decisions. At the same time small formal firms avoid engaging in corruption to protect their legitimacy with audiences, thus putting their firms at a disadvantage against IFs (Estrin *et al*. 2013).

On the other hand, a developed institutional environment benefits small formal firms with more reliable, transparent and trustworthy transactions (Shaner and Maznevski 2011) and better access to capital markets for financial, insurance and corporative purposes. Small formal firms can also increase their reliance on contractual agreements with lenders, suppliers and retailers as effective court and regulatory systems protect them from opportunistic behaviours (Estrin *et al*. 2013). In addition, an effective system of law institutions will affect the scale of informality as well as the size and 'power' of IFs, in such a way that the better the quality of the legal environment (e.g. enforcement capacity), the higher the probability that informal firms will be detected and punished (Distinguin *et al*. 2016). This in turn forces IFs to stay small and even avoid direct competition with formally registered businesses (Farrell 2004; Dabla-Norris, Gradstein and Inchauste 2008). Furthermore, IFs can be subject to stiff penalties and capital confiscation for operating outside the law, and because of their illegal status, they may be less protected by the police and courts of law (Loayza 1996). Overall, the above reasoning suggests that when courts of law are a burden to the operations of small formal firms, IFs will have a stronger negative moderating effect on the performance of small formal firms. Accordingly:

Hypothesis 2. Problems with the courts of law *negatively* moderate the relationship between competition from IFs and the performance of small formal firms.

The Role of Tax Regulations

Another main driver (as suggested by the *rational exit* perspective) of the decision to voluntarily enter the informal sector are high tax rates and cumbersome tax-related regulations, (e.g. La Porta and Shleifer 2008; 2014; Distinguin *et al*. 2016). The previous section explained how ineffective regulatory settings and institutional voids increase the transaction costs and the uncertainty that surrounds small formal firms' operations and create advantages and opportunities for IFs. Building on this reasoning, we further argue that the effects of IFs on small formal firms' performance will be more negative for small formal firms that face problems with tax collection and enforcement (thereafter tax regulations) than for small formal firms that do not face such problems.

First, small formal firms incur significant compliance and administration costs as progressively more sophisticated tax systems are enforced in emerging countries (Saunoris and Sajny 2017). Such compliance costs (e.g. acquiring the necessary knowledge and information, setting up accounting systems, obtaining and transmitting financial reports and payments to government officials and professional accountants) are estimated to be ten times higher than the equivalent in developed countries (Bird and Zolt 2008). In addition, registered small formal firms are more visible for auditing purposes and are more regularly targeted by the tax authorities (Loayza 1996; Siqueira *et al*. 2016). Conversely, IFs operate under the radar of regulatory authorities, have relatively low compliance rates and therefore compete unfairly with small formal firms (Rothenberg *et al*. 2016). For example, while small formal firms build taxes and relevant

transaction costs into their pricing, IFs 'under the radar' operations allow them to price their products lower and attract price sensitive customers (OECD 2010; Welter *et al*. 2015).

Second, in countries where tax system and administration are a burden there is a rise of entrepreneurs venturing in the informal economy (Loayza 1996; OECD 2010; Rothenberg *et al*. 2016; Williams and Shahid 2016), increasing the plurality of competition for small formal firms. Small formal firms operating in such environments also face incoherent and changing institutional settings that increase transaction costs (Williams *et al*. 2017). For example, in some emerging countries firms are unable to accurately calculate their tax bills due to changing tax codes and regulations and bear high transaction costs in dealing with governmental authorities (Tonoyan *et al*. 2010), significantly reducing the economic rents that small formal firms appropriate (Webb *et al*. 2013).

In addition, taxes on wages (personal income taxes, social security, etc.) make employment in small formal firms less attractive relative to the 'untaxed' IFs (Bird and Zolt 2008). Such 'reverse' labour mobility creates additional costs (e.g. excessive tax requirements and regulations) for small formal firms (Rauch 1991) and can further deteriorate their competitive position against IFs. By contrast, IFs can employ workers without contracts and contributions to social security and income tax, thus reducing their operational costs and increasing their performance vis-à-vis formal small firms (Welter *et al*. 2015).

Third, opportunistic behaviour is more prevalent in less developed institutional settings where trust, honesty and transparency are more 'illusive' (Williamson, 1975). Although individuals in developed institutional settings avoid engaging in corruption and bribery because they can seek formal alternatives, the government is supportive and there is fear for potential prosecution, less-developed regulatory institutions provide a breeding ground for corruption and

bribery (Saunoris and Sajny 2017; Welter and Smallbone 2011). Many emerging countries even with a sound tax system in place suffer from corruption in the tax administration, reducing the credibility of governments (Maloney 2004; Bird and Zolt 2008). In such environments, small formal firms must devote resources to deal with corrupt tax authorities and pay fees in addition to formal taxes and duties (de Soto 1989), which can de-incentivize them from growing and innovating (Distinguin *et al*. 2016). The above obstacles create additional burden and competitive disadvantages to small formal firms compared to IFs which operate 'under the radar' of tax enforcement agents. Therefore, we expect that when tax regulations are a burden to small formal firms, there will be stronger negative effects from IFs' competition on the performance of small formal firms:

> **Hypothesis 3.** Problems with tax regulations *negatively* moderate the relationship between competition from Ifs and the performance of small formal firms.

Data and Methods

Empirical Setting and Data

We test our hypotheses using data from the World Bank Enterprise Surveys (http://www.enterprisesurveys.org), which provides comprehensive information and representative samples of businesses, across countries and industries. The survey is answered by business owners and top managers. Our sample consists of 11,988 observations of small formal firms (less than 50 employees) across 110 countries over the 2006–2015 period. The dataset is pooled cross-sectional, where firms located in different countries are surveyed across several years (but do not include repeat observations, hence do not constitute panel data). We employed stratified sampling: population units are grouped within homogenous groups and sampled

randomly within each group. The strata for the survey are firm size, business sector and geographic region within a country. The sampling weights are provided in the dataset and represent varying probabilities of selection across different strata[2].

Table 1 reports the distribution of observations across regional (and OECD/income) groups according to the classification by the World Bank and provides the list of countries included in our sample. Table 2 shows the distribution across industry sectors. Variations across the reporting years, countries and industries enable us to study firms facing different levels of competition from IFs and institutional variables.

