Evaluating competing theories of informal sector entrepreneurship: a study of the determinants of cross-country variations in enterprises starting-up unregistered

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Abstract

To advance understanding of the reasons for informal sector entrepreneurship, this paper evaluates the determinants of cross-country variations in the extent to which enterprises are unregistered when they start operating. Reporting World Bank Enterprise Survey (WBES) data on 67,515 enterprises across 142 countries, the finding is that one in five (19.9 per cent) of the formal enterprises surveyed started-up unregistered, although this varies from all enterprises surveyed in some countries (e.g., Pakistan) to 1 per cent of surveyed enterprises in Slovakia. To explain these cross-country variations, four competing theories are evaluated which variously assert that nonregistration is determined by either: economic under-development and poorer quality governance (modernisation theory); too much state interference (neo-liberal theory); too little state intervention (political economy theory), or an incongruence between the laws and rules of formal institutions and the beliefs, values and norms of informal institutions (institutional theory). A multilevel probit regression analysis confirms the modernisation, political economy and institutional theories, but not neo-liberal theory. Beyond economic under-development, therefore, nonregistration is associated with too little state intervention and the rules of formal institutions being incongruent with the socially shared beliefs of entrepreneurs. 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

Introduction

Over the past decade or so, a growing literature has begun to study entrepreneurs who start-up their business ventures on an unregistered basis (Perry and Maloney, 2007; Thai and Turkina, 2014; Williams et al., 2017). This scholarship has revealed that informal sector entrepreneurship, defined here as starting-up a venture on an unregistered basis, is not some minor feature existing in a few peripheral enclaves of the global economy. Rather, some two-thirds of all enterprises are estimated to start-up unregistered (Autio and Fu, 2015), and at least half of all enterprises globally are unregistered (Acs et al., 2013). The indications nevertheless are that significant cross-country variations exist in the extent to which enterprises start-up unregistered (Dau and Cuervo-Cazurra, 2014; Thai and Turkina, 2014; Williams, 2014b).

Why, therefore, are enterprises more likely to start-up unregistered in some countries than others? To answer this, the aim of this paper is to evaluate determinants of cross-country variations in the extent of nonregistration at start-up. These determinants are derived from four competing theoretical perspectives. Firstly, modernisation theory asserts that nonregistration is greater where there is economic under-development and a lack of modern governance (La Porta and Schleifer, 2008, 2014), Secondly, neo-liberal theory argues that the level of nonregistration

is greater where there is too much state interference (De Soto, 2001). Thirdly, and conversely, political economy theory views new venture nonregistration as higher when there is too little state intervention (Castells and Portes, 1989), and fourth and finally, institutional theory views registration at start-up as lower the laws and regulations of formal institutions are incongruent with the norms, values and beliefs of informal institutions (Webb et al., 2009, 2013, 2014; Williams, 2018).

The intention is to advance understanding of informal sector entrepreneurship in three ways. Theoretically, by evaluating the determinants of cross-country variations in the extent to which enterprises start-up unregistered, the intention is to reveal that these are not mutually exclusive theories but rather, are necessary but insufficient perspectives that can be synthesised to produce a more holistic explanation. Empirically, meanwhile, this paper provides a first multi-level regression analysis of the firm- and country-level determinants of the varying extent to which enterprises start-up unregistered. Third and finally, and from a policy perspective, this paper reveals the need for a different policy approach towards nonregistration at start-up than is currently used.

To commence, therefore, the next section provides a theoretical framing by reviewing what is known about cross-country variations in the level of nonregistration of business start-ups, and the various competing theories that seek to explain these cross-country variations. The outcome will be a set of hypotheses that can be tested. The third section then reports the data, variables and methods used to test these hypotheses, namely a multi-level probit regression analysis of the 67,515 enterprises interviewed in the World Bank Enterprise Survey (WBES) across 142 countries between 2006 and 2014. The fourth section then reports the findings regarding the validity of the various theorisations, followed in the fifth and final section by a discussion of the theoretical and policy implications along with the limitations of the study and the future research required.

Cross-country variations in business nonregistration at start-up: competing theories

Recent years have seen the emergence of a burgeoning literature on informal sector entrepreneurship (Bureau and Fendt, 2011; Ram et al., 2017; Webb et al., 2009, 2013; Williams, 2008, 2018). Although informal sector entrepreneurship can be widely defined as starting-up and/or owning and managing a business venture which does not register with and/or declare some or all of its production and/or sales to the authorities for tax, benefit and/or labour law purposes when it should do so (Williams et al., 2017), this paper reflects much current scholarship by confining analysis to those starting-up a venture on an unregistered basis (Ketchen et al., 2014; Siqueira et al, 2016; Thai and Turkina, 2014). This scholarship has until now sought to understand not only the socio-economic characteristics of the entrepreneurs and firm types that start-up unregistered (Thai and Turkina, 2014; Williams and Martinez-Perez, 2014) and whether their motives are necessity- and/or opportunity-driven (Maloney, 2004; Perry and Maloney, 2007), but also the extent to which enterprises start-up unregistered (Autio and Fu, 2015; Dau and Cuervo-Cazurra, 2014; Siqueira et al., 2016). Firstly, therefore, the literature is here reviewed on the level of non-registration at start-up and secondly, the previous literature seeking to explain the cross-country variations in the level of registration at start-up.

