



WHY DO INFORMAL SECTOR COMPETITORS HINDER FORMAL ENTREPRENEURS MORE IN SOME COUNTRIES?

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ABSTRACT

Objective: The objective of this paper is to evaluate the different explanations provided by competing theories for informal sector competitors being viewed as hindering formal entrepreneurs more in some countries than others.

Theoretical background: These theories variously explain such cross-country variations as determined by: economic under-development (modernization theory); government over-interference and high taxes (neo-liberal theory); too little government intervention (political economy theory), or the asymmetry between the laws and regulations of formal institutions and entrepreneurs' views on the acceptability of participating in the informal economy (institutional theory).

Methods: To evaluate these theories, the chosen method focus on World Bank Enterprise Survey data on 31 Latin American and Caribbean countries using binary probit regression analysis.

Main results: The findings show significant cross-country differences, ranging from 58.1 per cent of entrepreneurs viewing informal sector competition as a major constraint in Bolivia to 11.1 percent in Dominica. The binary probit regression analysis confirms the modernization and institutional theories, only partially confirms political economy theory, but refutes neo-liberal theory.

Theoretical contribution: The paper concludes by discussing the implications for theory and the policy initiatives required to reduce informal sector competition.

Keywords: Entrepreneurship. Informal economy. Economic development. Development economics. Latin America and the Caribbean.

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1 INTRODUCTION

Informal sector businesses are those which do not register with, and/or declare some or all production and/or sales to the authorities for tax, benefit and/or labour law purposes when they should do so (Siqueira et al., 2016; Williams et al., 2017). In recent years, entrepreneurship scholarship has increasingly turned its attention to this issue of informal sector entrepreneurship (e.g., Webb et al., 2009; Williams, 2018). Indeed, a recent literature review of the trends in entrepreneurship scholarship identifies informal sector entrepreneurship as one of the six sub-disciplines that now constitute entrepreneurship scholarship (Ferreira et al., 2019). The reason for this is simple. Entrepreneurship in the informal sector is not some minor sub-set of all entrepreneurship. Across the world, two-thirds of all enterprises start-up unregistered (Autio & Fu, 2015), over a half of all enterprises are unregistered (Acs et al., 2013), and an even higher proportion of enterprises in the informal sector if the uncalculated number of formal enterprises under-reporting sales is included (Williams, 2018).

The extent to which entrepreneurship takes place in the informal sector, and its impact on formal enterprises, however, is not the same across all countries. There are significant differences across countries (Acs et al., 2013; Autio & Fu, 2015; Williams et al., 2017; Williams, 2018). To explain these cross-country variations, four competing theoretical perspectives have been proposed. Firstly, modernization theory proposes that the scale of informal sector competition is associated with economic under-development; the less developed are economies, the higher is the level of informal sector competition (La Porta & Schleifer, 2014). Secondly, neo-liberal theory proposes that informal sector competition is greater when taxes are higher and there is government over-interference in work and welfare (De Soto, 2001). Thirdly, political economy theory conversely asserts that informal sector competition is greater when there is inadequate government intervention (Castells & Portes, 1989), and fourthly and finally, institutional theory proposes that informal sector competition is greater when there is asymmetry between the laws and regulations of formal institutions and the unwritten socially shared rules of informal institutions (Windebank & Horodnic, 2017; Webb et al., 2009, 2013, 2014, 2020). In this paper, the intention is to evaluate these as competing theories of why formal entrepreneurs view informal sector



competition as a major constraint on their operations more commonly in some countries than in others.

In the next section, therefore, these competing theories are reviewed in order to develop a set of propositions which can be tested. The third section then reports the data, variables and methods used to evaluate these propositions, namely a binary probit regression analysis of World Bank Enterprise Survey (WBES) on 31 Latin America and Caribbean countries. The fourth section reports the findings followed by the fifth and final section which presents a discussion about the implications of these findings for theory and policy as well as the limitations of the study and the future research required.

This will advance scholarship on informal sector entrepreneurship in three ways. Theoretically, this paper advances understanding why formal entrepreneurs more commonly view informal sector competition as a major constraint on their operations in some countries than in others. This is achieved by testing the different logics used to explain this and revealing that these should no longer be seen as rival theories. Instead, there is a need to synthesise these theories if the reasons for the cross-country variations are to be better understood. Empirically, meanwhile, this paper for the first time reports the structural economic and social determinants significantly associated with the cross-country variations in the scale of informal sector competition. Third and finally, and in terms of policy implications, this paper reveals that a fundamental shift in policy approach towards the informal sector is required.