"Insert Table 1 here"

"Insert Table 2 here"

Measures

Dependent Variable

Previous studies measure firm performance using indicators such as profitability and sales (Majumdar 2007; Pankaj and Betty 2012; Rauch *et al*. 2009; Venkatraman and Ramanujam 1986). Given that the firms of our sample are small (less than 50 employees and with a mean age of 14.72 years) and are likely to experience volatile profitability, we followed prior studies (e.g. Huselid 1995; Jennings *et al*. 2009; Majumdar 2007; Patel and Conklin 2012; Rauch *et al*. 2009) and operationalized small formal firms' performance as the firms' sales normalised for size (i.e. sales over the number of employees). This measure reflects small formal firms' ability to increase sales under the constraints of size and available resources.

Because the survey reports values in local currency in different years, all monetary values (including sales and other independent variables in our sample) are transformed and deflated into

[2] Further details of the survey methodology are available from https://www.enterprisesurveys.org/methodology.

2011 constant $USDs using the exchange rates and deflators reported in the IMF World Economic Outlook report (2016). Because some variables take zero values, we use the Inverse Hyperbolic Sine (IHS) transformation (Burbidge *et al.* 1988) rather than the traditional logarithmic transformation. The IHS transformation accommodates negative and zero values and improves the normality of the data by down-weighting extreme values (Browning *et al*. 1994; Burbidge *et al*. 1988; Carroll, Dynan, and Krane 2003; Nyberg *et al*. 2010). This transformation is also applied to all the continuous independent variables.

Independent Variables

IFs competition is measured using the responses to the survey question E11, "Does this establishment compete against unregistered or informal firms?" We use a dummy variable which takes the value of one when the answer is "Yes" and zero for "No". This operationalization of informal competition has been used in prior studies (e.g. Distinguin *et al*. 2016). To operationalize the variables concerning the courts and tax regulations, we used small formal firms' responses to question J30, "Using the response options on the card; To what degree is/are [the courts of law and tax administration] an obstacle to the current operations of this establishment?" The dummy variable takes the value of one if the obstacle is deemed "major" or "very severe" by the respondent small formal firm, and zero otherwise ("no"/ "minor"/"moderate obstacle").

Control Variables

Following prior studies (e.g. Peng *et al*. 2009), we control for various factors at the firm and institutional level. First, we control for *quality certifications* by including a dummy variable that takes the value of one if a small formal firm holds or is progressing towards obtaining a quality

certificate (e.g. ISO 9000 or 14000, HACCP, etc.). Second, we include *exports per employee* to capture the international orientation of the small formal firm. Third, we control for *capital investment* by measuring fixed assets (e.g. machinery, vehicles, equipment, land and/or buildings). Finally, we control for *firm age* that, according to prior studies, might impact firm performance.

Furthermore, we control for a number of institutional factors that can affect small formal firms' operations, such as, *political instability*, *corruption*, *business licensing and permits*, and *labour regulations*. In addition, as our focus is on the emerging countries, we used a dummy variable to distinguish the few developed countries that were included in the survey of the IMF World Economic Outlook report. Finally, as additional controls we included country-, industry- and year-specific dummy variables to capture associated idiosyncrasies.

The full empirical model is shown in formula (1) below:

$$P_i = \beta_0 + \sum_k \beta_D D_k + \beta_Z Z_i + \beta_c c_i + \beta_t t_i + \gamma_x x_i + \gamma_{x,c} x_i c_i + \gamma_{x,t} x_i t_i + \varepsilon_i \qquad (1)$$

where subscript i denotes firm i. Variable representations are as follows: P_i denotes firm performance (sales per employee); D_k is a set of k dummy variables representing *country*, *sector* and *year* specific effects; Z_i is a set of control variables, including quality certification, export per employee, age, investment, political instability, corruption, business licensing and permits, labour regulations, and advanced economy control. Small letters denote variables used in testing the main hypotheses, where x stands for *IF competition*, c for *courts* and t for *tax regulations*. β represent the constant and the coefficients of control variables and ε_i are idiosyncratic error terms. γ coefficients are the parameters testing the three hypotheses: γ_x tests H1; $\gamma_{x,c}$ is a coefficient of the interaction term between *IF competition* and *courts*, and tests H2; $\gamma_{t,c}$ is a coefficient of the interaction term between *IF competition* and *tax regulations*, and tests H3.

Results

Table 3 provides the descriptive statistics. The correlation coefficients are at low levels, with the exception of the correlations between institutional variables (up to 0.51). Because of the large sample size, this level of correlation is unlikely to create problems in the estimation models. To estimate the model, we employ weighted least squares (WLS) regression to deal with the bias in OLS arising from informative sampling. Table 4 reports the results. Model 1 reports the base model that includes only the control variables. Models 2 and 3 include the moderator variables and the IFs competition variable. The effect of IFs' competition on the performance of small formal firms is negative and statistically significant at the 5% level. This results therefore support H1a, rather than H1b. These findings do not necessarily suggest that IFs and small formal firms never have a symbiotic relationship, but they do suggest that on average IFs' competition has adverse consequences for the performance of small formal firms.

"Insert Table 3 here"

"Insert Table 4 here"

The direct effects of courts and tax regulations are not statistically significant in Models 2 and 3, suggesting that these factors do not directly influence the performance of small formal firms. Models 4-5 introduce the interaction terms between IFs' competition and the two moderator variables in order to estimate how the marginal effect of competition from IFs changes when institutions pertaining to courts and tax regulations are stronger or weaker. Model 6 is the full model that includes all the moderating variables simultaneously.

Models 4 and 6 include the interaction term between IFs' competition and courts. The interaction term is statistically insignificant in Model 4 but becomes statistically significant in

Model 6. This suggests that this effect gains importance when the moderating effects of tax regulations are controlled for. Figure 1 depicts the moderating effects. The downward slope shows that burdensome court systems exacerbate the negative effect of IFs' competition on the performance of small formal firms. The results in Model 6 therefore provide support for H2.

Models 5-6 include the interaction effect between IFs competition and tax regulations. Contrary to our predictions in H3, the interaction effect is positive and statistically significant. Figure 2 further illustrates this finding. The marginal effect of IFs competition is negative and statistically significant for small formal firms that do not consider tax regulations to be a burden. By contrast, burdensome tax regulations lessen the negative impact of IFs competition (we provide possible explanations for this finding in the discussion's section).

