DOES ENTREPRENEURSHIP MATTER? THE ENTREPRENEURIAL FUNCTION IN DEVELOPING COUNTRIES

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1. INTRODUCTION

This paper argues that the role of individual entrepreneurs and small firms is overstated in developing countries. This role will depend on the types of entrepreneurship and innovation relevant to a country's stage of economic development. The entrepreneurial function required in factor- and efficiency-driven economies must relate to the innovation process for technological catching-up which characterises late industrialisation. The innovation requirements here centre on imitation and adaption rather than the creation of new knowledge, and are best realised through large firms with economies of scale. In addition, small firms are associated with unproductive, necessity-driven entrepreneurship in the absence of formal sector jobs associated with large firms in poor factor-driven economies. The institutional support for entrepreneurship in developing countries is therefore very different from the "good institutions" in the literature which reflect current institutional arrangements in rich, innovation-driven economies rather than the requirements of technological catching-up in developing countries.

The following section identifies the entrepreneurial function in developing countries and looks at how the type of entrepreneurship and innovation are related to a country's stage of development, institutional arrangements and firm size. This provides a framework to then examine the broader entrepreneurship evidence (Section 3) and case study of Malaysia (Section 4). The final section concludes.

2. ENTREPRENEURSHIP THEORY

Entrepreneurship definitions

Definitions of entrepreneurship vary across and within disciplines (see e.g. Avancini 2009). Within economics there remains no consensus on what makes an entrepreneur

conceptually distinct from merchants, traders, businessmen, capitalists or managers, whose functions are also all performed, at some point, by the entrepreneur (see e.g. Hébert and Link 1988). The entrepreneur is seen as innovator, coordinator of production or manager, agent of change, and arbitrageur (see e.g. Schumpeter 1950, 1961; Kanbur 1979; Hitt et al 2001; Kirzner 1973, cited in Naude 2008: 3). Definitions in economics focus on three aspects of entrepreneurship: occupational, behavioural, and outcomes (Naude 2008). The entrepreneur here is usually self-employed and engaged in innovation associated with opportunity recognition through the creation of new (small) enterprises (see e.g. Acs and Audtresch 2005; Naude 2008).

However, as economic development is the process of structural transformation of an economy, the discussion of entrepreneurship needs to be connected to technological innovation associated with industrialisation. Entrepreneurs can play a central role in economic activity by responding to, or creating, market disequilibrium. In the former, they are motivated by profit opportunities and demonstrate a perceptiveness or alertness by recognising and reacting to these opportunities (Kirzner 1985: 131; Kihlstrom and Laffont 1979; Gaglio and Katz 2001; Licht 2007, all cited in Naude 2008: 5). In this case, the entrepreneur is more of a gap seeker/filler and input completer – in other words, closer to an arbitrageur or speculator – rather than initiator of change. In the latter, the entrepreneur's drive to innovate disrupts equilibrium, providing temporary monopoly gains that are soon wiped out by imitation, thereby necessitating further innovation (Schumpeter 1950). This process of 'creative destruction' provides the link between entrepreneurship and innovation.

It is necessary to distinguish between two types of entrepreneurial functions here (see Hébert and Link 1988). Static conceptions view the entrepreneur as someone who supplies financial capital, is a manager or superintendent, the owner of an enterprise, and/or an employer of factors of production. Dynamic conceptions regard the entrepreneur as someone who assumes risks associated with uncertainty and is an innovator; decision maker; industrial leader; contractor; arbitrageur; and organiser, coordinator and allocator of economic resources. Dynamic entrepreneurship can thus involve arbitrage, speculative and

innovative activity. But as arbitrage constitutes a discovery of opportunity for pure gain and calls for no innovation, and speculation is an arbitrage across time, the definition of entrepreneurship related to development must necessarily focus on innovation. Since economic growth is about dynamic change associated with technological advances, and has historically occurred as a result of industrialisation, the relevance of entrepreneurship in developing countries centres on technological innovation in manufacturing. That is to say, we are mainly interested in the dynamic functions of entrepreneurship associated with industry.

The entrepreneurial function

The discussion of entrepreneurship in the context of late industrialisation necessitates further qualifications as to what entrepreneurship entails. As most resources in advanced countries are in or near their highest-valued use, any increase in productivity requires new technologies in which entrepreneurship (through new start-ups and innovation) can play a role (Bhide 2004). Developing countries, however, are characterised by low levels of technology and hence efficiency, particularly in relation to incumbent firms in advanced countries. There is also a very large stock of proven technical innovations in advanced economies which have not yet been applied in developing countries, and rapid growth 'can be achieved merely through the introduction into and diffusion through the economy of such superior technologies' (Bhide 2004: 2).

As such, the nature of the entrepreneur's function in developing countries today differs considerably from that in 19th century Europe and US (Kilby 1971). Specifically, there is less of a role for original innovation (or new knowledge generation) as there is for imitation and adaptation for the purposes of technological catching-up (see e.g. Schmitz 1989; Estrin et al 2006: 697, cited in Naude 2008; Bhide 2004). This suggests that 'poor countries should not be focusing … on R&D/new knowledge generation' (Schmitz 1989; Estrin et al. 2006: 697, both cited in Naude 2008) as this 'would actually impair growth by diverting resources from the more valuable tasks of adopting known-to-be superior technologies' given that technology can be imported more cheaply (Bhide 2004: 2). Instead, the primary task of entrepreneurship in developing countries is to assimilate existing technology (Nelson and

Pack 1999, cited in Naude 2008). There is thus less need for individual entrepreneurship and small start-ups engaged in new innovation as there is for large firms with the capital and personnel to acquire technologies from abroad and to undertake large-scale operations to implement proven technologies (Bhide 2004).

Imitation and adaptation in turn require different types of innovation related to know-how and management skills which are difficult to codify and which are acquired informally on the job through learning-by-doing (Beaudry and Francois 2008: 3). The critical entrepreneurial function in developing countries in this context is largely managerial and static, involving financing, adapting techniques and organisation, maximising factor productivities, minimising unit costs, and improvising substitutes for non-available skills and materials (Kilby 1971). Successful entrepreneurship will also depend on the rate of assimilation of technology (Nelson and Pack 1999, cited in Naude 2008) and absorptive capacity to capitalise on available technology (see e.g. Bhide 2006).

However, developing countries are characterised by technological and entrepreneurial gaps and face problems related to missing and segmented markets, impeded factor mobility, lumpiness and unavailable inputs (see Tan 2011). Limited entrepreneurial capacity and the lack of scale economies restricts the absorption and assimilation of technology and entrepreneurs face operational problems of matching advanced technology with qualitatively ill-fitting local factors of production (see e.g. Kilby 1971). Incomplete knowledge and complex motivations give rise to strategic uncertainty and coordination failures where complimentary investments needed for economic transformation fail to take place (see e.g. Rodrik 2004; Chang and Kozul-Wright 1994; Chang and Rowthorn 1995). In addition, the upgrading of factor inputs necessary to introduce modern techniques of production is many times greater and must occur in a far shorter interval than previously with advanced countries (Kilby 1971; Whittaker et al 2010). These problems compound the high risks inherent in moving into manufacturing. In particular, the high costs of capital investment (and shallow capital markets) potentially deter domestic entrepreneurs (especially if they are also risk averse).

