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Out with the sleaze, in with the ease

Insufficient for entrepreneurial development?

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Abstract

Improved governance and lower start-up costs may not be sufficient for encouraging the type of entrepreneurship that matters for economic growth. Using panel data on 60 countries spanning the period 2003-07 this paper establishes that (i) opportunity-motivated entrepreneurship (as opposed to necessity-motivated entrepreneurship) drives economic growth; (ii) governance and the start-up costs are not significant determinants of opportunity entrepreneurship; and (iii) better governance leads to higher economic growth. This implies that better governance and lower start-up costs, widely advocated as measures to promote entrepreneurship in developing countries, may not in fact be enough. Indeed, despite poorer governance and higher start-up costs, rates of opportunity-motivated entrepreneurship are higher in developing countries. Second, better governance can lead to better growth through reducing the impact of destructive entrepreneurship (including rent-seeking), even though this may not result in a reallocation of effort from destructive towards opportunity-motivated entrepreneurship. The paper concludes by discussing whether these results call in question the popular belief that a lack of opportunity-motivated entrepreneurship constrains developing country growth, and whether there is justification for more proactive government support for entrepreneurship.

Keywords: entrepreneurship, development, institutions

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1 Introduction

Private sector development has become a popular objective of governments, development agencies and donors alike (see, e.g., Schulpen and Gibbon 2002). At the heart of private sector development strategies is the desire by governments and development institutions to encourage and stimulate entrepreneurship (e.g. Minniti 2008a). There is little doubt amongst proponents of private sector development that entrepreneurship is the key to economic growth and development. Thus it has been claimed that ‘entrepreneurship is the main vehicle of economic development’ (Anokhin et al. 2008: 117), ‘...the more entrepreneurs there are in an economy, the faster it will grow’ (Dejardin 2000: 2), and that ‘the engine of economic growth is the entrepreneur’ (Holcombe 1998: 60).

This enthusiasm for entrepreneurship and the private sector has not always been the case. For instance in the currently advanced economies, Audretsch and Thurik (2001, 2004) describe what they call the ‘managerial economy’, which has only recently started to give way to the ‘entrepreneurial economy’. In developing countries, the dominant approach after the Second World War was one of state intervention leading to the dominance of state owned enterprises (SOEs) and multinational enterprises (MNEs) (Naudé 2008c). Apart from the emergence of the entrepreneurial economy in the advanced economies, the current enthusiasm for entrepreneurship in developing countries may be traced to three broad factors, as discussed in Naudé (2008b, 2008c) which includes the collapse of the Soviet Union, the rise of Asia, and government and governance failures in many developing countries after independence, especially in Africa. Thus it was realized that state dominance may come at a cost of corruption, rent-seeking, state capture and repression of private initiative.

In the light of these, by the late 1990s entrepreneurship and private sector development was popularly seen as the drivers of development. If one accepts this, the question arises how to best promote entrepreneurship and private sector development. Although obviously an important question, it is not one which has been sufficiently and rigorously scrutinized. Rather, the dominant approach towards entrepreneurship which has emerged in recent years has been one which I capture with the phrase ‘Out with the sleaze, in with the ease’, meaning rolling back the state and limiting opportunities for corruption, rent-seeking and state capture (the ‘sleaze’), and reducing the perceived obstacles in the start-up and running of business firms so as to make it easier to ‘do business’ (the ‘ease’). Altenburg and von Drachenfels (2006) describes this as the ‘new minimalist approach’ to private sector development.

One can see this ‘minimalist’ approach reflected in the policy advice of especially the World Bank, the IMF, and donor agencies. Thus a key requirement of most structural adjustment programmes (SAPs) included provisions for privatization of state enterprises, liberalization of markets, improvements in governance (including transparency, accountability) and reduction of obstacles to private investment. Notable has been the World Bank’s attempts to measure progress in terms of ‘out with the sleaze, in with the ease’. The Bank now makes available for most countries in the world, sets of tables of both governance indicators¹ and doing business

¹ The World Bank currently makes available governance indicators for 212 countries for the period 1996-2007, covering six aspects of governance, namely voice and accountability, political stability and absence of violence,

indicators,² and actively encourages countries to improve their rankings in these tables. The explicit underlying assumption is that as countries improve these, they will experience an increase in private sector investment and a growth in entrepreneurial activity, both which will improve productivity and growth.

In this paper I argue that this approach towards stimulating entrepreneurship and private sector development in developing countries may at best be a necessary condition. It may not be sufficient. In fact, governance and doing business reforms are reactive measures. Instead, I argue that these measures need to be supplemented by more proactive government and institutional support for entrepreneurship, in particular for *the type* of entrepreneurship which will stimulate economic growth and development. While regulatory reform which makes it easier to do business may increase the number of registered business firms, it may not result in the type of entrepreneurship which is most beneficial to growth.

Accordingly, the structure of the argument in this paper is as follows. First, not all forms of entrepreneurship are good for economic growth and development; in fact the definitions and measures often used in studies to show the beneficial impact of reforms on entrepreneurship may be misleading by not taking this into account. Therefore, in Section 2 I discuss the notion of entrepreneurship that is of concern to this paper. Thereafter, in Section 3 I provide a snapshot of the relevant literature, focusing on the relationship between entrepreneurship and economic growth, and on the relationship between start-up barriers, governance and entrepreneurship. In Section 4 I state two hypotheses to be tested and describe the methodology to be followed in doing so. I use panel data from 60 countries over the period 2003-07 to test these, and attempt to overcome the weaknesses that has marked many previous studies into the cross-country dynamics of entrepreneurship. Section 5 presents the empirical results. Section 6 discuss the policy implications of these results, asking whether a lack of opportunity-based entrepreneurship do in fact constrain growth in developing countries, and whether there is a case still to be made for more proactive government support for entrepreneurship in developing countries. Section 7 concludes.

2 Entrepreneurship: notions and policies

Private sector development depends on entrepreneurship. But not all types of entrepreneurship may be beneficial for private sector development and economic growth. And private sector development needs more than just entrepreneurship, it also needs managers and risk takers/financiers.³ To substantiate these points it is necessary to define entrepreneurship and discuss its measurement for purposes of this paper. It should be admitted at the outset that it

government effectiveness, regulatory quality, rule of law, and control of corruption. See <http://www.govindicators.org>.

² The World Bank also currently has available indicators of the ease of doing business for over 130 countries for the period 2003-07. These contain about 40 'Doing Business Indicators' covering aspects such as the start-up, running, and closure of a firm. See <http://www.doingbusiness.org/>.

³ I wish to emphasize that successful private sector development depends on effective and efficient management. Therefore, development of managerial skills are important to strengthen the private sector in developing countries. Good managers, like good inventors and researchers, are necessary complements to entrepreneurs in the process of firm growth. In the remainder of this paper however, my focus will strictly be on the entrepreneur.

might seem at first glance to be a challenging pursuit, given that entrepreneurship is studied across many disciplines and that consequently there are many different definitions of entrepreneurship⁴ (see Davidsson 2004: 1).

This may not however, in such a daunting task in the current context where my concern is with private sector development which requires first and foremost new venture creation and growth. In my view the debate on the definition of entrepreneurship and the entrepreneur, in the context of new venture creation, has made much progress since the influential work of Schumpeter (1911/1934). Accordingly, following Schumpeter there is now substantial agreement that there is a subtle difference between entrepreneurship (as process) and the entrepreneur (the agent), and a more substantial difference between the entrepreneur and the manager of a firm.⁵ Entrepreneurship as process is about the discovery and exploitation of opportunities (Shane and Venkataraman 2000). As such entrepreneurship may be found in corporations (e.g. ‘corporate entrepreneurship’, ‘intrapreneurship’) and in social, non-profit contexts (e.g. ‘public entrepreneurship’, ‘social entrepreneurship’). Individual entrepreneurs can be defined as ‘persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige’ (Baumol 1990: 987). A large part of the entrepreneurship literature is concerned with the nature and development of entrepreneurial talent or entrepreneurial ‘capital’ (e.g. Lucas 1978; Evans and Jovanovic 1989; Murphy et al. 1991; Banerjee and Newman 1993; Fonseca et al. 2007).

Not all entrepreneurship may be beneficial for economic growth and development. This is because entrepreneurial talent may be allocated to activities that may be rewarding for the individual, but may have little, or even negative, consequences for broader society. Thus in many countries, particularly developing countries, many talented entrepreneurs choose not to become entrepreneurs (self-employed) but may take up salaried employment in a state bureaucracy or multinational firm, or may emigrate, while at the same time many less talented entrepreneurs are pushed into informal and survivalist self-employment. Entrepreneurial talent may also be channelled into unproductive (e.g. rent-seeking), or even destructive (e.g. illegal) activities. Baumol (1990: 895). As put by Silberman (1956: 42), ‘Throughout history there has been a tussle between those who make their way by honest but unimaginative toil and the gamblers, pirates, hucksters of patent medicines and the exploitative mediums of newfangled religions’.