Previous studies suggested that using ratios as dependent variables may exaggerate the relationships being estimated and complicate the interpretation because the regressors may influence the denominator (Barnett and Salomon, 2012; Wiseman, 2009). To test the robustness of our findings, we re-estimated all models by replacing the dependent variable with sales rather than sales per employee. To control for size in these estimations we included the number of employees as an independent variable (in IHS transformed form). These results returned a pattern similar to the original findings.

Test of endogeneity

We considered the possibility of endogeneity of IFs' competition. Undertaking the test of endogeneity requires two steps: first, identifying relevant and valid instruments and run the Instrumental Variable model; second, running Wu-Hausman specification test (Wooldridge 2002). Good instruments must be relevant and excludable, i.e. they must have explanatory power towards

the independent endogenous variable but do not have direct effect on the dependent variable, other than through the independent variable (Reeb *et al*. 2012; Wooldridge 2002).

Our selection of instrumental variables relies on both theoretical reasoning, and formal instrument validity tests. Hence, to test for potential endogeneity of informal competition we selected two instruments. First, we used question "e30: To what degree are Practices of Competitors in the Informal Sector an obstacle to the current operations of this establishment?" as one of the instruments. Given that this question focuses on the practices of informal competitors, and the extent of the impediment these practices imply to the respondent, such effects influence the performance of firms via the main effect, identifying competition from informal firms.

As a second instrument, we measure the proliferation level of informal practices in each market. To develop this measure, we calculated the share of the market influenced by informal competitors: Market Size (M) and multiplied by question e30 (the degree of practices of informal competitors). Because the dataset consists of a stratified sample, we were able to estimate the market size (population total of sales) relevant to each firm (country-sector-year specific). The rationale is that, if the market is proliferated with informal competition practices, formal firms are more likely to experience competition from informal firms (i.e. IFs' competition is more likely). Given that this is a market level variable, we can expect it to be exogenous (i.e. individual firm level variables are unlikely to influence a market level variable significantly). It therefore represents the propensity of informal competition external to each firm, and influences firm performance through informal competition, rather than directly.

To ensure our claims are corroborated with formal tests, we ran both instrument relevance test and instrument validity test. Wald test of instrument relevance/weakness returned the F statistic of 102.42 with a p-value = 0.000; i.e. we can conclude that instruments are relevant. The

Sargan test of over-identifying restrictions returned the Chi-sq value of 1.188 with a p-value = 0.276 (>0.05); i.e. we cannot reject the null hypothesis that instruments are valid. Having identified appropriate instruments, we ran Wu-Hausman specification test. The test returned the F statistic of 0.036 with a p-value = 0.850 (>0.05); i.e. we cannot reject the null hypothesis that 'IFs competition' is exogenous, concluding that the issue of endogeneity does not pose a significant concern in our analysis.

"Insert Figures 1 and 2 here"

Discussion and Conclusions

Theoretical Implications

Although theory suggests that the relationship between informal and formal firms can be symbiotic (i.e. the *exclusion view* of informality), competitive (i.e. *rational exit* -parasite- view) or segregated from each other (i.e. the *dual economy* view), our empirical evidence suggests that in emerging countries formal and informal businesses are competing in the same markets and therefore, the *rational exit* perspective prevails. Our study also clarifies that this competitive relationship has on average a negative net effect on the performance of formal firms. However, certain contingencies associated with law- and tax-specific institutions across emerging countries influence this relationship. Our findings have several implications for theory.

First, this study moves beyond well-researched areas about the motives and drivers of formalization (eg. Saunoris and Sajny, 2017; Nguyen, Verreynne and Steen 2014) and degrees of informalization (Welter *et al*. 2015; Williams and Sadin 2014) and seeks to extend understanding of the effects of informality on entrepreneurial firms' performance. We conceptualized and empirically validated that variations in the performance of formal firms in emerging countries

cannot be explained by looking only at formal markets and competition from formal entrepreneurs. It is rather surprising that the theory of the *rational exit* (parasite view) (La Porta and Shleifer 2008; 2014; Distinguin *et al*. 2016) has received very limited empirical attention to date given that informality and informal entrepreneurship is a dominant and persistent phenomenon in emerging countries (Hudson *et al*. 2012; Khavul *et al* 2009, Welter *et al*. 2015; Welter and Smallbone 2011). Placing emphasis on the drivers of informality and/or on identifying government policies that incentivize informal entrepreneurs to register their businesses (as many studies have done) constrains us from building a broader understanding of how informal entrepreneurs operate under transitional institutional environments in emerging countries and how they compete against formally registered entrepreneurs and small businesses.

We argue that better understanding these aspects of informality can help move the literature on informality in line with calls (e.g. Saunoris and Sajny 2017; Webb *et al.* 2009; Welter *et al.* 2015) for research on informal entrepreneurship and its long-term effects on the development and growth of emerging countries and small formal firms within. Informality comes with both negative and positive effects for any economy. Yet, although informal entrepreneurship has recently gained considerable traction in the literature (Welter *et al,* 2015), it has predominately been viewed as a side-effect of institutional voids and market imperfections in emerging countries (Williams *et al*., 2016) that pushes (Perry *et al*., 2007; Rothenberg *et al*., 2016) or pulls individuals to establish businesses that operate partially or fully outside formal regulations and laws (Welter *et al*., 2015). Indeed, the vast majority of extant scholarly research and most policy making reports draw the conclusion that informality is a 'burden' for national economies that hurts domestic competition and registered firms. As such, it needs to be eliminated by incentivizing entrepreneurs to formalize their businesses (e.g., Distinguin *et al*., 2016; Rand and Torm, 2012; Webb *et al*., 2009). Part of

our analysis aligns with these views, suggesting that competition with informal firms has on average a negative net effect on the performance of formal firms. Nevertheless, it goes beyond this view showing that informality can be of great value for specific groups of individuals (e.g. grassroot entrepreneurs, refugees and immigrants) and can promote economic growth (de la Chaux and Haugh, 2020; Wierenga, 2020). Informal entrepreneurship frequently serves specific needs and is used to test new market opportunities (Welter *et al,* 2015). Informal entrepreneurship can therefore be a considerable force behind the reduction of poverty and unemployment in developing economies (Bruton, Ketchen and Ireland, 2013; Wierenga, 2020).