Historically, these challenges have necessitated institutional support in the form of infant industry protection and learning rents to create large firms, develop domestic entrepreneurial capacities, secure and coordinate resource allocation, and provide the space for learning on the job (see e.g. Wade 1989; Amsden 1989; Chang 1999). Institutional support has also been provided through 'national innovation systems' (the variety of public and private institutions which affect technological change) (see e.g. Nelson 1993) and 'national systems of entrepreneurship' ('the kinds of institutional arrangements supporting continuous innovation through a network of public and private institutional linkages that encourage risk-taking, learning, imitating and experimenting') (Chang and Kozul-Wright 1994: 864–865).

The entrepreneurial function is thus necessarily related to the requirements of specific stages of development. The entrepreneurship literature identifies three broad stages: factor-driven, efficiency- (or capital-) driven, and innovation- (or knowledge-) driven (see Porter 2002; Bosma et al 2008; Naude 2008). Factor-driven economies are largely agricultural, feature high rates of self-employment, and 'compete through low-cost efficiencies in the production of commodities or low value-added products', neither creating knowledge for innovation nor using knowledge for exporting (Porter 2002, cited in Acs and Autio 2010: 1). Efficiency-driven (non-core) economies engage in catch-up growth through technological absorption (van Stel et al 2005; Bosma et al 2008) and economies of scale in basic manufacturing industries. They are characterised by the increasing use of, and returns to, capital and labour, and the corresponding decline in self-employment (Acs and Autio 2010). Innovation-driven (core) economies are advanced countries specialising in technological innovation in (new) knowledge-intensive, high value-added industries (Romer 1990; Acs et al 2009, both cited in Acs and Autio 2010). The discussion of innovation in the entrepreneurship literature largely centres on the entrepreneurship function in innovation-driven, advanced economies.

Types of entrepreneurship

These stages of economic development correspond to the different types of entrepreneurship identified in the literature: productive, unproductive and destructive (van

Stel et al 2005; Bosma et al 2008; Autio 2008; Sanders and Weitzel 2010; Baumol 1990; Autio 2007; Avanzini 2009; Estrin et al 2008). Productive entrepreneurship is usually legal and formal (see Desai 2009) and is associated with innovation and growth in advanced countries. It is characterised by opportunity, "high aspiration", "high expectation", "high potential", "high quality" and "high ability". Productive entrepreneurship can thus also be seen as an outcome of development where the greater availability of resources and more affluent markets in rich countries further stimulate opportunity-motivated entrepreneurship (Bosma et al 2008). In contrast, unproductive entrepreneurship is associated with survival and low growth, and characterised by necessity (rather than opportunity) "low expectation", "low potential", "low quality" and "low ability". Self-employment in poor countries is thus a survival strategy in the absence of large firms and (formal) employment opportunities, with production taking place within the household (mainly in agriculture) for subsistence (Naude 2008: 27). These necessity-driven entrepreneurs 'make up an important part of the total set of entrepreneurs in developing countries', usually 'starting low-skill, small-scale, subsistence activities' with 'no incentives to formalize' (Reynolds et al 2002; Chaudhuri et al 2006, both cited in Desai 2009: 4). Here a large number of small firms is started by individuals with little entrepreneurial ability, who would be more productive as wage-earners (van Stel et al 2005; see also Naude 2008).

Unproductive entrepreneurship may also be opportunity-driven (where it seeks to capture profits through rent-seeking) and destructive or predatory (where it is engaged in evasive and illegal activities). In either case, entrepreneurial talent is 'allocated to activities with the highest private returns' but 'which may not generate the highest social returns' (Murphy et al 1991, cited in Desai et al 2010: 1) with entrepreneurs acting in 'creative ways simply to increase their wealth, power, and prestige … without active consideration of externalities or societal effects' (Baumol 1990, cited in Desai et al 2010: 1). This form of unproductive and destructive entrepreneurship is also related to the stage of development, where it will be driven by slow economic growth, a 'lack of profit opportunities tied to activities that yield economic growth' (Coyne and Leeson 2004: 236, cited in Naude 2008: 4) and where higher levels of wealth or natural resources (and hence rents) are available (Murphy et al 1991, cited in Naude 2008: 24).

Higher self-employment during low economic growth increases the inflow of low-ability entrepreneurs (and outflow of high-ability entrepreneurs), reduces incentives for innovation, and encourages high-ability entrepreneurs to engage in rent-seeking activities rather than productive entrepreneurship (Naude 2008). This will be exacerbated by the initial low returns and high risks of investing in manufacturing, particularly without the institutional support discussed earlier. Poor countries can thus be caught in an "entrepreneurial development trap" as a result of the misallocation of entrepreneurial talent towards "predation" (e.g. theft, extortion, bribery and fraud) (Mehlum et al 2003, cited in Naude 2008). Conversely, economic growth and the inflow of new entrepreneurs increase 'the incentives/profits from productive activities' and 'the ability of government to improve law enforcement' (Mehlum et al 2003: 276, cited in Naude 2008: 24), 'undermine vested interests and even "crowd-out" rents by providing new and substitute opportunities' (Baland and Francois 2000: 528, cited in Naude 2008: 24).

Institutions and entrepreneurship

The type of entrepreneurship and allocation of entrepreneurial talent highlight a central concern of entrepreneurship theories about the role of institutions in fostering (or hindering) entrepreneurship. Institutions ("the rules of the game") are seen to create incentives and disincentives for productive or unproductive entrepreneurship by governing 'the payoff of one entrepreneurial activity relative to another' (Baumol 1990: 898), structuring the relative rewards between productive entrepreneurship ('starting firms that innovate and foster growth') and rent-seeking ('redistributing wealth and reducing growth') (Murphy et al 1991, cited in Desai et al 2010: 1; see also Baliamoune-Lutz 2009; Baumol 1990). The 'absence of good institutions' is seen to 'result in the inappropriate allocation of entrepreneurial ability' (Naude 2008: 24) and there is a general consensus 'that low- and middle-income countries have a relatively low degree of institutional quality in comparison with the more developed nations' (Amorós 2009: 2) and on the types of appropriate and necessary institutions. "Good institutions" in this case are consistent with the broader "good governance" discourse and centre on measures to reduce rent-seeking and corruption, and to promote new venture creation through stable regulatory and macroeconomic conditions,

the removal of 'unnecessary barriers and controls that hamper entrepreneurial activity', protection of (intellectual) property rights, and general support of the private sector and market (Amorós and Cristi 2008; Levie and Autio 2008, both cited in Amorós 2009: 2). Supporting evidence is based on historical evidence (e.g. Baumol 1990; Landes 2000, 2006; Kuran 1997, 2007) and statistical regressions, the latter demonstrating a positive relationship between control of corruption, political stability and high-income countries for opportunity-driven entrepreneurship, and a negative relationship between government effectiveness, rule of law and GDP per capita for necessity-based entrepreneurs (Amorós 2009: 2). High levels of (low quality) entrepreneurship in poor countries are thus associated with absent or weak institutions. These results support the argument that 'more economic development associated with better quality of institutions could reduce the prevalence rates of the unproductive entrepreneurial activities that are mainly motivated by necessity' and that 'the adoption of certain institutions has to precede productive entrepreneurial behaviour because these institutions … facilitate the right type of entrepreneurship' (Boettke and Coyne 2006, cited in Amorós 2009: 2).

