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EXPLAINING CROSS-NATIONAL VARIATIONS IN THE PREVALENCE OF INFORMAL SECTOR ENTREPRENEURSHIP: LESSONS FROM A SURVEY OF 142 COUNTRIES

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The aim of this paper is to evaluate four competing theoretical perspectives that explain cross-national variations in the level of informal sector entrepreneurship. Scholarship has until now argued that ~~the~~ informal entrepreneurship is a result of either: economic under-development and a lack of modernization of governance (modernization theory); high taxes and state over-interference (neo-liberal theory); inadequate state intervention to protect workers from poverty (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). Reporting the World Bank Enterprise Survey (WBES) on the varying prevalence of informal entrepreneurship across 142 countries, the finding is that neo-liberal theory is refuted but the tenets of the modernization, political economy and institutional theories are confirmed. Informal entrepreneurship is found to be significantly higher when there is economic under-development, a lack of modernization of governance, inadequate state intervention to protect workers from poverty and greater asymmetry between the formal and informal institutions. The paper concludes by discussing the theoretical and policy implications of these findings.

Keywords: Entrepreneurship; informal economy; shadow economy; economic development; development economics; developing economies.

1. Introduction

Why are enterprises more likely to operate unregistered and in the informal sector in some countries than others? Given that two-thirds of all enterprises are unregistered at start-up (Autio and Fu, 2015), that at least half of all enterprises globally are unregistered (Acs et al., 2013), and that an even higher proportion are engaged in entrepreneurship in the informal sector if the uncalculated number of formal enterprises under-reporting sales is included (Williams, 2018), this is an important question to answer.

Until now, four competing theoretical perspectives have been used to explain the cross-national variations in the prevalence of the informal sector in general and informal

entrepreneurship more particularly. First, modernization theory asserts that the level of competition from unregistered or informal enterprises will be greater where there is economic under-development and a lack of modernization of governance (La Porta and Schleifer, 2014), Second, neo-liberal theory argues that the level of competition from unregistered or informal enterprises will be greater when there are high taxes and state over-interference (De Soto, 2001). Third, and conversely, political economy theory views informality to be higher when there is inadequate state intervention to protect workers from poverty (Castells and Portes, 1989), and finally, institutional theory asserts that the greater is the asymmetry between the laws and regulations of formal institutions and the unwritten socially shared rules of informal institutions, the higher is the level of informality (Windebank and Horodnic, 2017; Webb et al., 2009, 2013, 2014). Therefore, the aim of this paper is to evaluate these contrasting explanations for the cross-national variations in the prevalence of unregistered or informal enterprises (i.e., informal entrepreneurship), by which is here meant those starting-up and/or owning and managing an enterprise which does not register with and/or declare some or all its production and/or sales to the authorities for tax, benefit and/or labor law purposes when it should do so (Ketchen et al., 2014; Siqueira et al., 2016; Williams et al., 2017a).

To commence, section 2 provides a theoretical framing by reviewing the competing theoretical perspectives that can be used to explain cross-national variations in the prevalence of informal entrepreneurship. This will result in a set of propositions that can be tested to evaluate the competing explanations for the cross-national variations in the extent of informal entrepreneurship. Section 3 then reports the data, variables and methods used to test these propositions, namely a multi-level probit regression analysis of WBES data on 142 countries followed by the results in section 4. Section 5 then discusses the theoretical and policy implications along with the limitations and future research implications.

In doing so, this paper advances understanding of informal sector entrepreneurship in three ways. Theoretically, this paper for the first time evaluates the validity of the four competing theoretical explanations for the cross-national variations in the prevalence of informal entrepreneurship. Meanwhile, this paper empirically provides the first multi-level regression analysis of the cross-national variations in the level of competition from unregistered and informal businesses and the validity of the four competing theoretical explanations for these cross-national variations. Finally, and from a policy perspective, the outcome will be to reveal the need for a very different policy approach toward tackling informal entrepreneurship than is currently used.

2. Explaining Informal Sector Entrepreneurship: Competing Perspectives

Recent years have seen the emergence of a burgeoning literature on informal entrepreneurship (Aidis et al., 2006; Bureau and Fendt, 2011; Coletto and Bisschop, 2017; Kus, 2014; Mróz, 2012; Ram et al., 2017; Webb et al., 2009, 2013; Williams, 2018). This literature has sought to understand not only the prevalence of informal entrepreneurship

(Autio and Fu, 2015; Williams and Kedir, 2016, 2017) and the determinants of its variable prevalence (Dau and Cuervo-Cazurra, 2014; Siqueira et al., 2016), but also who participates (Thai and Turkina, 2014; Williams and Martinez-Perez, 2014) and their motives, including whether they are necessity- and/or opportunity-driven (Adom and Williams, 2012; Maloney, 2004; Perry and Maloney, 2007). In this section the literature on the prevalence of informal entrepreneurship is reviewed first followed by the previous literature that has sought to explain the varying prevalence of informal sector entrepreneurship across different countries.

2.1. Prevalence of informal entrepreneurship

Numerous small-scale and national-level studies have been previously conducted that estimate the prevalence of informal entrepreneurship in individual countries (e.g., Chepurenko, 2016; Godfrey and Dyer, 2015; London et al., 2014; Williams and Martinez-Perez, 2014; Williams et al., 2016; Yu and Bruton, 2015). There are also some small-scale, cross-national comparisons. For example, a study comparing Russia, Ukraine and England finds that 96, 51 and 23 percent of entrepreneurs operate in the informal sector, respectively. However, the problem is that these findings are based on interviews with just 130 entrepreneurs in England, 331 in Ukraine and 81 in Moscow (Williams, 2008).

More comprehensive studies of the extent of informal entrepreneurship and how it varies cross-nationally have evaluated three data sets. First, there is the Global Entrepreneurship Monitor (GEM). Dau and Cuervo-Cazurra (2014), examining 51 countries, find that 3.37 informal enterprises are created annually for every 100 people, while Autio and Fu (2015), using a similar measure, find that some two-thirds of enterprises start-up unregistered not only in emerging and transition economies (where 0.62 informal enterprises compared with 0.37 formal enterprises are created annually for every 100 people) but also in OECD countries (where 0.62 informal enterprises compared with 0.43 formal enterprises are created annually for every 100 people). To derive these estimates, both studies subtract World Bank estimates of the number of registered businesses from the GEM estimates of the total number of new enterprises in each country. However, this can be only a very tentative estimate.

Second, there is the International Labor Organization (ILO) dataset on 47 countries (ILO, 2011, 2012). Williams (2018), examining the 38 countries for data on informal entrepreneurship is available, reveals that one in six (16.6 percent) of the non-agricultural workforce participate in informal entrepreneurship as their main job. When those employed by these informal entrepreneurs are included, the finding is that 31.5 percent of the workforce in these 38 nations are either informal entrepreneurs or have their main job in informal enterprises. However, informal entrepreneurship is unevenly distributed. The weighted share of the workforce engaged in informal entrepreneurship for their main job varies from 26.1 per cent in sub-Saharan Africa, through 22.7 per cent in Latin America and the Caribbean, to 8.5 percent in Europe and Central Asia. The cross-national variations

in the share of the non-agricultural workforce engaged in informal entrepreneurship, meanwhile, range from 58.5 percent in Mali to 2.3 percent in Serbia.