2 THEORISING INFORMAL SECTOR COMPETITION

As informal sector entrepreneurship has become a prominent sub-discipline of scholarship on entrepreneurship (Ferreira et al., 2019), the literature on this subject has rapidly expanded, particularly in relation to its impact on the wider business environment (Afreh et al., 2019; Berdiev et al., 2020; Coletto & Bisschop, 2017; Dana, 2001, 2010, 2013; Ilias et al., 2020; Khan & Quaddus, 2015; Mróz, 2012 Omri, 2020; Ram et al., 2017; Webb et al., 2009, 2013; Williams, 2018). Until now, studies have been conducted on what types of business participate in the informal sector (Thai & Turkina, 2014; Williams & Horodnic, 2016; Williams & Martinez-Perez, 2014), whether the owners are necessity- and/or opportunity-driven (Maloney, 2004; Perry & Maloney, 2007), the variable extent to which businesses operate in the informal sector (Autio &



Fu, 2015) and how to explain its prevalence (Dau & Cuervo-Cazurra, 2014; Siqueira et al., 2016). Here, firstly, the emergent scholarship on the scale of informal sector entrepreneurship is reviewed and secondly, the range of competing theories for the cross-country variations in informal entrepreneurship is used.

3 SCALE OF INFORMAL ENTREPRENEURSHIP

Various studies have estimated the extent to which entrepreneurs participate in the informal sector in individual countries (e.g., Godfrey & Dyer, 2015; London *et al.*, 2014; Yu & Bruton, 2015). There are also cross-country comparisons. For example, a comparison of England, Russia and Ukraine finds that 23 per cent, 96 per cent and 51 per cent of entrepreneurs operate in the informal sector, respectively. However, this finding is based on a study of just 130 entrepreneurs in England, 331 in Ukraine and 81 in Russia (Williams, 2008).

Three data sets have been used to undertake more extensive cross-country comparisons. Firstly, there is an International Labour Organisation (ILO) survey of 47 countries (ILO, 2011, 2012). Analysing the 38 countries for which data on entrepreneurs participating in the informal sector are available, Williams (2018) shows that the main job of 16.6 percent of the non-agricultural workforce is as the owner of a business operating in the informal sector. When those employed by these informal sector enterprises are included, 31.5 per cent of the workforce in these 38 countries are either owners of informal sector enterprises or have their main job in informal sector enterprises. This figure, however, varies from 38.8 per cent in Sub-Saharan Africa to 20.6 per cent in Europe and Central Asia. Informal entrepreneurship and the employment they create is therefore not minor.

Secondly, there is the Global Entrepreneurship Monitor (GEM). Analysing 51 countries, Dau & Cuervo-Cazurra (2014) show that 3.37 informal enterprises are created annually for every 100 people. Autio & Fu (2015) find that two-thirds of enterprises start-up unregistered both in developing and transition economies (where 0.62 informal enterprises compared with 0.37 formal enterprises are created annually for every 100 people) as well as in OECD countries (where 0.62 informal enterprises compared with 0.43 formal enterprises are created annually for every 100 people). These estimates are reached by subtracting World Bank estimates of the number of



new formal enterprises from GEM estimates of the total number of new enterprises in each country. Therefore, caution is required.

Thirdly and finally, there is the World Bank Enterprise Survey (WBES). This asks formal entrepreneurs employing more than five employees whether they started-up unregistered, whether they compete with the informal sector and whether informal sector competition constrains their operations. This data has so far been rarely used. An exception is a study of whether formal entrepreneurs started-up unregistered (Williams et al., 2017). This, however, does not examine the reasons for the cross-country differences. Williams & Kedir (2018) do this and reveal the importance of the modernization, political economy and institutional theories in explaining cross-country differences. Meanwhile, the WBES data on whether formal entrepreneurs witness informal sector competition has been subjected to little or no analysis. Given that this dataset therefore represents an untapped resource, this paper fills that gap.

4 THEORISING CROSS-COUNTRY DIFFERENCES IN INFORMAL SECTOR COMPETITION

Reviewing the literature, four competing theories exist that seek to explain the cross-country variations in informal sector entrepreneurship. They can be applied to understanding why formal entrepreneurs more commonly view informal sector competition as a major constraint on their operations in some countries than others. These theories view the size of the informal sector to be determined by either: economic under-development (modernization theory); high taxes and state over-interference (neo-liberal theory); inadequate state intervention (political economy theory), or the asymmetry between the laws and regulations of formal institutions and the unwritten socially shared rules of informal institutions (institutional theory).