It is argued that the institutional environment in a country (broadly defined as the ‘rules of the game’) will influence the allocation of entrepreneurial talent (Acs 2008; Amoros 2008; Bowen and De Clerq 2008; Minniti 2008a) and that therefore institutional reform is needed to encourage the right type of entrepreneurship. The specific institutional reform most often advocated for developing countries include strengthening of property rights and control of corruption (Douhan

⁴ Elsewhere I discuss occupational, behavioural, and outcomes-based definitions of entrepreneurship. See Naudé (2008a).

⁵ Both Baumol (1968) and Leibenstein (1968) stress the differences between entrepreneurs and managers, and like Schumpeter sees innovation as the essential distinguishing characteristic or function of the entrepreneur, as opposed to the manager. According to Baumol (1968: 65) ‘The entrepreneur (whether or not he in fact also doubles as a manager) has a different function. It is his job to locate new ideas and to put them into effect’. In the words of Leibenstein (1968: 72) ‘at one pole there is routine entrepreneurship, which is really a type of management, and for the rest of the spectrum we have Schumpeterian or “new type” entrepreneurship’.

and Henrekson, 2009). Empirical support for the latter comes from Bowen and De Clercq (2008) who finds evidence that productive entrepreneurship is negatively influenced by the extent of corruption in a country.

Although the ‘tussle’ between productive and destructive types of entrepreneurship is strongly evident in developing countries (see e.g. Naudé 2007) it is perhaps more apparent that larger numbers of people in developing countries are being pushed into informal and survivalist self-employment; i.e. non-productive entrepreneurship. These people are not entrepreneurs by choice and are, in the terminology of the Global Entrepreneurship Monitor (GEM), ‘necessity entrepreneurs’. A substantial literature exists on informal entrepreneurship and on small and micro firms (see e.g. De Paula and Scheinkman 2007; Ihrig and Moe 2004; Maloney 2004). Governments and international development agencies often wish to promote informal entrepreneurs/micro firms to grow their firms and ‘graduate’ to become formal, larger firms. This is most often attempted through reductions in start-up costs, minimum capital requirements and high taxation, and by provision of subsidised formal credit facilities. Most often however, these policies do not work (Schramm 2004; Berner et al. 2008; Banerjee and Duflo 2007). Banerjee and Duflo (2007: 162) cautions that ‘it is important not to romanticize these penniless entrepreneurs’ and Berner et al. (2008: 1) stress that the motivation of informal/necessity entrepreneurs are not growth, but survival. Consequently well-intended entrepreneurial policies may not only be ineffective, but have negative implications. These policies ‘force entrepreneurs to “put their eggs in one basket” and push for graduation, thereby irresponsibly exposing them to very high risks. We conclude by calling for a more realistic approach ... survival businesses primarily serve as a buffer against slipping deeper into poverty’ (ibid.: 1).

The policy response towards informal/survivalist/necessity entrepreneurs should thus be to reduce poverty, which is most effective and sustainable through creation of quality jobs. Improvement in formal job opportunities would therefore see the necessity entrepreneurship sector shrink, not expand. This conclusion has two implications, one for policy and one for the measurement of entrepreneurship. The policy implication is that entrepreneurial support should aim to encourage productive, innovative entrepreneurship which could stimulate economic growth and job creation, if this is indeed possible. In Section 3 below I explore the findings in the literature on the relationship between types of entrepreneurship and economic growth, and in Section 5 I present empirical evidence that not all types of ‘entrepreneurship’ have a significant impact on economic growth.

The implication for measurement is that the ways in which entrepreneurship is most often measured, may not capture the differences between types of entrepreneurship. Most often, entrepreneurship is measured statically by the rate of business ownership, or the rate of self-employment. Clearly, given the previous discussion, this does not take into account the motivation of the entrepreneur. This accounts for the fact that a ‘stylized fact’ of the empirical entrepreneurship literature is that we observe a negative relationship between self-employment rates and GDP per capita (Gollin 2008). In poor countries, with less formal employment possibilities, and thus more necessity entrepreneurs, self-employment rates are therefore higher.⁶

⁶ According to Gollin (2008: 219) using ILO data on self-employment across countries, ‘Few people in poor countries work for wages’.

Judging the effectiveness of entrepreneurial policies or the impact of entrepreneurship on growth using self-employment as measurement of entrepreneurship, is therefore likely to be misleading.

To try and overcome the problems of measuring entrepreneurial motivations and thus of capturing the impact of different types of entrepreneurship, the GEM make a distinction between ‘opportunity’ motivated entrepreneurs, and ‘necessity’ motivated entrepreneurs.⁷ The former can be seen as productive entrepreneurs, while the latter may be seen as informal/survivalist entrepreneurs. Amoros (2008) also considers the latter as a possible proxy for destructive (rent-seeking) entrepreneurship, although I will conclude this paper by suggesting that the GEM measures (as others) do not directly capture destructive entrepreneurship given that that weak governance, rent-seeking and opportunity entrepreneurship often co-exists. Indeed, from the empirical results presented in Section 5, I will conclude that destructive and productive (opportunity-motivated) entrepreneurship may not be good substitutes, and that reducing destructive entrepreneurship does not necessarily mean that more talent will be allocated towards productive (opportunity-motivated) entrepreneurship.

In light of the above, I will in the remainder of this paper be concerned with the manifestation of entrepreneurship through the start-up rates of new firms—as these are the cornerstone for private sector development. I will then make use of the GEM’s data to understand how different types of entrepreneurship affect economic growth differently, and whether or not governance and the regulatory environment, measured as the incidence of start-up costs, has a significant impact on entrepreneurship.

The GEM data is the largest cross-country dataset on start-up rates. GEM has been collecting survey data on an increasing number of countries since 1999. Currently 60 countries are sampled. The GEM measures ‘total entrepreneurial activity’ (TEA) in a country, which is the percentage of the labour force that is either actively involved in starting a new business or who own or manage a business that is less than 42 months old. It is therefore a measure of early-stage entrepreneurial activity or ‘entrepreneurial propensity’ (Minniti 2008b: 9). An important and unique advantage of GEM data for present purposes is that uniform definitions and data collection procedures are used across countries (Acs et al. 2008: 267). TEA is broken down in the GEM according to the entrepreneur’s motivation. Thus as mentioned it distinguishes between opportunity-motivated and necessity-motivated entrepreneurship (or ‘remedial’ entrepreneurship). Opportunity-motivated entrepreneurship is the percentage of the labour force that is involved in early stage entrepreneurial activity due to the conscious pursuit of an opportunity. According to McMullen et al. (2008: 876) opportunity-motivated entrepreneurship is ‘consistent with the Schumpeterian innovations thought to contribute significantly to economic growth’, and Sanders (2007: 339) argues that opportunity-motivated entrepreneurship is ‘an important source of innovation’. In contrast, necessity-motivated entrepreneurship is the percentage who have started up their own firms ‘because they cannot find a suitable role in the world of work creating a new business is their best available option’ (Reynolds et al. 2005: 217).

⁷ The GEM also recognizes what it terms ‘high-potential’ entrepreneurial activity (HEA), which measures the subjective expectation of the entrepreneur that his or her firm will employ more than 20 employees within five years (Wong et al. 2005: 345). Due to the difficulties inherent in using subjective expectations as proxy for productive, innovative entrepreneurship, and due to the fact that only about 5 per cent of respondents surveyed in GEM considered themselves to be high-potential, I will not use HEA in this paper.

More detailed descriptions of GEM and comparisons with other cross-country datasets are contained in Ardagna and Lusardi (2008), Acs et al. (2008), and Reynolds et al. (2005).

In conclusion, if we define entrepreneurship as the recognition and exploitation of opportunities, then we should recognize that not all entrepreneurial talent may be allocated in a manner which contributes to economic growth. The implication is that policy should encourage the right type of entrepreneurship. I had pointed out that the predominant approach is one of strengthening institutions (to address the allocation of entrepreneurship away from destructive forms) and of reducing barriers to entry/start-up costs so as to encourage the supply of entrepreneurship and allow for the graduation of informal/survivalist entrepreneurs. In the next section I provide a brief overview of the literature in this regard, after which I set out a model to test for the hypotheses which are emerging in this section, namely that the type of entrepreneurship matter for growth and that policies for strengthening governance and easing the conditions of doing business may encourage the right type of entrepreneurship.

3 Literature review

Two strands of entrepreneurship literature are relevant for the purpose of this paper. The first deals with the relationship between entrepreneurship and economic growth, and suggests that the type of entrepreneurship may matter for growth. The second strand deals with the determinants of start-up rates, in particular regulatory barriers to entry such as start-up costs, minimum capital requirements, and a lack of access to finance. This literature overlaps with the literature on the policy measures for promoting entrepreneurship. An exhaustive review of the literature falls outside the scope of this paper, however I will highlight some of the key findings and salient features thereof that are relevant for current purposes.

3.1 Entrepreneurship and economic growth

The theoretical literature has always seen entrepreneurship as essential for economic growth and development. Wennekers and Thurik (1999: 30) identify thirteen distinct roles of an entrepreneur in economic growth. These include amongst others risk-taking, innovation, arbitrage, and co-ordination of production factors. In various context and periods different roles have been stressed as being more crucial for economic growth than others. Thus for instance in developing countries, where countries operate mostly within the technological production frontier, and where many markets may be missing, entrepreneurs move firms closer to the frontier through technological imitation⁸ and more efficient allocation of labour and capital (Leibenstein 1968; Estrin et al. 2006) and provide competition and markets through arbitrage and a cost-discovery function (see e.g. Kirzner 1973; Hausmann and Rodrik 2003). In more advanced economies, they push out the technological production function through radical and incremental innovation as described by Schumpeter (1911/1934). Nowadays the growth-enhancing role of entrepreneurs in advanced economies⁹ is seen as to transform ‘inventions into commercially viable products and

⁸ Schmitz (1989) highlights the importance of imitation by entrepreneurs and argues that it may be more important for the majority of developing countries than new knowledge generation.