This institutional analysis is problematic, notwithstanding problems with methodology and data sources, and contradictory evidence (see e.g. Avanzini 2009; Amorós 2009; Baliamoune-Lutz 2009). While institutional arrangements will affect entrepreneurial activities, it is far from clear which institutions work in which context, especially as the type (and impact) of entrepreneurship will be related to the stage of economic development. Specifically, the institutional requirements necessary to promote entrepreneurship necessary for imitation and adaptation of technologies at the early stages of industrialisation will be very different from what is required to facilitate innovation in advanced economies. The allocation of entrepreneurial talent in this context will depend more on the rewards from manufacturing in relation to other activities. Temporary learning rents may be needed and risks socialised given the low private returns (in the short- to medium-term) but potentially high social returns in manufacturing. Institutional support will also be needed to create the space for learning-by-doing given that developing country entrepreneurs cannot be efficient and hence competitive to begin with.

Institutional prerequisites such as deregulation and protecting (intellectual) property rights may thus not be conducive for facilitating learning and technology acquisition and are arguably at odds with the development of entrepreneurial functions in efficiency-driven economies. Instead, they are a one-size-fits-all solution reflecting the current institutional framework in rich countries rather than what is required in efficiency-driven economies. These "good institutions" are essentially the outcome rather than drivers of development, and promoting them as prerequisites for productive entrepreneurship confuses cause with effect, and offers little useful policy advice. Furthermore, institutions themselves are shaped by political factors and often driven by unproductive entrepreneurs themselves, which may explain why the rules of the game change very slowly (see e.g. Baumol 1990) and why 'new entrepreneurial ventures are often repressed in many poor countries' (Naude 2008: 25).

Firm size

Firm size is of particular relevance for both factor-driven and efficiency-driven economies. Large firms are necessary for economies of scale in catch-up industrialisation and their absence in poor countries explains the proliferation of small and micro enterprises as a means of self-employment (see e.g. Naude 2008: 14). In other words, the absence of (large-scale) employment opportunities (associated with industry and economies of scale in efficiency-driven economies) accounts for widespread self-employment and low growth in factor-driven (poor) economies. This is consistent with the literature on large corporations as sources of innovation, technological change, and job-led growth as a result of economies of scale and market power (see e.g. Chandler 1977; Schumpeter 1942; Galbraith 1956, 1962; Comanor 1967; Kamien and Schwartz 1975; Nelson 1959; Scherer 1991, all cited in Acs and Audretsch 2005: 2, 16). The importance of economies of scale in an efficiency-driven stage corresponds with Schumpeter's process of "creative accumulation" that characterises a "managed economy". Here the forces of large-scale production and concentrated market structures reflect the predominance of capital and labour as factors of production at the early stages of industrialisation (van Stel et al 2005).

The innovation-driven stage is in turn linked with the process of "creative destruction" that characterises an "entrepreneurial economy" dominated by the production factor of

knowledge and entrepreneurial activity to accommodate knowledge spillovers, and reflected in the proliferation of small firms in advanced economies (van Stel et al 2005). The focus of entrepreneurship theories on the role of individual entrepreneurs in (small) firm creation, innovation, knowledge spillovers and job creation relates mainly to the innovation-driven stage and "entrepreneurial economy" in advanced countries, and is therefore inappropriate for the challenges of technological catching-up in efficiency-driven economies where scale is essential (see e.g. Gartner 2001; Acs et al 2005; Bhide 2006; Acs and Audtresch 2005; Gries and Naude 2008; Argawal et al 2008). The discussion of entrepreneurship in developing countries instead needs to focus on the type of entrepreneurship relevant to poor (factor-driven) and middle-income (efficiency-driven) economies, and the process of technological catching-up. In both cases, the role of the individual entrepreneur and small firm would appear to be limited. Necessity-driven entrepreneurship centred on small firms in factor-driven economies is unproductive and has little if any impact on economic development. Similarly, efficiency-driven economies, and the transition from a factor-driven to efficiency-driven stage, cannot be, and is not, driven by individual entrepreneurs or small firms, but rather by large firms with scale economies.

Firm size is also important as this is linked with innovation in both efficiency- and innovation-driven economies. In the former, economies of scale are required for the adaptation and absorption of imported technologies. In the latter, the innovation process is dominated by large firms, especially transnational corporations (TNCs), with the necessary resources and economies of scale and scope to undertake R&D and commercialise new innovations (see e.g. Dicken 2003). A country's level of innovation will therefore be determined by both scale economies and the stage of development. High levels of innovation in advanced countries are related to both the presence of large (transnational) corporations and industries characterised by considerable investments in R&D and new economic knowledge (e.g. computers, pharmaceuticals, scientific instruments) (Acs and Audretsch 2005). Of the 100 largest non-financial TNCs in 2011, 95 came from innovation-driven economies (in particular the US, Germany, France, UK and Japan) (UNCTAD 2012), and their concentration in sectors with high levels of R&D can explain why advanced countries have high levels of innovation and relatively lower levels of entrepreneurial

activity (new start-ups). This is reflected in innovation accounting for 30 per cent of economic activity in innovation-driven economies compared to 5 per cent and 10 per cent in factor-driven and efficiency-driven economies respectively (Sala-I-Martin et al 2007, cited in Acs and Autio 2010).

Less developed countries in comparison are characterised by 'a paucity of production of new economic knowledge' and are restricted to industries with little R&D (e.g. wood products, textiles, paper) (Acs and Audretsch 2005). Efficiency-driven economies thus need to continuously upgrade their technologies just to remain competitive, not to mention to move up global value chains. Competition is intensified by the TNCs sourcing parts from fewer and larger suppliers which lowers profit margins, especially for SMEs (see Yusuf and Nabeshima 2009). However, technology is not easily observable nor commonly available, and many new innovations are costly to imitate, with successful technological appropriation varying among industries (Naude 2008; Acs et al 2005). As such, 'there is great uncertainty in the adoption of foreign technology' and significant risks, and will in part depend on the ability of entrepreneurs to bear this risk (Nelson and Pack 1999; Murphy et al 1991, cited in Naude 2008: 21–22). Smaller firms in this case are usually less able to bear risks or finance technology acquisition.

Technology acquisition difficulties are related to the innovation process occurring mainly within global production networks (GPNs) controlled by TNCs, which limits R&D and spillovers mainly to foreign subsidiaries (see e.g. Bernard and Ravenhill 1995; Hart-Landsberg and Burkett 1998; UNCTAD 2006; Paul and Wooster 2010). The domination by TNCs of global innovation, production and trade means that small firms need to be connected with large corporations through GPNs to benefit from, and contribute to, growth. New start-ups in this context do not, and for that matter cannot, compete against large corporations but instead complement them through the production of inputs and through knowledge spillovers, with TNCs acting as the main economic drivers (see Bhide 2004; van Stel et al 2005). The implication of this analysis is that the role of individual entrepreneurs and small firms in development is overstated.

3. ENTREPRENEURSHIP EVIDENCE

Our identification of the main entrepreneurial functions relevant to developing countries allows us to examine some of the broad evidence on the impact of entrepreneurship on development. This will obviously depend on how an entrepreneur is defined and what aspects of entrepreneurship are measured. Two immediate problems emerge from our analysis. First, without an agreed definition, different measures will invariably capture different aspects of entrepreneurship with different results. Second, without a definition which relates the entrepreneurial function to the different stages of development, and to specific innovation and technological challenges in developing countries, measures of entrepreneurship cannot be meaningful or relevant. These problems are partly related to "top-down" and "bottom-up" approaches to entrepreneurship where there is either little regard for how entrepreneurship is measured in the former, or no conceptualisation of how current measures represent entrepreneurship in the latter (Ahmad and Seymour 2008, cited in Avanzini 2009: 3). What is required at the least is the segmentation of entrepreneurial activities across different sectors and industries by different groups 'because one measure does not capture all entrepreneurs in any country, let alone for comparison consistently across countries, and because only some types of entrepreneurship are of interest for study' (Davis 2006, cited in Desai 2009: 4).

