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# BUSINESS REGISTRATION AND FIRM PERFORMANCE: SOME LESSONS FROM INDIA

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The aim of this paper is to evaluate the impacts on future firm performance of a firm deciding to register from the outset of its operations. Until now, the assumption has been that starting up registered is linked to higher future firm performance. Reporting World Bank Enterprise Survey (WBES) data collected in 2014 on 9,281 formal enterprises in India, and controlling for other determinants of firm performance as well as the endogeneity of the registration decision, the finding is that formal enterprises that start up unregistered and spend longer unregistered have significantly higher subsequent annual sales and employment growth rates compared with those registered from the outset. When the number of years spent unregistered is included, there are also productivity gains from delaying registration. The tentative explanation is that in this weak institutional environment, the advantages of registering from the outset are outweighed by the benefits of deferring registration. Evaluating the policy implications, the argument is that there is a need to shift away from the conventional eradication approach toward unregistered startups based on the assumption they are unproductive, and toward a more facilitating approach that improves the benefits of being registered and tackles the systemic formal institutional deficiencies that lead entrepreneurs to delay their decision to register.

Keywords: Entrepreneurship; informal sector; venture creation; firm performance; India.

## 1. Introduction

Over the last few years, a new sub-discipline of the entrepreneurship literature has emerged that seeks understanding of entrepreneurship in the informal sector, by which is here meant starting-up and/or owning and managing an enterprise that is not declared to the authorities for tax, benefit and/or labor law purposes (Ketchen et al., 2014; Sharma, 2009; Siqueira et al., 2014; Williams and Nadin, 2010). This has begun to counter the conventional negative depictions of entrepreneurs operating in the informal sector (Williams, 2015c; Williams and Shahid, 2015; Williams et al., 2013, 2015, 2016). The aim of this paper is to further advance this re-representation of informal entrepreneurship by evaluating the relationship between firm registration and firm performance. Until now, informal sector entrepreneurship has been widely depicted negatively as poorly performing, unproductive endeavors, which is

deleterious to economic development and growth (Baumol, 1990; La Porta and Shleifer, 2008, 2014). By revealing that formal enterprises that start up unregistered and spend longer unregistered witness higher subsequent levels of firm performance than enterprises that started up registered, the intention is to re-represent informal entrepreneurship in a more positive manner. To do this, we report WBES data on the relationship between informal entrepreneurship and firm performance in India, an influential emerging economy with an informal sector that absorbs about 85 percent of the working population (Sharma, 2012).

In doing so, this paper advances scholarship on informal entrepreneurship in three important ways. Theoretically, it evaluates the association between being unregistered at start-up and firm performance. Until now, it has been widely assumed that informal entrepreneurs are unproductive. However, the hypothesis tested in this paper is that in weak institutional environments, there are few advantages of business registration and these are outweighed by the benefits of non-registration; meaning that starting up unregistered may well lead to higher subsequent firm performance than starting-up registered from the commencement of operations. Empirically, the important finding is that the widespread a priori assumption that starting up unregistered has a negative impact on firm performance is refuted. Sales, employment and productivity growth rates are revealed to be significantly higher in formal enterprises that started up unregistered than those registered from the outset in India. Third and finally, and from a policy perspective, it is revealed that rather than pursue the conventional eradication approach toward informal entrepreneurship based on the assumption that it is poorly performing endeavor, a more positive facilitating approach is required that focuses upon enhancing the benefits of business registration by tackling the systemic formal institutional deficiencies.

To achieve this, section 2 outlines the scholarship on informal entrepreneurship and the shift toward a more positive representation of such entrepreneurial endeavor. Section 3 then focuses upon the relationship between informal entrepreneurship and firm performance by reviewing the conventional view of nonregistration as negatively affecting firm performance followed by some reasons for viewing nonregistration as enhancing subsequent firm performance. To evaluate the relationship between firm performance and starting up unregistered, section 4 introduces the data, namely WBES harmonized data on 9,281 enterprises in India and the modelling framework used. Section 5 reports the results. Finding that formal enterprises that started up and spent longer unregistered have significantly higher subsequent annual sales, employment and productivity growth rates than those registered from the outset, section 6 discusses the implications for theory and policy along with the limitations of the study and further research needed.

## 2.  Conceptualizations of Informal Entrepreneurship

During the twentieth century, the widespread belief was that informal entrepreneurship was unimportant. This arose out of modernization theory, which saw the informal sector as part of an earlier production system and its persistence in countries as markers of their 'underdevelopment' (Lewis, 1959; Geertz, 1963; Gilbert, 1998). The common view was that this informal sector was naturally and inevitably disappearing with economic advancement

and modernization. Nevertheless, in recent decades such an endeavor has been recognized as widespread and persistent (Schneider and Williams, 2013; ILO, 2013; Williams, 2015a,b). Indeed, the recognition that two-thirds of enterprises in developing countries start up unregistered (Autio and Fu, 2015) has resulted in the growth of scholarship on such entrepreneurship and new theorizations.