Prevalence of starting-up unregistered

Numerous studies have evaluated in individual countries the extent to which businesses are registered when they commence operations (e.g., Godfrey and Dyer, 2015; London *et al*., 2014; Williams and Martinez-Perez, 2014; Williams et al., 2016; Yu and Bruton, 2015). However, a

more limited number have evaluated cross-country variations in the extent to which enterprises start-up unregistered.

Using Global Entrepreneurship Monitor (GEM) data on 51 countries, Dau and Cuervo-Cazurra (2014) find that 3.37 informal enterprises are created annually for every 100 people, whilst Autio and Fu (2015), also using GEM data and a similar measure, find that two-thirds of enterprises start-up unregistered. Moreover, this proportion is the same in OECD countries (where 0.62 informal enterprises compared with 0.43 formal enterprises are annually created for every 100 people) as in emerging and transition economies (where 0.62 informal enterprises compared with 0.37 formal enterprises are created annually for every 100 people). To derive these GEM 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 to produce these figures on the proportion of unregistered start-ups. This, however, can be only a very tentative estimate.

One of the few other sources of cross-country data on this issue is the World Bank Enterprise Survey (WBES) which collects data on whether formal businesses started-up unregistered, and whether they compete with the informal sector, Although this WBES dataset has been used to analyse the impacts of starting-up unregistered on future firm performance (Williams et al., 2017) and whether formal enterprises compete with the informal sector (e.g., Hudson et al., 2012), it has not been used until now to analyse cross-country variations in the extent to which formal enterprises start-up unregistered and/or the reasons for the cross-country variations. To begin to address this, therefore, the different explanations for the cross-country variations in the level of registration at start-up are here reviewed so that hypotheses can be formulated which can be tested.

Theorising cross-country variations in the level of registration at start-up

To identify explanations for cross-country variations in the scale of business nonregistration at start-up, the wider literature explaining cross-country variations in the scale of the informal sector can be drawn upon (Williams, 2014a; Williams and Martinez-Perez, 2014). On this wider topic, four competing theoretical perspectives exist which argue that the level of informality is determined by either: economic under-development and poorer quality governance (modernisation theory); too much state interference (neo-liberal theory); too little state intervention (political economy theory), or an incongruence between the laws and rules of formal institutions and the beliefs, values and norms of informal institutions (institutional theory).

Until now, most studies have adopted the singular logic of one or other of these theories. For example, La Porta and Shleifer (2008, 2014) use modernisation theory, De Soto (1989) adopts neo-liberal theory, Castells and Portes (1989) and Slavnic (2010) the logic of political economy theory, and Webb et al. (2009) institutional theory. However, recent studies have questioned whether these theories are mutually exclusive. Analysing bivariate correlations of the relationship between the scale of the informal sector and the determinants in each theory, across the European Union (Williams, 2014a), Central and Eastern Europe (Williams, 2015a), Latin America (Williams and Youssef, 2013) and the wider developing world (Williams, 2015b), the modernisation, political economy and institutional theories have been confirmed, but not neo-liberal theory. This is also the case in multivariate analyses of the scale of the informal sector across Central and Eastern Europe (Williams and Horodnic, 2015a) and South-East Europe (Williams and Horodnic, 2015b).

When studies have tested these theories as explanations for cross-country variations in the prevalence of informal entrepreneurship using simple bivariate correlations, the same finding is identified (Williams, 2014b,c). However, there have been few multivariate regression

analyses testing these theories as explanations for cross-country variations in informal entrepreneurship, and those conducted are narrow in scope. One evaluation examines whether these theories explain cross-country variations in informal entrepreneurship by the extent to which small business owners under-report the wages of their employees in the 28 countries of the European Union (Williams and Horodnic, 2016) and another the extent to which the self-employed in European Union countries conduct some of their transactions off-the-books (Williams and Martinez-Perez, 2014). Both studies confirm the validity of the modernization, political economy and institutional perspectives but not neo-liberal theory.

Until now, however, there have been no evaluations of these theories for explaining cross-country variations in the extent to which businesses start-up unregistered. To fill this gap, each theoretical perspective is here reviewed in turn to formulate hypotheses which can be tested.