In the absence of an agreed definition, the focus has invariably shifted to identifying the roles of an entrepreneur (Wenekers and Thurik 1999, cited in Naude 2008) and describing and measuring the various dimensions of entrepreneurship (Acs and Szerb 2010). This often simply equates entrepreneurship to 'a specific empirical measure or set of measures' usually 'based on the most readily available statistics' (Ahmad and Seymour 2008, cited in Avanzini 2009: 3) encompassing certain key features ('unique traits, risk taking, opportunity recognition, motivation and exploitation, and innovation') and output (impact) (e.g. value creation, spillover effects, high growth) (Acs and Szerb 2010: 6). As a result, different indicators of entrepreneurship attempt to capture different aspects of the entrepreneurial function, employing different methodologies and drawing on different data sets and sources (see e.g. Davis 2006, cited in Desai 2009). Moreover, the data availability and difficulties measuring different variables usually mean that the default indicator is typically

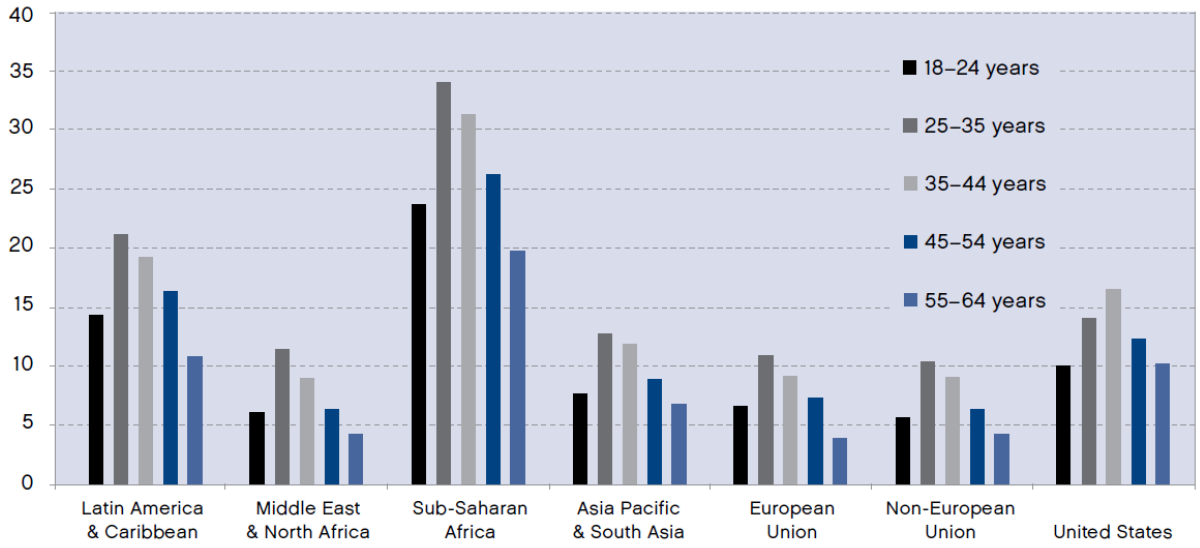
reduced to rates of self-employment and business start-ups which are in themselves problematic measures. Self-employment data from official self-reported employment data 'would likely leave out unreported (informal) respondents' (see Storey 1991, cited in Desai 2009: 4) and is 'not an appropriate measure of (actual) formal entrepreneurship' (Desai 2009: 4). This is also unsatisfactory given that entrepreneurial activity (and potential) overlaps with necessity-driven entrepreneurship in developing countries.

The Global Entrepreneurship Monitor (GEM) and the more recent World Bank Group Entrepreneurship Survey (WBGES) illustrate these measurement difficulties and the more fundamental problems of relating these measures to the entrepreneurial functions relevant to developing countries. In order to ensure data is comparable across countries, both reduce the measure of entrepreneurship to a few, easily quantifiable indicators which seriously limit what entrepreneurship involves. GEM defines entrepreneurship as any attempt by individuals to start a new firm, including any attempt for self-employment, thereby not distinguishing between necessity and opportunity entrepreneurs. Its central measure is Total Entrepreneurial Activity (TEA) (covering 69 countries in 2012) which consists of the percentage of individuals aged 18–64 years in the process of starting a business under three months (nascent entrepreneurship) or are already running a new business under 42 months (new business ownership) (Xavier et al 2012: 26). WBGES measures entrepreneurship as 'the number of new officially registered limited liability corporations, counting only economic units of the formal sector incorporated as a legal entity and registered in a public registry, which is capable, in its own right, of incurring liabilities and of engaging in economic activities and transactions with other entities' (Desai 2009: 5). Firm creation data in itself is meaningless and will need to account for different economic sectors and survival rates to be more relevant.

As GEM measures nascent and new entrepreneurship in developing countries with large informal sectors, it consistently shows that high levels of entrepreneurship are associated with low income countries while high income countries demonstrate low levels of entrepreneurship (Xavier 2012). The highest entrepreneurship rates are in Sub-Saharan Africa (SSA) and Latin America/Caribbean (LAC) (Figures 1 and 2). This is in contrast with

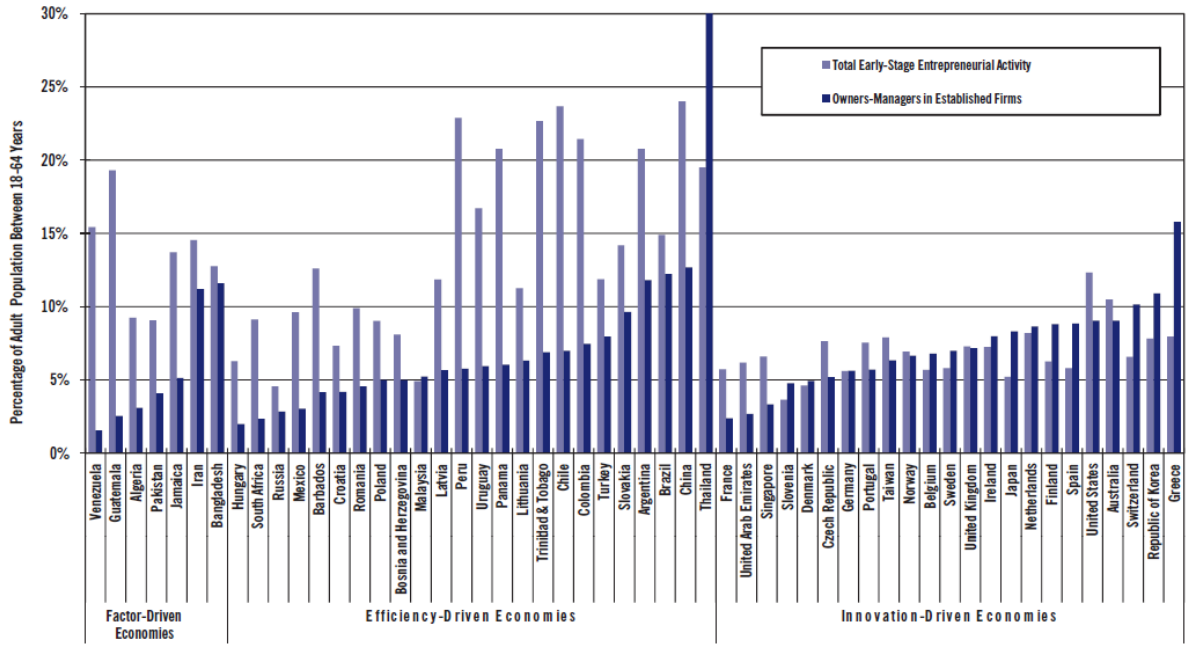
WBGES data which reports higher levels of entrepreneurship in developed countries where corporate entrepreneurship is measured (Desai 2009: 7) although other results show decreasing levels of total entrepreneurship activity in rich countries (Carree et al 2007, cited in Amorós 2009: 11). Crucially, while TEA rates tend to be high in poor countries, established business activity is often low, indicating low survival rates of start-ups, with the opposite pattern for rich countries. There are also substantial regional differences with non-EU and MENA having low rates of both TEA and established business ownership, while SSA has high rates of both. SSA and LAC also have far more entrepreneurs than established business owners. Overall, this is consistent with the argument that poor countries will be characterised by necessity-driven, marginal entrepreneurs without the skills to sustain, let alone grow, businesses.