Most scholarship adopts one or other of these theories, such as modernization theory (e.g., La Porta & Shleifer, 2008, 2014), neo-liberal theory (e.g., De Soto, 1989), political economy theory (e.g., Castells & Portes, 1989; Davis, 2006; Slavnic, 2010), or institutional theory (e.g., Webb et al., 2009). Recently, nevertheless, a small literature has begun to question whether these are competing theories. Reviewing the bivariate correlations between the structural conditions associated with each theory and the cross-national variations in the prevalence of the informal sector across the European Union (Williams, 2014a), East-Central Europe (Williams, 2015a,c), Latin America



(Williams & Youssef, 2013, 2014) and the wider developing world (Williams, 2015b), studies have confirmed the modernization, political economy and institutional theories and refuted neo-liberal theory. Meanwhile, multivariate regression analyses of the variable size of the informal sector across East-Central Europe (Williams & Horodnic, 2015a), the Baltics (Williams & Horodnic, 2015b,c) and South-East Europe (Williams & Horodnic, 2015d) reach the same findings.

Evaluating these theories as explanations for the cross-country variations in the prevalence of informal sector entrepreneurship, rather than the informal sector, studies using bivariate correlations again confirm the modernization, political economy and institutional theories but not the neo-liberal theory (Williams, 2014b). Multivariate regression analyses conducted of cross-national variations in the European Union examining whether small businesses that pay their formal employees an additional undeclared (envelope) wage (Williams & Horodnic, 2016) and whether the self-employed operate in the informal sector (Williams & Martinez-Perez, 2014) again reach the same findings.

A study evaluating cross-national variations in the presence of informal sector competition again reveal the same findings that modernization, political economy and institutional theories apply but not the neo-liberal theory in relation to 142 countries (Williams & Kadir, 2018a). Until now, however, few studies have evaluated the impacts of informal sector competition on formal enterprises. One of the few to do so reveals in three South-Eastern European countries that informal sector competition leads to poorer formal sector firm performance (Williams & Bezeredi, 2018b). To further advance understanding of the impact of informal sector competition on the formal business environment, therefore, this paper focuses upon whether informal sector competition is seen by formal entrepreneurs as constraining their operations in Latin America and the Caribbean countries and how the cross-national variations in this tendency can be explained. To do so, each theory is now briefly reviewed to formulate hypotheses that can be tested.

In modernization theory, the belief is that the modern formal sector is becoming hegemonic. Informal sector entrepreneurs, such as street hawkers, are thus portrayed as a remnant of an earlier pre-modern mode of production. Their persistence thus displays a country's "under-development" (Geertz, 1963; Gilbert, 1998; Lewis, 1959). As such, formal entrepreneurs will be more likely to be constrained by informal sector



competition in less economically developed countries, measured in terms of GDP per capita (ILO, 2012). The following hypotheses can be therefore tested:

Modernization theory hypotheses

(H1): the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in less developed economies.

H1a: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in less developed economies, measured in terms of GDP per capita.

H1b: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in less developed economies, measured in terms of household consumption expenditure per capita.

In neo-liberal theory, the informal sector is higher where there are higher taxes and greater government interference in the economy and welfare, resulting in entrepreneurs making the rational economic decision to turn to the informal sector to avoid the costs, time and effort of operating formally (e.g., De Soto, 1989, 2001; Perry & Maloney, 2007; Small Business Council, 2004). Formal entrepreneurs will be more likely to be constrained in their operations by informal sector competition, in consequence, in countries with higher taxes and greater state interference. To evaluate this neo-liberal explanation, the following hypotheses can be tested:

Neo-liberal theory hypotheses

(H2): the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries with higher tax rates, and higher levels of state interference in the market.

H2a: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries with higher tax rates, measured by the tax revenue to GDP ratios.

H2b: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries where state interference is greater, measured by the expense of government as a percentage of GDP.

Meanwhile, political economy theory posits that the informal sector directly results from de-regulation and the growth of subcontracting and outsourcing which integrate



the informal sector into capitalist production systems (Aliyev, 2015; Castells & Portes, 1989). Formal entrepreneurs are therefore more likely to be constrained in their operations by informal sector competitors in countries with inadequate state intervention (Davis, 2006; Slavnic, 2010). To evaluate this political economy explanation, the following hypotheses can be tested:

Political economy theory hypotheses

(H3): the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries with lower levels of state intervention.