Modernisation theory, which dominated the study of informality during the twentieth century, asserts that the modern formal sector is extensive and growing whilst the informal sector is disappearing. Informal entrepreneurs, such as street vendors, are thus portrayed as a residue of a pre-modern production system. Their presence in a country is a sign of the 'under-development' of its economy and a lack of modernisation of its system of governance (Geertz, 1963; Lewis, 1959). When explaining the cross-country variations in the proportion of businesses unregistered at start-up, therefore, it can be suggested that this will be 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 (Tonoyan *et al.*, 2010). The following hypothesis can be therefore tested:

> *Modernisation hypothesis* (H1): the likelihood of businesses being unregistered at start-up will be greater in less developed economies with unmodern state bureaucracies.
> *H1a*: the likelihood of businesses being unregistered at start-up will be greater in less developed economies measured in terms of GDP per capita.
> *H1b*: the likelihood of businesses being unregistered at start-up will be greater in countries with less modern state bureaucracies, measured in terms of the level of public sector corruption

For neo-liberal theory, meanwhile, too much state interference in the free market leads entrepreneurs to make a rational economic decision to exit the formal sector due to the time, costs and efforts of conforming to the bureaucratic burdens imposed on enterprises (e.g., De Soto, 1989, 2001; London and Hart, 2004). For neo-liberal theory, nonregistration is thus a rational economic decision of entrepreneurs who confront burdensome laws and regulations by a stifling state bureaucracy (Becker, 2004; Perry and Maloney, 2007). Nonregistration is a result of over-regulation, high taxes and too much state interference and the solutions are deregulation, tax reductions, and minimal state interference. The level of nonregistration at start-up will be more prevalent in countries with higher tax levels and greater state interference. To explore the validity of this neo-liberal theory, the following hypothesis can be tested:

> *Neo-liberal hypothesis* (H2): the likelihood of businesses being unregistered at start-up will be greater in countries with higher tax rates, and higher levels of state interference in the free market.
> *H2a*: the likelihood of businesses being unregistered at start-up will be greater in countries with higher tax rates, measured by the tax revenue to GDP ratio.
> *H2c*: the likelihood of businesses being unregistered at start-up will be greater in countries where the expense of government as a percentage of GDP is higher.

For political economy theory, conversely, nonregistration at start-up is an outcome of a de-regulated open world economy where outsourcing and subcontracting to informal enterprises has become a principle means of reducing costs in contemporary capitalism (Aliyev, 2015; Meagher, 2010). From this perspective, enterprises operating unregistered reflect the shift towards unregulated production and the advent of precarious low paid survival-driven endeavour for those excluded from the formal economy (Castells and Portes, 1989; Dibben et al., 2015). Unregistered enterprises and informal entrepreneurship are the outcome of too little state intervention in not only the economy but also social protection and social transfer systems. The level of nonregistration at start-up is viewed as more prevalent in countries with too little state intervention to protect workers and citizens (Davis, 2006; Gallin, 2001; Slavnic, 2010). To evaluate this, the following hypothesis can be tested:

> *Political economy hypothesis* (H3): the likelihood of businesses being unregistered at start-up will be greater in countries with lower levels of state intervention.
> *H3a*: the likelihood of businesses being unregistered at start-up will be greater in countries with lower tax to GDP ratios.
> *H3b*: the likelihood of businesses being unregistered at start-up will be greater in countries where the expense of government as a percentage of GDP is lower.

For institutional theorists, a problem with all the above theories is that they do not explain why some entrepreneurs' start-up unregistered in a country and others do not; they do not take agency into account. Institutional theory, however, has started to overcome this problem (Baumol and Blinder, 2008; Denzau and North 1994; North, 1990). In this perspective, institutions are the rules of the game which govern and prescribe behaviour, and all societies have both formal institutions (i.e., laws and regulations) that are the legal rules of the game, and informal institutions which are socially shared norms, values and beliefs about what is right and acceptable (Denzau and North, 1994; Helmke and Levitsky, 2004). Formal entrepreneurship is thus endeavour conforming to formal institutional prescriptions (i.e., the laws and regulations), informal entrepreneurship sits outside the formal rules of the game but within the norms, values and beliefs of informal institutions (Kistruck *et al*., 2015; Siqueira *et al*., 2016; Webb *et al*., 2009; Welter *et al*., 2015; Williams and Vorley, 2015) whilst criminal entrepreneurship sits outside both the formal and informal rules of the game (Bunei et al., 2016; McElwee and Smith, 2014; Smith and McElwee, 2015; Smith et al., 2017). Viewed through this institutionalist lens, cross-country variations in the level of nonregistration at start-up result from the incongruence between the laws and regulations of formal institutions and the values, beliefs and norms of informal institutions (Godfrey, 2015; Kistruck *et al*., 2015; Siqueira et al, 2016; Sutter *et al*., 2017; Vu, 2014; Webb and Ireland, 2015; Webb et al., 2013, 2014; Williams et al., 2017). The belief is that the greater the degree of incongruence, the higher is the level of nonregistration at start-up (Williams and Shahid, 2016). To evaluate this institutional theory, therefore, the following hypothesis can be tested:

> *Institutional hypothesis (H4)*: the greater the incongruence between formal and informal institutions, the greater is the likelihood of businesses being unregistered at start-up competition.