First, and to update conventional modernization theory, La Porta and Shleifer (2008, 2014) have recognized that the informal sector is extensive but nonetheless, still portray the formal and informal sectors as discrete and depict informal entrepreneurs negatively as uneducated populations operating micro-scale unproductive enterprises in separate 'bottom of the pyramid' markets where they produce low-quality products for impoverished consumers using little capital and adding little value. Second, a group of political economy scholars have recognized that the formal and informal sectors are not separate. Rather, informal entrepreneurship is portrayed as an inherent component of and direct by-product of a deregulated open world economy in which outsourcing and subcontracting have integrated informal enterprises into contemporary capitalism to reduce production costs (Castells and Portes, 1989; Davis, 2006; Meagher, 2010; Slavnic, 2010; Taiwo, 2013). However, despite recognizing that informal entrepreneurship is inter-twined with the formal realm, such an endeavor has continued to be viewed as a negative phenomenon.

These modernization and political economy theorizations, in consequence, view economies as losing 'natural' competitiveness because of productive formal enterprises witnessing unfair competition from unproductive informal enterprises (Leal Ordóñez, 2014; Lewis, 2004), governments as losing regulatory control over work conditions (ILO, 2014) and tax revenue (Bajada and Schneider, 2005), and customers as receiving poorer quality products and services (Williams and Martinez, 2014b). Meanwhile, informal entrepreneurs are seen as 'necessity-driven' (Castells and Portes, 1989), lacking access to capital, credit and financial services (ILO, 2014), and unproductive entrepreneurs locked in a 'poverty trap' (McKenzie and Woodruff, 2006).

However, in more recent scholarship this negative representation has started to be questioned. Informal entrepreneurs operating labor-intensive enterprises have been argued to create jobs (Ketchen et al., 2014); the informal sector has started to be seen as a test-bed for entrepreneurial ventures (Barbour and Llanes, 2013; Williams and Martinez-Perez, 2014a); formal enterprises as benefiting from cheaper sources of labor and raw materials (Ketchen et al., 2014); and informal entrepreneurs as benefiting from this escape route from corruption in the public sector and the regulatory burden in environments where this stifles venture growth (Tonoyan et al., 2010). Moreover, customers, particularly in 'base of the pyramid' markets, are seen to benefit from more affordable products (Ketchen et al., 2014; London et al., 2014).

This more positive view has arisen from the recognition that informal entrepreneurship is not universally necessity-driven and often a voluntary choice (Cross, 2000; Franck, 2012; Gërxhani, 2004; Maloney, 2004; Perry and Maloney, 2007; Williams, 2009; Williams and Gurtoo, 2012; Williams and Youssef, 2015). The result is the emergence of new theoretical perspectives. First, 'legalist' scholars have portrayed informal entrepreneurs as rational

economic actors who, after weighing up the costs of informality and benefits of formality, decide to operate in the informal sector. Therefore, informal entrepreneurship is argued to be more prevalent in developing than developed countries resulting from formalization having higher costs (e.g., time and effort to formally register, burdensome regulations) and fewer benefits (De Soto, 1989, 2001; Nwabuzor, 2005), which result in the costs of registration exceeding the benefits (Cross, 2000). Second, an 'institutional' approach has emerged, which views informal entrepreneurs as 'social actors' and informal entrepreneurship as occurring outside of formal institutional prescriptions but according to the norms, values and beliefs of informal institutions and thus, as socially legitimate endeavors (Kistruck et al., 2014; Siqueira et al., 2014; Webb et al., 2009). From this institutional perspective, informal entrepreneurship results from formal institutional imperfections, such as relatively weak legal and contract enforcement systems (Puffer et al., 2010; Sutter et al., 2013), and/or "because of the incongruence between what is defined as legitimate by formal and informal institutions" (Webb et al., 2009). If formal and informal institutions are in symmetry, informal entrepreneurship only occurs unintentionally (e.g., because of a lack of awareness of the rules and regulations). However, if formal and informal institutions are not aligned, informal entrepreneurship becomes rife (De Castro et al., 2014; Kistruck et al., 2015; Siqueira et al., 2014; Vu, 2014; Webb et al., 2013, 2014). As such, the greater the non-alignment of formal and informal institutions, the greater is the prevalence of informal entrepreneurship (Williams and Horodnic, 2015; Williams and Shahid, 2015).

## 3.  Informal Entrepreneurship and Firm Performance

Despite more positive representations of informal entrepreneurship emerging, few if any studies have questioned the dominant view that unregistered enterprises witness weaker firm performance than registered enterprises (Farrell, 2004; ILO, 2007; Kundu and Lalitha, 1997; Palmer, 2008; Sharma, 2014). Indeed, the weaker performance thesis dominates across all theorizations. Modernization theory portrays informal enterprises as less efficient than formal enterprises operating in different 'bottom of the pyramid' markets and unable to charge lower prices for the same products (La Porta and Shleifer, 2008, 2014). Political economy theorists depict the informal sector as populated by necessity-driven, low-productivity entrepreneurs using low levels of start-up capital and lacking the scale to produce efficiently, although the benefits gained by avoiding taxes and regulations offset their low productivity and small scale (Farrell, 2004; Palmer, 2008). This weaker performance thesis similarly prevails in both the rational economic actor and social actor explanations and a by-product of the systemic failure of 'weak' institutions to provide sufficient benefits to warrant formalization (De Soto, 1989; Kistruck et al., 2014; Wunsch-Vincent et al., 2015).