H3a: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries with lower tax to GDP ratios.

None of the theories so far discussed explain why some entrepreneurs in a country engage in the informal sector and others do not. Institutional theory resolves this issue (Baumol & Blinder, 2008; North, 1990). Institutions represent the rules of the game which govern and prescribe behaviour. Every society has both formal institutions (i.e., laws and regulations) that are the legal rules of the game, as well as informal institutions that are the unwritten socially shared rules about what is acceptable (Denzau & North, 1994; Helmke & Levitsky, 2004). Informal entrepreneurship takes place outside the formal rules of the game but within the norms, values and beliefs of informal institutions (Godfrey, 2011; Horodnic, 2018; Horodnic & Williams, 2019, 2020; Kistruck *et al.*, 2015; Siqueira *et al.*, 2016; Webb *et al.*, 2009, 2013, 2014; Welter *et al.*, 2015). Informal entrepreneurship thus arises when there is asymmetry between the laws and regulations of formal institutions and the norms, values and beliefs of informal institutions (Dau & Cuervo-Cazurra, 2014; Godfrey, 2015; Sutter *et al.*, 2017; Thai & Turkina, 2014; Vu, 2014; Webb & Ireland, 2015; Williams *et al.*, 2017). The greater the degree of incongruence between formal and informal institutions, the more informal sector competition there will be in a society (Williams & Shahid, 2016). To test institutional theory, therefore, the following hypotheses can be evaluated:



Institutional theory hypotheses

(H4): the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries where there is greater asymmetry between formal and informal institutions.

H4a: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries where there is greater asymmetry between formal and informal institutions, measured in terms of trust in state institutions.

H4b: the operations of formal entrepreneurs will be more likely to be constrained by informal sector competition in countries where there is greater asymmetry between formal and informal institutions, measured in terms of the level of public sector corruption.

5 DATA, VARIABLES AND METHODS

5.1 Data

To evaluate the competing theories on why formal entrepreneurs more commonly view informal sector competition as a major constraint on their operations in some countries than others, World Bank Enterprise Survey (WBES) data on 31 Latin America and the Caribbean countries are here reported. The countries are: Antigua & Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St Kitts and Nevis, St Lucia, St Vincent & the Grenadines, Suriname, Trinidad & Tobago, Uruguay and Venezuela.

For each country, the WBES reports data collected from non-agricultural formal private sector enterprises with five or more employees using a stratified random sample. The sample is stratified by firm size, business sector and geographic region. The firm size strata in the WBES are 5-19 (small), 20-99 (medium), and 100+ employees (large-sized firms), while sector is broken down into manufacturing, services, transportation and construction. Public utilities, government services, health care, and financial services sectors are excluded, and in larger economies, manufacturing sub-sectors are used as additional strata based on employment, value-added, and total number of establishments. Geographical regions within a country are



stratified based on the cities/regions collectively containing the majority of economic activity. The sampling frame is derived from the universe of eligible firms, normally obtained from the country's statistical office or another government agency such as the tax or business licensing authorities. Since 2006, all national surveys explain the source of the sample frame.

5.2 Dependent variable

Previous cross-country studies of informal entrepreneurship examine either the percentage of unregistered businesses or the percentage of formal businesses that started-up unregistered (Dau & Cuervo-Cazurra, 2014; Kistruck *et al.*, 2014; Siqueira *et al.*, 2014; Thai & Turkina, 2014; Williams *et al.*, 2017). However, this excludes formal entrepreneurs under-reporting some of their sales. Neither does this provide any understanding of whether these informal sector businesses are perceived by formal enterprises to have a deleterious impact on them. Here, therefore, an analysis is undertaken of whether formal entrepreneurs perceive that the practices of competitors in the informal sector are a major constraint on their current operations.

To do so, a WBES question is used that examines responses to the question, "Using the response options on the card; To what degree are practices of competitors in the informal sector are seen as an obstacle to the current operations of this establishment (No obstacle; minor obstacle; moderate obstacle; major obstacle, very severe obstacle)". Due to the number of responses in each category and for ease of analysis, a dummy variable was constructed with a value of 1 if formal entrepreneurs report that informal sector competition is a major or very severe obstacle and a value of 0 otherwise.