Data, variables and methods

Data

To test these determinants of cross-country variations in the extent to which enterprises start-up unregistered, World Bank Enterprise Survey (WBES) data collected from 67,515 enterprises across 142 countries between 2006 and 2014 is analysed, including 15 developed countries and 127 developing countries (of which 41 are in Africa, 31 in Latin America and Caribbean, 29 in Europe and Central Asia, 13 in East Asia and the Pacific region, 7 in the Middle East and North Africa, and 6 in South Asia). Of the countries covered in this survey, 20 high-income, 4 upper middle-income, 36 middle-income, 42 lower middle-income and 25 are low-income countries. All global regions and economic development levels are therefore covered.

To collect data in each country, the WBES uses a stratified random sample of non-agricultural formal private sector businesses with five or more employees. The sample is stratified by firm size, business sector and geographic region. The WBES strata for firm size are 5-19 (small), 20-99 (medium), and 100+ employees (large-sized firms). The strata for sectors, meanwhile, are manufacturing, services, transportation and construction. In larger countries with bigger samples, the strata for manufacturing is again sub-divided based on number of jobs, value-added, and total number of establishments. Businesses involved in health care, public utilities, financial services and government services are excluded from the WBES sample. Finally, the strata for geographical regions are based on cities and regions based on their level of economic activity. The sampling frame is derived from the universe of eligible firms which are usually obtained from either the country's statistical office or some other government agency such as the tax or business licensing authorities. Since 2006, all national surveys explain the source of the sample frame.

A harmonized questionnaire is also used in all countries reported here, which is answered by 1200-1800 business owners and top managers in larger countries, 360 in medium-sized countries and 150 in smaller countries. Even though the WBES has been conducted since 2002, the country surveys reported here are restricted to the 142 countries who since 2006 have employed both the harmonised questionnaire and the above stratified sampling method. This assures that the data reported is comparable across countries and over time.

Dependent variable

To measure the proportion of non-agricultural formal private sector businesses with five or more employees that started up unregistered in each country, the responses to the following WBES question is used, '*Was this establishment formally registered when it began operations*?'. This is a dummy variable which takes a value of 1 if the firms declare that they started operations in the country without formal registration and a value of 0 when the firm was formally registered at the outset of operations.

Key independent variables

To test the theories explaining cross-country variations in the level of registration at start-up, variables are used that capture the tenets of the modernisation, neo-liberal, political economy and institutional perspectives. To evaluate the economic development tenet of the modernisation hypothesis (H1a), the indicator used is:
- the current *GDP per capita* of each country expressed as the purchasing power parity in international dollars transformed into natural logs. This was retrieved from the IMF World Economic Outlook Database for the relevant years for each country surveyed.

To evaluate the modernisation of governance hypothesis (H1b) meanwhile, a composite index is used which evaluates the corruption behaviors collected in the WBES, namely:
- *Corruption composite index:* a dummy variable which 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. This is a dummy variable, with value 1 if a firm had paid officials in one or more of such cases and value 0 otherwise.

Meanwhile, to test both the tenets of the neo-liberal thesis (H2) that state interference increases the level of nonregistration at start-up and the inverse political economy thesis that state intervention reduces the level of nonregistration at start-up (H3), two indicators of the level of state intervention are employed, namely:

- *Tax revenue to GDP ratio*, from the IMF World Economic Outlook database.
- *Expense of government as a % 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 hypothesis (H4), meanwhile, the indicator used is:

- *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.

This variable of trust in the court system is here used a proxy indicator of the level of trust of entrepreneurs in the formal institutions, and thus a measure of the degree of incongruence between the formal and informal institutions (i.e., the extent to which entrepreneurs have faith in the court system).

Other control variables

To control for other key explanatory variables that may also affect nonregistration at start-up, a series of individual-level variables are included that are revealed to influence the likelihood of informal entrepreneurship both in previous analyses of the WBES data (Hudson *et al.,* 2012; Williams *et al*., 2017) and other studies of informal entrepreneurship (Dau and Cuervo-Cazzurra, 2014; 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 which are for the export market and 0 for the share of sales for the domestic market.
- *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.
- *Legal status:* a categorical variable indicating whether the legal form of the firm is an open shareholding, a closed shareholding, a sole proprietorship (i.e., ownership), 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, and
- *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;

Methods

To evaluate the country-level determinants of whether formal firms are more likely to state that they started-up unregistered across the 142 countries, multilevel techniques are used. Given that the surveyed enterprises in the WBES are clustered across country-year subsamples, multilevel modelling 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 are unregistered at start-up. The error term ε_{1i} is normally distributed with zero mean and constant variance.