⁹ According to Acs (2008: 2) ‘for developed countries high impact entrepreneurship has become the main form of entrepreneurship driving their economies’.

processes' (Minniti 2008a: 779). In all of these the crucial functions provided by the entrepreneur always go beyond mere business ownership or managerial functions ('routine' entrepreneurship), and most often result in the creation of new firms offering new products and services.

While the benefits of entrepreneurship has long been the topic of research, more recent has began to note that certain types of entrepreneurship may hamper economic growth. Naudé (2008a) discuss two ways in which this can occur, namely when entrepreneurial talent is perversely allocated towards activities that are personally profitable but socially destructive or unproductive, or when there is an increase in the supply of low ability entrepreneurs which impose negative externalities on higher-ability entrepreneurs.

As far as empirical tests of the relationship between entrepreneurship and economic growth is concerned, Nyström (2008) provides a summary of the literature. She lists 38 studies between 1996 and 2006 which quantify the relationship between entrepreneurship and economic performance. In these studies entrepreneurship is measured either by self-employment rates (most often), business ownership rates (e.g Klapper et al. 2007), early-stage entrepreneurial activity (start-up activity) (e.g. Wong et al. 2005) or even by the number of patents registered.¹⁰ Economic performance is measured using either employment, GDP growth, or productivity growth. With the exception of three studies, the studies cited by Nyström (2008) are exclusively focusing on advanced economies, where governance is strong and doing business seemingly easier than in developing countries. This state of affairs has led Autio (2008: 2) to remark that 'we actually know very little about whether and how entrepreneurship either contributes or does not contribute to economic growth in developing countries'. Nyström (2008) concludes from her survey that there is generally, at least over the long run, a positive relationship between entrepreneurship and economic performance. Her conclusion could however be too optimistic and too general. For instance in an earlier survey Parker (2006) reported an ambiguous empirical relationship between the rate of self-employment and unemployment rates. Also, as I will show next, is that when other definitions of entrepreneurship is used apart from self-employment rates, a more nuanced relationship emerges.

Only a few studies have yet utilized the GEM data to explore the macro-level relationship between growth and entrepreneurship (and between entrepreneurship and institutional features). Of those that do, all are currently plagued by methodological weaknesses. For instance with the exception of the study by Autio (2008) none use panel data methods (all use cross-section methods), none considers systematically the impact of governance and doing business indicators on different motivations (opportunity or necessity) for entrepreneurship, and some do not take endogeneity issues (reverse causality) and lags into account.¹¹ As far as the relationship between economic growth and entrepreneurship is concerned, one of the first and few studies to use GEM data, is that of Wong et al. (2005). As explanatory variable measuring entrepreneurship they used the GEM's measurement of 'high-potential entrepreneurship' (HEA), spanning 37 countries for

¹⁰ Salgado-Banda (2007) uses patents as a measure for productive entrepreneurship and finds that it has a positive impact on economic growth in a sample of 22 OECD countries.

¹¹ There is likely to be reverse causality between entrepreneurship and economic growth, and entrepreneurship may affect growth only after a certain lag (see e.g. Carree and Thurik 2008).

2002 (see footnote 8). They find that only ‘high-potential’ entrepreneurial activity is positively associated with economic growth. Autio (2008) uses country-level panel data from the GEM spanning the period 2000-07 to regress GDP growth on various measures of entrepreneurship, namely TEA, high-potential entrepreneurial activity (HEA), and the ratio between HEA and TEA (he does not make a distinction between opportunity-and necessity motivated entrepreneurship). As controls he includes GDP per capita and population growth as well as two indicators from the World Bank’s governance indicators (he chooses the quality of regulatory control as well as the corruptions index). He finds that ‘HEA exhibits a positive and statistically significant association with GDP growth with a one-year time lag’ (ibid.:14). As in other studies, he also finds that the level of the corruption index has a negative impact on subsequent GDP growth.

Finally, in developing countries, small businesses predominate, and are often seen to reflect entrepreneurship. However, Nyström’s (2008) survey did not include studies which used small firms as a measure of entrepreneurship.¹² A survey of those would have found that the evidence that small businesses per se is good for growth, particularly in developing countries, is lacking. For instance Beck et al. (2003) using cross-country data find no evidence that small business firm growth is associated with higher growth levels.

3.2 Start-up costs and regulations as barrier to entrepreneurship

Start-up costs and regulations refer to the effort required to begin a firm. It differs in duration and content from country to country, but generally include aspects such as the cost, number of procedures and time it takes to obtain a permit to operate a business, the costs of setting up a business, which often includes a fixed cost/sunk cost element, and the regulations that needs to be adhered to in terms of labour and production and organisation standards (Fonseca et al. 2001). The World Bank, in its *Doing Business Indicators*, measures start-up costs and regulations through four indicators: the number of procedures to be followed, the length of time it takes, the cost of start-up as a percentage of per capita income, and the minimum capital required to start a business, also as a percentage of per capita income. There are a number of good reasons why start-up costs and regulations may be needed, and may even be beneficial for entrepreneurship. Three reasons stand out. First, regulations are needed to protect the public and workers from potential fraud and exploitation by unscrupulous agents (Fonseca et al. 2007). Second, costs and regulations act as a mechanism to ‘weed out’ low quality entrepreneurs (Klapper et al. 2006). It has been found that higher ability entrepreneurs more easily overcome such regulatory barriers, which results in the pool of entrepreneurs being of higher average quality (Parker 2006). Third, start-up costs and regulations is very often a method to improve government revenue, especially where firms find it easier to avoid normal taxation (Klapper et al. 2006).

Despite these justifications for start-up costs and regulations for new firms, concerns about these have arisen due to accumulating evidence that start-up costs may be misused, and that this may

¹² Although small firms are sometimes used as a measure of entrepreneurship, they are not necessarily synonymous with entrepreneurship or entrepreneurial ventures (Wennekers and Thurik 1999: 29). Most small firms are run by managerial business owners rather than entrepreneurs (Carree et al. 2002: 271).

explain the wide variety in start-up rates and regulations across the world.¹³ The main problems associated with start-up costs and regulations are corruption and rent-seeking, protection of incumbent firms, and disincentives for firms to register. Thus for instance Djankov et al. (2002) found evidence that higher start-up costs and more regulation are associated with higher levels of corruption and a larger informal sector.¹⁴ In their words ‘regulation is pursued for the benefits of politicians and bureaucrats’. Where such corruption is tolerated, or not effectively controlled, start-up costs may not significantly keep out entrepreneurs or act as filter for good entrepreneurial talent (Klapper et al. 2006: 622). Start-up costs may also rise as a reflection of incumbent entrepreneurs’ influence. Parker (2006: 707) speculates that incumbent entrepreneurs may drive an increase in the regulation of business start-up that has been observed in many countries, as a way of creating barriers to entry for new firms. Thus start-up costs and regulations may be necessary, but may be misused and may exceed sensible levels. The question is how will this affect entrepreneurial start-ups, particularly of the type of entrepreneurs that are more likely to drive economic growth?

Empirical evidence on the effect of start-up costs and regulations on entrepreneurship tend to be mixed.¹⁵ Data using self-employment as measure of entrepreneurship often finds a negative relationship and data using start-up rates (TEA) often finds no statistically significant relationship. For example, Klapper et al. (2006) using cross-section data from a sample of EU countries and measuring ‘entrepreneurship’ as the number of new firms formally incorporated—finds that entry costs and regulations result in less new firm incorporations, tend to keep out smaller firms, and contribute to lower productivity from incumbent firms through lowering rates of competition from new firms. Likewise Fonseca et al. (2001) using self-employment data finds evidence from OECD countries that start-up costs hinder entrepreneurial entry and result in lower employment.

In contrast, Van Stel et al. (2007) using GEM data on entrepreneurial start-up rates from 39 that capital costs and labour regulations matter for start-ups, but that start-up costs are not significant. Ho and Wong (2007) also using GEM data, but only a cross-section of 37 countries for 2002, estimate the impact of financial constraints and entry regulations on entrepreneurship. They use as measure of entrepreneurship alternatively TEA, HEA, opportunity-motivated entrepreneurship and necessity-motivated entrepreneurship. As controls they use GDP per capita and productivity growth. To measure start-up regulations they compile a composite business cost index from the World Bank’s Doing Business Indicators, and find that this only has a negative impact on

¹³ Theoretical models have also been provided to show that start-up costs can lower the relative number of individuals who choose to self-employment as an occupational choice (e.g. Fonseca et al. 2001) and that start-up costs reduce the positive effect of wealth holdings on the decision of individuals to enter self-employment (Fonseca et al. 2007).