Finally, there is the WBES, which collects data on whether formal businesses started-up unregistered or compete with informal or unregistered businesses. Until now, this dataset has been seldom used to evaluate the prevalence of informal entrepreneurship. An exception is the study by Williams et al. (2017a), which finds that ten percent of the formal businesses surveyed started up unregistered but does not investigate the reasons for the cross-national variations in the proportion of formal enterprises that started up unregistered. Moreover, until now, no in-depth evaluation has taken place of the WBES data collected on whether formal enterprises compete with informal or unregistered enterprises. This paper, as will be shown below, fills that gap by utilizing this extensive data collected across 142 countries.

2.2. Theorizing cross-national variations in the scale of informal entrepreneurship

Turning to explanations for the cross-national variations in the scale of informal sector entrepreneurship, the literature has until now adopted four competing theoretical explanations that view greater levels of informal entrepreneurship to be a result of either: economic under-development and a lack of modernization of governance (modernization theory); high taxes and state over-interference (neo-liberal theory); inadequate state intervention to protect workers from poverty (political economy theory), or the asymmetry between the laws and regulations of formal institutions and the unwritten socially shared rules of informal institutions (institutionalist theory).

Until now, most previous studies of the informal sector and informal entrepreneurship have tended to adopt the singular logic of one or other of these competing theoretical perspectives. For example, La Porta and Shleifer (2008, 2014) adopt the singular logic of modernization theory, De Soto (1989) the singular logic of neo-liberal theory, Castells and Portes (1989), Davis (2006) and Slavnic (2010) the singular logic of political economy theory, and Webb et al. (2009) the singular logic of institutional theory. However, in recent years, it has been recognized that these theoretical perspectives are not mutually exclusive. For example, numerous studies analyzing simple bivariate correlations between the size of the informal sector and the various determinants across the European Union (Williams, 2014a,b; Williams and Windebank, 2015), Central and Eastern Europe (Williams, 2015a,c), Latin America (Williams and Youssef, 2013, 2014) and the wider developing world (Williams, 2015b,d) confirm the validity of the modernization, political economy and institutional perspectives and refute the tenets of neo-liberal theory. There have also been multivariate analyses of the relationship between cross-national variations in the size of the informal sector and the key determinants in each of these theoretical perspectives at the level of Central and Eastern Europe (Williams and Horodnic, 2015a), the Baltics (Williams and Horodnic, 2015b,c) and South-East Europe (Williams and Horodnic, 2015d). These again confirm the validity of the modernization, political economy and institutional perspectives but do not confirm the tenets of the neo-liberal theory. However,

all these studies evaluate the relevance of these theories in relation to the size of the informal sector rather than the prevalence of informal entrepreneurship.

Nevertheless, studies have evaluated the relevance of these theories for explaining cross-national variations in the prevalence of informal entrepreneurship. These mostly use simple bivariate correlations (Williams, 2014c, d). These again confirm the tenets of the modernization, political economy and institutional theories but not the tenets of neo-liberal theory. So far, multivariate regression analyses have been confined to the European Union, and have been limited to studies of the tendency of small businesses to pay their formal employees an additional undeclared (envelope) wage (Williams and Horodnic, 2016) and a study of the self-employed conducting some of their transactions in the informal sector (Williams and Martinez-Perez, 2014). All these studies again confirm the validity of the modernization, political economy and institutional perspectives but not neo-liberal theory.

Therefore, until now, studies evaluating the validity of these competing explanations for cross-national variations in the prevalence of informal entrepreneurship have studied only the European Union and used narrow definitions. With this study, this significant gap in the literature will be filled. To do so, each theoretical perspective is briefly reviewed in turn to formulate hypotheses that can be tested.

2.2.1. Modernization theory

For most of the twentieth century, modernization theory was dominant. The recurring assumption was that the modern formal sector was extensive and growing while the informal sector was small and gradually disappearing. Entrepreneurs operating in the informal sector, such as street hawkers, were thus viewed as a leftover from an earlier pre-modern mode of production and diminishing in number. The persistence of informal entrepreneurs in a country signaled "under-development" (Geertz, 1963; Gilbert, 1998; Lewis, 1959). In modernization theory, informal entrepreneurship is a sign of under-development, which will disappear with economic advancement. Applying this to explaining the cross-national variations in the extent of informal entrepreneurship, it can be suggested that informal entrepreneurship is higher in less economically developed countries, measured in terms of GDP per capita, and in countries with less modern state bureaucracies, measured by the pervasiveness of public sector corruption (Torgler and Schneider, 2007; Tonoyan et al., 2010). Therefore, the following hypothesis can be tested:

Modernization hypothesis (H1): competition from unregistered and informal businesses will be greater in less developed economies with unmodern state bureaucracies.

H1a: competition from unregistered and informal businesses will be greater in less developed economies measured in terms of GDP per capita.

H1b: competition from unregistered and informal businesses will be greater in countries with less modern state bureaucracies, measured in terms of the level of public sector corruption.

2.2.2. Neo-liberal theory

For a neo-liberal school of thought, informal entrepreneurship is a direct product of high taxes and too much state interference in the free market, which leads entrepreneurs to make a rational economic decision to voluntarily exit the formal sector to avoid the costs, time and effort of operating formally (e.g., Becker, 2004; De Soto, 1989, 2001; London and Hart, 2004; Nwabuzor, 2005; Sauvy, 1984; Small Business Council, 2004). As Becker (2004) puts it, "informal work arrangements are a rational response by micro-entrepreneurs to over-regulation by government bureaucracies." Therefore, for neo-liberals, informal entrepreneurship is a rational economic decision pursued by entrepreneurs whose spirit is stifled by high taxes and state-imposed institutional constraints (De Soto, 1989, 2001; Perry and Maloney, 2007). Thus, the consequent solution is to pursue tax reductions, deregulation and minimal state intervention. Therefore, the extent of informal entrepreneurship should be greater in countries with higher taxes and greater state interference. To explore the validity of this neo-liberal explanation, the following hypothesis can be tested:

Neo-liberal hypothesis (H2): competition from unregistered and informal businesses will be greater in countries with higher tax rates and higher levels of state interference in the free market.

H2a: competition from unregistered and informal businesses will be greater in countries with higher levels of state interference in the free market, measured by the regulatory burden.

H2b: competition from unregistered and informal businesses will be greater in countries with higher tax rates, measured by the tax revenue to GDP ratio.

H2c: competition from unregistered and informal businesses will be greater in countries where the expense of government as a percentage of GDP is higher.