Findings: determinants of cross-country variations in nonregistration at start-up

One in five (19.9 per cent) formal enterprises surveyed in these 142 countries report that they started-up unregistered. A significant minority of the current formal business community worldwide, therefore, started unregistered and made a transition to legitimacy. Nevertheless, the proportion of formal enterprises that started-up unregistered varies across global regions. As Table 1 reveals, the share of formal enterprises that were unregistered at start-up ranges from 46.9 per cent in South Asia and 43.2 per cent in sub-Saharan Africa to 7.9 per cent in OECD nations and 5.5 per cent in Europe and Central Asia.

INSERT TABLE 1 ABOUT HERE

There are also significant cross-country variations in the extent to which formal enterprises started-up unregistered ranging from all enterprises surveyed in Burundi, The Gambia, Guinea, Guinea Bissau, Namibia, Nigeria, Pakistan and Swaziland, 74 per cent in Angola and 63 per cent in Uganda, to only 3 per cent in Djibouti, Dominica, Eritrea, Estonia, FYR Macedonia, Hungary, Jordan, Kazakhstan, Latvia, Moldova, Panama, Poland, St Lucia, Venezuela, to 2 per cent in Armenia, Bhutan, Croatia, Romania, Suriname and Slovakia, and just 1 per cent in Slovenia.

How, therefore, can such cross-country variations be explained? Are cross-country variations in nonregistration at start-up associated with the level of economic development and

the modernisation of governance as modernisation states? Are they associated with too much or too little state intervention as the neo-liberal and political economy theories state respectively? And are they associated with the level of incongruence between formal and informal institutions?

Table 2 reports the standard probit coefficient estimates of the likelihood of a formal business starting-up unregistered across the 142 countries. Model 1 reports the probability of an enterprise staring-up unregistered using only the firm-level variables. This reveals that older firms being more likely to have started-up unregistered. Meanwhile, firms that export and are foreign-owned are significantly less likely to have started-up unregistered than non-exporting and domestic-owned enterprises. Turning to workforce characteristics, top manager's working experience in the sector is not significantly associated. Firms with full time permanent and female workers, nevertheless, are significantly less likely to have started-up unregistered, as are firms where women are involved in the ownership of the enterprise. Examining innovation and technology, furthermore, formal firms with quality certification, a website, email and external auditor are less likely to have started-up unregistered. Akin to previous studies (Kanbur, 2015), small firms are significantly more likely to have started-up unregistered than medium-sized and larger enterprises. And finally, and with respect to the legal status of firms, sole proprietors are significantly more likely to have started-up unregistered, but closed partnerships are significantly less likely to have done so.

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To evaluate the different explanations for the cross-national variations in nonregistration at start-up, model 2 then adds the first country-level indicator of the log of GDP per capita and shows a significant negative association. This confirms the first tenet of the modernisation thesis (H1a), namely that the higher the GDP per capita, the lower is the probability that formal enterprises started-up unregistered. Importantly, moreover, the significances and signs of nearly 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 whether they are significantly associated with cross-country variations in nonregistration at start-up, whilst holding constant the firm-level variables.

To analyse the second tenet of the modernisation thesis regarding whether the quality of governance, measured here in terms of the level of corruption, is significantly associated with the likelihood of formal enterprises starting-up unregistered, model 3 finds a positive association. The higher is the level of corruption, the higher is the likelihood that formal enterprises started-up unregistered (confirming H1b).

Turning to the neo-liberal thesis (H2), the first tenet to analyse is whether the level of nonregistration at start-up is greater in countries with higher taxation, measured by the tax revenue to GDP ratio. Contrary to neo-liberal theory that higher taxation results in higher levels of non-registration at start-up, model 4 reveals the opposite. The higher is the level of tax revenue to GDP ratio, the less likely are formal enterprises to be unregistered at start-up. This refutes H2a 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 enterprises to be unregistered at the commencement of operations (confirming H3a).

It is similarly the case when hypothesis H2b is tested, namely that the level of nonregistration at start-up is greater in countries higher levels of state interference in the free market, measured by the expense of government as a percentage of GDP. Model 5 reveals that there is a statistically significant association, but the sign is in the opposite direction to the neo-liberal thesis. The greater is the expense of government (as a percentage of GDP), the less likely

are formal enterprises to start-up unregistered (refuting H2b). This, therefore, is supportive of political economy theory; the greater the expense of government as a percentage of GDP, the less likely are formal enterprises to be unregistered at start-up (confirming H3b).

Turning finally to whether there is strong significant negative association between an incongruence between the formal and informal institutions (measured by whether the court system is viewed as fair, impartial and uncorrupted) and the likelihood of formal enterprises starting-up unregistered, the finding is that the greater is the level of incongruence, the greater is the probability that formal enterprises will start-up unregistered (confirming H4). This remains valid across all models.