¹⁴ If this also holds in the present sample, then we should expect in Section 5 to find a positive relationship between necessity entrepreneurship and start-up costs across countries—which we do not however find in the present sample.

¹⁵ In the review here, I focus on studies concerned with the relationship between start-up or entry regulations and costs and entrepreneurship. I do not review studies which investigates other constraints such those posed by e.g. taxes (see Gentry and Hubbard, 2000), finance (e.g. Blanchflower and Oswald 1998; Ho and Wong 2007), and closure procedures (e.g. Acs et al. 2008).

opportunity-motivated entrepreneurship, and not on necessity-motivated or high-potential entrepreneurial activity (HEA).

Other recent studies that use GEM data to study the determinants of entrepreneurship on the country level include Acs et al. (2008), Bowen and De Clerq (2008) and McMullen et al. (2008). Acs et al. (2008) use pooled, cross-sectional data across 40 countries to investigate the impact of regulatory barriers (taken from the Doing Business Indicators) and operational risk on the spread between formal and informal entrepreneurship. They compare in this regard the GEM data on start-up rates (TEA) with the World Bank Group Entrepreneurship Survey (WBGES) data on formal firm registrations, and make the assumption that the former measures 'entrepreneurship potential' and the latter 'actual entrepreneurship', so that the difference is 'lost entrepreneurship'. In their regression analysis they control for GDP per capita (although they do not use lags, thus not taking into account endogeneity problems) as well as for the ratio of domestic credit to the private sector as a measure of financial development. They find that start-up costs significantly determines the amount of 'lost entrepreneurship', that is the spread between the formal and informal sectors, and that start-up barriers appear to be more significant for formal entrepreneurs and less so for early stage entrepreneurship.

Bowen and De Clerq (2008) use GEM data on 40 countries over the period 2002-04 to determine that the proportion of a country's high-growth entrepreneurs is a positive function of finance and education, and a negative function of corruption. They do not specifically test for start-up costs. Apart from corruption, they have no other governance-related variables, although they include proxies for regulatory protection and regulatory complexity. They find that these measures are insignificant, however. McMullen et al. (2008) used GEM data for 2002 on 37 countries to study the determinants of opportunity-motivated and necessity-motivated entrepreneurship. As independent variables they included ten measures of economic freedom, and controlled for GDP per capita. They establish that opportunity-motivated entrepreneurship is higher in countries with more economic freedom, which can be taken to suggest indirectly that reforms to improve governance (such as to broaden voice and accountability) and lower restrictions on doing business would stimulate opportunity-motivated entrepreneurship.

A shortcoming of the macro-level studies quoted above is that their methodologies contain a critical number of weaknesses. For instance in most case the authors restrict their estimators to OLS in conjunction with using cross-section data. In such cases OLS estimators are often biased due to non-constant variances of the error terms; also, cross-section methods cannot control for unobserved heterogeneity amongst countries and is therefore subjected further to omitted variable bias. In addition they bias their estimates by including GDP per capita as control variable on the right hand side of their estimating equations together with their independent variables (measures of economic freedom and operational risk), thus not taking into consideration the high level of correlation between these variables.

In contrast to the previous studies quoted, and the approach in this paper, Ardagna and Lusardi (2008) used GEM data on the micro-level (they used individual data on more than 150,000 individuals surveyed across 37 countries in 2001 and 2002) to determine how a country's regulatory environment influences an individual's occupational decision to become an opportunity-motivated entrepreneur. As they use micro-level data they do not have the rate

of opportunity-motivated entrepreneurship as dependent variable. They define a dummy variable to be equal to one if an individual has indicated that he or she started the firm to exploit an opportunity, and equal to zero otherwise. They find that entry regulations (start-up costs, the time it takes and the number of procedures needed) reduce the positive effects that social networks and education has on the probability of someone becoming an opportunity entrepreneur. They also find that entry regulations makes it less likely for unemployed persons and young people to enter into entrepreneurship.

While Ardagna and Lusardi (2008) finds that start-up costs and regulations can limit the benefits of social networks and education on entrepreneurship, Fonseca et al. (2007) using data from nine EU countries find that start-up costs reduce the size of the positive effect which individual wealth (finance) has on the probability that an individual will choose to become self-employed. The relationship between start-up costs and education is further explored by Dulleck et al. (2006). They provide a theoretical model which departs from the assumption that higher education of the entrepreneur is a requirement for high-growth firms to be successful. Then, a reduction in start-up costs lead to more people pursuing higher education, which in turn has positive spillover effects as it approves the available skills in the labour market overall. Using cross-country data they find evidence of a negative relationship between start-up costs and higher education enrollment rates.

Thus to conclude, there are a growing number of studies which investigates the relationship between entrepreneurship and start-up costs, although as far as I can determine there has not yet been a study concerned with the direct impact of governance indicators on opportunity and necessity motivated entrepreneurship. The studies on the relationship between start-up costs and entrepreneurship tend to find mixed results, depending also on the definition of entrepreneurship used. Furthermore, generalization of the results is complicated due to methodological weaknesses in these studies. In the remainder of this paper I will therefore empirically investigate the impact of opportunity and necessity motivated entrepreneurship on economic growth, as well as the extent to which governance and start-up costs matter for entrepreneurship. As explained in the next section, I will attempt to do so using panel data methods to overcome the methodological weaknesses in earlier studies.

4 Methodology

4.1 Hypotheses and model

From the previous sections, the following two hypotheses are formulated:

Hypothesis 1: The type of entrepreneurship matter for economic growth. In particular, economic growth is more likely to be driven by opportunity than necessity entrepreneurship.

Hypothesis 2: The determinants of opportunity and necessity entrepreneurship are different. In particular, governance and doing business indicators are unlikely to have a significant direct impact on opportunity entrepreneurship.

Hypothesis 1 will be tested by estimating the following growth model:

$$z_{it} = \alpha e_{it} + x_{it}\beta + c_i + u_{it} \quad (1)$$

For $i = 1, \dots, N$ ($N=60$) and $t = 2, \dots, T$ ($T=5$) and where z_{it} is the economic growth rate in country i at time t , e_{it} is alternatively opportunity and necessity entrepreneurship (as defined by the GEM, see Section 2), x_{it} is a $1 \times K$ vector of control variables as listed in Table 1. As indicated in the table some of these vary over time. Also in (1) c_i is unobserved country characteristics that are constant over the time period, and influence z_{it} ; and u_{it} is a random error term with the usual properties.

Second, hypothesis 2 will be tested by estimating the determinants of respectively opportunity and necessity entrepreneurship as follows:

$$e_{it} = \delta b_{it} + \gamma g_{it} + y_{it}\theta + d_i + \varepsilon_{it} \quad (2)$$

Where e_{it} is alternatively opportunity and necessity entrepreneurship; b_{it} an indicator of the ease of doing business in country i in period t ; g_{it} an indicator of governance in country i in period t and y_{it} a $1 \times M$ vector of control variables (see Table 1). As in (1) d_i is unobserved country characteristics that are constant over the time period, and influence e_{it} ; and ε_{it} is a random error term.

4.2 Estimator

Equations (1) and (2) will be estimated using both Ordinary Least Squares (OLS) as well as a random effects Generalized Least Squares (GLS) estimator, given that panel data for 60 countries for the period 2003-07 is available. I use the random effects GLS estimator in order to exploit the properties of the panel dataset. This is useful in the present case since OLS estimates may be subject to omitted variable bias. Thus there might be omitted factors which differs across time or across countries and which may influence GDP growth and entrepreneurial start-up rates. The random effects estimator is relevant to control for omitted variables which may differ *both* across time and across countries. In contrast, a fixed effects estimator control for omitted variables which differ across countries but are constant over time. As entrepreneurial rates differ marked across time, it is intuitively more attractive to use a random effects estimator. The random effects estimator is also a more efficient estimator. I used the Hausman test to determine whether the choice to use a random effects estimator is statistically acceptable in the present case. For both equations (1) and (2) this test confirmed that using a random effects estimator is appropriate.

Table 1: Variables and data sources

Variable	Description	Source
Opp	Opportunity entrepreneurship. The percentage of adults in early stage entrepreneurial activity who are motivated to exploit a business opportunity. Covers approximately 60 countries over the period 2003-07	Global Entrepreneurship Monitor
Nec	Necessity entrepreneurship. The percentage of adults in early stage entrepreneurial activity who are motivated to start a business due to a lack of employment opportunities. Covers approximately 60 countries over the period 2003-07	Global Entrepreneurship Monitor
Startcost	The costs of starting up a business firm, measured as a percentage of per capita income. Covers 60 countries over the period 2003-07.	World Bank. Doing Business Indicators
GDPPC	GDP per capita in constant values. Adjusted for purchasing power parity (PPP). Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online
Growth	Percentage growth in real GDP per annum. Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online
Credit	Amount of credit extended to the private sector as a percentage of GDP. Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online
Patents	The number of patent applications filed by residents of a country. Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online
Voice	Voice and accountability indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes.	World Bank. Worldwide Governance Indicators
Political	Political stability indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes. Data for 60 countries for the period 2003-07 is used.	World Bank. Worldwide Governance Indicators
Gov	Government effectiveness indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes. Data for 60 countries for the period 2003-07 is used.	World Bank. Worldwide Governance Indicators
Reg	Regulatory quality indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes. Data for 60 countries for the period 2003-07 is used.	World Bank. Worldwide Governance Indicators
Law	Rule of law indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes. Data for 60 countries for the period 2003-07 is used.	World Bank. Worldwide Governance Indicators
Corrupt	Control of corruption indicator. The indicator ranges between -2.5 and 2.5. Higher scores signify better outcomes. Data for 60 countries for the period 2003-07 is used.-	World Bank. Worldwide Governance Indicators
Capital	Gross fixed capital formation as percentage of GDP per annum. Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online
Pop	Annual population growth. Covers 60 countries over the period 2003-07.	World Bank. World Development Indicators Online

Source: See text.