5.3 Key independent variables

To test the competing theories, firm-level variables are used as controls and country-level variables reflecting the various tenets of the modernization, neo-liberal, political economy and institutional theories are used as the independent ones. To analyse hypotheses H1-H4 regarding the key determinants, while taking account of and holding constant the firm-level control variables, variables that have been used in previous studies evaluating these hypotheses in relation to the informal sector (discussed in the previous section) are employed.



To evaluate the modernization hypotheses (H1), the indicators used are:

- Current *GDP per capita* expressed in terms of purchasing power parity in international dollars terms, transformed into natural logs (Ln). The IMF World Economic Outlook Database for the relevant year in which the survey was conducted in each country was used.
- *Household consumption expenditure per capita*, transformed into natural logs, retrieved from the same source in the same manner.

To test both neo-liberal theory (H2) and political economy theory (H3) that too much or too little state interference influences whether informal sector competition is commonly seen as a constraint on formal entrepreneurs, two indicators of the extent of government intervention are used, namely:

- *Tax revenue to GDP ratio*, from the IMF World Economic Outlook database.
- *Expense of government as a % of GDP*, from the IMF World Economic Outlook database.

To test institutional theory (H4), two proxy indicators of the level of asymmetry between the formal and informal institutions are used, namely:

- *Trust in the court system*, measured by the percentage of firms believing that the court system is fair, impartial and uncorrupted. This is based on the response to the following question: “I am going to read some statements that describe the courts system and how it could affect business. For each statement, please tell me if you strongly disagree, tend to disagree, tend to agree, or strongly agree”. This is a dummy variable with a value of 1 given to those firms who agree and strongly agree that “the court system is fair, impartial and uncorrupted” and a value of 0 for those who disagree or strongly disagree.
- *Corruption composite index*: a dummy variable which indicates whether the entrepreneur stated that an informal gift or payment was expected or requested to “get things done” in relation to customs, taxes, licenses, permits, regulations and services. It takes a value of 1 if the responding entrepreneur reported that this was expected or requested in one or more cases and value 0 otherwise.



5.4 Other control variables

To control for other key explanatory variables that may also affect whether a formal enterprise witnesses informal sector competition which will have a major constraint on their operations, a series of mostly firm-level variables are used that have been found in previous studies using the WBES data to be related to informality (Williams & Kedir, 2017; Williams *et al.*, 2017) as well as in other surveys of entrepreneurship and enterprise in the informal sector (Dau & Cuervo-Cazzurra, 2014; Hodosi, 2015; Khan & Quaddus, 2015; Vu, 2014). Figure 1 reports these control variables.

Variable	Definition
Firm age	A continuous variable indicating the number of years since the firm was established, transformed into natural logs
Export-orientation	A dummy variable with value 1 indicating the proportion of firm's sales which are for the export market and 0 for the share of sales for the domestic market.
Foreign-owned	A dummy variable with value 1 indicating if the share of the firm's ownership held by foreign individuals or businesses is larger than 49 per cent.
Top manager's experience	A continuous variable of the years of experience the top manager has in the sector.
Temporary workers	A variable measuring the average number of temporary workers in the firm, transformed into natural logs
Permanent full-time workers,	A continuous variable of the average number of permanent full-time workers in the firm, transformed into natural logs
Female full-time workers	Examining the share of permanent full-time workers that are female, transformed into natural logs
Female involvement in ownership	A dummy variable with value 1 indicating whether women are involved in the ownership of the firm and 0 otherwise
Quality certification	A dummy variable with value 1 indicating the firm has an internationally-recognised certification and 0 otherwise
External auditor	A dummy variable with value 1 indicating the firm has its annual financial statement reviewed by an external auditor and 0 otherwise
Presence of a website	A dummy variable with value 1 when the firm uses a website for business related activities and 0 otherwise
Use of e-mail	A dummy variable with value 1 when a firm uses e-mail to interact with clients and suppliers and 0 otherwise
Firm size	A categorical variable with value with value 1 for small firms with less than 20 employees, value 2 for medium size firms between 20 and 99 employees, and value 3 for large firms with more than 100 employees

Figure 1 Control variables used in the analysis: definitions.

Source: author

In addition, *legal status*, *industries* and *survey year* are also controlled in the form of dummy variables.



5.5 Methods

To evaluate the determinants of whether formal businesses witness informal sector competition across the Latin American & Caribbean countries, a binary probit estimate techniques are employed. To test the four hypotheses H1-H4, the probit equation used here is:

$$I_i = \alpha_0 + \beta_0 H + \mathbf{X}_i \boldsymbol{\beta}_i + \varepsilon_i$$

where I_i represents formal businesses stating that competition from informal sector is a major constraint, α_0 denotes the constant term, H represents the variables in terms of different hypotheses H1-H4, \mathbf{X}_i denotes a vector of exogenous variables capturing firm-level characteristics and, the error term ε_i is normally distributed with zero mean and constant variance.

