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How Entrepreneurship Breeds and Kills Itself: Implications for Present-Day China¹

Per Davidsson^{1,2}

Siri Terjesen^{1,3}

Xiaohua Yang¹

*1) Queensland University of Technology, GPO Box 2434, Brisbane, Australia
4001*

2) Jönköping International Business School, Jonkoping, Sweden 55002

*3) Max Planck Institute of Economics, Jena, Germany; Kahlaische Strasse 10, Jena,
Germany 07745*

Abstract

This article explores how the phenomenon of entrepreneurship can reinforce itself but also tends to carry the seed of its own eventual demise. We review evidence from theory and empirical studies of these ‘breed’ and ‘kill’ tendencies at individual, inter-individual, firm, industry, regional and national levels of analysis. Policy implications are discussed, especially with regards to current and future entrepreneurial activity in China.

INTRODUCTION

Across time and geographic location, entrepreneurship, understood as individual initiative towards the creation of new economic activities and organisations, is an important force in many economies. Young and independent firms contribute strongly to job creation, innovation, and regional economic growth (Acs & Audretsch, 1990; van Praag & Versloot, 2007; Wennekers & Thurik, 1999). Another common observation is that entrepreneurial action and/or success tends to inspire further entrepreneurial endeavors. This is recognizable at multiple levels of analysis. For example, individuals who already are or have been running their own businesses start a high proportion of new firms. Some firms develop a capacity to repeatedly surprise their customers and competitors with clever, innovative solutions. Industrial districts or successful regional clusters are renowned for their continued economic dynamism. Also, across nations, there are apparent lasting differences in innovative capacity and, hence, economic growth.

At the same time there are numerous examples of the opposite trend, i.e., cases where entrepreneurial success carries the seed of future demise. Entrepreneurs and firms may become risk-averse ‘fat cats’ and regions that flourished during one economic era may end up with structural and human capital inadequate for the challenges of the next technological breakthrough. Entire entrepreneurial empires decline and die when greatness and success are taken for granted rather than actively pursued by each generation. As Schumpeter (1942) noted, entrepreneurship is a process that involves both creation and destruction with new entrepreneurial firms replacing less innovative incumbents.

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A good theory and test of entrepreneurship should address individual, process, organization and environment components (Gartner, 1989) and address “the supply of ventures, which depends on the formation of new ventures and the exit, including failure, of existing ones” (Hayward, Shepherd & Griffin, 2006: 160). In reviewing meso-level phenomenon and multiple perspectives, the aim in this article is to examine this tendency for entrepreneurship to both ‘breed’ and ‘kill’ itself at individual, inter-individual, firm, industry, regional and national levels of analysis. It is inevitable that to some extent the processes that reveal themselves at these different levels are traceable to the same micro-level phenomena, leading to some overlap or arbitrary selection regarding on which level to discuss a particular effect. However, some processes appear to be genuinely aggregate level effects, uniquely or at least most clearly presenting themselves at a particular meso- or macro level. We explore each level in turn, with reference to data from various countries and time periods. We then discuss the applicability and implications of our theses to China and the Wenzhou region in particular.

INDIVIDUAL LEVEL

Individuals who have started a business often do so again. For example, in an overview of the comprehensive *Panel Study of Entrepreneurial Dynamics* (PSED), Reynolds (2007) notes that nascent entrepreneurs – those currently involved in an on-going but not yet operational business start-up – have significantly more previous experience from self-employment than do those in the control group. Similarly, Delmar and Davidsson (2000)’s PSED Swedish counterpart study reports that 31 percent of the nascent entrepreneurs were already running their own (other) business at the time, whereas only 14.5 percent of the control group were self-employed. This suggests that there is a massive overrepresentation of previous business founders among those who start new firms, creating an entire class of ‘habitual entrepreneurs’ who run multiple businesses either in sequence (serial entrepreneurs) or in parallel (portfolio entrepreneurs) (Alsos & Kolvereid, 1998; Ucbasaran, Westhead, & Wright, 2006). Taken together with the limited success of stable personality traits in explaining entrepreneurial action (Gartner, 1988), these findings suggest that individual level entrepreneurial action itself leads to an increased future propensity to engage in entrepreneurial activity. As growth and success are hard to predict at early stages (Cooper, 1993; Cooper, Gimeno-Gascon, & Woo, 1994; Delmar & Davidsson, 1999), experiences and outcomes of an entrepreneurial career, rather than initial conditions, may determine the continuation of the process. Thus, entrepreneurship may breed itself by entrepreneurial success triggering the acquisition of a ‘taste’ for further entrepreneurial action.