To empirically support this consensus that informal entrepreneurship is poorer performing than formal entrepreneurship, scholars writing within all these theoretical perspectives normally cite the seminal study by La Porta and Shleifer (2008) who find that "Productivity is much higher in small formal firms than in informal firms, and it rises rapidly with the size of formal firms." To reach this conclusion, they analyze World Bank Informal

Surveys in thirteen countries and Micro-Enterprise Surveys in fourteen countries (nineteen in Africa, six in Asia and two in Latin America). The Informal Surveys on average comprised 31 registered and 192 unregistered firms, and the Micro-Enterprise Surveys on average included 137 registered and 77 unregistered enterprises (i.e., a total sample of 2,321 registered and 3,574 unregistered enterprises). In each country, the non-representative sampling strategy was that "World Bank contractors identified neighborhoods perceived to have a large number of informal firms" (La Porta and Shleifer, 2008). Arising out of this small unrepresentative sample, La Porta and Schleifer (2008) find that the variation in the performance of registered and unregistered enterprises is statistically significant in ten out of 25 countries on value added per employee at the 0.1 level (and four countries at the 0.01 level), seventeen out of 26 countries on sales per employee at the 0.1 level (and twelve at the 0.01 level), and in eighteen out of 26 countries on output per employee at the 0.1 level (twelve at the 0.01 level). Therefore, significant variations in firm performance are not universal. More importantly, it was in fact unregistered enterprises that outperformed registered enterprises in six out of 25 countries on value added per employee, three out of 26 countries on sales per employee and four out of 26 on output per employee (see La Porta and Shleifer, 2008: Tables 13 and 14). Indeed, in a little quoted footnote, they explicitly state that the overall productivity gap disappears and "unregistered firms are not unusually unproductive once we take into account their expenditure on inputs, the human capital of their top managers, and their small size" (La Porta and Shleifer, 2008).

In sum, there is weak evidence that unregistered enterprises have relatively weaker firm performance. Indeed, the other studies of this poorer performance thesis produce similarly weak evidence (Fajnzylber et al., 2009; Farrell, 2004; McKinsey Global Institute, 2003). For example, although Fajnzylber et al. (2009) assert that Mexican firms paying taxes display 15-60 percent higher 'productivity' levels, the measure of productivity is profit levels and self-employment income and they fail to control for many of the firm-level determinants that influence firm performance.

More importantly, it has been similarly assumed that formal enterprises that start up unregistered displayed weaker subsequent firm performance relative to those that registered from the outset of their operations. As La Porta and Shleifer (2008) state, "the differences in productivity between formal and informal firms are so large that it is hard to believe that simply registering unregistered firms would eliminate the gap." However, the evidence is weak. The only study comparing the firm performance of formal enterprises starting up unregistered relative to those registered from the outset of operations, is a study of World Bank survey data on 355 unregistered startups in seven Latin American countries (104 in Colombia, 72 in Argentina, 72 in Bolivia, 66 in Mexico, twenty in Peru, twelve in Uruguay and nine in Panama). Perry et al. (2007) conclude that unregistered startups "at least initially, exhibit on average, much lower levels of output per worker, after controlling for firm size, time in business, sector and region." Nevertheless, this is a small sample, the productivity gap is statistically significant in just four of the seven countries and the headline country average unregistered startups display 29 percent lower productivity is skewed by Peru where

only twenty unregistered startups were surveyed, and which has a 50 percent productivity gap that is not statistically significant.

Given this consensus across all theories but weak evidence-base, we here evaluate this supposedly negative relationship between non-registration at start up and firm performance. Across the literature, formal enterprises starting up unregistered are thought to display weaker subsequent firm performance than enterprises registered from the outset. However, there are reasons for questioning this weaker performance thesis. Recognizing that many entrepreneurs operate unregistered out of choice (Gërxhani, 2004; Maloney, 2004; Perry and Maloney, 2007; Williams and Youssef, 2015), the opposite could be argued. Formal enterprises starting up unregistered may subsequently outperform enterprises registered from the outset because formal enterprises remaining unregistered during start-up avoid paying taxes, burdensome regulations and the additional costs imposed on formal enterprises by corrupt public sector officials for example. Therefore, they appear to possess many of the pre-requisites to outperform enterprises that witness these constraints from the outset of their venture. As La Porta and Shleifer (2014) state, formal firms have to pay taxes and comply with regulations, so they have a huge cost disadvantage relative to unregistered startups. Therefore, being initially unregistered may have positive influences on subsequent firm performance. Furthermore, if the benefits of formality are few, such as public goods provision by government and access to credit to expand existing establishments, then the registration costs may outweigh the benefits. Until now, few if any studies have evaluated this proposition that formal enterprises starting up unregistered witness better subsequent firm performance compared with those registered from the outset. To do so, the following proposition can be evaluated:

Hypothesis 1. Controlling for key determinants of firm performance and the endogeneity of registration status, enterprises starting up unregistered and then registering display better levels of firm performance than those starting up registered.