6 FINDINGS

The finding is that 37.2 per cent of formal entrepreneurs surveyed in the 31 Latin America and the Caribbean countries report that informal sector competition is a major constraint on their operations. Nearly one in four formal entrepreneurs consequently view competition from the informal sector as a major constraint on their operations. However, there are differences across countries. Table 1 shows that the proportion of formal entrepreneurs viewing informal competition as a major constraint on their operations varies from 11.3 per cent of formal entrepreneurs in Dominica to 58.1 per cent in Bolivia.



Table 1 Formal sector entrepreneurs stating informal sector competition is a constraint on their operations, by country

Country	%	Country	%
Dominica	11.3	Antigua & Barbuda	34.7
St Lucia	14.0	Jamaica	35.0
Panama	14.3	Mexico	35.3
Bahamas	15.0	Costa Rica	35.6
Barbados	18.0	Guatemala	36.1
Venezuela	18.7	El Salvador	37.5
St Vincent & the Grenadines	18.7	Argentina	40.7
Grenada	25.0	Dominican Republic	41.0
Trinidad & Tobago	25.0	Suriname	41.4
Chile	26.7	Brazil	44.1
Honduras	28.6	Colombia	47.4
Guyana	29.6	Peru	47.6
Nicaragua	30.2	Paraguay	50.7
St Kitts and Nevis	32.4	Uruguay	51.8
Belize	33.3	Bolivia	58.1
Ecuador	33.9	Average	37.2

Source: authors' calculations from World Bank Enterprise Survey (WBES) dataset.

To explain these cross-country differences, Table 2 examines whether it is due to the level of economic development, as modernization theory states, whether it is due to too much or too little state intervention as neo-liberal and political economy theory asserts respectively, or whether it is due to the degree of asymmetry between formal and informal institutions (as institutional theory posits).

Before evaluating these theories, Model 1 in Table 3 reports the standard probit coefficient estimates of the probability of a formal entrepreneur viewing informal sector competition as a major constraint by the firm-level variables. This reveals that firm age has a significant and positive effect, with older enterprises more likely to view informal sector competition as a major constraint than younger enterprises. Meanwhile, formal enterprises who are export-oriented and foreign-owned are significantly less likely to view informal sector competition as a major constraint than non-exporting and domestic-owned enterprises. This is doubtless because the former are more likely to operate in relatively different market segments than informal sector enterprises.



If a formal entrepreneur employs more full-time female workers, s/he is more likely to view informal sector competitors as a major constraint. This is consistent with other research (Johnson & Powell, 1994; Zinkhan & Karande, 1991). As for technological capabilities, formal entrepreneurs and enterprises with quality certification are less likely to view informal sector competitors as a major constraint but those with an e-mail only are more likely to view informal sector competition as a major constraint. Given that firms with quality certification have more access to innovation to overcome the competition from informal sector, this is not surprising. And finally, akin to other studies (Galani & Weinschelbaum, 2012; Kanbur, 2015), firm size is negatively associated with the likelihood of informal sector competitors being a major constraint. The operations of small firms are more likely to view informal sector competitors as a major constraint than larger-sized businesses.

Table 2 Probit model of informal sector competition as a major constraint, 31 countries

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	-0.810*** (0.135)	0.412*** (0.342)	0.638** (0.275)	-0.508*** (0.185)	-0.963*** (0.151)	-0.959*** (0.153)
Ln (GDP per capita)		-0.154*** (0.036)				
Ln (Household consumption expenditure per capita)			-0.212*** (0.031)			
Tax revenue to GDP ratio				-0.024*** (0.004)		
Expense of government as % GDP					0.003 (0.003)	
Corruption						0.004*** (0.001)
Trust	-0.264*** (0.036)	-0.235*** (0.036)	-0.211*** (0.041)	-0.209*** (0.043)	-0.268*** (0.036)	-0.255*** (0.038)
Ln (Firm age)	0.054** (0.021)	0.054** (0.021)	0.062*** (0.023)	0.023 (0.026)	0.054*** (0.021)	0.054** (0.022)
Export-orientation	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Foreign ownership	-0.001** (0.020)	-0.001** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.001** (0.000)	-0.001* (0.020)
Top manager experience	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Ln (Temporary worker)	0.029* (0.015)	0.024 (0.015)	0.013 (0.017)	0.038** (0.018)	0.029* (0.015)	0.018 (0.016)
Ln (Permanent full-time worker)	0.028 (0.027)	0.032 (0.027)	0.016 (0.029)	0.030 (0.000)	0.028 (0.027)	0.016 (0.029)
Ln (Female full-time worker)	0.126*** (0.018)	0.129*** (0.000)	0.147*** (0.020)	0.125*** (0.022)	0.126*** (0.000)	0.138*** (0.019)
Female ownership share	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Quality certification	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)