Discussion and Conclusions

Evaluating WBES data from 142 countries collected between 2006 and 2014 on cross-country variations in the level of nonregistration at start-up, the finding is that one in five formal enterprises were unregistered at start-up, although there are marked cross-country variations in the proportion of formal enterprises that started-up unregistered. Evaluating the determinants of the cross-country variations in the level of nonregistration at start-up, a multivariate probit regression analysis has confirmed the modernization, political economy and institutional theories, but not neo-liberal theory. Here, therefore, the theoretical and policy implications are discussed.

Theoretically, this study reveals the importance of transcending singular logics when explaining cross-country variations in the level of nonregistration at start-up. Not all these theories are mutually exclusive. Understanding the cross-national variations in informal entrepreneurship require the modernization, political economy and institutional theories to be combined. They are each necessary but insufficient perspectives that need to be synthesised. This new theory that synthesises these previous theoretical perspectives is here termed 'neo-institutionalist modernization' theory. Reflecting the above findings, this theory asserts that the level of nonregistration at start-up is higher in countries where there is a lower level of economic development, lower quality of governance, lower levels of state intervention and higher levels of institutional incongruence.

These findings of this study not only have implications for theory. They also have implications for how starting-up unregistered is tackled. Conventionally, the dominant policy approach has been for tax and labour inspectorates to pursue the eradication of unregistered enterprises by changing the cost/benefit ratio confronting entrepreneurs at start-up to make registration a rational economic decision. This has been predominantly achieved by raising the perceived and/or actual risks of detection and the level of fines for nonregistration (Allingham and Sandmo, 1972). Recent years, nevertheless, has seen more emphasis on making it easier, beneficial and less burdensome to register (Williams et al., 2017), due to a recognition that the policy objective should not be to shut unregistered enterprises but rather, to formalise enterprise in the informal sector (ILO, 2014). The finding in this paper that one in five formal enterprises started-up unregistered provides evidence that shutting unregistered enterprise is deleterious to economic development and that formalising informal enterprise is a more progressive approach.

However, changing the cost/benefit ratio confronting entrepreneurs does not deal with the structural causes of the level of nonregistration at start-up. It simply seeks to cure the problem, rather than prevent it from happening. To do this, governments need to tackle the structural causes. The likelihood of enterprises starting-up unregistered is significantly higher in countries where GDP per capita is lower, there are higher levels of corruption, the tax revenue to GDP ratio is lower, the expense of government as a percentage of GDP is lower, and the formal rules of the game are incongruent with the norms, values and beliefs of

entrepreneurs. Nonregistration at start-up will only reduce if these structural conditions are addressed.

Nevertheless, even though this paper reveals that the level of nonregistration at start-up is significantly correlated with these structural conditions, there are limitations to the conclusions that can be drawn, and caveats required. A first limitation of this study is that it examines only cross-country variations in the level of nonregistration at start-up of formal enterprises that employ five or more employees. It does not examine formal smaller enterprises and sole traders that started-up unregistered and neither does it examine unregistered enterprises that have not formalised. Secondly, the WBES when measuring whether formal enterprises started-up unregistered does not define what is meant by nonregistration. Participants may thus interpret nonregistration in different ways (e.g., not having a local trading license, not being registered under commercial or factories' acts, not being registered with relevant professional associations or regulatory acts). Thirdly, this WBES survey does not provide any evaluation of their reasons for being unregistered at start-up (e.g., whether they were simply awaiting registration, test-trading to evaluate their venture's viability before deciding to register, or whether they had no intention initially of registering) or their reasons for registration (e.g., to access formal finance or markets, to win contracts with formal firms, to access public sector contracts). And third and finally, only a few structural determinants have been here evaluated, particularly in relation to state intervention and institutional incongruence. Future surveys should therefore not only examine smaller enterprises that are both registered and unregistered, and clarify to survey participants what is meant by being registered, but also more qualitative in-depth research is required of the reasons for being unregistered and for registering, and there is a need to evaluate in finer-grained detail the state interventions leading to reduced levels of nonregistration (e.g., active labour market policies, social protection expenditure, educational provision). This would enable governments to better tailor the policy initiatives required to reduce nonregistration at start-up.

In sum, if this paper thus stimulates further entrepreneurship research that further advances the finding that cross-national variations in nonregistration at start-up require a synthesis of the modernisation, political economy and institutionalist theories, by conducting further research as suggested above, then one of its intentions will have been fulfilled. If this then results in governments pursuing the prevention of nonregistration by tackling its structural determinants, rather than simply curing the problem once it has happened, then the wider intention of this paper will have been fulfilled. What is certain, however, is that this paper provides no support for the view that decreasing taxation and reducing state intervention will reduce the proportion of enterprises starting-up unregistered.