There are also similar competing views on whether and how the length of time a formal enterprise spent unregistered influences subsequent firm performance. The conventional view, based on the assumption that unregistered enterprises are poorer performing, is that the greater the length of non-registration, the worse will be the subsequent firm performance. Constrained from growing because of their limited access to credit and loans, and their need to stay small to avoid the authorities (Farrell, 2004; Palmer, 2008), the longer they stay unregistered, the poorer will be the performance of a formal enterprise relative to an enterprise registered from the outset.

However, based on the proposition that starting up unregistered enhances subsequent firm performance, it might be asserted that the greater their duration of non-registration, the greater will be their advantage over firms registering at the outset. That is, the longer they do not suffer paying taxes, burdensome regulations and bribery from the public sector for instance, the more the advantages over those starting up registered are consolidated and the greater will be the differential in subsequent firm performance. This will be especially the case where 'weak' formal institutions provide few benefits to formalization (Kistruck et al.,

2014; Wunsch-Vincent et al., 2015) and thus, the costs of non-registration outweigh the benefits of registration (e.g., access to credit, opportunities to procure government contracts, outsource from large firms, access training and business support programs). Although in mature formal institutional environments, a tipping point may exist where the benefits of firm registration begin to outweigh the costs of non-registration; this is unlikely where there are weak formal institutions and there are fewer benefits of registration (De Mel et al., 2012; Thai and Turkina, 2014). As such, the following proposition can be tested:

Hypothesis 2: Controlling for key determinants of firm performance and the endogeneity of registration status, the longer startups spend unregistered before registering, the higher is their performance.

## 4. Methods: Modeling Framework, Data and Variables

### 4.1. Modeling framework

Whether enterprises register or not at the commencement of their operations can be viewed as an endogenous choice. Therefore, this sample of formal enterprises that either registered or not at the start of operations is not a random sample but rather, a sample with a systematic pattern of registration. If the determinants of firm performance and other relevant correlates are thus modeled without addressing the potential problem of sample selection bias, the estimates will not be reliable. Therefore, a Heckman two-step estimator (i.e., the Heckit estimator) is adopted here to produce the econometric estimates. Put simply, the indicators of firm performance in India are regressed on a number of determinants controlling for the problem of sample selection bias.

Our primary equation (the equation of primary interest) that models the determinants of firm performance can be written as;

$$p_i^* = x_{1i}'\beta_1 + \varepsilon_{1i} \qquad (4.1)$$

where $x_{1i}$ denotes a vector exogenous/control variable and $p_i^*$ represents firm I's performance (i.e., measured by sales, employment and productivity growth). The performance indicators are observed for formal firms that were both registered and unregistered at start up and spent different durations unregistered. When appropriate, equation (1) can be specified in terms of log of ($p_i^*$).

To describe whether a firm is registered or not, a second equation (i.e. the selection equation) can be specified as;

$$R_i^* = x_{2i}'\beta_2 + \varepsilon_{2i} \qquad (4.2)$$

with the following observation rule;

$$p_i^* = p_i, R_i = 1, \text{if} \quad R_i^* > 0$$
$$\& \quad R_i = 0 \quad \text{if} \quad R_i^* \leq 0 \qquad (4.3)$$

$R_i$ is a binary variable indicating the registration status, which assumes a value of 1 when a firm is registered at the start of operations and takes a value of 0 otherwise. Therefore, equation (2) can be estimated using a standard probit model, which is appropriate to predict the probability of registration based on a maximum likelihood (ML) estimation technique. This constitutes the first stage of estimation. The second stage of estimation is conducted using equation (1) after including the selectivity correction term generated at the first probit stage of the estimation. The specification is completed by making a distributional assumption on the error terms of the primary and selection equations. We assume that $\varepsilon_{1i}$ and $\varepsilon_{2i}$ follow a bivariate normal distribution with expectations zero and constant variances given as $\sigma_1^2$ and $\sigma_2^2$ respectively. The covariance of the errors is given as $\sigma_{12}$. After controlling for self-selection, the second stage regressions enable us to test the two hypotheses.

## 4.2. Data

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. Geographical regions within the 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. To collect data, a harmonized questionnaire is used to obtain responses from business owners and top managers in 9,281 firms in India that were interviewed from June 2013 through December 2014. Although 135 countries are covered by the WBES and data is available from 2002 to 2014, the observed sample here is restricted to India, which has WBES data collected in 2014.

## 4.3. Variables

### 4.3.1. Dependent variables

There are three key firm performance measures which serve here as the dependent variables and are expressed in terms of logs, namely: (1) real annual sales growth (using GDP deflators) (%). All values for sales are converted to USD using the exchange rate in the corresponding fiscal year of the survey. Sales are deflated to 2009 using the USD deflator; (2) annual employment growth (%) computed as the change in full-time employment reported in the current fiscal year from a previous period. And (3) annual productivity growth (%); this is a derived variable that measures annualized growth in labor productivity where labor productivity is real sales (using GDP deflators) divided by full-time permanent workers. Annual productivity growth is the change in labor productivity reported in the

current fiscal year from a previous period. For India, the difference is two years. Therefore, an annualized measure is used here.