4.3 Variables and data

The variables and data sources are listed and described in Table 1. As indicated, the data covers 60 countries¹⁶ over the period 2003-07. A word about the choice of control variables is in order. For equation (1), x includes initial GDP per capita, population growth, and gross fixed capital formation. This choice has been informed by economic growth theory, which sees countries with higher GDP per capita growing slower ('convergence'), and which sees greater inputs of labour (proxied by population growth) and capital as crucial drivers of growth. In case of equation (2) the control variables¹⁷ includes GDP per capita to control for level of development (there is robust evidence that start-up rates vary across countries depending GDP per capita), patents (as indicator of the creation of new opportunities/innovativeness in an economy), GDP growth (to test whether or not growth creates opportunities) and the amount of credit extended to the private sector (which proxies financial sector development/financial access as for instance in Acs et al. 2008).

Having described the methodology which I use in this paper, I can now point out that the paper makes a contribution in terms of improving on the methodologies which have previously been used in this literature on the macro-level determinants of entrepreneurship. Thus, previous papers such as those by Wong et al. (2005), Bowen and De Clerq (2008) and Acs et al. (2008) which studied the relationship between GEM measures of entrepreneurship and various macro-level determinants, do not make use of panel data methods, thereby rendering their results subject to omitted variable bias. Also, I use a larger sample of periods and of countries than in previous studies and include a fair number of developing countries in the sample as well. I also use a richer set of explanatory variables to measure governance and to use as controls.

5 Empirical results

5.1 Descriptive overview

Table 2 summarizes the data. Mean values is shown for the entire sample, as well as separately for advanced and developing economies. For ease of reference start-up costs and governance indicators has been highlighted. This shows substantial differences between advanced and developing countries. While the sample mean for start-up costs is 16.9 per cent of per capita income, it is 9.63 per cent in the sub-sample of advanced economies, but three times higher on average in developing countries, at 29.4 per cent. Also, comparing the governance indicators, it can be seen that whereas these are all positive in advanced economies, they are all negative in developing countries. Indeed, the correlation coefficients between per capita GDP and the

¹⁶ The countries and territories included are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Dominican Republic, Ecuador, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Korea, Latvia, Malaysia, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russia, Serbia, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Uganda, United Arab Emirates, United Kingdom, United States, Uruguay and Venezuela.

¹⁷ I will indicate below that were appropriate I have used lagged values of GDP per capita and GDP growth in the regressions so as to avoid endogeneity (reverse causality) problems.

governance indicators are high, ranging between 0.70 in the case of voice and accountability to 0.87 in the case of rule of law. Table 2 also show however, that despite average start-up costs being three times higher on average in developing countries than in advanced economies, opportunity entrepreneurship rates are twice as high on average. Furthermore, GDP growth is on average also almost twice as high in the sample of developing economies than in the sample of advanced economies.

Table 2: Summary of data

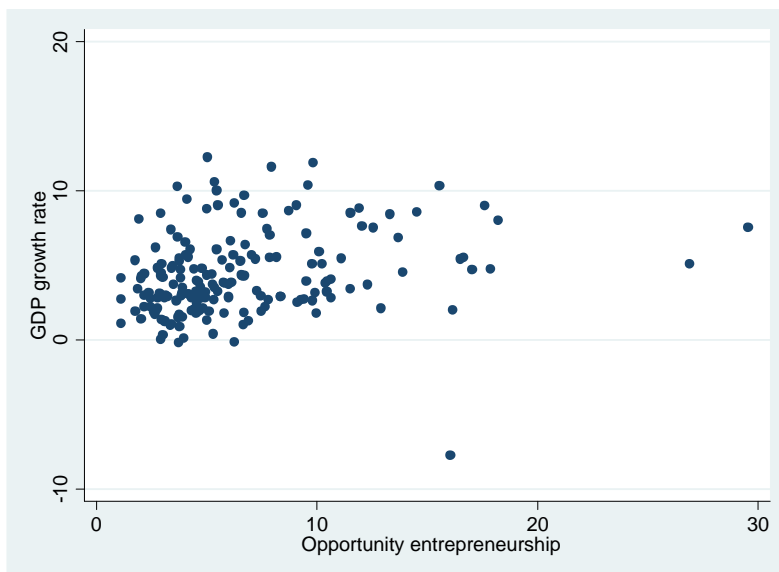
Variable	No. of observations	Mean for all countries	Mean for advanced economies	Mean for developing economies
Opp	184	6.49 %	5.03%	10.28%
Nec	187	2.52 %	1.30%	5.78%
Startcost	298	16.9 %	9.63%	29.4%
GDPPC	288	\$20,002	\$27,457	\$7,008
Growth	288	4.81 %	3.94%	6.32%
Credit	281	57.9 %	105%	49.34%
Patents	157	21,898	25,307	10,020
Voice	300	0.628	1.018	-0.044
Political	300	0.263	0.678	-0.453
Gov	300	0.820	1.297	-0.004
Reg	300	0.741	1.181	-0.018
Law	300	0.609	1.132	-0.297
Corrupt	300	0.695	1.238	-0.244
Capital	256	22.09 %	21.95%	22.29%
Pop	295	0.89%	0.71%	1.18%

Source: Author's calculations based on World Bank and GEM data.

The data in Table 2 therefore suggests that there might be a positive relationship between opportunity entrepreneurship and economic growth (both of these are almost twice as high in developing than advanced economies), and that there does not seem to be a negative relationship between start-up costs and entrepreneurship (start-up costs are on average three times higher in the sample of developing economies, where opportunity entrepreneurship is higher, than in advanced economies).

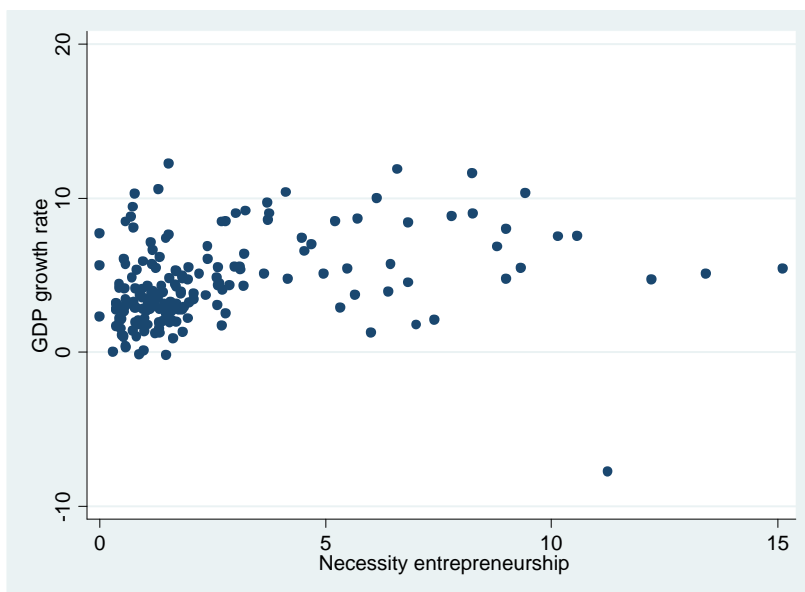
To further investigate these features, Figures 1-6 contain scatter plots of the relationship between opportunity and necessity entrepreneurship on the one hand, and economic growth, doing business indicators, and governance indicators on the other. Figure 1 suggests that there may be a positive relationship between opportunity entrepreneurship and GDP growth, although the positive pattern seems weaker for countries with opportunity entrepreneurship rates in excess of 10 per cent. In contrast, Figure 2 does not seem to suggest any strong relationship between GDP growth and necessity entrepreneurship.

Figure 1: Opportunity entrepreneurship and economic growth



Source: Author's calculations based on World Bank and GEM data.