2.2.3.   Political economy theory

For political economy scholars, in stark contrast to the neo-liberals, informal sector entrepreneurship is a direct result of a de-regulated open world economy in which subcontracting and outsourcing are a primary way of integrating informal entrepreneurship into contemporary capitalism, causing a further downward pressure on wages and the erosion of incomes, welfare services and benefits, and the growth of yet more informal entrepreneurship (Aliyev, 2015; Bhattacharya, 2014; Dibben and Williams, 2012; Dibben et al., 2015; Harriss-White, 2014; Portes, 1994; Slavnic, 2010). As Meagher (2010) puts it, "informal economic arrangements…have entered into the heart of contemporary economies through processes of subcontracting...and diminishing state involvement in popular welfare and employment." Informal entrepreneurship is thus viewed as an unregulated, precarious and low paid survival-driven endeavor undertaken by those excluded from the formal labor market (Castells and Portes, 1989; Davis, 2006; Gallin, 2001; Sassen, 1996; Taiwo, 2013). It is the result of a lack of state intervention in work and welfare provision, including social protection and social transfers, and a direct product of poverty. In consequence, this practice is viewed as more prevalent in countries with inadequate state intervention to protect workers from poverty (Davis, 2006; Gallin, 2001; Slavnic, 2010). Therefore, to evaluate the validity of this political economy explanation, the following hypothesis can be tested:

Political economy hypothesis (H3): competition from unregistered and informal businesses will be greater in economies with lower levels of state intervention.

H3a: competition from unregistered and informal businesses will be greater in those countries where the regulatory burden is higher.

H3b: competition from unregistered and informal businesses will be greater in those countries with lower tax to GDP ratios.

H3c: competition from unregistered and informal businesses will be greater in those countries where the expense of government as a percentage of GDP is lower.

2.2.4. Institutional theory

For institutional theorists, a problem with all the above theories is that they do not explain why some entrepreneurs in a country participate in the informal sector and others do not; they do not take agency into account. However, drawing upon institutional theory, this has started to be overcome (Baumol and Blinder, 2008; Denzau and North 1994; North, 1990). In this theoretical perspective, institutions are the rules of the game that govern behavior, and all societies possess both formal institutions (i.e., laws and regulations) that set out the legal rules of the game, as well as informal institutions, which are the unwritten socially shared rules that exist outside of officially sanctioned channels (Helmke and Levitsky, 2004; Krasniqi and Desai, 2016), and are the norms, values and beliefs held regarding what is right and acceptable (Denzau and North, 1994). Thus, formal entrepreneurship is an endeavor occurring within the formal institutional prescriptions set out in the laws and regulations, while informal entrepreneurship occurs outside of formal institutional prescriptions but within the norms, values and beliefs of informal institutions (Godfrey, 2011; Kistruck et al., 2015; Siqueira et al., 2016; Webb et al., 2009; Welter et al., 2015; Williams and Gurtoo, 2017). As Webb et al. (2009) put it, "the informal economy exists because of the incongruence between what is defined as legitimate by formal and informal institutions." Viewed through this institutionalist lens, cross-national variations in the prevalence of informal entrepreneurship have been explained as resulting from the asymmetry between the laws and regulations of formal institutions and the norms, values and beliefs of informal institutions (Dau and Cuervo-Cazurra, 2014; Godfrey, 2015; Kistruck et al., 2015; Siqueira et al., 2016; Sutter et al., 2017; Thai and Turkina, 2014; Vu, 2014; Webb and Ireland, 2015; Webb et al., 2009, 2013, 2014; Williams et al., 2017). The assertion is that the greater the degree of incongruence (i.e., non-alignment) between formal and informal institutions, the higher is the level of informal entrepreneurship (Williams and Shahid, 2016). Therefore, to test institutional theory, the following hypothesis can be tested:

Institutional asymmetry hypothesis (H4): the greater the asymmetry between formal and informal institutions, the greater is the competition from unregistered and informal businesses.

3. Data, Variables and Methods

3.1. Data

To test the above hypotheses, WBES data from 142 countries across the globe is analyzed. This includes fifteen developed countries (including Germany, Spain, Ireland and South Korea) and 127 developing countries, including 41 in Africa, thirteen in East Asia and the Pacific region, 29 in Europe and Central Asia, 31 in Latin America and Caribbean, seven in the Middle East and North Africa and six in South Asia. Of all countries surveyed, 25 are low-income countries, 42 lower middle-income countries, 36 middle-income countries, four upper middle-income countries, and 20 high-income countries. All world regions and levels of economic development are thus covered by this survey.

In each country, the WBES collects data using a stratified random sample of non-agricultural formal private sector businesses with five or more employees, which 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 not included, and in larger economies, manufacturing sub-sectors are selected as additional strata based on employment, value-added and total number of establishments. Geographical regions within a country are selected based on which cities/regions collectively contain 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.

To collect data, a harmonized questionnaire is used across all countries, answered by some 1200-1800 business owners and top managers in larger economies, 360 in medium-sized economies and 150 in smaller economies. Although the WBES has collected data since 2002, the sample here is restricted to the 142 countries that, since 2006, have used the harmonized questionnaire and common sampling methodology, which assures that data is comparable across countries and over time.

3.2. Dependent variable

Until now, studies have analyzed cross-national variations in either the proportion of unregistered enterprises or the proportion of formal enterprises that started-up unregistered (Dau and Cuervo-Cazurra, 2014; Kistruck et al., 2015; Siqueira et al., 2016; Thai and Turkina, 2014; Williams et al., 2017a). However, this does not cover formal enterprises that under-report a portion of their sales. Therefore, to measure more fully entrepreneurship

in the informal sector, an analysis is undertaken here of whether entrepreneurs report competing against unregistered or informal enterprises. To do so, a WBES question is used that examines responses to the question, "Does this establishment compete against unregistered or informal firms?" This is a dummy variable that takes a value of 1 if the firms declare they are competing against unregistered or informal firms and a value of 0 otherwise.

3.3. Key independent variables

To test the theories explaining cross-national variations in the prevalence of informal entrepreneurship, both firm-level and country-level variables are used that capture the tenets of the modernization, neo-liberal, political economy and institutional perspectives.

To analyze the various tenets in hypotheses H1-4, variables are analyzed used in previous studies evaluating these hypotheses in relation to the informal sector (discussed in section 2.2). To evaluate the economic development tenet of the modernization hypothesis (H1a), the indicator used is:

• the current GDP per capita of each country expressed as the purchasing power parity in international dollars transformed in natural logs. This was retrieved from IMF World Economic Outlook Database for the relevant years for each country surveyed.

To evaluate the modernization of governance hypothesis (H1b), a composite index is used that evaluates corruption behaviors available in the WBES, namely:

• Corruption composite index: a dummy variable that indicates whether the entrepreneur has paid public officials bribes and other payments to 'get things gone' in relation to customs, taxes, licenses, permits, regulations and services. It takes a value of 1 if responding firms reported making any of those payments and 0 otherwise.

Meanwhile, to test both the tenets of the neo-liberal thesis (H2) that state interference increases competition from unregistered and informal businesses and the inverse political economy thesis that state intervention reduces such competition from the informal sector (H3), three indicators of the level of state intervention are employed, namely:

• Regulatory burden composite index, which is captured by their answers to questions about whether they face obstacles in the form of customs, trade and labor regulations. This is a dummy variable defined by giving a value of 1 to those firms that say that customs, trade and labor regulations are obstacles to their operations and 0 otherwise.