### 4.3.2. Key independent variables

To evaluate the influence of registration at startup on future firm performance, two indicators are used: (1) started unregistered,—a firm-level measure that examines responses to the question, 'Was this establishment formally registered when it began operations?' This is a dummy variable with a value of 1 indicating the firm started operations in the country without formal registration and 0 when the firm was formally registered, and (2) years unregistered—a continuous variable counting the number of years the firm operated without formal registration. This variable has value 0 for those firms registered since startup. It is computed by analyzing the responses to three questions: 'In what year did this establishment begin operations?', 'Was this establishment formally registered when it began operations?' and 'In what year was this establishment formally registered?' The average number of years formal firms operated without registration is computed only for firms stating they were not formally registered when they started operations.

### 4.3.3. Control variables

To measure whether formal enterprises that started up and spent varying amounts of time unregistered witness different levels of firm performance than enterprises registered from the outset, it is necessary to control for other key determinants of firm performance. Since the early 1990's, there are a growing number of studies of the determinants of firm performance in India with varying results and focus on key performance correlates such as the importance of business location for sales growth, emphasizing the need to focus on economic geography considerations (Sharma, 2014, 2009; Mukim, 2011; Kundu and Lalita, 1997). Here, a range of characteristics are examined, which previous studies reveal to significantly influence firm performance, namely firm size, legal status and ownership structure, export orientation, sector, access to finance, the level of technological innovation, human capital factors and other business environment factors.

Firm size determines firm performance, with larger firms performing better than smaller ones (La Porta and Shleifer, 2014). Firm size is a categorical variable with the value of 1 for small firms with less than twenty employees, value of 2 for medium sized firms between twenty and 99 employees, and value of 3 for large firms with more than 100 employees. Different types of ownership structure and legal status are strongly correlated with firm performance, including whether a firm is state- or privately-owned, foreign- or domestic-owned and an open- or closed-shareholding, partnership or sole proprietorship (Baghdasaryan and la Cour, 2013; Barbera and Moores, 2013). This is important to control for because unregistered startups often have different ownership structures and legal statuses than those registered at start-up. Legal status is a categorical variable indicating whether an enterprise is an open or closed shareholding, a sole proprietorship, a partnership, a limited partnership, or some other form. Whether the enterprise is foreign- or domestic-owned is

also analyzed using a dummy variable with the value of 1, indicating if the share of the firm's ownership held by foreign individuals or enterprises is larger than 49 percent and 0 otherwise. Given how export-oriented firms display higher firm performance (La Porta and Shleifer, 2008), export-orientation is controlled for using a dummy variable with the value of 1, indicating that firms export at least one percent of sales and 0 for those who do not.

Firm performance also varies across sectors (Nabar and Yan, 2013; Siqueira et al., 2014). Given how unregistered startups are concentrated in labor-intensive sectors with fewer returns to scale (Perry et al., 2007), controlling for this is important. Sector is a categorical variable indicating the sector of the firm. Access to finance and firm performance are also strongly correlated. Given how unregistered startups lack access to formal finance, this may influence subsequent firm performance because they scale-down operations and the high cost of informal loans result in them substituting (low skilled) labor for physical capital (Amaral and Quintin, 2006; Cull et al., 2007). Here, access to credit is a dummy variable with the value of 1, indicating the firm has access to bank loans or to a line of credit and 0 otherwise.

Firm performance is also related to the level of technological innovation (Mansury and Love, 2008). Informal enterprises display less innovation and adoption of new technologies and that which does occur is more adaptation and imitation (Grimm et al., 2012; Kabecha, 1998; Wunsch-Vincent et al., 2015), and for some this is the primary reason for the productivity gap between developed and developing economies (Farrell, 2004; Palmade, 2005). Here, three basic control variables are used: quality certification, a dummy variable with the value of 1, indicating the enterprise has an internationally-recognized certification and 0 otherwise; presence of a website, a dummy variable with a value of 1 when the enterprise uses a website for business and 0 otherwise, and the use of e-mail, a dummy variable with the value of 1 when an enterprise uses e-mail with suppliers and clients, and 0 otherwise.

Human capital significantly impacts on firm performance (Black and Lynch, 1996; Gennaiolo et al., 2013; La Porta and Shleifer, 2014; Van der Sluis et al., 2005). Therefore, controlling for this is important, particularly given that informality is associated with less productive workers (Amaral and Quintin, 2006; Dimova et al., 2008). Here, six control variables are used: top manager's experience, a continuous variable of the years of experience of the top manager in the sector; temporary workers, a variable of 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; and as an indicator of professionalism, whether they use an external auditor, a dummy variable with the value of 1, indicating its annual financial statement is reviewed by an external auditor and 0 otherwise.

Finally, the wider business environment determines firm performance. Two control variables measuring various facets of the business environment and whether they are a major constraint on the enterprise are used, namely: transport, a dummy variable with the value of 1, indicating that transportation is a major constraint on activity and 0 otherwise, and electricity, a dummy variable with the value of 1, indicating that electricity supply is a major constraint on activity and 0 otherwise.