Second, unlike the vast majority of prior single-country studies on informality, we shift the research agenda to multi-country settings that vary in their institutions and lead to important contingencies (Webb *et al*. 2009; Smallbone and Welter 2001; Distinguin *et al*. 2016; Williams and Shahid 2016). Capturing cross-country variations enables us to integrate institutional theory in entrepreneurship research by identifying how certain institution-specific contextual contingencies (Welter *et al.* 2015) change the effects of competition of IFs on the performance of small formal firms. Because development in law-enforcing and tax institutions varies across countries, we contend that they affect (differently) the advantages and costs for IFs and small formal firms. In specifying the mechanisms through which small formal firms compete against IFs, our analysis helps us understand why some formal firms are better in responding to IFs' competition and to explain why the level of development of formal institutions can increase or decrease the negative performance effects.

Third, we extend studies that focus on how institutions affect entry into informal and formal entrepreneurship (e.g. Dau and Cuervo-Cazurra 2014: Kistruck *et al*. 2015; Tonoyan *et al*. 2010; Welter and Smallbone 2011; Williams and Shahid 2016) and on how institutions affect the

recognition and exploitation of opportunities (Webb *et al*. 2009; Webb *et al*. 2013; Kafouros and Aliyev 2016b). We do so by demonstrating how differences in formal institutional development across emerging countries alters the competitive (dis)advantages of small formal firms against IFs. In countries in which courts of law are a burden to the operations of small formal firms, they experience stronger negative effects from IFs. By contrast, in countries where tax regulations tend to be more burdensome for their operations, they experience less negative effects from competition from IFs.

Although the above result stands in contrast to our predictions, it is consistent with Friedman *et al.* (2000) who find that higher taxes are associated with less informality and therefore less competition for formal firms. A further possible explanation for this result is that IFs competing in the same high-growth industries with small formal firms run a higher risk of being detected by the authorities because the industry attracts the attention of tax enforcement agencies (Maloney 2004; Webb *et al*. 2009; Distinguin *et al*. 2016). In such situations, small formal firms might be better off against IFs because the latter may stay small to avoid detection, avoid direct competition or even exit the industry altogether before being detected by authorities (Loayza 1996; Farrell 2004; Dabla-Norris *et al*. 2008; Williams and Shahid 2016; Webb *et al.* 2013).

Implications for Practice

The first practical implication concerns how small formal firms should simultaneously gain legitimacy and overcome the liability of newness while navigating institutional fluidity and fending-off competition from informal entrepreneurs who seize opportunities in the same industries but who operate outside formal institutional constrains. One possibility is to explore coopetition strategies (Brandenburger and Nalebuff 1996) with informal entrepreneurs. Small

formal firms and IFs can compete and cooperate to create value, capture bigger market shares or enter new markets. Creating symbiotic, rather than competing, relationships between informal and formal firms can benefit the growth of emerging countries and can lead to a faster transition to market-based systems. In turn better institutions may gradually result to the shrinkage of the informal economy and to a quicker 'graduation' from informality to formality (Saunoris and Sajny 2017; Welter *et al*. 2015).

Our findings also offer policy makers in emerging countries better understanding of how specific regulatory institutions (courts of law and tax regulations in particular) affect the relationship between formal and informal firms. Emerging countries need policies that will not over-regulate the market and impose threats and excessive penalties to non-compliance. Instead, initiatives such as a 'one-stop' registration office that will allow entrepreneurs to register their companies within a day, improving tax awareness (e.g. public campaigns aimed at a culture of commitment to tax morality) and increasing the free tax limit for entrepreneurs (Williams and Nadin 2012), could limit informal activities and incentivize IFs to formally register (Rand and Torm 2012; Razafindrakoto and Purbaud, 2016).

Limitations and Future Research

Our study has a few limitations. First, we focused on the impact of formal institutions pertaining to courts and tax regulations. An avenue for future studies is to investigate the effects of other types of formal institutions or focus on the role of informal institutions, such as societal norms and conventions (North 1990). The main challenge will be to operationalize informal institutions in a way that would allow capturing their impact on the performance of entrepreneurial firms. Second, because our analysis focused on small formal firms (i.e. less than 50 employees),

we relied on a particular aspect of performance (i.e. sales). Although sales performance represents a common objective of entrepreneurial small-size firms, investigating other dimensions of firm performance could provide additional insights into the effects of IFs' competition on small formal firms. Because 'The Enterprise Surveys' database does not include such firm-level information, future research will have to use other datasets or conduct new surveys. Finally, we tested our hypotheses using a pooled cross-sectional dataset. Although our sample comprised multiple years and many countries, longitudinal data could provide further insights into the dynamics of competition between IFs and formal entrepreneurial firms over time and capture how changes in the institutions in a given country over time may impact the results of such competition.

References

Autio, E, and K. Fu (2005). 'Economic and political institutions and entry into formal and informal entrepreneurship,' *Asia Pacific Journal of Management,* 32*,* 67-94.

Barnett, ML, and RM. Salomon (2012). 'Does it pay to be really good? Addressing the shape of the relationship between social and financial performance,' *Strategic Management Journal,* 33(11), 1304-1320.

Bengtsson, M, and S. Kock (2000). '"Coopetition" in business networks—to cooperate and compete simultaneously,' *Industrial Marketing Management,* 29(5), 411–426.

Bird, RM, and EM. Zolt (2008). 'Tax policy in emerging countries,' *Environment and Planning C,* 26(1), 73-86.

Brandenburger, AM, and BJ. Nalebuff (1996). *Co-opetition*. New York: Doubleday.

Browning, M, F. Bourguignon, P-A. Chiappori, and V. Lechene (1994). 'Income and outcomes: A structural model of intrahousehold allocation,' *Journal of Political Economy,* 102(6), 1067-1096.

Bruton, GD, DJ, Ketchen Jr, and RD. Ireland (2013). 'Entrepreneurship as A Solution to Poverty.' *Journal of Business Venturing*, 28(6), 683–689.

Burbidge, JB, L. Magee, and AL. Robb (1988). 'Alternative transformations to handle extreme values of the dependent variable,' *Journal of the American Statistical Association,* 83(401), 123-127.

Capon, N, JU. Farley, and S. Hoenig (1990). 'Determinants of Financial Performance: A Meta-Analysis,' *Management Science*, 36(10), 1143-1159.

Carroll, CD, KE. Dynan, and SD. Krane (2003). 'Unemployment risk and precautionary wealth: Evidence from households' balance sheets,' *Review of Economics and Statistics,* 85(3), 586-604.