• Tax revenue to GDP ratio, from the IMF World Economic Outlook database.

• Expense of government as a percent of GDP, which is a measure of the size of government and therefore, a loose proxy of the degree of intervention. The expense of government is the level of cash payments for the operating activities of the government in providing goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits and other expenses such as rent and dividends (World Bank, 2017).

To test the institutional asymmetry hypothesis (H4), while holding constant the firm-level control variables, the indicator used is:

• Trust in the court system, measured by the percentage of firms believing 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.

3.4. Other control variables

To control for other key explanatory variables that may also affect firms' competition with unregistered and informal competitors, a series of firm-level variables are included derived from previous studies, which reveal the individual-level variables that influence the likelihood of competing with informal competitors both in previous analyses of the WBES data (Hudson et al., 2012; Williams et al., 2017a) and other studies of entrepreneurship in the informal sector (Dau and Cuervo-Cazzurra, 2014; Hodosi, 2015; Khan and Quaddus, 2015; Thai and Turkina, 2014; Vu, 2014). These firm-level control variables are:
- Firm age: a continuous variable for the number of years since the firm was established.
- Foreign-owned: a dummy variable with value 1 indicating if the share of the firm's ownership held by foreign individuals or enterprises is larger than 49 per cent.
- Export-orientation: a dummy variable with value 1 indicating the proportion of firm's sales for the export market and 0 for the share of sales for the domestic market.
- Firm size: a categorical variable 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.
- Legal status: a categorical variable indicating whether the legal form of the firm is an open shareholding, a closed shareholding, a sole proprietorship, a partnership, a limited partnership, or any other form.
- Quality certification, a dummy variable with value 1 indicating the firm has an internationally-recognized 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;
- 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;
- Permanent full-time workers, a continuous variable of the average number of permanent full-time workers in the firm;
- Female full-time workers, examining the share of permanent full-time workers that are female; and
- Female involvement in ownership, a dummy variable with value 1 indicating whether women are involved in the ownership of the firm and 0 otherwise.

3.5. Methods

To evaluate the country-level determinants of whether formal firms are more likely to state that they compete with unregistered and informal entrepreneurs across the 142 countries, multilevel techniques are used. Given that the surveyed enterprises in the WBES are clustered across country-year subsamples, multilevel modeling is the optimal technique to elicit unbiased standard errors as well as reliable statistical comparisons. The estimating standard probit equation takes the following form:

$$I_i = x_{1i}'\beta_1 + \varepsilon_{1i}$$

where x_{1i} denotes a vector of exogenous variables capturing firm-level characteristics and I_i represents whether formal firms compete with unregistered and informal firms. The error term ε_{1i} is normally distributed with zero mean and constant variance.

4. Findings: Explaining Cross-national Variations in Informal Entrepreneurship

The finding is that 41.9 percent of formal businesses surveyed in these 142 countries report that they compete against unregistered or informal enterprises. Therefore, a large proportion of the formal business community competes against informal and unregistered enterprises. However, the share of formal enterprises that identify themselves as competing against unregistered or formal firms is uneven. As Table 1 displays, the proportion competing against unregistered and informal enterprises ranges from a high of 52.1 percent in sub-Saharan Africa to a low of 20.5 percent in OECD nations. There are also significant cross-national variations in the extent to which formal enterprises find themselves in competition with unregistered and informal enterprises, ranging from 85 percent in Suriname, 84 percent in Cameron and 82 percent in Tonga to eleven percent in Namibia, fourteen percent in Venezuela and seventeen percent in The Gambia.

Table 1. Prevalence of informal entrepreneurship, by global region

Region	% of formal enterprises competing against unregistered or informal firms
Sub-Saharan Africa	52.1
East Asia and Pacific	45.9
Europe and Central Asia	36.7
Latin American & Caribbean	42.1
Middle East & North Africa	42.1
South Asia	26.5
OECD	20.5
All	41.9

Source: author's own calculations from World Bank Enterprise Survey (WBES) dataset

Therefore, how can cross-national variations be explained? Is it the case, as the modernization thesis suggests, that cross-national variations in the prevalence of informal entrepreneurship are associated with the level of economic development and the modernization of governance? Or is it the case, as the neo-liberal thesis, asserts that these cross-national variations are associated with high taxes and too much state interference in

the free market? Alternatively, are the cross-national variations more associated with inadequate state intervention to protect workers from poverty? Or is it the case that cross-national variations in the prevalence of informal entrepreneurship are significantly associated with the asymmetry between formal and informal institutions?

Table 2 evaluates the likelihood of a formal firm competing with an unregistered or informal firm across the 142 countries. Model 1 reports the standard probit coefficient estimates of the probability of a formal firm competing with an unregistered or informal enterprise using only the firm-level variables. This reveals that the effect of firm age on informality is positive with older firms being more likely to compete with unregistered or informal enterprises. Firms that export and are foreign-owned are significantly less likely to compete with informal and unregistered enterprises than non-exporting and domestic-owned enterprises, doubtless because they operate in different market segments.

Turning to workforce characteristics, top manager's work experience in the sector is positively and significantly associated with competing with informal and unregistered businesses, perhaps indicating they are in a relatively advantageous position of detecting the competition from unregistered or informal firms. Firms with full-time permanent and female workers are less likely to compete with informal and unregistered enterprises, as are firms where women are involved in its ownership.

Analyzing innovation and technology, formal firms with quality certification are less likely to compete with unregistered and informal enterprises, but those with a website are more likely to do so. Akin to previous studies (Galiani and Weinschelbaum, 2012; Kanbur, 2015), firm size is negatively associated with the likelihood of competing with informal and unregistered enterprises; small businesses are more likely to do so than medium-sized and larger enterprises. And finally, and in relation to legal status, there are positive and significant coefficients of sole proprietor and partnerships; they are more likely to compete with informal and unregistered enterprises.