Figure 1 Total Entrepreneurial Activity (TEA), by age and region, 2012



Source: GEM 2012 Adult Population Survey, in Xavier et al (2012).

Figure 2 Established business ownership and TEA rates, 2011



Source: GEM 2011 Adult Population Survey, in Kelley et al (2011),

GEM evidence suggests that the type of entrepreneurship matters. Not surprisingly, these different categories of entrepreneurship coincide with different levels of development (and hence entrepreneur motivation), and broadly capture the difference between rich and poor countries. Entrepreneurship is positively correlated with growth in advanced countries because the presence of opportunity entrepreneurship means that new start-ups are typically engaged in innovation. In the case of developing countries, entrepreneurship is in unproductive sectors and largely associated with necessity. Thus, even though GEM's opportunity rates for developing countries are high, they do not necessarily represent 'high-quality' (productive) entrepreneurship activities (Bosma et al 2008).

New composite indicators of entrepreneurship highlight the limitations of current entrepreneurship variables and seek to capture the multidimensional nature of entrepreneurship (see e.g. Avanzini 2009; Acs and Szerb 2010). However, expanding the criteria of what the entrepreneur does, or increasing the number of variables to capture the complexity of entrepreneurship, dilutes analytical precision, makes measurement more difficult, and complicates analysis and interpretation (see e.g. Avanzini 2009). More critically, these measures usually do not distinguish between the different entrepreneurial

functions related to different development stages and types of technological (and hence innovation) challenges in rich and poor countries (see Desai 2009: 4). When technological catching-up is factored into the entrepreneurial function, existing measures appear to be largely unable to capture aspects of entrepreneurship (and innovation) that matter to efficiency-driven economies (see e.g. Acs and Audretsch 2005).

The Global Entrepreneurship and Development Index (GEDI) is a recent composite index. It defines entrepreneurship as 'a dynamic interaction of entrepreneurial attitudes, entrepreneurial activity, and entrepreneurial aspiration that vary across stages of economic development' and attempts to capture the multidimensional nature of entrepreneurship by including quality-related and quantitative measures, and individual-level and institutional variables (Acs and Szerb 2010: 7, 16; Acs and Autio 2010). The explicit aim of GEDI is to demonstrate that entrepreneurship, and specifically small enterprises, matter and it does so by measuring the very features of successful entrepreneurship in rich countries. It is hardly surprising then that GEDI is correlated with economic development (GDP). In this case, individual variables such as opportunity, skills, education, technology, export and investment are all features of successful (innovation-driven) economies and are thus also outcomes of economic development. Similarly, institutional variables related to market size, urbanisation, business climate, internet usage, corruption, freedom, technology absorption, R&D, innovation, trade, and availability of venture capital all describe features of rich countries.

By restricting entrepreneurship measures to innovation features that characterise innovation-driven economies, GEDI automatically ranks these countries higher and excludes poor countries (which are, by definition, characterised by the absence of technology and innovation, and hence the ability to compete globally). Composite measures such as GEDI thus simply tell us that rich countries are more successful because their economies are more developed. They do not tell us how poor countries can increase innovation or whether entrepreneurship is the key to this, particularly as these countries face different technological challenges as late industrialisers. The relevant question is not whether

entrepreneurship in rich countries is characterised by opportunity and innovation but rather why this is not the case in poor countries.

4. ENTREPRENEURSHIP IN MALAYSIA

A country case study allows us to examine in further detail some of the issues raised in the broader evidence and in the theoretical section.

Institutional support for entrepreneurship and innovation

Malaysia is an especially relevant example as a successful efficiency-driven economy attempting to make the next transition to a knowledge (innovation-driven) economy, with extensive institutional support for domestic entrepreneurs, innovation and technology acquisition. Malaysia's successful transition from a factor-driven economy (based on the export of tin and rubber) to an efficiency-driven economy (centred on the export of electronics and electrical components) was based on, and driven by, FDI and TNCs. At the same time, entrepreneurship policies centred on developing a Bumiputra [Malay] Commercial and Industrial Community (BCIC) through preferential treatment under the 1970 New Economic Policy (NEP) and privatisation contracts.

Technology acquisition and industrial upgrading was a central part of development policy through the First Industrial Master Plan (1985–95), Intensification of Research Priority Areas programme (1986), Pioneer Industries Act (1986), Technology Action Plan (1990), Action Plan for Industrial Technology Development (1990), and Industrial Technical Assistance Fund (1990). Innovation in science and technology was promoted through R&D budget allocations under the Fifth and Sixth Malaysia Plans (1986–90 and 1991–95), tax incentives and research grants for small and medium size industries, and technology parks (Ali 1994; Rasiah 2001). These policies and programmes were implemented and coordinated by a range of ministries, departments, task forces and research centres.

Technology acquisition (mainly through technology transfer and licensing agreements) was overseen by the Ministry of International Trade and Industry (MITI) and the Ministry of Science, Technology and Environment (MOSTE) (see Ali 1994). MITI oversaw technology

acquisition through its Technology Transfer Unit (TTU), Malaysian Industrial Development Authority (MIDA) and the Industrial Master Plan (IMP) Sectoral Task Force. The TTU approved technology transfer agreements to safeguard the 'national interest', prevent unfair restrictions on Malaysian firms, and ensure fees were reasonable and technology transfer was meaningful (Ali 1993). MIDA evaluated industrial projects and the IMP Sectoral Task Force reviewed priority products and industries according to IMP priorities (Ali 1994).

MOSTE facilitated technology transfer by:

- providing linkages between technology acquisition and industrial development (through the Technology Transfer Centre of the Standards and Industrial Research Institute of Malaysia);
- assisting entrepreneurs with information on technology selection and acquisition (Malaysian Science and Technology Information Centre);
- formulating science and technology policies and R&D priorities (National Council for Scientific Research and Development);
- identifying priority sectors, formulating technology transfer plans and policies, and ensuring the growth of the industrial sector (Coordinating Council for Industrial Technology Transfer); and
- promoting the development of technology parks and selected industries, products and technologies (the Science Advisor to the Prime Minister) (Ali 1994).