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External auditor	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Website	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
E-mail	0.002*** (0.000)	0.002*** (0.000)	0.001** (0.000)	0.002** (0.000)	0.002*** (0.000)	0.001** (0.000)
Medium	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Large	-0.003*** (0.000)	-0.003*** (0.022)	-0.002* (0.001)	-0.003*** (0.001)	-0.003*** (0.000)	-0.002** (0.001)
Legal status dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industries dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
LR chi2	341.35	358.06	344.82	325.21	341.44	302.48
Pseudo R-squared	0.035	0.037	0.043	0.047	0.035	0.035
N	7,213	7,213	5,964	5,063	7,213	6,396

Source: authors' calculations from World Bank Enterprise Survey (WBES) dataset.

The remaining models add the key variables associated with each theoretical explanation to these firm-level variables in a staged manner to examine their influence. To evaluate the validity of modernization theory, model 2 adds the country-level indicator of the log of GDP per capita and shows a significant negative association. The higher the log of GDP per capita, the lower is the probability that formal entrepreneurs view informal sector competitors as a major constraint (confirming H1a). Similarly, model 3 evaluates household consumption expenditure per capita; the higher is the log of household consumption expenditure per capita, the lower is the probability of formal entrepreneurs viewing informal sector competitors as a major constraint (confirming H1b). These two models thus confirm modernization theory (H1). Importantly, the significances and signs of all first-level variables in model 1 remain the same when the country-level variables are added in model 2 and model 3. This also applies to all remaining models that add country-level variables associated with the other theories.

Testing neo-liberal theory (H2) and political economy theory (H3) that formal entrepreneurs are more likely to view informal sector competitors as a major constraint when there is too much or too little government intervention respectively, model 4 examines the tax revenue to GDP ratio and model 5 the expense of government as a percentage of GDP. Model 4 reveals a negative and significant association between the tax revenue to GDP ratio and the likelihood of formal entrepreneurs viewing informal sector competitors as a major constraint (confirming H3a but refuting H2a). Model 5 finds no significant association between the expense of government as a



percentage of GDP and the likelihood of formal entrepreneurs viewing informal sector competitors as a major constraint on their operations (refuting both H3a and H2a). The result is that neo-liberal is refuted and political economy theory only partially confirmed.

To test if formal entrepreneurs are more likely to view informal sector competitors as a major constraint on their operations when there is asymmetry between the laws and regulations of formal institutions and the norms, values and beliefs of entrepreneurs, all models examine the level of trust of entrepreneurs in the formal institutions, measured by whether they perceive the court system as fair, impartial and uncorrupted. A strong significant negative association is found between trust in formal institutions and the likelihood of formal entrepreneurs viewing informal sector competitors as a major constraint; the lower the trust in formal institutions, the greater is the probability that formal entrepreneurs view informal sector competitors as a major constraint (confirming H4a). When corruption is taken as a further proxy indicator of the symmetry between the formal and informal institutions, model 6 again reveals a significant correlation. The greater the likelihood of an entrepreneur asserting that an informal gift or payment is expected or requested to get things done, the greater is the likelihood of a formal entrepreneur viewing informal sector competitors as a major constraint on their operations (confirming H4b). The outcome is a significant correlation between institutional asymmetry and the likelihood of informal sector competition significantly hindering the operations of formal entrepreneurs (confirming H4).

7 DISCUSSION AND CONCLUSIONS

Examining WBES data from 31 Latin America and the Caribbean countries, collected between 2006 and 2010, 37.2 per cent of formal entrepreneurs view informal sector competition as a major constraint on their operations. This varies between countries, however, ranging from 11.3 per cent of formal businesses in Dominica to 58.1 per cent in Bolivia. To explain these cross-country variations, a probit regression analysis reveals that economic under-development and institutional asymmetry predominantly explain these cross-country differences in the extent to which formal entrepreneurs view informal sector competitors as a major constraint on their operations. Here, therefore, the theoretical and policy implications are discussed.