Table 2. Probit model of determinants of whether formal firms compete with unregistered or informal enterprises, WBES 2006-2014

Variables	Model 1	Model 2	Model 3
Ln(GDPPC)		-0.109*** (0.007)	
Corruption			0.192*** (0.012)
Trust	-0.117***(0.011)	-0.115***(0.011)	-0.051*** (0.011)
Firm characteristics			
Firm Age	0.002***(0.000)	0.002***(0.000)	0.002*** (0.000)
Exporter	-0.002***(0.000)	-0.002***(0.000)	-0.002*** (0.000)
Foreign Ownership	-0.216***(0.020)	-0.216***(0.020)	-0.137*** (0.019)
Workforce			
Top Manager Experience	0.003***(0.001)	0.003***(0.001)	0.003*** (0.001)
Temporary Worker	-0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)
Permanent Full-time	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)

Table 2 (continued). Probit model of determinants of whether formal firms compete with unregistered or informal enterprises, WBES 2006-2014

Variables	Model 1	Model 2	Model 3
Female full- Time	-0.002*** (0.000)	-0.002*** (0.000)	-0.001** (0.000)
Female Share in Ownership	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Innovation and Technology			
Quality Certification	-0.000** (0.000)	-0.000** (0.000)	-0.000** (0.000)
External Auditor	0.000*** (0.000)	0.000*** (0.000)	0.000** (0.000)
Website	0.000*** (0.000)	0.000** (0.000)	0.000** (0.000)
E-mail	0.000*** (0.000)	0.000*** (0.000)	0.001*** (0.000)
Firm size (R.C. Small)			
Medium	-0.071*** (0.013)	-0.069*** (0.013)	-0.090*** (0.013)
Large	-0.159*** (0.020)	-0.158*** (0.020)	-0.196*** (0.020)
Legal status (R.C: Open shareholding)			
Closed Shareholding	0.012 (0.025)	0.016 (0.025)	0.035 (0.025)
Sole Proprietor	0.164*** (0.027)	0.169*** (0.027)	0.201*** (0.026)
Partnership	0.062* (0.032)	0.068**(0.033)	0.041 (0.032)
Limited Partnership	0.064** (0.031)	0.068** (0.031)	0.205*** (0.030)
Other Form	0.023 (0.046)	0.026 (0.046)	0.087* (0.046)
Sector dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Region Dummies	Yes	Yes	Yes
Constant	-6.182 (86.956)	-6.154 (86.889)	-5.666 (124.176)
Pseudo R-Squared	0.16	0.17	0.15
N	67,515	66,588	66,588

Table 2 (continued). Probit model of determinants of whether formal firms compete with unregistered or informal enterprises, WBES 2006-2014

Variables	Model 4	Model 5	Model 6
Regulatory Burden	-0.092*** (0.024)		
Tax Revenue to GDP ratio		-0.010*** (0.002)	
Expense of government as % of GDP			-0.003*** (0.001)
Trust	-0.115*** (0.011)	-0.091*** (0.017)	-0.069*** (0.015)
Firm characteristics			
Firm Age	0.002*** (0.000)	0.002*** (0.001)	0.001** (0.001)
Exporter	-0.002*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)
Foreign Ownership	-0.213*** (0.020)	-0.190*** (0.027)	-0.152*** (0.026)
Workforce			
Top Manager Experience	0.003*** (0.001)	0.002*** (0.001)	0.002**(0.001)
Temporary Worker	-0.000 (0.000)	-0.000 (0.000)	-0.000(0.000)
Permanent Full-time	-0.000*** (0.000)	-0.000*** (0.000)	-0.000***(0.000)
Female full- Time	-0.002*** (0.000)	-0.001*** (0.000)	-0.001***(0.000)
Female Share In Ownership	0.000 (0.000)	-0.000 (0.000)	0.000(0.000)
Innovation and Technology			
Quality Certification	-0.000** (0.000)	-0.001*** (0.000)	-0.001**(0.000)
External Auditor	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Website	0.000*** (0.000)	0.000** (0.000)	0.000** (0.000)
E-mail	0.000 (0.000)	-0.000 (0.000)	0.000** (0.000)
Firm size (R.C. Small)			
Medium	-0.069*** (0.013)	-0.113*** (0.019)	-0.101*** (0.018)
Large	-0.156*** (0.020)	-0.243*** (0.030)	-0.259*** (0.028)
Legal status (R.C: Open shareholding)			
Closed Shareholding	0.018 (0.025)	0.098*** (0.034)	0.068** (0.032)
Sole Proprietor	0.170*** (0.027)	0.122*** (0.038)	0.059* (0.035)
Partnership	0.069** (0.033)	-0.002 (0.048)	-0.116** (0.045)
Limited Partnership	0.069** (0.031)	0.011 (0.051)	-0.050 (0.048)
Other Form	0.027 (0.046)	0.141** (0.066)	0.137** (0.064)
Sector dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Region Dummies	Yes	Yes	Yes
Constant	-6.165 (86.969)	-6.045 (221.551)	(120.580)
Pseudo R-Squared	0.17	0.16	0.16
N	66,588	32,393	36,162

N.B.: Absolute value of z statistics in parentheses: * significant at 10%; ** significant at 5% and *** significant at one percent.
Source: author's own calculations from WBES

Model 2 adds the country-level indicator of the log of GDP per capita and shows a significant negative association. This confirms the first tenet of the modernization thesis (H1a), namely that the higher the GDP per capita, the lower is the probability that formal firms compete with informal and unregistered enterprises. Importantly, the significances and signs of all the first-level variables in model 1 remain the same when this country-level variable is added in model 2. The remaining models then include each of the country-level variables associated with each tenet of the remaining theoretical explanations in a sequential manner.

To evaluate the second tenet of the modernization thesis regarding whether the quality of governance, measured here in terms of the level of corruption, is significantly associated with the likelihood of competing with informal or unregistered enterprises, model 3 finds a positive association. The higher is the level of corruption, the higher is the likelihood formal firms compete with unregistered or informal enterprises. Therefore, this confirms hypothesis H1b of the modernization thesis.

Turning to the neo-liberal thesis (H2), the first tenet to be analyzed is the regulatory burden hypothesis that the prevalence of informal entrepreneurship is greater in countries with higher levels of state interference in the free market, measured by the regulatory burden. Model 4 reveals a statistically significant association, but the sign is in the opposite direction to that suggested by the neo-liberal thesis. The greater is the level of regulation, the less likely are formal firms to compete with informal or unregistered firms (refuting H2a). Therefore, this is supportive of the political economy explanation; the greater the level of state intervention, the less likely are formal firms to be competing with informal or unregistered enterprises (confirming H3a).

It is similarly the case when hypothesis H2b is tested, namely that competition from unregistered and informal enterprises will be greater in countries with higher tax rates, measured by the tax revenue to GDP ratio. Contrary to the neo-liberal thesis, model 5 reveals that the opposite is again the case. The higher is the level of tax revenue to GDP ratio, the less likely are formal firms to be competing with informal or unregistered enterprises. This refutes H2b and is supportive of the political economy view that the greater the level of state intervention, measured here by the tax revenue to GDP ratio, the less likely are formal firms to compete with informal and unregistered enterprises (confirming H3b).

Meanwhile, as a test of whether informal entrepreneurship is because of too much or too little state intervention, the association with the expense of government as a percentage of GDP is evaluated. This refutes the view that the greater the expense of government (as a percentage of GDP), the greater is the prevalence of informal entrepreneurship (refuting H2c). Instead, quite the opposite is found to be the case. The greater the expense of government (as a percentage of GDP), the lower is the prevalence of informal entrepreneurship (confirming H3c).

The final important theoretical finding is that there is strong significant negative association between trust in formal institutions (measured by whether the court system is viewed as fair, impartial and uncorrupted) and the likelihood of formal firms competing

against unregistered and informal enterprises; the lower the trust in formal institutions, the greater is the probability that formal firms compete with unregistered or informal enterprises. Across all the models, the greater the institutional asymmetry, the greater is the likelihood of competing against informal or unregistered enterprises (confirming H4).