Castells, M, and A. Portes, (1989). 'World underneath: The origins, dynamics, and effects of the informal economy.' In A. Portes, M. Castells, & L. Benton (Eds.), *The informal economy: Studies in advanced and less developed countries* (pp. 11–37). Baltimore: Johns Hopkins Press.

Chaudhuri, TD (1989). 'A theoretical analysis of the informal sector,' *World Development,* 17(3), 351-355.

Dabla-Norris, E, M. Gradstein, and G. (2008). 'What causes firms to hide output?' *Journal of Development Economics*, 85, 1–27.

Dau, LA, and A. Cuervo-Cazurra (2014). 'To formalize or not to formalize: Entrepreneurship and premarket institutions,' *Journal of Business Venturing,* 29, 668–686.

de Castro, JO, S. Khavul, and GD. Bruton (2014). 'Shades of Grey: How do informal firms navigate between the macros and meso institutional environments?,' *Strategic Entrepreneurship Journal,* 8*,* 75-94.

Marlen de la Chaux and Helen Haugh (2020). 'When formal institutions impede entrepreneurship: how and why refugees establish new ventures in the Dadaab refugee camps,' *Entrepreneurship & Regional Development*, 32(9-10), 827-851,

de Soto, H (1989). *The Other Path*. New York: Harper & Row.

Distinguin, I, C. Rugemintwari, and R. Tacneng, (2016). 'Can Informal Firms Hurt Registered SMEs' Access to Credit?' *World Development*, 84, 18-40.

Estrin, S, J. Korosteleva, and T. Mickiewicz (2013). 'Which institutions encourage entrepreneurial growth aspirations?,' *Journal of Business Venturing,* 28(4), 564-580.

Fadahunsi, A, and P. Rosa (2002). 'Entrepreneurship and illegality: insights from the Nigerian cross-border trade,' *Journal of Business Venturing,* 17(5), 397-429.

Farrell, D. (2004). 'The hidden dangers of the informal economy'. *McKinsey Quarterly*, 3, 26–37.

Friedman, E, S. Johnson, D. Kaufmann, and P. Zoido-Lobaton (2000). 'Dodging the grabbing hand: the determinants of unofficial activity in 69 countries,' *Journal of Public Economics,* 76, 459-493.

Gnyawali, DR, and BJ. Park (2011). 'Co-opetition between giants: Collaboration with competitors for technological innovation,' *Research Policy,* 40, 650-663.

Honig, B (1998). 'What determines success? Examining the human, financial, and social capital of Jamaican microentrepreneurs,' *Journal of Business Venturing,* 13, 371–394.

Hoskisson, RE, M. Wright, I. Filatotchev, and MW. Peng (2013). 'Emerging multinationals from mid-range economies: The influence of institutions and factor markets,' *Journal of Management Studies,* 50, 1295–321.

Hudson, J, CC. Williams, M. Orviska, and S. Nadin (2012). 'Evaluating the Impact of the Informal Economy on Businesses in South East Europe: Some Lessons from the 2009 World Bank Enterprise Survey,' *South East European Journal of Economics and Business,* 7(1), 99-110.

Huselid, MA (1995). 'The Impact Of Human Resource Management Practices On Turnover, Productivity, And Corporate Financial Performance,' *Academy of Management Journal,* 38(3), 635-672.

Jennings, JE, PD. Jennings, R. Greenwood (2009). 'Novelty and new firm performance: The case of employment systems in knowledge-intensive service organizations,' *Journal of Business Venturing,* 24(4), 338-359.

Kafouros, M., C. Wang, P. Piperopoulos, and M. Zhang (2015). 'Academic collaborations and firm innovation performance in China: The role of region-specific institutions'. *Research Policy*, 44(3), 803-817.

Kafouros, M, and M. Aliyev (2016a). 'Institutional development and firm profitability in transition economies,' *Journal of World Business,* 51(3), 369-378.

Kafouros M, and M. Aliyev (2016b). 'Institutions and Foreign Subsidiary Growth in Transition Economies: The Role of Intangible Assets and Capabilities,' *Journal of Management Studies,* 53(4), 580-607.

Ketchen, DJ, RD. Ireland, and JW. Webb (2014). 'Toward a research agenda for the informal economy: A survey of the *Strategic Entrepreneurship Journal's* Editorial Board,' *Strategic Entrepreneurship Journal,* 8, 95-100.

Khavul, S, GD. Bruton, and E. Wood (2009). 'Informal family business in Africa,' *Entrepreneurship Theory and Practice,* 33(6), 1219-1238.

La Porta, R, and A. Shleifer (2008). 'The unofficial economy and economic development.' *Brookings Papers on Economic Activity*, 39(2), 275-363.

La Porta, R. and A. Shleifer (2014). 'Informality and development'. *Journal of Economic Perspectives*, 28, 109–126.

Loayza, NV (1996). 'The economics of the informal sector: a simple model and some empirical evidence from Latin America,' *Carnegie-Rochester Conference Series on Public Policy,* 45, 129–162.

Lee, CK, and SC. Hung (2014). 'Institutional entrepreneurship in the informal economy: China's Shan-Zhai mobile phones,' *Strategic Entrepreneurship Journal,* 8, 16-36.

Levy, S (2008). *Good intentions, bad outcomes: Social policy, informality, and economic growth in Mexico*. Brookings Institution Press.

Luo, Y (2007). 'A coopetition perspective of global competition.' *Journal of World Business,* 42(2), 129–144.

Majumdar, SK (2007). 'Private Enterprise Growth and Human Capital Productivity in India,' *Entrepreneurship: Theory & Practice,* 31(6), 853-872.

Maloney, WF (2004). 'Informality revisited,' *World Development,* 32(7), 1159–1178.

McGahan, AM (2012). 'Challenges of the Informal Economy for the Field of Management,' *Academy of Management Perspectives,* 26(3), 12-21.

Nguyen, T, ML. Verrenye, and J. Steen (2014). 'Drivers of firm formalization in Vietnam: an attention theory explanation,' *Entrepreneurship & Regional Development*, 26(7-8), 574-593.

Nickell, SJ (1996). 'Competition and Corporate Performance,' *Journal of Political Economy*, 104(4), 724-746.

North, DC 1990. *Institutions, institutional change and economic performance*. New York: Cambridge University Press.