In terms of theoretical advances, these findings display the importance of not using single theories to explain cross-country differences. Instead, if cross-country



variations in the extent to which formal entrepreneurs view informal sector competition as a major constraint on their operations is to be more fully explained, there is a need to combine predominantly the modernization and institutional theories. The propensity of formal entrepreneurs to be constrained on their operations by informal sector competitors is greater in countries where there is a lower level of economic development and the level of institutional asymmetry is higher. In contrast to the debates in much of the contemporary literature, it is not so much whether there is too much or too little government intervention, as the neo-liberal and political economy theories argue respectively. Instead, it is whether the laws and regulations which are introduced are in symmetry with the norms, values and beliefs of entrepreneurs. If they are, and there is institutional symmetry, then competition from informal sector businesses will be less of a constraint on formal entrepreneurs. The greater the level of institutional asymmetry, the greater is the likelihood that the operations of formal entrepreneurs will be hindered by informal sector competition.

This finding has implications on policy. Conventionally, the dominant policy approach of governments has been for enforcement of authorities, such as tax administrations and labour inspectorates, to ensure that the cost of being caught and punished is greater than the pay-off from participating in the informal sector (Allingham & Sandmo, 1972). This has been achieved largely by using 'sticks' which increase the costs and likelihood of being caught by increasing the fines and/or perceived or actual probability of detection. Recently, furthermore, more attention has been paid to altering the cost/benefit ratio by improving the benefits of formalisation using 'carrots' (incentives) to encourage formal sector entrepreneurship (Mathias et al., 2014).

However, these policy initiatives simply deal with the effects. They do not tackle the determinants of the level of informal sector competition. Formal entrepreneurs will be less hindered by informal sector competition only if there is a higher level of economic development, and greater symmetry between the laws and regulations introduced by formal institutions and the norms, values and beliefs of entrepreneurs.

Besides economic development, therefore, the level of institutional asymmetry needs to be tackled. On the one hand, attempts can be made to change the norms, values and beliefs of entrepreneurs by pursuing education and awareness raising initiatives about the benefits of formality and disadvantages of informality. However, in many countries, it is unlikely that the norms, values and beliefs of entrepreneurs about



the acceptability of informality will change unless there are also changes in the formal institutions. On the other hand, therefore, changes in the formal institutions are also required. This requires firstly, greater procedural fairness so that entrepreneurs believe they are paying their fair share compared with others (Molero & Pujol, 2012), secondly, greater procedural justice so that entrepreneurs believe they are being treated by the authorities in a responsible, respectful and impartial way (Murphy, 2005) and thirdly and finally, greater redistributive justice in order that entrepreneurs view themselves to be receiving the goods and services they deserve for the taxes they pay (Kirchgässner, 2010).

Despite identifying these determinants of why formal entrepreneurs more commonly view informal sector competition as a major constraint on their operations in some countries than others, limitations nevertheless exist to what this study can conclude, and caveats are required. A first limitation is that the informal sector has been analyzed only according to which formal entrepreneurs view informal sector competitors as a major constraint on their operations. The problem is that the meanings of 'informal sector competition' and 'a major constraint' have not been defined. Entrepreneurs might thus interpret in different ways what is 'informal' (e.g., whether it is registered, whether it conducts a portion of its trade undeclared), especially across different countries. So too might entrepreneurs define 'a major constraint' in different ways. Second, this WBES survey only evaluates formal entrepreneurs employing five or more employees. Micro-businesses and sole traders are excluded. Given that smaller businesses are in this paper revealed to be more likely to view informal sector competition as a major constraint, the degree to which informal sector competition is a hindrance identified here may be an under-estimate. Future cross-country surveys, therefore, should include micro-businesses and sole traders.

However, and despite these limitations, theoretical advances have been made in understanding the impact of the informal sector by explaining the cross-country variations in the degree to which formal entrepreneurs view informal sector competition as a major constraint on their operations. The study reveals that it is not predominantly whether there is too much or too little state intervention, as the neo-liberal and political economy theories argue respectively. Rather, it is whether the laws and regulations introduced are in symmetry with the norms, values and beliefs of entrepreneurs, along with the level of economic development, that influences whether formal entrepreneurs



view informal sector competition as a major constraint on their operations. If this now results in governments giving greater attention to these structural determinants, rather than simply using “sticks” and “carrots” to tackle the effects, then this paper will have fulfilled its intention.

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