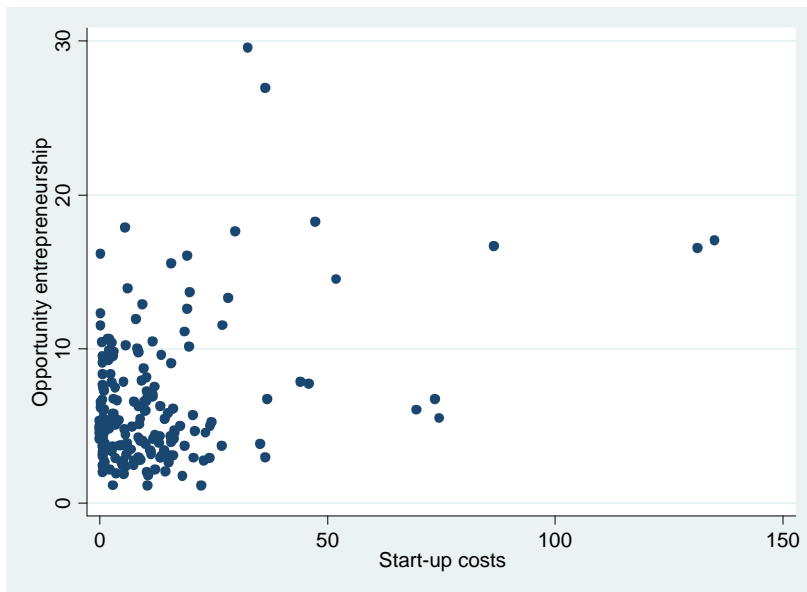
Figure 2: Necessity entrepreneurship and economic growth



Source: Author's calculations based on World Bank and GEM data.

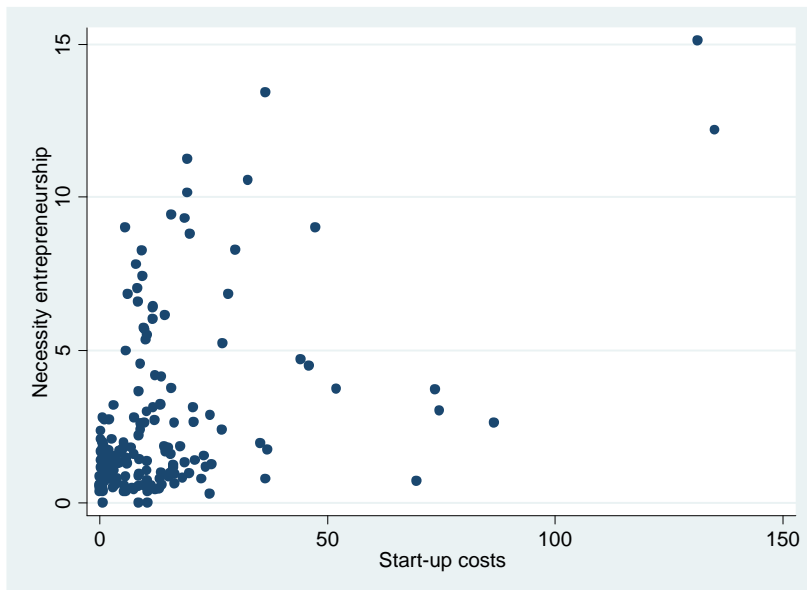
Figure 3 depicts the relationship between opportunity entrepreneurship and start-up costs, whereas Figure 4 depicts between necessity entrepreneurship and start-up costs. The figures suggest no strong relationships.

Figure 3: Opportunity entrepreneurship and start-up costs



Source: Author's calculations based on World Bank and GEM data.

Figure 4: Necessity entrepreneurship and start-up costs

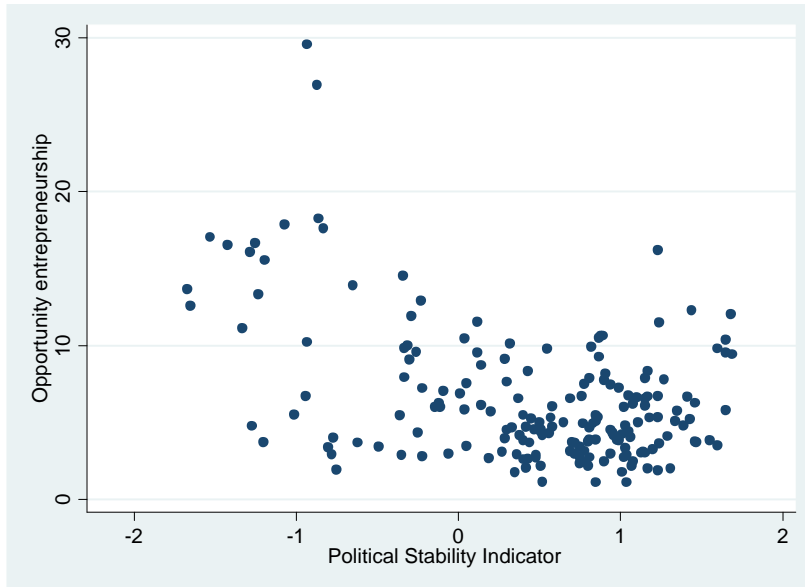


Source: Author's calculations based on World Bank and GEM data.

Finally, there is the relationship between opportunity and necessity entrepreneurship and the six Worldwide Governance Indicators. Due to space limitations these are not all shown here. Here I only include the relationship between opportunity and necessity entrepreneurship and political stability, as it is one of the few cases where some relationship may be inferred from the graph. As Figure 5 seems to suggest, there might be a negative relationship between political stability

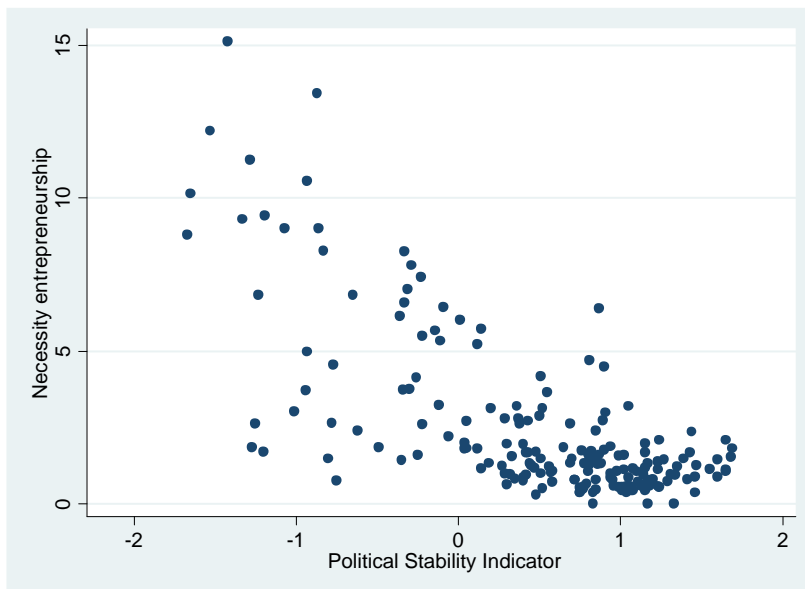
and necessity entrepreneurship. Thus, political instability may be an important factor which pushes people into self-employment for survival reasons.

Figure 5: Relationship between opportunity entrepreneurship and political stability



Source: Author's calculations based on World Bank and GEM data.

Figure 6: Relationship between necessity entrepreneurship and political stability



Source: Author's calculations based on World Bank and GEM data.

5.2 Regression results

Table 2 and Figures 1-6 offer tentative support for the hypotheses put forward in Section 4.1. Thus, there is some indication that only opportunity entrepreneurship may matter for growth (Figures 1 and 2), and that governance and doing business indicators (start-up costs) are not strongly related to opportunity entrepreneurship (Table 2; Figures 3-6). In this section I provide evidence on the statistical significance of these relationships using OLS and random effects GLS estimates.

Entrepreneurship and growth

Equation (1) was estimated using both OLS and random effects GLS, using as measure of entrepreneurship (e) alternatively opportunity and necessity entrepreneurship as measured by the GEM. Because the OLS and random effects GLS results are very similar,¹⁸ I only report here the random effects GLS results in Tables 3 and 4.

Three remarks regarding the treatment of the right-hand side variables are in order. First, it will be seen that opportunity entrepreneurship enters as a lagged variable in (1). This is to avoid possible endogeneity problems, given that economic growth could be a determinant of opportunity entrepreneurship. Second, the governance indicators enter in first differences (indicated by 'd'). This is due to the fact that the governance indicators in levels are significantly correlated with initial GDP per capita. However, there is little correlation between changes in governance indicators and initial GDP per capita. The coefficients on the governance indicators would therefore capture the effects of improvements or deteriorations in the quality of governance on economic growth. Third, the governance indicators, being themselves highly correlated with one another, are entered sequentially, the results contained in columns 2-7.

In Table 3 can be seen that opportunity entrepreneurship is a significant determinant of economic growth, even when one controls for initial GDP per capita, population growth, and fixed capital. It also remains significant when various governance indicators are included. It can also be seen from the table that, with the exception of voice and accountability, all of the other governance indicators have a positive and significant impact on real GDP growth. Although opportunity entrepreneurship is significant, Table 3 suggests that the impact of governance indicators tend to be larger—the largest single impact on growth seems to come from improvements in the rule of law and the control of corruption. The results in Table 4 differ from that in Table 3, in that necessity entrepreneurship does not consistently appear as a significant determinant of real GDP growth. It is generally insignificant, with the only exceptions where government effectiveness and the rule of law enter into the equation. As in Table 3, all of the governance indicators, with the exception of voice and accountability, has a positive and significant impact on real GDP growth. As for the control variables, initial GDP per capita enters significantly and with the right sign (negative) suggesting (slow) convergence. Capital also enters positively and significantly as was expected. Population growth turns out to be insignificant (although it is significant in the OLS results).

I can thus conclude that the results confirm Hypothesis 1.

¹⁸ The full OLS results are available on request.