References

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

Aliyev H (2015) Post-Soviet informality: towards theory-building. *International Journal of Sociology and Social Policy* 35(3-4): 182-198.

Allingham M and Sandmo A (1972) Income tax evasion: a theoretical analysis. *Journal of Public Economics* 1(2): 323-338.

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

Baumol WJ and Blinder A (2008) *Macroeconomics: principles and policy*. Cincinnati, OH: South-Western Publishing.

Becker KF (2004) *The informal economy*. Stockholm: Swedish International Development Agency.

Bunei EK, McElwee G and Smith R (2016) From bush to butchery: cattle rustling as an entrepreneurial process in Kenya. *Society and Business Review* 11(1): 46-61.

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

Castells M and Portes A (1989) World underneath: the origins, dynamics and effects of the informal economy. In: Portes A, Castells M and Benton L(eds) *The informal economy: studies in advanced and less developing countries*. Baltimore: John Hopkins University Press, pp. 19-41.

Dau LA and Cuervo-Cazurra A (2014) To formalize or not to formalize: entrepreneurship and pro-market institutions. *Journal of Business Venturing*, 29: 668-686.

Davis M (2006) *Planet of slums*. London: Verso.

De Soto H (1989) *The other path*. London: Harper and Row.

De Soto H (2001) *The mystery of capital: why capitalism triumphs in the West and fails everywhere else*. London: Black Swan.

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

Dibben P, Wood G and Williams CC (2015) Towards and against formalization: regulation and change in informal work in Mozambique. *International Labour Review*, 154(3): 373-392.

Gallin D (2001) Propositions on trade unions and informal employment in time of globalization. *Antipode* 19(4): 531-549.

Geertz C (1963) *Old societies and new states: the quest for modernity in Asia and Africa*. Glencoe, IL: Free Press.

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

Godfrey PC and Dyer G (2015) Subsistence entrepreneurs and formal institutions: semi-formal governance among Ghanaian entrepreneurs. In: Godfrey, PC (ed) *Management, society, and the informal economy*. London: Routledge, pp. 142-160.

Helmke G and Levitsky S (2004) Informal institutions and comparative politics: a research agenda. *Perspectives on Politics* 2(6): 725-740.

Hudson J, Williams CC, Orviska M and Nadin S (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 (2014) *Transitioning from the informal to the formal economy*. Report V (1), International Labour Conference, 103rd Session (2014). Geneva: ILO.

Kanbur R (2015) *Informality: causes, consequences and policy responses*. London: Discussion paper No. 10509, Centre for Economic Policy Research (CEPR).

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

Kistruck GM, Webb JW, Sutter CJ and Bailey AVG (2015) The double-edged sword of legitimacy in base-of-the-pyramid markets. *Journal of Business Venturing* 30(3): 436-451.

La Porta R and Shleifer A (2008) The unofficial economy and economic development. *Brookings Papers on Economic Activity* 47(1): 123-135.

La Porta R and Shleifer A (2014). Informality and development. *Journal of Economic Perspectives* 28(3): 109-126.

Lewis A (1959) *The theory of economic growth*. London: Allen and Unwin.

London T and Hart SL (2004). Reinventing strategies for emerging markets: beyond the transnational model. *Journal of International Business Studies* 35(3): 350-370.

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

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

McElwee G and Smith R (2014) *Exploring Criminal and Illegal Enterprise*. Bingley: Emerald.

Meagher K (2010) *Identity economics: social networks and the informal economy in Nigeria.* New York: James Currey.

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

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

Ram M, Edwards P, Jones T and Villaries-Varela M (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): 361-373.

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

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

Smith R and McElwee G (2015) Developing qualitative research streams relating to illegal rural enterprise: reflections on researching qualitatively at the margins of entrepreneurship research. *International Journal of Entrepreneurial Behaviour and Research* 21(3): 364-388.

Smith R, McElwee G and Somerville P (2017) Illegal diversification strategies in the farming community from a UK perspective. *Journal of Rural Studies* 53: 122-131.

Sutter C, Webb J, Kistruck G, Ketchen DJ and Ireland RD (2017) Transitioning entrepreneurs from informal to formal markets. *Journal of Business Venturing* 32(4): 420-442.

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

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

Vu TT (2014) Institutional incongruence and the informal economy: an empirical analysis. Paper presented at the European Public Choice Society meeting, Cambridge. <http://www.econ.cam.ac.uk/epcs2014/openconf/modules/request.php?module=oc_program&action=summary.php&id=54> (last accessed 6 January 2018).

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

Webb JW, Bruton GD, Tihanyi L and Ireland RD (2013) Research on entrepreneurship in the informal economy: framing a research agenda. *Journal of Business Venturing* 28(5): 598-614.

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

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

Welter F, Smallbone D and Pobol A (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): 157–166.