North, DC 1991. 'Institutions,' *The Journal of Economic Perspectives,* 5, 97-112

Nyberg, AJ, IS. Fulmer, B. Gerhart, and MA. Carpenter (2010). 'Agency theory revisited: CEO return and shareholder interest alignment,' *Academy of Management Journal,* 53(5), 1029-1049.

OECD (2010). 'Policy Roundtable: Competition Policy and the Informal Economy 2009', *Competition Law & Policy: OECD*, DAF/COMP/GF(2009)10 [Accessed on 10-09-2019] Available at: https://www.oecd.org/daf/competition/44547855.pdf

Patel, PC, and B. Conklin (2012). 'Perceived Labor Productivity in Small Firms-The Effects of High-Performance Work Systems and Group Culture Through Employee Retention,' *Entrepreneurship, Theory & Practice,* 36(2), 205-235.

Peng, MW, and Y. Luo (2000). 'Managerial ties and firm performance in a transition economy: The nature of a micro-macro link,' *Academy of Management Journal,* 43(3), 486-501.

Peng, MW, SL. Sun, B. Pinkham, and H. Chen (2009). 'The Institution-Based View as a Third Leg for a Strategy Tripod,' *The Academy of Management Perspectives,* 23(3), 63-81.

Perry, GE, WF. Maloney, OS. Arias, P. Fajnsylber, AD. Mason, and J. Saavedra-Chanduvi (2007). *Informality: Exit or exclusion*. Washington, DC: World Bank.

Porter, ME (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: Free Press.

Quintin, E. (2008). 'Contract enforcement and the size of the informal economy.' *Economic Theory*, 37, 395–416.

Rand, J., and N. Torm (2012). 'The benfists of formalization: Evidence from Vietnamese manufacturing SMEs.' *World Development*, 40(5), 983-998.

Rauch, A, J. Wiklund, GT. Lumpkin, and M. Frese (2009). 'Entrepreneurial Orientation and Business Performance: An Assessment of Past Research and Suggestions for the Future,' *Entrepreneurship, Theory and Practice,* 33(3), 761-787.

Rauch, JE (1991). 'Modelling the informal sector formally,' *Journal of Developmental Economics,* 35, 33-47.

Reeb, D., M. Sakakibara, and IP. Mahmood 2012. From the Editors: Endogeneity in international business research. *Journal of International Business Studies* 43(3) 211-218.

Rothenberg, AD., A. Gaduh, NE. Burger, C. Chazali, I. Tjandraningsih, R. Radikun, C. Sutera, and S. Weilant, (2016). 'Rethinking Indonesia's Informal Sector,' *World Development*, 80, 99-113.

Saunoris, JW, and A. Sajny (2017). 'Entrepreneurship and economic freedom: cross-country evidence from formal and informal sectors,' *Entrepreneurship & Regional Development,* 29(3-4), 292-316.

Scott, WR (2001). *Institutions and organizations*. Thousand Oaks, CA: Sage.

Schneider, F., and CC. Williams (2013). *The shadow economy*. London: Institute of Economic Affairs.

Shaner, J, and M. Maznevski (2011). 'The relationship between networks, institutional development, and performance in foreign investments,' *Strategic Management Journal,* 32(5), 556–568.

Siqueira, ACO, JB. Webb, and GD. Bruton (2016). 'Informal Entrepreneurship and Industry Conditions,' *Entrepreneurship, Theory and Practice,* 40(1), 177-200.

Smallbone, D, and F. Welter (2001). 'The Distinctiveness of Entrepreneurship in Transition Economies,' *Small Business Economics*, 16, 249-262.

Tokman, VE (1978a). 'An exploration into the nature of informal-formal sector relationships,' *World Development,* 6(9/10), 1065-1075.

Tokman, VE (1978b). 'Competition between the informal and formal sectors in retailing: the case of Santiago,' *World Development,* 6(9/10), 1187-1198.

Tonoyan, V, R. Strohmeyer, M. Habib, and M. Perlitz (2010). 'Corruption and entrepreneurship: How formal and informal institutions shape small firm behaviour in transition and mature market economies,' *Entrepreneurship Theory and Practice,* 34(5), 803–831.

Uzo, U, and J. Mair (2014). 'Source and patterns of organizational defiance of formal institutions: insights from Nollywood the Nigerian movie industry,' *Strategic Entrepreneurship Journal,* 8, 56-74.

Venkatraman, N, and V. Ramanujam (1986). 'Measurement of Business Performance in Strategy Research: A Comparison of Approaches,' *The Academy of Management Review,* 11(4), 801-14.

Webb, JW, GD. Bruton, L. Tihanyi, and RD. Ireland (2013). 'Research on entrepreneurship in the informal economy: Framing a research agenda,' *Journal of Business Venturing,* 28, 598–614.

Webb, JW, RD. Ireland, and DJ. Ketchen (2014) 'Towards a greater understanding of entrepreneurship and strategy in the informal economy,' *Strategic Entrepreneurship Journal*, 8(1), 1–15.

Webb, JW, L. Tihanyi, R. Ireland, and DG. Sirmon (2009). 'You say illegal, I say legitimate: Entrepreneurship in the informal economy,' *Academy of Management Review,* 34(3), 492–510.

Welter, F, and D. Smallbone (2011). 'Institutional Perspectives on Entrepreneurial Behavior in Challenging Environments,' *Journal of Small Business Management*, 49(1), 107-125.

Welter, F, D. Smallbone, and A. Pobol (2015). 'Entrepreneurial activity in the informal economy: a missing piece of the entrepreneurship jigsaw puzzle,' *Entrepreneurship & Regional Development,* 27(5-6), 292-306.

Wierenga, M. (2020). 'Uncovering the scaling of innovations developed by grassroots entrepreneurs in low-income settings,' *Entrepreneurship & Regional Development*, 32(1-2), 63-90.

Williams, CC, and A. Martinez (2014). 'Entrepreneurship in the informal economy: A product of too much or too little state intervention?' *The International Journal of Entrepreneurship and Innovation*, 15(4), 227–237.

Williams, CC, A. Martinez-Perez, and AM. Kedir (2017). 'Informal entrepreneurship in developing economies: The impacts of starting up unregistered on firm performance,' *Entrepreneurship, Theory and Practice,* 41(5), 773-799.

Williams, CC, and S. Nadin (2012). 'Tackling the hidden enterprise culture: Government policies to support the formalization of informal entrepreneurship,' *Entrepreneurship & Regional Development,* 24(9-10), 895-915.