## 5. Findings

Of the 9,281 formal enterprises with five or more employees surveyed in India, 12.5 percent started up unregistered and on average remained unregistered for 1.3 years before registering. Among other developing economies in the WBES database, India has the most firms unregistered at start-up, pointing to the relative importance of the informal sector in India compared with elsewhere. The basic descriptive results of firm performance are that formal enterprises unregistered at the commencement of operations subsequently had 38 percent higher annual sales growth than those registered from the outset (8.7% compared with 6.3%), 12 percent higher annual employment growth (5.6% compared with 5.0%), and 95 percent higher annual productivity growth rate (3.7% compared with 1.9%). Although these descriptive statistics appear to display the benefits that being unregistered at start-up, these figures do not control for other determinants of firm performance.

To explore the interrelationships among our dependent and independent variables analytically using a regression set up between informal entrepreneurship and firm performance, we estimated a Heckman regression model, which enables us to handle the potential endogeneity discussed in the methodology (i.e., the endogenous choice of registration status by firms). Table 1 reveals that for these formal enterprises with five or more employees, starting up unregistered is positively and significantly associated with higher subsequent sales, employment and productivity growth rates (although there is a negative and significant association with productivity when we control only for registration status). Annual sales growth is 9.2 percent higher for those formal enterprises starting up unregistered compared with those registered from the outset (7.1% compared with 6.5%), and annual employment growth is 37.3 percent higher (6.7% compared with 4.9%). Although annual productivity growth is 0.05 percentage points higher in firms registered from the outset, this is not the case when we control for years unregistered. Therefore, these regression results overall are consistent with the descriptive bivariate relationships. Hence, hypothesis 1 is confirmed for annual sales and employment growth. This sits in contrast to a previous finding in India based on a smaller and older dataset, which supports the view that registration leads to better firm performance (Sharma, 2014). Our estimation set up takes the joint estimation of the registration status (first-stage) and the performance indicator (second-stage) equations in the framework of Heckman two-step estimator.

Table 1. Impacts of starting up unregistered on firm performance: Heckman selection model

| Variable | Sales Growth | Employment Growth | Productivity Growth |
|---|---|---|---|
| | Coefficient (s.e.) | Coefficient (s.e.) | Coefficient (s.e.) |
| Constant | -3.22***(0.57) | 1.54***(0.29) | -4.79***(0.62) |
| Unregistered | 0.59***(0.26) | 1.83***(0.14) | -1.21***(0.29) |
| Firm age | -0.08***(0.01) | -0.09***(0.01) | -0.01(0.01) |
| Exporter | -0.63***(0.23) | -0.31***(0.12) | -0.36(0.25) |
| Foreign ownership | 3.87***(0.75) | 2.85**(0.39) | 1.07(0.83) |
| Workforce | | | |
| Top manager years of experience | 0.03***(0.01) | -0.03***(0.00) | 0.06***(0.01) |
| Temporary workers | 0.00(0.00) | -0.00(0.00) | 0.00(0.00) |
| Permanent fulltime workers | 0.01***(0.00) | 0.01***(0.00) | -0.00(0.00) |
| Female ownership % | 0.39*(0.23) | 0.01(0.12) | 0.42*(0.25) |
| Credit access | 0.97***(0.17) | 0.79***(0.09) | 0.21(0.19) |
| Major constraints | | | |
| Transport constraint | -0.31(0.23) | -1.09***(0.11) | 0.79***(0.24) |
| Electricity constraint | 0.04(0.17) | -0.36***(0.01) | 0.41**(0.18) |
| Innovation | | | |
| Quality certification | -0.24(0.17) | 0.00(0.08) | -0.23(0.18) |
| External auditor | -0.39**(0.18) | 1.12***(0.09) | -1.55***(0.19) |
| Website | 0.91***(0.17) | -0.82***(0.09) | 1.64***(0.19) |
| E-mail | 0.59***(0.22) | 0.28***(0.11) | 0.38*(0.24) |
| Firm size (RC: small) | | | |
| Medium | 0.78***(0.17) | 1.56**(0.09) | -0.72***(0.19) |
| Large | 0.40(0.26) | 1.55***(0.13) | -1.13***(0.28) |
| Legal status (RC: other) | | | |
| Open shareholding | -4.30***(0.67) | 2.23***(0.35) | -6.53***(0.74) |
| Closed shareholding | -1.23**(0.54) | 2.65***(0.28) | -3.75***(0.59) |
| Sole partnership | -1.49***(0.50) | 2.75***(0.26) | -4.08***(0.55) |
| Partnership | -1.73***(0.51) | 1.72***(0.26) | -3.36***(0.56) |
| Limited partnership | -3.50***(0.51) | 1.03***(0.27) | -4.45***(0.56) |
| Rho | 0.01(0.06) | 0.04(0.07) | -0.00(0.06) |
| Lambda | 0.13(1.06) | 0.33(0.66) | -0.06(1.11) |
| Wald Chi-square statistic (p-value) | 497.9*** (0.00) | 2321.3*** (0.00) | 354.1*** (0.00) |
| No of observations | 9281 | 9281 | 9281 |

***,**, *= statistically significant at 1, 5 and 10 percent respectively.

Meanwhile, Table 2 examines whether the length of time these formal enterprises spent unregistered influences their firm performance. The finding is that when we control for other key determinants of firm performance and the endogenous choice of registration status, enterprises spending longer unregistered display significantly higher annual levels of sales, employment and productivity growth rates. For each extra year of nonregistration, annual sales growth is 0.6 percentage points higher, annual employment growth is 1.83 percentage points higher and annual productivity growth is 0.1 percentage points higher, all of which are statistically significant. Hypothesis 2 is therefore confirmed.