Williams CC (2014a) Out of the shadows: a classification of economies by the size and character of their informal sector. *Work, Employment and Society* 28(5): 735–753.

Williams CC (2014b) 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.

Williams CC (2014c) 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.

Williams CC (2015a) Explaining cross-national variations in the informalisation of employment: some lessons from Central and Eastern Europe. *European Societies* 17(4): 492-512.

Williams CC (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): 118-135.

Williams CC (2018) *Entrepreneurship in the Informal Sector: an institutional perspective*. London: Routledge.

Williams CC and Horodnic I (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.

Williams CC and Horodnic I(2015b) Tackling the informal economy in South East Europe: an institutional approach. *Journal of South East European and Black Sea Studies* 15(4): 519-539.

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

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

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

Williams CC, Shahid M and Martinez A (2016) Determinants of the level of informality of informal micro-enterprises: some evidence from the city of Lahore, Pakistan. *World Development* 84: 312-325.

Williams CC, Martinez-Perez A and Kedir A (2017) Informal entrepreneurship in developing economies: the impacts of starting-up unregistered on firm performance. *Entrepreneurship Theory and Practice* 41(5): 773-779.

Williams N and Vorley T (2015) Institutional asymmetry: How formal and informal institutions affect entrepreneurship in Bulgaria. *International Small Business Journal* 33(8): 840-861.

World Bank (2017) *World development indicators*. Washington DC: World Bank. Available at: http://data.worldbank.org/data-catalog/world-development-indicators (last accessed 10 January 2018).

Yu X and Bruton G (2015) Informal firms in China: what do we know and where does the research go. In: Godfrey PC (ed) *Management, society, and the informal economy*. London: Routledge, pp.161-182.

Table 1. Nonregistration at start-up, by global region, 2006-2014

Region	% of formal enterprises that started-up unregistered
South Asia	46.9
Sub-Saharan Africa	43.2
Middle East & North Africa	21.2
East Asia and Pacific	17.1
Latin American & Caribbean	10.2
OECD	7.9
Europe and Central Asia	5.5
All	19.9

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

Table 2. Probit regression model of the likelihood of starting up unregistered

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
GDP per capita		-0.118*** (0.009)			
Corruption			0.067*** (0.016)		
Expense of gov't as % GDP				-0.005*** (0.002)	
Tax revenue to GDP ratio					-0.007*** (0.002)
Trust	-0.063*** (0.015)	-0.052*** (0.016)	-0.052*** (0.016)	-0.071*** (0.022)	-0.032 (0.023)
Firm age	0.012*** (0.000)	0.013*** (0.001)	0.012*** (0.000)	0.012*** (0.001)	0.011*** (0.001)
Exporter	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001* (0.000)	-0.001** (0.000)
Foreign ownership	-0.193*** (0.031)	-0.224*** (0.031)	-0.192*** (0.031)	-0.248*** (0.043)	-0.174*** (0.043)
Top manager experience	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.002** (0.001)	0.001 (0.001)
Temporary worker	0.001*** (0.000)	0.000* (0.000)	0.001*** (0.000)	0.000 (0.000)	0.001 (0.000)
Permanent full-time worker	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female full-time worker	-0.001** (0.000)	-0.000 (0.000)	-0.001** (0.000)	0.000 (0.000)	0.000 (0.000)
Female ownership share	0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.001*** (0.000)
Quality certification	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
External auditor	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000* (0.000)
Website	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
E-mail	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Medium	-0.040** (0.018)	-0.056*** (0.018)	-0.041** (0.018)	-0.034 (0.025)	-0.045* (0.026)
Large	-0.053* (0.031)	-0.077** (0.031)	-0.052* (0.031)	-0.057 (0.045)	-0.101** (0.046)
Closed shareholding	-0.259*** (0.034)	-0.236*** (0.034)	-0.259*** (0.034)	-0.326*** (0.045)	-0.302*** (0.046)
Sole proprietor	0.183***(0.035)	0.156*** (0.035)	0.183*** (0.035)	0.014 (0.048)	0.079 (0.049)
Partnership	0.061 (0.042)	0.028 (0.043)	0.061 (0.042)	-0.051 (0.062)	0.015 (0.061)
Limited partnership	0.022 (0.042)	-0.030 (0.042)	0.025 (0.042)	-0.146** (0.069)	-0.067 (0.069)
Other legal status	-0.042 (0.060)	-0.032 (0.060)	-0.040 (0.060)	-0.045 (0.080)	-0.022 (0.081)
Sector dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Region dummies		Yes	Yes	Yes	Yes
Constant	-1.359*** (0.055)	-0.393*** (0.093)	-1.396*** (0.055)	-1.245*** (0.084)	-1.212*** (0.083)
Pseudo R-squared	0.10	0.10	0.09	0.09	0.09
N	67,515	66,588	67,515	36,162	32,393

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

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