Williams, CC, and MS. Shahid (2016). 'Informal entrepreneurship and institutional theory: explaining the varying degrees of (in)formalization of entrepreneurs in Pakistan,' *Entrepreneurship & Regional Development,* 28(1-2), 1-25.

Williams, CC, MS. Shahid, and A. Martinez (2016). 'Determinants of the Level of Informality of Informal Micro-Enterprises: Some Evidence from the City of Lahore, Pakistan.' *World Development,* 84, 312-325.

Williamson, OE (1975). *Markets and hierarchies. Analysis and antitrust implications*. London: Collier Macmillan Publishing.

Wiseman, RM (2009). 'On the use and misuse of ratio variables in strategic management research,' in *Research Methodology in Strategy in Management.* Ed. Ketchen, D, and D. Berg, Bingley, UK: Emerald Ltd, 5, 75–110.

Wooldridge, J.M. 2002. *Econometric analysis of cross section and panel data*. The MIT Press, Cambridge, MA.

International Monetary Fund (IMF) 2016. *World Economic Outlook; Subdued Demand, Symptoms and Remedies*, Washington: DC.

Figure 1
Marginal Effect of IFs' Competition on Small Formal Firms' Sales Performance at Different Levels of Courts of Law Being an Obstacle

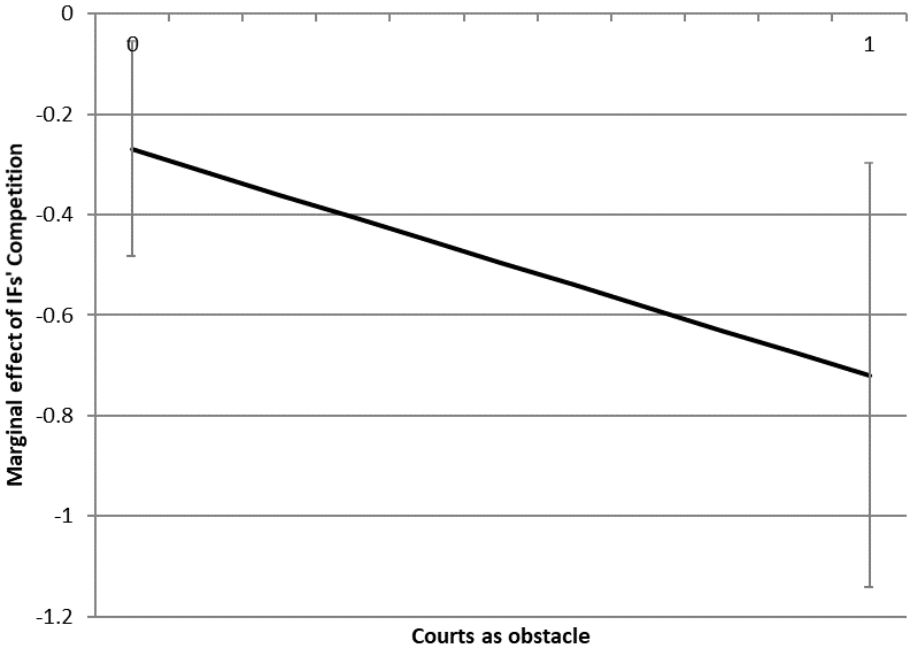

Figure 2
Marginal Effect of IFs' Competition on Small Formal Firms' Sales Performance at Different Levels of Tax Administration Being an Obstacle

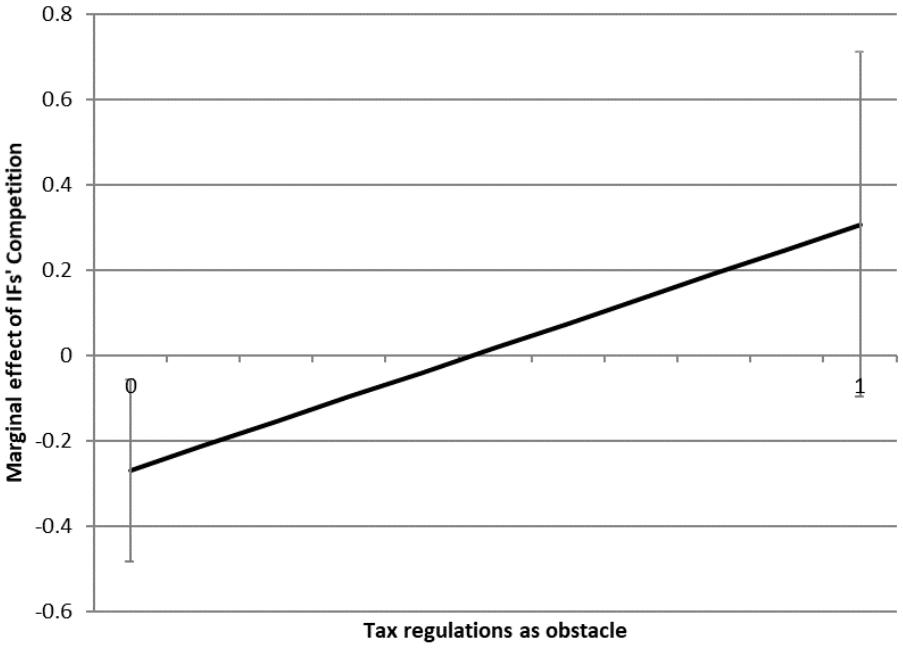

Table 1
Distribution of Observations by Regional (and OECD/income) Groups

	Overall	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sub-Saharan Africa	3323		1249		436	176	118		528	816	
East Asia and Pacific	1207				719			285	91	112	
Eastern Europe & Central Asia	2200		29	381	753				1037		
High income: nonOECD	1041				285	170		407	179		
High income: OECD	940				337	218			385		
Latin America & Caribbean	1777	16			271	1490					
Middle East and North Africa	855					60	166		629		
South Asia	645				149		42		191	214	49
Total	**11988**	**16**	**1278**	**381**	**2950**	**2114**	**326**	**692**	**3040**	**1142**	**49**

Countries included: Afghanistan, Albania, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Côte d'Ivoire, Cameroon, Cape Verde, Chad, Chile, China, Colombia, Costarica, Croatia, Czech Republic, Djibouti, Dominican Republic, DRC, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Fyr Macedonia, Georgia, Ghana, Guatemala, Honduras, Hungary, India, Indonesia, Iraq, Israel, Jamaica, Jordan, Kazakhstan, Kenya, Kosovo, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lithuania, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mexico, Micronesia, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Romania, Russia, Samoa, Senegal, Serbia, Slovak Republic, Slovenia, South Africa, South Sudan, Sri Lanka, Sudan, Tajikistan, Tanzania, Timor Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, West Banks and Gaza, Yemen, Zambia, Zimbabwe.