Table 2. Impact of years spent unregistered on firm performance: Heckman selection model

| Variable | Sales Growth Coefficient (s.e.) | Employment Growth Coefficient (s.e.) | Productivity Growth Coefficient (s.e.) |
|---|---|---|---|
| Constant | -2.50***(0.57) | 1.89***(0.30) | -5.06***(0.61) |
| Years Unregistered | 0.12***(0.03) | 0.09***(0.01) | 0.05*(0.02) |
| Firm age | -0.16***(0.02) | -0.08***(0.01) | -0.02**(0.01) |
| Exporter | -0.58***(0.23) | -0.30***(0.12) | -0.36(0.25) |
| Foreign ownership | 3.79***(0.75) | -2.89***(0.38) | 1.01(0.83) |
| Workforce | | | |
| Top manager years of experience | 0.04***(0.01) | -0.03***(0.00) | 0.07***(0.01) |
| Temporary workers | 0.00(0.00) | -0.00(0.00) | 0.00(0.00) |
| Permanent workers | 0.01***(0.00) | 0.01***(0.00) | -0.00(0.00) |
| Female ownership % | 0.37*(0.22) | -0.01(0.12) | 0.43*(0.24) |
| Credit access | 0.97***(0.17) | 0.79***(0.10) | 0.22(0.19) |
| Major constraints | | | |
| Transport constraint | -0.31(0.23) | -1.11***(0.12) | 0.82***(0.25) |
| Electricity constraint | -0.02(0.16) | -0.38***(0.09) | 0.38**(0.18) |
| Innovation | | | |
| Quality certification | -0.21(0.16) | -0.09(0.08) | -0.14(0.18) |
| External auditor | -0.43**(0.18) | 0.92**(0.09) | -1.37***(0.19) |
| Website | 0.87***(0.17) | -0.80***(0.09) | 1.60***(0.19) |
| E-mail | 0.64***(0.22) | -0.19*(0.11) | 0.47**(0.24) |
| Firm size (RC: small) | | | |
| Medium | 0.84***(0.17) | 1.64***(0.08) | -0.78***(0.19) |
| Large | 0.43*(0.25) | 1.63***(0.13) | -1.17***(0.28) |
| Legal status (RC: Other) | | | |
| Open shareholding | -4.34***(0.68) | 2.16***(0.35) | -6.47***(0.74) |
| Closed shareholding | -1.26**(0.54) | 2.57***(0.28) | -3.70***(0.59) |
| Sole partnership | -1.43**(0.50) | 2.76***(0.26) | -4.11***(0.54) |
| Partnership | -1.72***(0.51) | 1.64***(0.26) | -3.31***(0.56) |
| Limited partnership | -3.49***(0.51) | 0.95***(0.25) | -4.40***(0.55) |
| Rho | 0.01(0.05) | 0.04(0.06) | -0.00(0.06) |
| Lambda | 0.08(0.84) | 0.33(0.66) | -0.08(1.11) |
| Wald Chi-square statistic | 555.0*** | 942.7*** | 338.3*** |
| (p-value) | (0.00) | (0.00) | (0.00) |
| No of observations | 9281 | 9281 | 9281 |

***,**, *= statistically significant at 1, 5 and 10 percent respectively.

Moreover, the observation that there are no differences between Tables 1 and 2 in terms of the sign and statistical significance of all the other additional explanatory variables displays that our results are robust. Whether we use the dummy/binary variable indicating registration status as a regressor, or the number of years spent unregistered before registration (which is a continuous variable), the key findings do not change. As indicated by the rho, lambda parameters and also a likelihood ratio (LR) test for the independence of equations, standard OLS are used to check robustness further by estimating particularly those equations pertaining to employment and productivity growth where the selectivity bias problem is less severe and the dependence between the selection and the primary equation is

limited[a]. All the specified models reported in Tables 1 and 2 have strong explanatory power of the variation of all the three firm performance indicators as shown by the diagnostics. This is evident from the large Wald chi-square statistic and its associated p-value which is statistically significant.