5. Discussion and Conclusions

Evaluating WBES data from 142 countries on the cross-national variations in the extent to which formal enterprises compete with unregistered or informal competitors, a multivariate regression analysis has refuted neo-liberal theory but confirmed the modernization, political economy and institutional theories. Therefore, the theoretical and policy implications are discussed here.

Theoretically, this reveals it is important to transcend singular logics when explaining cross-national variations in the prevalence of informal entrepreneurship. These theoretical perspectives are not mutually exclusive. Instead, if cross-national variations in the extent of informal entrepreneurship are to be more fully understood, there is a need to combine the tenets of the modernization, political economy and institutional theories. The finding is that the propensity of formal enterprises to compete with informal unregistered businesses (i.e., the level of informal entrepreneurship) is greater in countries where the level of institutional incongruence is higher, there is a lower level of economic development and lower quality of governance, and lower levels of state intervention.

These findings have implications for how informal entrepreneurship is tackled. Conventionally, the dominant policy approach has been for enforcement authorities such as tax and labor administrations to use disincentives ("sticks") to tackle informal sector entrepreneurship. The intention is to ensure the cost of being caught and punished is greater than the pay-off from participating in the informal sector (Allingham and Sandmo, 1972). This is achieved by increasing the sanctions and/or the perceived or actual risks of detection. Recently, incentives ("carrots") to encourage formal entrepreneurship have also started to be used (Matthias et al., 2014) to increase the benefits of formalization rather than focus on purely the costs of informality.

However, and as this paper has shown, the problem with this approach is that it does not change the structural economic and social conditions that determine the level of informal entrepreneurship. Tax and labor administrations are simply dealing with the effects by increasing the sanctions and risks of detection, or providing incentives to formalize. They are not dealing with the determinants. To achieve this, there is a need for a more macro-level approach. As this paper has revealed, the likelihood of formal firms competing with unregistered or informal enterprises is higher in countries where GDP per capita is lower, there are higher levels of corruption, the level of regulations is lower, the tax revenue to GDP ratio is lower and the expense of government as a percentage of GDP is lower. Therefore, there is a need for state intervention at a more macro-level to tackle entrepreneurship in the informal sector.

Competition from informal and unregistered enterprises will only reduce if these structural conditions are addressed. On the one hand, the lack of trust in the state (represented by the level of institutional asymmetry) and extensive corruption in the public sector needs to be tackled through a modernization of governance. This requires, at a minimum, improvements in first, procedural fairness so entrepreneurs believe they are paying their fair share compared with others (Molero and Pujol, 2012); second, procedural justice, so entrepreneurs believe the authorities treat them in a respectful, impartial and responsible manner (Murphy, 2005) and finally, redistributive justice, so entrepreneurs believe they receive the goods and services they deserve given the taxes they pay (Kirchgässner, 2010). On the other hand, and as the models in Table 2 reveal, governments also need to pursue wider economic and social developments, increasing the level of GDP per capita and the level of state intervention by improving the tax revenue to GDP ratio and increasing the expense of government as a percentage of GDP.

Although this paper reveals that the level of competition from informal and unregistered enterprises is associated with such structural conditions, there are limitations to what can be concluded and caveats required. First, a major limitation of this study is that informal entrepreneurship has been examined only through the lens of formal enterprises competing with unregistered and informal businesses. The problem is that cross-national enterprise surveys have not so far directly asked businesses about whether they participate in the informal sector, despite some enterprise surveys in specific localities and nations displaying this is feasible (De Castro et al., 2014; Williams and Shahid, 2016). Therefore, future cross-national surveys perhaps should be less reticent about doing so.

Second, when the WBES measures competition from informal and unregistered competitors, it does not define what is meant by these terms. However, respondents may interpret registration in multifarious ways (e.g., possessing a local trading license, being registered under factories' or commercial acts, registered under professional groups' regulatory acts).

Third, this survey does not investigate the perceptions of entrepreneurs' regarding the reasons for informal entrepreneurship (e.g., whether it is more because of push or pull factors), the reasons for being unregistered (e.g., whether they are simply awaiting registration, test-trading on an unregistered basis to evaluate the venture's viability before registering, or have no initial intention of registering) or reasons for registration (e.g., better access to finance or markets, fewer bribes, contracts with formal firms, more access to government contracts).

Finally, only a broad set of structural determinants have been investigated here, especially in relation to state intervention. Therefore, future research needs both to identify reasons for businesses being informal and unregistered and to evaluate in greater detail the type of state interventions leading to reduced levels of informality (e.g., active labor market policies, educational provision, social protection spending) for government to be able to better tailor policy initiatives.

If this paper stimulates entrepreneurship scholars to further advance their explanations of cross-national variations in the extent of informal entrepreneurship by synthesizing the

modernization, political economy and institutionalist theories, then it will have fulfilled one of its intentions. If this then results in governments tackling informal entrepreneurship by dealing with its structural determinants, rather than simply using "sticks" and "carrots" to deal with the effects, then this paper will have fulfilled its wider intention. What is certain however, is that no evidence has been found here that decreasing taxes and reducing state intervention is the way forward.

6. References

Acs, Z, S Desai, P Stenholm and R Wuebker (2013). Institutions and the rate of formal and informal entrepreneurship across countries. Frontiers of Entrepreneurship Research, 35(15), 1-24.

Adom, K and CC Williams (2012). Evaluating the motives of informal entrepreneurs in Koforidua, Ghana. Journal of Developmental Entrepreneurship, 17(1), 1-18.

Aidis, R, F Welter, D Smallbone and N Isakova (2006). Female entrepreneurship in transition economies: The case of Lithuania and Ukraine. Feminist Economics, 13(2), 157-83.

Aliyev, H (2015). Post-Soviet informality: Toward theory-building. International Journal of Sociology and Social Policy, 35(3-4), 182-98.

Allingham, M and A Sandmo (1972). Income tax evasion: A theoretical analysis. Journal of Public Economics, 1(2), 323-38.

Autio, E and K Fu (2015). Economic and political institutions and entry into formal and informal entrepreneurship. Asia Pacific Journal of Management, 32(1), 67-94.

Baumol, WJ and A Blinder (2008). Macroeconomics: Principles and Policy. Cincinnati, OH: South-Western Publishing.

Becker, KF (2004). The Informal Economy. Stockholm: Swedish International Development Agency.

Bhattacharya, S (2014). Is labor still a relevant category for praxis? Critical reflections on some contemporary discourses on work and labor in capitalism. Development and Change, 45(5), 941-62.

Bureau, S and J Fendt (2011). Entrepreneurship in the informal economy: Why it matters. International Journal of Entrepreneurship and Innovation, 12(2), 85-94.

Castells, M and A Portes (1989). World underneath: The origins, dynamics and effects of the informal economy. In The Informal Economy: Studies in Advanced and Less Developing Countries, A Portes, M Castells and L Benton (eds.), 19-41. Baltimore: John Hopkins University Press.