Table 3: Random effects regression results for the impact of opportunity entrepreneurship on growth in GDP

Variable	(1) Without governance	(2) Voice and Accountability	(3) Political Stability	(4) Government Effectiveness	(5) Regulatory Quality	(6) Rule of Law	(7) Control of Corruption
Constant	4.6 (2.18)**	4.6 (2.2)**	4.4 (2.18)**	4.6 (2.09)**	4.50 (2.22)**	4.89 (2.14)**	5.07 (2.07)**
Opp (lagged)	0.14 (0.06)**	0.14 (0.06)**	0.14 (0.06)**	0.16 (0.06)**	0.17 (0.06)**	0.15 (0.06)**	0.13 (0.06)**
d.Voice		0.14 (0.92)					
d.Political			2.41 (1.18)**				
d.Gov				3.09 (1.00)**			
d.Reg					3.78 (1.08)***		
d.Law						7.6 (2.08)***	
d.Corrupt							4.32 (1.23)***
Initial GDP	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)***
Pop	-0.09 (0.44)	-0.08 (0.43)	-0.06 (0.45)	-0.15 (0.42)	-0.20 (0.44)	-0.10 (0.42)	-0.16 (0.42)
Capital	0.05 (0.09)	0.05 (0.09)	0.05 (0.09)	0.04 (0.08)	0.05 (0.09)	0.04 (0.09)	0.04 (0.08)
R^2	0.26	0.26	0.29	0.30	0.27	0.32	

Source: See text.

Notes: Robust standard errors in parenthesis. Significance at the 1%, 5%, and 10% levels respectively indicated by ***, ** and *. Number of observations = 114, groups = 51.

Table 4: Random effects regression results for the impact of necessity entrepreneurship on growth in GDP

Variable	(1) Without governance	(2) Voice and Accountability	(3) Political Stability	(4) Government Effectiveness	(5) Regulatory Quality	(6) Rule of Law	(7) Control of Corruption
Constant	4.31 (1.91)**	4.30 (1.91)**	4.27 (1.91)**	4.16 (1.83)**	4.34 (1.94)	4.19 (1.84)**	4.71 (1.84)**
Nec (lagged)	0.22 (0.15)	0.22 (0.15)	0.22 (0.14)	0.25 (0.15)*	0.24 (0.14)	0.29 (0.15)**	0.23 (0.144)
d.Voice		0.11 (0.91)					
d.Political			2.13 (1.13)*				
d.Gov				2.9 (0.97)**			
d.Reg					3.45 (1.12)**		
d.Law						8.15 (2.30)***	
d.Corrupt							4.41 (1.25)***
Initial GDP	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**
Pop	-0.05 (0.42)	-0.04 (0.41)	-0.00 (0.42)	-0.09 (0.39)	-0.12 (0.41)	-0.08 (0.41)	-0.14 (0.41)
Capital	0.07 (0.08)	0.07 (0.08)	0.06 (0.08)	0.06 (0.08)	0.07 (0.08)	0.06 (0.08)	0.05 (0.08)
<i>R</i> ² overall	0.27	0.26	0.31	0.31	0.27	0.34	0.30

Source: See text.

Notes: Robust standard errors in parenthesis. Significance at the 1%, 5% and 10% levels respectively indicated by ***, ** and *. Number of observations = 115, groups = 51

Start-up costs, governance, and entrepreneurship

The relationship between entrepreneurship and start-up costs (ease of doing business) and governance indicators was estimated as per equation (2) using OLS and random effects GLS. As the OLS results are broadly similar, I only report here the random effects panel data estimations, and do so in Tables 5 and 6. Table 5 contains the results of the impact of start-up costs and governance indicators on opportunity entrepreneurship, and Table 6 contains the results of their impact on necessity entrepreneurship. As far as the explanatory variables are concerned, GDP growth is entered with a lag (so as to avoid endogeneity problems) and because of multicollinearity the various indicators of good governance enter sequentially.

The results in Tables 5 and 6 are very similar, in that neither start-up costs nor governance have any statistically significant impact on either opportunity or necessity entrepreneurship. Amongst the control variables, GDP per capita is significantly (and negatively) related to both opportunity and necessity entrepreneurship—this confirms that with higher levels of development the opportunity costs (which includes wage employment but also social benefits) of entrepreneurship becomes larger. Thus countries with higher per capita GDP will be more likely to have lower opportunity and necessity entrepreneurship. GDP growth lagged has no statistically significant impact on entrepreneurship. However, in the case of opportunity entrepreneurship, credit extended to the private sector does turn out to be statistically significant. This finding is consistent with that of Bowen and De Clerq (2008) which finds financial access to be a significant determinant of high-growth entrepreneurship in the GEM data. Lack of access to finance/underdeveloped financial sector may therefore limit opportunity entrepreneurship.

Although much more need to be done to identify the determinants of opportunity and necessity entrepreneurship, the results here confirm Hypothesis 2.

Table 5: Random effects regression results for the impact of start-up costs and governance on opportunity entrepreneurship

Variable	(1) Without governance	(2) Voice and accountability	(3) Political stability	(4) Government effectiveness	(5) Regulatory quality	(6) Rule of law	(7) Control of corruption
Constant	8.5 (1.95)***	8.36 (1.98)***	8.41 (2.00)***	8.52 (1.94)***	8.7 (1.97)***	8.37 (1.83)***	8.36 (1.94)***
Start-up costs	-0.02 (0.08)	-0.02 (0.09)	-0.04 (0.09)	-0.02 (0.09)	-0.03 (0.09)	-0.01 (0.09)	-0.01 (0.09)
d.Voice		0.43 (0.94)					
d.Political			-1.95 (1.32)				
d.Gov				0.20 (1.44)			
d.Reg					-1.79 (1.55)		
d.Law						3.89 (3.69)	
d.Corrupt							0.93 (2.58)
GDP per capita	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)**	-0.00 (0.00)***	-0.00 (0.00)**
Patents	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Credit	0.02 (0.01)**	0.02 (0.007)**	0.02 (0.007)**	0.02 (0.00**)	0.02 (0.007)**	0.02 (0.01)*	0.02 (0.01)*
Growth (lag)	0.22 (0.15)	0.22 (0.16)	0.22 (0.15)	0.22 (0.16)	0.20 (0.15)	0.27 (0.18)	0.23 (0.17)
R^2	0.12	0.13	0.10	0.13	0.11	0.15	0.13

Source: See text.

Notes: Robust standard errors in parenthesis. Significance at the 1%, 5% and 10% levels respectively indicated by ***, ** and *. Number of observations = 75, groups = 36.

Table 6: Random effects regression results for the impact of start-up costs and governance on necessity entrepreneurship

Variable	(1) Without governance	(2) Voice and accountability	(3) Political stability	(4) Government effectiveness	(5) Regulatory quality	(6) Rule of law	(7) Control of corruption
Constant	4.69 (0.93)***	5.05 (0.95)***	4.78 (0.94)***	4.70 (0.93)***	4.72 (0.96)***	4.73 (0.94)***	4.78 (0.93)***
Start-up costs	0.05 (0.07)	0.04 (0.07)	0.05 (0.07)	0.05 (0.07)	0.05 (0.07)	0.05 (0.07)	0.04 (0.06)
d.Voice		-1.21 (0.62)					
d.Political			1.07 (0.72)				
d.Gov				-0.06 (0.53)			
d.Reg					-0.13 (0.97)		
d.Law						-0.99 (1.72)	
d.Corrupt							-0.77 (1.15)
GDP per capita	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (0.00)***	-0.00 (00)***
Patents	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Credit	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.04)	0.01 (0.04)
Growth (lag)	-0.03 (0.07)	-0.06 (0.08)	-0.04 (0.07)	-0.03 (0.07)	-0.03 (0.07)	-0.04 (0.08)	-0.04 (0.08)
R^2	0.45	0.45	0.47	0.45	0.45	0.44	0.44

Source: See text.

Notes: Robust standard errors in parenthesis. Significance at the 1 %, 5% and 10% levels respectively indicated by ***, ** and *. Number of observations = 76, groups = 36.

6 Discussion

The results presented in the previous section have two implications. The first implication is that simply improving governance, or reducing start-up costs may not be sufficient to raise opportunity entrepreneurship. The second, more contentious, implication is that the supply of productive entrepreneurship may not be a problem or shortcoming in developing countries, or for development in general. Let me briefly elaborate on these.

Despite weak governance and high start-up costs opportunity entrepreneurship is already high in developing countries. Although many ascribe this to the low opportunity cost of entrepreneurship in developing countries, it is also consistent with the notion that ‘the demand for entrepreneurship in economic development would be particularly high’ (Leff 1979: 49). As put by Ho and Wong (2007: 198) ‘there are more entrepreneurial opportunities in developing countries’. Arguments that a lack of the right type of entrepreneurship may be lacking in developing countries may therefore be exaggerated, as the evidence in this paper has found that the higher number of entrepreneurial opportunities and demand for entrepreneurship in developing countries is indeed matched by higher rates of opportunity-motivated entrepreneurs entering the market.