The state-owned Heavy Industries Corporation of Malaysia (HICOM) – encompassing steel, cement and car production – was the government's attempt to address the issue of absorbing complex organisational and production processes necessary for technological upgrading and industry linkages. A central feature of HICOM was its Vendor Development Programme which promoted (Malay) SMEs through minimum local content requirements for Proton, the national car company (see Tan 2008). The Malaysian Industry Government Group for High Technology (MIGHT), a government–business technology forum, was formed in 1993 to track emerging technologies and encourage ventures exploiting new technological innovations (Felker 1998). Other innovation-related institutions included the Malaysian Technology Development Corporation in 1992, Advanced Manufacturing

Technology Centre, Malaysian Institute for Microelectronics Systems and Technology Park Malaysia.

Malaysia evidence

The evidence on entrepreneurship in Malaysia is drawn from a sample of 2,000 respondents supplemented by expert opinions in the 2010 GEM Malaysian Report (Xavier 2010). Although this shares the same problems with GEM discussed in Section 3, the use of GEM data does provide for some consistency and connections with the broader evidence. This said, the actual findings on Malaysia are very thin, and only cover the 'sector distribution for early stage total entrepreneurial activity' comprising (nascent entrepreneurs and owner-managers of new business under three months) and established business (3–42 months).

TEA in Malaysia centres overwhelmingly on "consumer services" (retail, motor vehicles, lodging, restaurants, personal services, health, education and social services, recreational services) at 74 per cent (for early-stage entrepreneurs) and 72 per cent (owner-managers of new businesses) (Table 1). This is followed by "transformative sectors" comprising construction, manufacturing, transportation, communication, utilities, and wholesale (17 and 14 per cent respectively); "extractive sectors" (agriculture, forestry, fishing, mining) (5 and 8 per cent); and "business services" (finance, insurance, real estate, all business services) (4 and 5 per cent).

Table 1 Malaysia: Sector distribution of early stage TEA and established business, 2010

Sectors	*Early stage TEA*	*Established business*
Extractive	5	8
Transforming	17	14
Business services	4	5
Consumer services	74	72
Total	100	99

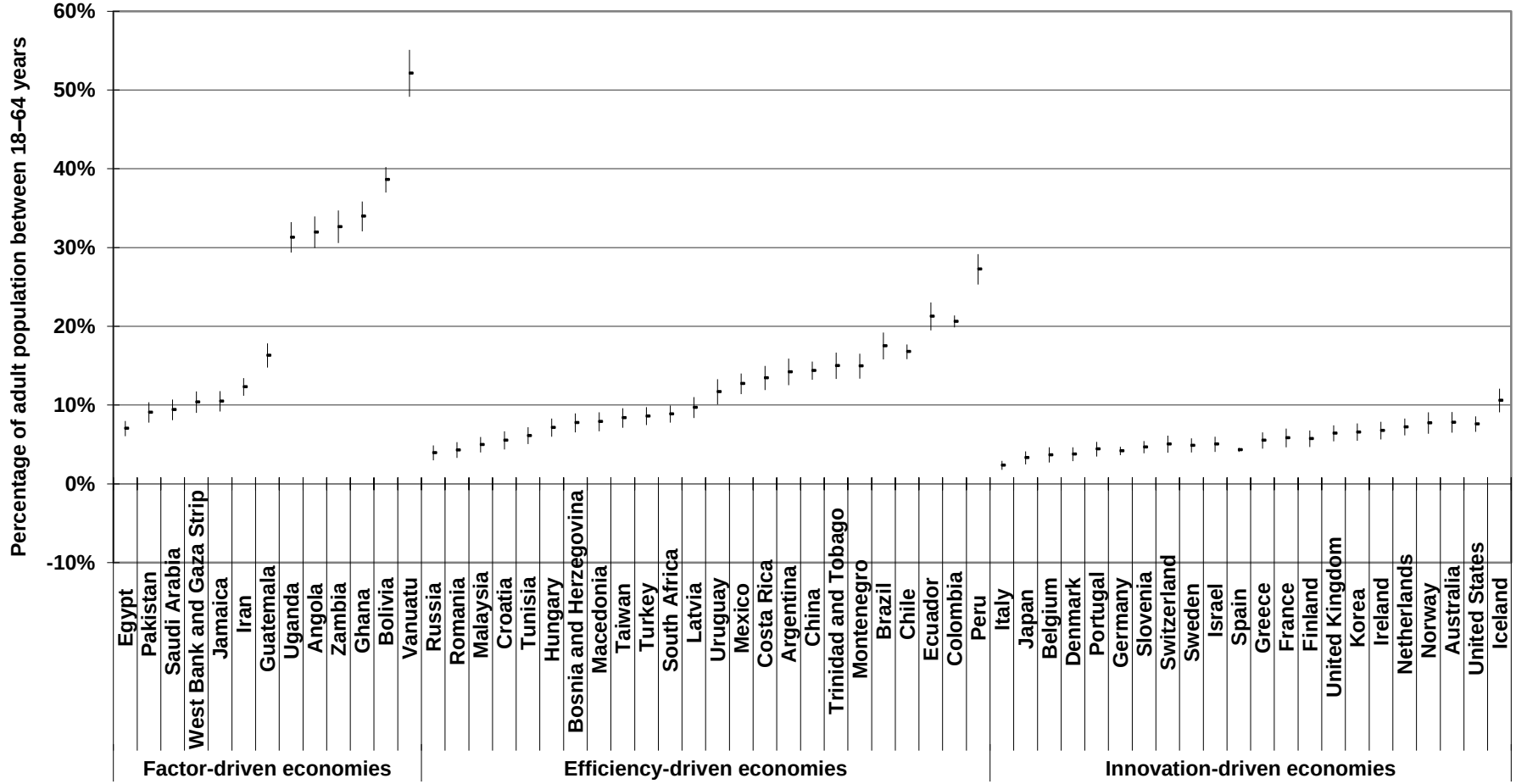
Source: Xavier (2010).

The increase of early entrepreneurship in "consumer services" from 67 per cent (in 2009) to 74 per cent (2010) coincided with improved economic conditions. This suggests that early-stage TEA was not necessity-driven and may be interpreted as a shift into services as the

economy matures and makes the transition towards a knowledge-based and innovation-driven economy. However, the quality of entrepreneurship suggests that this is not high aspiration or high quality nor productive. The components of "consumer services" do not indicate high technology or high value-added sectors with high innovation content. On the contrary, the privatisation of healthcare and education, and (licensed) motor vehicle sales, strongly suggest that these sectors provide captive rents (see Tan 2008, 2012). The inclusion of manufacturing with service sectors (transportation, communication, utilities, wholesale) does not allow us to examine the allocation of entrepreneurial talent in manufacturing but triangulation with other data sources suggests that the bulk of established businesses (and by implication, early stage TEA) are in service sub-sectors and construction (see e.g. Tan 2012, forthcoming).