Chepurenko, A (2016). Informal entrepreneurship and informal entrepreneurial activity in Russia. In Entrepreneurship and the Shadow Economy, A Sauka, F Schneider and CC Williams (eds.), 119-50. Cheltenham: Edward Elgar.

Coletto, D and L Bisschop (2017). Waste pickers in the informal economy of the Global South: Included or excluded? International Journal of Sociology and Social Policy, 37(5/6), 280-94.

Dau, LA and A Cuervo-Cazurra (2014). To formalize or not to formalize: entrepreneurship and pro-market institutions. Journal of Business Venturing, 29, 668-86.

Davis, M (2006). Planet of Slums. London: Verso.

De Castro, JO, S Khavul and GD Bruton (2014). Shades of grey: How do informal firms navigate between macro and meso institutional environments? Strategic Entrepreneurship Journal, 8, 75-94.

De Soto, H (1989). The Other Path. London: Harper and Row.

——— (2001). The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. London: Black Swan.

Denzau, AT and D North (1994). Shared mental models: Ideologies and institutions. Kyklos, 47(1), 3-30.

Dibben, P and CC Williams (2012). Varieties of capitalism and employment relations: Informally dominated market economies. Industrial Relations: A Review of Economy and Society, 51(S1), 563-82.

Dibben, P, G Wood and CC Williams (2015). Toward and against formalization: Regulation and change in informal work in Mozambique. International Labour Review, 154(3), 373-92.

Galiani, S and F Weinschelbaum (2012) Modeling informality formally: Households and firms. Economic Inquiry, 50(3), 821-38.

Gallin, D (2001). Propositions on trade unions and informal employment in time of globalization. Antipode, 19(4), 531-49.

Geertz, C (1963). Old Societies and New States: The Quest for Modernity in Asia and Africa. Glencoe, IL: Free Press.

Gilbert, A (1998). The Latin American City. London: Latin American Bureau.

Godfrey, PC (2011). Toward a theory of the informal economy. Academy of Management Annals, 5(1), 231-77.

———— (2015). Introduction: Why the informal economy matters to management. In Management, Society and the Informal Economy, PC Godfrey (ed.), 1-20. London: Routledge.

Godfrey, PC and G Dyer (2015). Subsistence entrepreneurs and formal institutions: Semi-formal governance among Ghanaian entrepreneurs. In Management, Society and the Informal Economy, PC Godfrey (ed.), 142-60. London: Routledge.

Harriss-White, B (2014). Labor and petty production. Development and Change, 45(5), 981-1000.

Helmke, G and S Levitsky (2004). Informal institutions and comparative politics: A research agenda. Perspectives on Politics, 2(6), 725-40.

Hodosi, A (2015). Perceptions of irregular immigrants' participation in undeclared work in the United Kingdom from a social trust perspective. International Journal of Sociology and Social Policy, 35(5/6), 375-89.

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. The South-East European Journal of Economics and Business, 7(1), 99-110.

ILO (2011). Statistical Update on Employment in the Informal Economy. Geneva: International Labor Organization.

———— (2012). Statistical Update on Employment in the Informal Economy. Geneva: International Labor Organization.

Kanbur, R (2015). Informality: Causes, Consequences and Policy Responses. London: Discussion paper No. 10509, Centre for Economic Policy Research (CEPR).

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.

Khan, E.A. and M Quaddus (2015). Examining the influence of business environment on socio-economic performance of informal microenterprises: Content analysis and partial least square approach. International Journal of Sociology and Social Policy, 35(3/4), 273-88.

Kirchgässner, G (2010). Tax Morale, Tax Evasion and the Shadow Economy. Discussion Paper no 2010-17, Department of Economics, University of St. Gallen, St. Gallen, Switzerland.

Kistruck, GM, JW Webb, CJ Sutter and AVG Bailey (2015). The double-edged sword of legitimacy in base-of-the-pyramid markets. Journal of Business Venturing, 30(3), 436-51.

Krasniqi, BA and S Desai (2016). Institutional drivers of high-growth firms: Country-level evidence from 26 transition economies. Small Business Economics, 47(4), 1075-94.

Kus, B (2014). The informal road to markets: Neoliberal reforms, private entrepreneurship and the informal economy in Turkey. International Journal of Social Economics, 41(4), 278-93.

La Porta, R and A Shleifer (2008). The unofficial economy and economic development. Brookings Papers on Economic Activity, 47(1), 123-35.

La Porta, R and A Shleifer (2014). Informality and development. Journal of Economic Perspectives, 28(3), 109-26.

Lewis, A (1959). The Theory of Economic Growth. London: Allen and Unwin.

London, T and SL Hart (2004). Reinventing strategies for emerging markets: Beyond the transnational model. Journal of International Business Studies, 35(3), 350-70.

London, T, H Esper, E Grogan-Kaylor and GM Kistruck (2014). Connecting poverty to purchase in informal markets. Strategic Entrepreneurship Journal, 8(1), 37-55.

Maloney, W (2004). Informality revisited. World Development, 32(7), 1159-78.

Mathias, BD, S Lux, TR Crook, C Autry and R Zaretzki (2014). Competing against the unknown: The impact of enabling and constraining institutions on the informal economy. Journal of Business Ethics, 127(2), 251-64.

Meagher, K (2010). Identity Economics: Social Networks and the Informal Economy in Nigeria. New York: James Currey.

Molero, JC and F Pujol (2012). Walking inside the potential tax evader's mind: Tax morale does matter. Journal of Business Ethics, 105, 151-62.

Mróz, B (2012). Entrepreneurship in the shadow: Faces and variations of Poland's informal economy. International Journal of Economic Policy in Emerging Economies, 5(3), 197-211.

Murphy, K (2005). Regulating more effectively: The relationship between procedural justice, legitimacy and tax non-compliance. Journal of Law and Society, 32(4), 562-89.

North, DC (1990). Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press.

Nwabuzor, A (2005). Corruption and development: New initiatives in economic openness and strengthened rule of law. Journal of Business Ethics, 59(1), 121-38.

Perry, GE and WF Maloney (2007). Overview: Informality: Exit and exclusion. In Informality: Exit and Exclusion, GE Perry, WF Maloney, OS Arias, P Fajnzylber, AD Mason and J Saavedra-Chanduvi (eds.), 1-19. Washington DC: World Bank.

Portes, A (1994). The informal economy and its paradoxes. In The Handbook of Economic Sociology, NJ Smelser and R Swedberg (eds.), 142-65. Princeton: Princeton University Press.

Ram, M, P Edwards, T Jones and M Villaries-Varela (2017). From the informal economy to the meaning of informality: Developing theory on firms and their workers. International Journal of Sociology and Social Policy, 37(7/8), 361-73.

Sassen, S (1996). Service employment regimes and the new inequality. In Urban Poverty and the Underclass, E Mingione (ed.), 140-59. Oxford: Basil Blackwell.

Sauvy, A (1984). Le Travail Noir et L'economie de Demain. Paris: Calmann-Levy.