The view that lack of entrepreneurship is a binding constraint on growth in developing countries is in fact a view that has waxed and waned over the past five decades. Immediately after many developing countries gained independence in the aftermath of the Second World War, many saw the demand for entrepreneurship as substantial and the supply inadequate. However, by the late 1970s already, concerns about the lack of entrepreneurship started to recede. Entrepreneurship all but disappeared from development economics texts in the 1980s and 1990s, based on a general view, as voiced by Leff (1979: 51) that ‘entrepreneurship is no longer a problem’ or a ‘relevant constraint on the pace of development’. Leff (1979) did however qualify this opinion in two ways, which I consider to be still highly relevant for developing countries and for the debate of the role which government policy can play in encouraging the right type of entrepreneurship. First, he remarked that if indeed entrepreneurship had ever been lacking in developing countries in the past, it had during the intervening years been so successful that this very success created further problems for developing countries. These new problems include the rise of ‘oligopoly capitalism’ and growing inequalities in incomes and wealth. Thus successful entrepreneurship in developing countries ‘has led to serious economic distortions... [developing countries] have taken factor-market imperfections and transmuted them into product market imperfections’ (ibid.: 55).

Second, he noted that by the end of the 1970s at least, that ‘widespread success has not been achieved in technological entrepreneurship’ (ibid.: 53). While this remain true for many developing countries even today (especially for many in Africa), important examples of successful technological entrepreneurship in developing countries exist. The foremost examples are Brazil, China, and India. In each of these technological innovation is playing an increasingly important role in growth. Thus Brazil is a global pioneer in bio-fuel technology; China is a growing developer and exporter of high-tech goods,¹⁹ and India is world famous for the rapid emergence of its software sector (and

¹⁹ Puga and Trefler (2008) notes that by 2000-02 about 48 per cent of all innovative new goods imported by the USA came from China.

one should not forget its innovative pharmaceutical sector). What all three of these countries have in common though, is a very low score and rank on the World Bank's index for the ease of doing business. Thus Brazil is ranked 122nd, China 83rd, and India 120th, out of 178 countries in 2008. In fact as Table 7 shows, a number of developing countries have performed well in terms of producing and exporting technologically innovative goods despite having low rankings on the ease of doing business indicators.

Table 7: Change in the percentage of new goods imported by the USA and exporting countries' ranking in terms of ease of doing business

	Change in the number of new goods imported, 2000-02 (%)	Change in the value of new goods imported, 2000-02 (%)	Country ranking on the ease of doing business in 2008
Advanced economies			
Japan	-13	-24	12
Canada	0	-18	7
Germany	-1	-4	20
Developing economies			
China	30	5	83
Malaysia	8	5	24
Thailand	6	0	15
India	5	0	120
Mexico	4	-2	44
Philippines	4	3	133
Indonesia	2	0	123

Source: Adapted from Puga and Trefler (2008: 4).

There are a growing number of developing countries, not only with high opportunity entrepreneurship, but also with apparently growing technological entrepreneurship, with low rankings on the ease of doing business index. Athreye (2008) investigates the reason why India's software industry developed so rapidly despite the country's low ranking. As she put it 'In theory, the Indian software industry should not have developed the way it did ... the software industry achieved its astonishing results despite the adverse conditions facing entrepreneurs' (ibid.: 2).

Mani (2008) documents the reasons for the success of technology entrepreneurship in India, despite the country's low ranking on the ease of doing business index. The main reason lies in proactive government support policy. Thus, the Indian government did not assume that the supply of entrepreneurship will be automatically forthcoming to exploit the opportunities that existed globally. One of the most salient proactive measures discussed by Mani (ibid.) is the extension of financial support schemes such as venture capital funds²⁰ to entrepreneurs.

The significant growth of entrepreneurship in China since the country's economic reforms started in 1978 has also benefitted from proactive government

²⁰ According to Mani (2008: 2) 'Although the absolute level of venture capital investments in India is low, it has been growing at a rate of 90 per cent over the last few years and at this rate of growth, the industry is set to match Europe by 2009 or 2010'.

targeting/support. Thus, as Table 7 shows, the number new products exported from China to the USA between 2000 and 2002 increased by over 30 per cent. Rates of opportunity-motivated entrepreneurship in China are high: between 2003 and 2007 the average annual rate of opportunity-motivated entrepreneurship in China was 8.2 per cent. These achievements are despite the fact that China is ranked only 83rd in terms of the ease of doing business. What is driving these opportunity entrepreneurs? Since 1978 a number of proactive policy measures were introduced to support private sector development. A full discussion falls outside the scope of the present, although it can be noted that these include the transformation and privatisation of state owned enterprises (SOEs), learning from foreign firms through encouraging the inflow of FDI, the explicit encouragement of high-tech entrepreneurship (Rui and Yip 2008: 217) and huge investments in infrastructure, particularly trade and transport-related infrastructure²¹ (Dollar 2008).

The cases of India and China are illuminating, but by no means unique where entrepreneurship and economic growth has flourished. Countries which are seen as 'entrepreneurial' today, historically had important proactive state support for private sector development.²² Lazonick (2008) argues that the examples of the world's advanced 'entrepreneurial' economies all point to the importance of a 'developmental state' for entrepreneurship. I will conclude in this regard by quoting Lazonick:

While entrepreneurship epitomizes the opportunities for the reallocation of a society's productive resources that open markets offer, they do so within national contexts in which the state invariably plays a fundamental developmental role. My argument, based on comparative-historical research, is that in all the advanced economies over the past century, first and foremost the United States where the ideology of 'free market' entrepreneurialism is most virulent, successful entrepreneurship in knowledge intensive industries has depended heavily upon a combination of (a) business allocation of resources to innovative investment strategies, and (b) government investment in the knowledge base, state sponsored protection of markets and intellectual property rights, and (often extensive and persistent) state subsidies to support these business strategies. (2008: 1-2)

7 Concluding remarks

In this paper I have argued that not all types of entrepreneurship are good for economic growth. From a survey of the literature I concluded that the evidence on the relationship between entrepreneurship and economic growth, and between governance indicators and the ease of doing business and entrepreneurship is ambiguous, and contains a number of methodological weaknesses. Therefore, I used GEM data on opportunity and necessity entrepreneurship from 60 countries covering the period 2003-07 to test two

²¹ According to Dollar (2008: 10) 'The combination of low tariffs, efficient customs, and efficient ports means that large numbers of firms in China are very well connected to the international market'.

²² Importantly, as Minniti (2008a) also stress, is that where successful in these countries, and also in the cases of India and China, tailoring of support measures to local (subnational) circumstances has been noticeable.

hypotheses, namely that (i) it is opportunity rather than necessity entrepreneurship that matters for economic growth, and that (ii) governance and the ease of doing business (start-up costs) will not have a direct effect on opportunity entrepreneurship.

Statistical evidence was found to confirm both hypotheses. In particular, I found that opportunity entrepreneurship is a significant determinant of economic growth, even when one controls for initial GDP per capita, population growth, and fixed capital. It also remains significant when various governance indicators are included. With the exception of voice and accountability, changes in all of the other governance indicators were found to have a positive and significant impact on real GDP growth. As far as the relationship between governance and start-up costs and early-stage entrepreneurship is concerned, I found that neither start-up costs, nor governance has any statistically significant impact on either opportunity or necessity entrepreneurship. Moreover, lagged GDP growth did not affect entrepreneurship. Amongst the control variables, GDP per capita was found, as in other studies, to be negatively related to both opportunity and necessity entrepreneurship, and in the case of opportunity entrepreneurship, credit extended to the private sector was also found to be a statistically significant determinant.

The policy implication which emerges from these results is that the advocacy of better governance and an easier environment for doing business may not be sufficient for encouraging the type of entrepreneurship (opportunity-based) which has been found to be causing higher economic growth. It may even not be necessary: despite poor governance and high start-up costs, opportunity entrepreneurship is high in many countries, indicating that entrepreneurs may overcome obstacles. However this does not mean that government support for entrepreneurship has no place, indeed I have pointed out that an approach towards entrepreneurship based only on improving governance and lowering start-up costs are reactive. More proactive measures, such as support for venture finance,²³ education and training, particularly for technology entrepreneurship, was argued to be appropriate for developing countries. The cases of India, China, but as well the experiences of many of the world's current advanced entrepreneurial economies stand out as examples in this regard.

Finally, an important finding from the view of entrepreneurship policy found in this paper is that there is a significant and positive impact of changes in governance on economic growth in the sample. One reason why this might happen is that better governance reduce destructive entrepreneurship (including rent-seeking) even though it does not raise opportunity entrepreneurship. Thus opportunity entrepreneurship and destructive entrepreneurship may be poor substitutes—the requirements for being a good opportunity-motivated entrepreneur may differ too substantially from the requirements from being good at rent-seeking). Because of a lack of quantification of 'destructive' entrepreneurship, I could not directly test these conclusions, and they must remain tentative until future research could provide more clarity.²⁴ Through better governance and proactive measures private sector development can be encouraged in

²³ Financial development was found to be a significant determinant of opportunity-motivated entrepreneurship.

²⁴ Future research could also clarify the causality between opportunity entrepreneurship and reforms in governance. It has been argued that entrepreneurs may improve the institutional framework in a country (see e.g. Douhan and Henrekson 2008; Li et al. 2006).

ways which both supports productive entrepreneurship and limits destructive entrepreneurship.

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