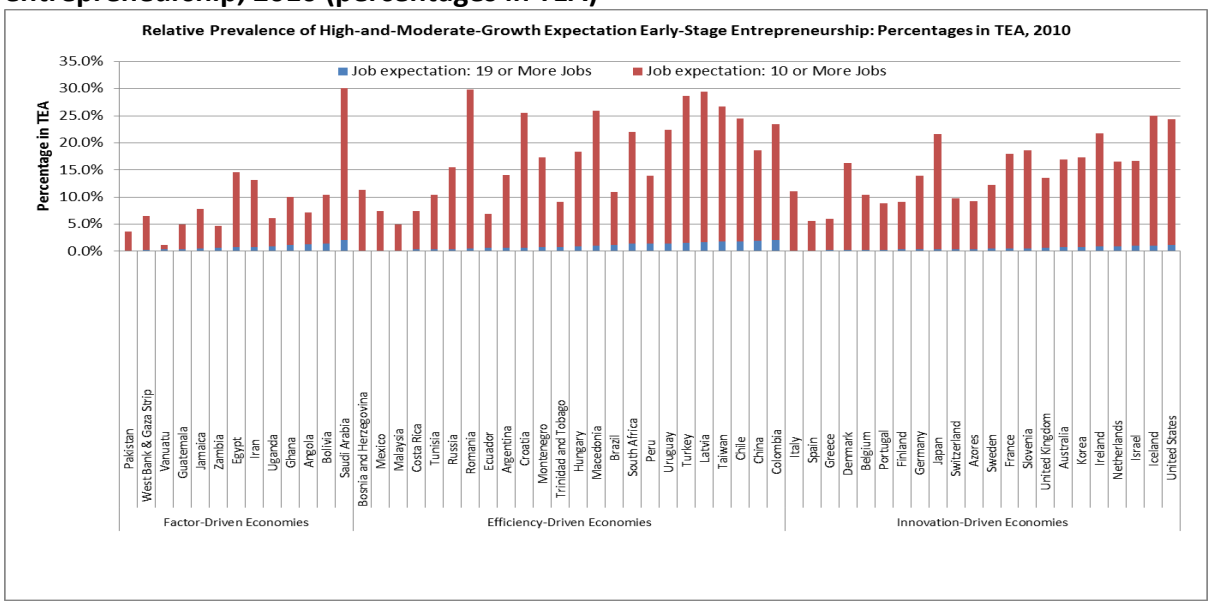
Malaysia's concentration of entrepreneurship outside of manufacturing and innovative sectors is reflected in the broader GEM data. Its early stage TEA of 4.96 per cent is the third lowest for efficiency-driven economies (and eight lowest among innovation-driven economies) (Figure 3) suggesting that entrepreneurship levels (in terms of firm creation) are very low to begin with, and are not concentrated in productive (or tradable) sectors relevant to the transition from efficiency-driven to innovation-driven economies. (The low TEA is also consistent with widespread formal employment opportunities in TNCs and in the public sector for Malays.) Malaysia also ranks lowest among efficiency-driven and innovation-driven economies in terms of high- and moderate-expectation entrepreneurship (Figure 4) and only 5 per cent of early-stage entrepreneurs are export oriented compared to 20–30 per cent in competing countries (Figure 5). In other words, entrepreneurship in Malaysia does not appear to be related to "high expectation" and hence opportunity which are key features of productive entrepreneurship.

Figure 3 Early stage Total Entrepreneurial Activity, by phase of economic development, 2010 (95 per cent confidence intervals)



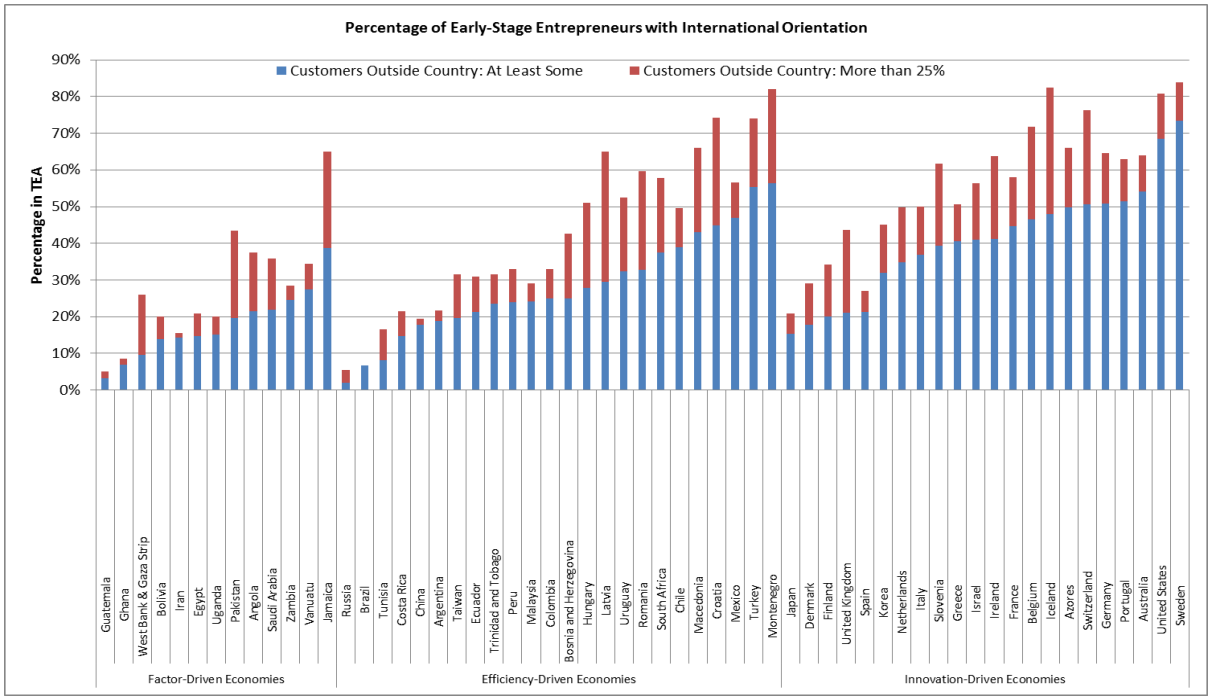
Source: Xavier (2010).

Figure 4 Relative prevalence of high and moderate growth expectation, early stage entrepreneurship, 2010 (percentages in TEA)



Source: Xavier (2010).

Figure 5 Early stage entrepreneurs with international orientation, 2010 (percentage)



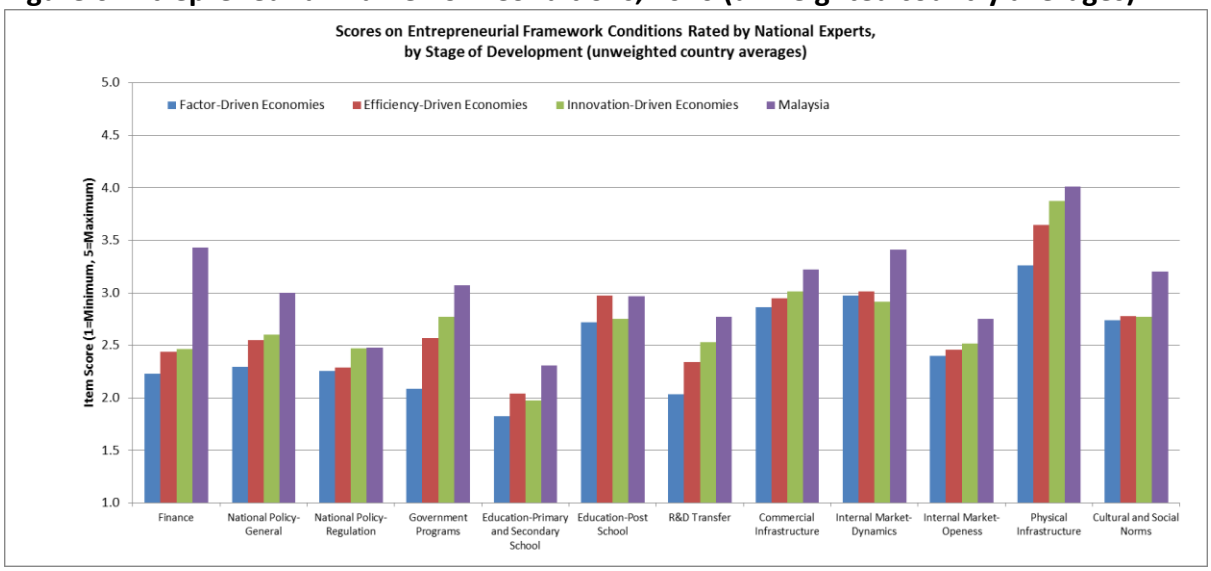
Source: Xavier (2010).