Siqueira, ACO, JW Webb and GD Bruton (2016). Informal entrepreneurship and industry conditions. Entrepreneurship Theory and Practice, 40(1), 177-200.

Slavnic, Z (2010). Political economy of informalization. European Societies, 12(1), 3-23.

Small Business Council (2004). Small Business in the Informal Economy: Making the Transition to the Formal Economy. London: Small Business Council.

Sutter, C, JW Webb, G Kistruck, DJ Ketchen and RD Ireland (2017). Transitioning entrepreneurs from informal to formal markets. Journal of Business Venturing, 32(4), 420-42.

Taiwo, O (2013). Employment choice and mobility in multi-sector labor markets: Theoretical model and evidence from Ghana. International Labor Review, 152, 469-92.

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

Tonoyan, V, R Strohmeyer, M Habib and M Perlitz (2010). Corruption and entrepreneurship: How formal and informal institutions shape small firm behavior in transition and mature market economies. Entrepreneurship Theory and Practice, 34(5), 803-31.

Torgler, B and F Schneider (2007). Shadow Economy, Tax Morale, Governance and Institutional Quality: A Panel Analysis. Bonn: IZA Discussion Paper no. 2563, IZA.

Vu, TT (2014). Institutional incongruence and the informal economy: An empirical analysis. Paper presented at the European Public Choice Society meeting, Cambridge. [www.econ.cam.ac.uk/epcs2014/openconf/modules/request.php?module=oc_program&action=summary.php&id=54].

Webb, JW and RD Ireland (2015). Laying the foundation for a theory of informal adjustments. In Management, Society and the Informal Economy, PC Godfrey (ed.), 21-41. London: Routledge.

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(5), 598-614.

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

Webb, JW, L Tihanyi, RD 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, D Smallbone and A Pobol (2015). Entrepreneurial activity in the informal economy: A missing piece of the jigsaw puzzle. Entrepreneurship and Regional Development, 27(5-6), 292-306.

Williams, CC (2008). Beyond necessity-driven versus opportunity-driven entrepreneurship: A study of informal entrepreneurs in England, Russia and Ukraine. International Journal of Entrepreneurship and Innovation, 9(3), 157-66.

——— (2013). Beyond the formal economy: Evaluating the level of employment in informal sector enterprises in global perspective. Journal of Developmental Entrepreneurship, 18(4), 1-18.

——— (2014a). Confronting the Shadow Economy: Evaluating Tax Compliance and Behavior Policies. Cheltenham: Edward Elgar.

——— (2014b). Out of the shadows: A classification of economies by the size and character of their informal sector. Work, Employment and Society, 28(5), 735-53.

——— (2014c). Explaining cross-national variations in the commonality of informal sector entrepreneurship: An exploratory analysis of 38 emerging economies. Journal of Small Business and Entrepreneurship, 27(2), 191-212.

——— (2014d). Tackling enterprises operating in the informal sector in developing and transition economies: A critical evaluation of the neo-liberal policy approach. Journal of Global Entrepreneurship Research, 4(1), 1-17.

——— (2015a). Explaining cross-national variations in the informalization of employment: Some lessons from Central and Eastern Europe. European Societies, 17(4), 492-512.

——— (2015b). Explaining cross-national variations in the scale of informal employment: An exploratory analysis of 41 less developed economies. International Journal of Manpower, 36(2), 118-35.

——— (2015c). Explaining the informal economy: An exploratory evaluation of competing perspectives. Relations Industrielles/Industrial Relations, 70(4), 741-65.

——— (2015d). Out of the margins: Classifying economies by the prevalence and character of employment in the informal economy. International Labour Review, 154(3), 331-52.

——— (2018), Entrepreneurship in the Informal Sector: An Institutional Perspective. London: Routledge.

Williams, CC and A Gurtoo (2017). The institutional environment of entrepreneurship in developing countries: An introductory overview. In Routledge Handbook of Entrepreneurship in Developing Economies, CC Williams and A Gurtoo (eds.), 13-16. London: Routledge.

Williams, CC and I Horodnic (2015a). Evaluating the prevalence of the undeclared economy in Central and Eastern Europe: An institutional asymmetry perspective. European Journal of Industrial Relations, 21(4), 389-406.

——— (2015b). Explaining and tackling the shadow economy in Estonia, Latvia and Lithuania: A tax morale approach. Journal of Baltic Economics, 15(2), 81-98.

——— (2015c). Explaining the prevalence of the informal economy in the Baltics: An institutional asymmetry perspective. European Spatial Research and Policy, 22(2), 127-44.

——— (2015d). Tackling the informal economy in South East Europe: An institutional approach. Journal of South East European and Black Sea Studies, 15(4), 519-39.

——— (2016). Cross-country variations in the participation of small businesses in the informal economy: An institutional asymmetry perspective. Journal of Small Business and Enterprise Development, 23(1), 3-24.

Williams, CC and A Kedir (2016). Business registration and firm performance: Some lessons from India. Journal of Developmental Entrepreneurship, 21(3). DOI: 10.1142/S1084946716500163.

——— (2017). Evaluating the impacts of starting-up unregistered on firm performance in Africa. Journal of Developmental Entrepreneurship, 22(2). DOI: 10.1142/S1084946717500170.

Williams, CC and A Martinez-Perez (2014). Entrepreneurship in the informal economy: A product of too much or too little state intervention? International Journal of Entrepreneurship and Innovation, 15(4), 227-37.

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

Williams, CC and J Windebank (2015). Evaluating competing theories of informal employment: Some lessons from a 2013 European survey. International Journal of Business and Globalization, 15(1), 45-62.

Williams, CC and Y Youssef (2013). Evaluating the gender variations in informal sector entrepreneurship: Some lessons from Brazil. Journal of Developmental Entrepreneurship, 18(1), 1-16.

——— (2014). Classifying Latin American economies: A degrees of informalization approach. International Journal of Business Administration, 5(3), 73-85.

Williams, CC, M 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, 312-25.

Williams, CC, A Martinez-Perez and A Kedir (2017a). Informal entrepreneurship in developing economies: The impacts of starting-up unregistered on firm performance. Entrepreneurship Theory and Practice, 41(5), 773-79.

Williams, N and T Vorley (2015). Institutional asymmetry: How formal and informal institutions affect entrepreneurship in Bulgaria. International Small Business Journal, 33(8), 840-61.

Williams, N, T Vorley and CC Williams (2017b). Entrepreneurship and Institutions: The Causes and Consequences of Institutional Asymmetry. London: Rowman and Littlefield.

Windebank, J and IA Horodnic (2017). Explaining participation in undeclared work in France: Lessons for policy evaluation. International Journal of Sociology and Social Policy, 37(3/4), 203-17.

World Bank (2017). World Development Indicators. Washington DC: World Bank. [data.worldbank.org/data-catalog/world-development-indicators].

Yu, X and G Bruton (2015). Informal firms in China: What do we know and where does the research go. In Management, Society and the Informal Economy, PC Godfrey (ed.), 161-82. London: Routledge.