## 6.  Discussion and Conclusions

This analysis of WBES data reveals that in India, 12.5 percent of the formal private sector businesses with five employees or more surveyed had started up unregistered and of these, the average length of time they spent unregistered was one year and three months. For these formal enterprises, starting up unregistered is positively and significantly associated with higher subsequent sales, employment and productivity growth rates, but is negatively and significantly associated with lower productivity growth rates if we control only for registration status, but significantly associated if we include years of non-registration. Moreover, the longer they spend unregistered, the significantly higher is their sales, employment and productivity growth rates. Therefore, overall evidence is found to support hypothesis 1 in both sales and employment growth rates, but not productivity growth rates, while evidence is found to confirm hypothesis 2 that the length of nonregistration improves firm performance in terms of all performance indicators (i.e., annual sales, employment and productivity growth rates).

These findings in India have important wider implications for theory. They clearly display the need to transcend the theoretical perspectives that adopt a negative depiction of informal entrepreneurship. Formal enterprises in India that were unregistered at start-up, and those that remain unregistered for longer, do not witness worse subsequent firm performance than those that registered at the outset of their operations. Rather, and reinforcing more positive theoretical perspectives toward informal entrepreneurship, non-registration at the outset provides a significant boost to subsequent annual sales and employment growth rates, and the longer that they remained unregistered, the higher are their annual sales, employment and productivity growth rates. Theoretically, this strongly intimates that because of the meagre benefits of registration in India, the benefits of starting up unregistered outweigh the benefits of registering at the outset. Put another way, the deficiencies of the formal institutional environment in providing benefits for formal enterprises play a key role in determining the existence of informal entrepreneurship.

This has important implications for policy. For many years, based on a negative portrayal of informal entrepreneurship as worse performing, the conventional policy approach has been to pursue the eradication of informal enterprises. Based on the Allingham and Sandmo (1972) rational economic actor approach that seeks to change the costs of operating unregistered and benefits of operating formally, governments predominantly sought to increase the costs of operating unregistered by increasing the penalties. The findings in this paper intimate that there is also a need to decrease the costs and increase the benefits of

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[a] These results can be provided upon request.

registration. This is because the benefits seem to be currently insufficient to outweigh the benefits of nonregistration at start-up in India, manifested in the poorer subsequent firm performance. This will require measures to reduce the costs of registration, such as simplifying the registration process and an improvement in the benefits that result from registration (Maloney, 2004; McKenzie and Woodruff, 2006).

This requires that that the systemic formal institutional deficiencies need to be addressed that lead entrepreneurs to make the decision to start up unregistered. In recent years, recognition has emerged, grounded in institutional theory, that informal entrepreneurs are also often social actors (De Castro et al., 2014; Webb et al., 2009, 2013, 2014; Williams and Shahid, 2015). Based on this recognition that non-registration arises when entrepreneurs' norms, values and beliefs are not in symmetry with the prescriptions of formal institutions, there is a need to tackle the formal institutional imperfections that provide little incentive for entrepreneurs to register and adhere to the laws and regulations of the formal institutional environment. These alterations in formal institutions are of two types. First, procedural and redistributive justice and fairness needs to be improved. Fairness here refers to whether entrepreneurs believe they pay a fair share compared with others (Wenzel, 2004), redistributive justice to whether they feel that they receive the goods and services they deserve given the taxes they pay (Richardson and Sawyer, 2001) and procedural justice to whether they believe that the authorities treat them in a respectful, impartial and responsible manner (Braithwaite and Reinhart, 2000; Murphy, 2005). Second, it necessitates greater social protection, less public sector corruption and more effective social transfer mechanisms, all of which are strongly correlated with higher registration levels and greater formality (Autio and Fu, 2015; Dau and Cuervo-Cazzurra, 2014; Klapper et al., 2007; Thai and Turkina, 2014).

Nevertheless, there are limitations to this study. Only one country has been analyzed and this paper reveals only that formal enterprises with five more employees who started up unregistered witness higher subsequent sales, employment and productivity growth rates than those that registered from the outset. Therefore, we can assert only that those formal enterprises that started unregistered outperform those registered from the outset; we cannot argue that unregistered enterprises as a whole outperform registered enterprises. Nevertheless, some very tentative clues exist that should be investigated in future research. Similar to formal enterprises that delay registration, they operate under the same conditions that boost firm performance, including being able to avoid taxes, burdensome regulations and corrupt public sector officials. Consequently, future research could investigate the firm performance of unregistered compared with registered enterprises, especially given the current weak evidence to support the poorer performance thesis of unregistered enterprises (e.g., La Porta and Shleifer, 2008). A further limitation is that this study does not reveal whether the reasons for being unregistered (e.g., whether they are simply awaiting registration, deliberately testing the venture's viability before registering, or have no intention of registering) or the reasons they register (e.g., access to finance, fewer bribes, greater opportunities with formal firms, access to government contracts), influence

subsequent firm performance. Future research will need to investigate this, not least to tailor policy measures.

In conclusion, formal enterprises that delayed registration have been revealed to outperform those registered from the commencement of operations in India. This calls into question the long-standing depiction of informal entrepreneurship as poorer performing. If this now stimulates similar research in other countries and global regions, then one intention will have been fulfilled. If this also results in a questioning of the policy approaches pursued toward informal entrepreneurship, this paper will have achieved its fuller intention. What is certainly the case is that the dominant negative representation of informal entrepreneurship as poorer performing cannot be taken for granted without providing an evidence-base to support such an assertion.

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