There are several explanations for Malaysia's low early stage TEA based on the theoretical discussion in Section 3. The first and most obvious explanation is that supporting institutions are absent or weak. GEM offers its own "assessment of institutional quality by national experts", based on the views of 'at least 36 experts' including 'at least one entrepreneur, at least two suppliers of that EFC [Entrepreneurial Framework Conditions], and at least one observer, such as an academic or journalist with specific expertise in that area' (Xavier 2010: 75). Institutional quality covers nine broad indicators:

- financial support;
- government policies (general; regulation);
- government programmes;
- education and training (primary and secondary; post-school);
- research and development transfer;
- commercial, professional infrastructure;
- market openness (internal; dynamics);
- access to physical infrastructure; and
- cultural and social norms

Not all these selected institutional indicators are directly relevant to our analysis but as a whole capture many aspects of the institutional prerequisites for "good institutions" identified in the entrepreneurship literature. Malaysia's scores here are higher than the unweighted country averages in factor-driven, efficiency-driven, and innovation-driven economies in all nine institutional categories and by a considerable margin in "finance", and significantly in "(general) national policy", "government programmes", "(internal) market dynamics" and "cultural and social norms" (Figure 6). Based on this, and the level of institutional support for entrepreneurship and innovation, low TEA in Malaysia cannot be attributed to "wrong institutions".

Figure 6 Entrepreneurial Framework Conditions, 2010 (unweighted country averages)



Source: Xavier (2010).

The second explanation is that low TEA is due to weak entrepreneurial capacity. This is supported by low expert ratings on "capacity for ownership" in terms of:

- knowledge and experience in starting and managing a high-growth business;
- ability to react quickly to good opportunities for a new business; and
- ability to organise resources required for a new business

However, weak entrepreneurial capacity in itself is not necessarily a problem and entrepreneurs from developing countries by definition cannot be competitive to begin with. The more relevant question is why entrepreneurial capacity has not increased in terms of breadth (quantity) and depth (quality) after over 40 years of the NEP and significant ongoing institutional support for entrepreneurship and innovation.

This brings us to a third possible explanation: learning failure in the context of infant industry protection and rents for learning. This subject is discussed extensively in the economics literature in light of the experiences of the East Asian newly-industrialised countries, and is related to the state's disciplinary capacity to manage learning rents necessary for technological catching-up (see Tan 2010). Disciplinary failure has been well documented in the case of Malaysia, where protection and subsidies continued to be provided despite entrepreneurial failure (see e.g. Alavi 1996; Rasiah and Shari 2001). This is

reflected in the inability of domestic entrepreneurs to move into manufacturing and related to the rapid growth of, and differentiation within, the Malay middle class and subsequent increase in conflict which compromised the state's disciplinary capacity (Tan 2008, forthcoming).

There are two additional explanations related to this. The fourth, is that learning failure is closely connected to the technological challenges which are much greater today and thus create disincentives for entrepreneurship in manufacturing. This is reflected in low expert ratings on R&D transfer in Malaysia despite adequate government subsidies for new and growing firms to acquire new technology (Xavier 2010). R&D is rated poorly in terms of:

- the transfer of new technology, science, and other knowledge from universities and public research centres to new and growing firms;
- access to new research and technology for new and growing firms;
- the affordability of the latest technology for new and growing firms;
- support of the science and technology base for the creation of world-class new technology-based ventures in at least one area; and
- support for engineers and scientists to commercialise their ideas through new and growing firms.

The fact that most of these issues are related to the nature of the innovation process which is increasingly undertaken within TNC networks suggests that learning in order to move up the technological ladder is increasingly difficult, especially given the rapid pace of technological change and resources required (see e.g. Whittaker et al 2010).

If the challenges of technological catching-up create disincentives for productive entrepreneurship, then the fifth explanation is that more profitable activities and rents in other (non-tradable) sectors create perverse incentives for unproductive entrepreneurship, usually in sectors consistent with the abilities and hence preferences of (inefficient) domestic entrepreneurs as partly reflected in the GEM evidence. Rent-seeking is also closely associated with natural resource availability. In the case of Malaysia, this has facilitated the distribution of rents through direct exploitation of natural resources (e.g. timber logging

concessions) and indirectly through oil revenues which are used to provide rents in other sectors, including public sector employment.

The combination of weak entrepreneurial capacity, learning failure, disincentives related to technological challenges, and perverse incentives related to rent-seeking, invariably direct entrepreneurial activity towards unproductive and even destructive/predatory forms of entrepreneurship. Perverse incentives are related to the structure of rewards but cannot simply be addressed institutionally because this was driven by the same parties who sought these rents (see Tan 2008). In other words, rents in unproductive sectors are the outcome of social forces – in this case inefficient entrepreneurs – seeking profit opportunities in unproductive sectors consistent with their own preferences and abilities. This is supported by the broader evidence of a sectoral shift in Malaysia away from manufacturing associated with premature deindustrialisation (see Tan forthcoming).

5. CONCLUSION

This paper has questioned the basic tenets of entrepreneurship theories, namely the belief in the role of (individual) entrepreneurs and small firms in innovation and development. It has argued that the focus on small firms and "good institutions" as prerequisites for productive entrepreneurship reflect the experiences and institutional conditions in innovation-driven economies, and not the realities in factor- and efficiency-driven economies. In particular, the discussion of entrepreneurship and its measurements are disconnected from the entrepreneurial tasks related to technological catching-up in developing countries which have different entrepreneurial and innovation requirements.

A closer analysis of the development challenges in both factor- and efficiency-driven economies reveals that (individual) entrepreneurship and small firms do not have a major role, particularly in the case of necessity-driven and hence unproductive entrepreneurs. Instead, catch-up growth will be driven by large firms which are better able to benefit from economies of scale needed to acquire and absorb efficient production techniques and compete internationally, thereby creating employment in the formal sector in place of informal self-employment. Technology acquisition is especially critical for efficiency-driven

economies in order to compete and move up global value chains and make the transition to the innovation-driven stage. However, the domination of innovation (and hence technology) and production processes by TNCs, along with the pace of technological change and increasing competition, create significant disincentives for the allocation of entrepreneurial talent into manufacturing and industrial upgrading without the necessary institutional support.

Institutional support will be needed to socialise risk, subsidise incomes, coordinate resource allocation and provide the space for learning-by-doing. These institutional requirements are based on the specific challenges facing efficient-driven economies pursuing catch-up growth and run counter to the "good institutions" prerequisites in the entrepreneurship literature. The Malaysian case study illustrates the importance of institutional support for entrepreneurship and innovation in order to shift from a factor-driven to an efficiency-driven economy but also the challenges in making the more difficult transition to an innovation-driven stage. This highlights the substantial difficulties of technological catching-up but also the importance of state capacities to balance the structure of incentives and rewards with sanctions in the event of learning failure.

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