Table 2
Distribution of Observations Across Industries

Sector	Overall	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Food	1642	5	422	50	285	336	74	21	323	125	1
Textiles	332	0	14	16	83	87	8	10	79	34	1
Garments	958	2	442	27	150	145	20	15	111	46	0
Chemicals	504	2	67	26	97	167	15	32	77	21	0
Plastic & rubber	372	0	28	3	78	102	8	36	91	26	0
Non metalic mineral products	458	1	32	29	93	55	35	30	124	56	3
Basic metals	139	1	8	3	32	17	9	11	35	21	2
Fabricate metal products	913	5	200	16	162	215	17	37	205	54	2
Machinery and equipment	377	0	29	22	74	79	3	30	104	36	0
Electronics	168	0	15	8	40	19	5	20	37	23	1
Construction	787	0	0	29	284	62	15	54	254	75	14
Other services	521	0	1	9	160	63	14	33	160	79	2
Wholesale	1115	0	5	40	282	166	21	166	344	89	2
Retail	2171	0	10	70	724	377	31	70	652	230	7
Hotels and restaurants	641	0	1	16	168	76	31	28	192	123	6
Transport	571	0	2	10	164	53	17	51	191	76	7
IT	319	0	2	7	74	95	3	48	61	28	1
Total	**11988**	**16**	**1278**	**381**	**2950**	**2114**	**326**	**692**	**3040**	**1142**	**49**

Table 3
Descriptive Statistics

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Labor productivity ($m)	0.61	13.39	1													
2	IFs competition	0.54	0.499	-0.01	1												
3	Courts	0.14	0.349	-0.01	0.11	1											
4	Tax regulations	0.21	0.408	-0.01	0.07	0.38	1										
5	Quality certification	0.24	0.430	-0.01	-0.03	-0.09	-0.12	1									
6	Export per employee ($k)	41.78	1301	0.82	-0.02	-0.01	-0.01	0.00	1								
7	Age (year)	14.72	10.45	-0.01	0.07	0.15	0.13	-0.02	-0.01	1							
8	Investment ($m)	0.47	8.485	0.24	0.02	-0.01	0.01	0.01	0.02	0.00	1						
9	Political instability obstacle	0.27	0.441	0.01	0.00	0.34	0.27	-0.13	0.02	0.07	0.01	1					
10	Corruption obstacle	0.28	0.447	-0.02	0.12	0.51	0.41	-0.14	-0.01	0.13	0.01	0.48	1				
11	Business licensing and permits obst.	0.15	0.359	-0.01	-0.02	0.24	0.31	-0.04	-0.01	-0.01	-0.01	0.29	0.27	1			
12	Customs and trade regulations obst.	0.09	0.282	0.00	0.02	0.18	0.19	-0.04	0.00	0.02	0.02	0.18	0.22	0.19	1		
13	Labor regulations obstacle	0.15	0.357	-0.01	0.08	0.33	0.41	-0.13	-0.01	0.20	-0.02	0.28	0.31	0.23	0.19	1	
14	Advanced emerging market	0.08	0.265	0.06	-0.10	0.00	-0.02	0.04	0.05	0.09	0.00	0.01	-0.07	-0.04	-0.05	-0.02	1

Table 4
Regression Results (Dependent Variable: Firm Performance)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	9.672***	9.69***	9.832***	9.847***	9.926***	9.977***
	(1.052)	(1.054)	(1.072)	(1.082)	(1.078)	(1.101)
Industry	Included	Included	Included	Included	Included	Included
Country	Included	Included	Included	Included	Included	Included
Year	Included	Included	Included	Included	Included	Included
Quality certification	0.452***	0.448***	0.442***	0.442***	0.442***	0.443***
	(0.116)	(0.117)	(0.113)	(0.113)	(0.112)	(0.112)
Export per employee	0.054***	0.054***	0.051***	0.051***	0.051***	0.051***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age	0.02	0.021	0.033	0.034	0.025	0.024
	(0.073)	(0.070)	(0.069)	(0.069)	(0.067)	(0.067)
Investment	0.162***	0.161***	0.163***	0.163***	0.161***	0.16***
	(0.024)	(0.023)	(0.024)	(0.024)	(0.023)	(0.022)
Political instability obstacle	0.166	0.166	0.159	0.155	0.179	0.177
	(0.135)	(0.141)	(0.141)	(0.139)	(0.134)	(0.131)
Corruption obstacle	-0.141	-0.109	-0.081	-0.082	-0.103	-0.109
	(0.145)	(0.125)	(0.126)	(0.126)	(0.115)	(0.113)
Business licensing and permits obstacle	-0.085	-0.061	-0.076	-0.078	-0.054	-0.053
	(0.124)	(0.123)	(0.125)	(0.124)	(0.116)	(0.115)
Labor regulations obstacle	-0.224.	-0.189	-0.166	-0.159	-0.173	-0.16
	(0.125)	(0.125)	(0.128)	(0.128)	(0.126)	(0.125)
Advanced emerging market	1.286.	1.298.	1.202	1.143	1.155	1.033
	(0.772)	(0.759)	(0.788)	(0.814)	(0.809)	(0.856)
Courts		-0.007	0.007	0.153	-0.022	0.247
		(0.144)	(0.144)	(0.151)	(0.137)	(0.161)
Tax regulations		-0.145	-0.135	-0.128	-0.386*	-0.437**
		(0.095)	(0.097)	(0.097)	(0.166)	(0.167)
H1a / H1b: IFs competition			-0.214*	-0.185.	-0.303**	-0.27*
			(0.097)	(0.105)	(0.104)	(0.109)
H2: IFs competition x Courts				-0.239		-0.45*
				(0.221)		(0.223)
H3: IFs competition x Tax regulations					0.46*	0.576**
					(0.216)	(0.214)
N	11988	11988	11988	11988	11988	11988
R-square	0.564	0.565	0.568	0.568	0.570	0.571

Industry and country specific dummy variables are included but omitted from the table to conserve space.
*** p≤0.001; ** p≤0.01; * p≤0.05