There are good theoretical reasons why individuals with previous entrepreneurial experience and success should be more likely than others to engage in further entrepreneurial endeavors. First, by having done it before, these individuals have built *specific human capital* that is relevant for entrepreneurial tasks. Large-scale, longitudinal research on young and emerging firms shows that specific human capital (start-up experience in particular, but to some extent also industry and management experience as well as business education) contributes to success (Cooper et al., 1994; Davidsson & Honig, 2003). Through their entrepreneurial experience, these individuals have also built domain-specific *social capital*, that is, a network of contacts with other people who can provide knowledge and other resources. This resource advantage increases the commercial potential of any given opportunity

where social capital can add value (Hoang & Antoncic, 2003). In Davidsson and Honig's (2003) analysis, task-specific social capital is the single most important factor for getting a start-up effort up and running.

A partly separable third reason for individual level entrepreneurship breeding itself is *motivation*. Early success may raise entrepreneurs' ambitions, preparing and motivating them to pursue new and bigger challenges. This is in line with Aspiration Level Theory (Lewin, Dembo, Festinger, & Sears, 1944) which describes how aspirations tend to adjust to the attainable. While this may not be true for all people, it is likely to be a fair description of people with high Achievement motivation (McClelland, 1961), which arguably is the personality trait most consistently associated with entrepreneurship (Collins, Hanges, & Locke, 2004; Johnson, 1990). The logic is that entrepreneurship provides a kind of concrete feedback that people with high achievement motivation desire. Individuals who receive positive feedback are more likely to feel satisfied by their achievements and to develop a taste for future success. Hence, continued entrepreneurial effort rather than complacency is the response to entrepreneurial success. More recent psychological theorizing suggests experience in a particular domain builds *self-efficacy* (Bandura, 1982), which motivates further, perhaps bigger and bolder entrepreneurial action. This is the subjective parallel to the above argument about specific human capital. Again, longitudinal research in the entrepreneurship domain confirms the effect of self-efficacy. For example, Baum and Locke (2004) find domain-specific self-efficacy of small firm owner-managers contributes significantly to firm growth, which is often an indicator of continued entrepreneurial action (Davidsson, 1989; Davidsson, Delmar, & Wiklund, 2002).

However, for most people this self-reinforcing process is unlikely to continue forever. One obvious way in which individual-level entrepreneurship kills itself is that the successful entrepreneur eventually has more established business activity to manage, leaving less time and energy for the development of new business activities. This is analogous to Edith Penrose's (1959) famous argument about managerial capacity as the ultimate limit to firm growth rates. As regards the *specific human capital* effect, changing external conditions will likely deplete this capital if it is not constantly updated. There is evidence to suggest that many entrepreneurs fail to optimally refresh their knowledge. For example, experienced entrepreneurs seek less information than novices and that more confident owner-managers seek less information than their less confident counterparts (Cooper, Folta, and Woo, 1995). Comparative studies of managers and entrepreneurs support the notion that entrepreneurs tend to be over-confident (Busenitz & Barney, 1997). Experienced entrepreneurs may thus lose their advantage in specific human capital because they fail to update their knowledge. In addition, Parker (2006) shows that even when entrepreneurs attend to particular new information, older entrepreneurs are less likely to adjust their beliefs than are their younger counterparts.

Entrepreneurs' specific *social capital* is also likely to age. That is, in a dynamic environment the knowledge in entrepreneurs' networks is subject to the same risk of decreasing relevance and accuracy. Experienced entrepreneurs on average rely less on external, personal sources, thus potentially undermining the social capital advantage they once had (Cooper et al, 2005). Conversely, some entrepreneurs may accumulate 'too much' social capital over time; curvilinear effects of networking on outcomes for entrepreneurial ventures have been reported (Uzzi, 1997). Further, networks dominated by strong ties may be helpful at early stages of firm development but of less value at later stages (Hoang & Antoncic, 2003). All these effects suggest that

social capital – once the facilitator of entrepreneurial action and success – may depreciate over time and under some circumstances even contribute to entrepreneurship killing itself.

As regards motivation, Nandram, Born and Samsom (2007) indicate that achievement orientation and other presumed ‘entrepreneurial’ psychological attributes diminish over the life course of the venture. While the cross-sectional nature of their study – they compare individuals whose ventures are in different stages rather than following individuals over time – means there may be other explanations, the result is certainly suggestive. Prospect Theory (Kahneman & Tversky, 1979) provides a basis for informed speculation about how ageing, successful entrepreneurs become less innovative and risk-taking over time (cf. Davidsson, 1989). One corner stone of Prospect Theory is that humans do not make absolute evaluations; they see (possible) outcomes as losses or gains in relation to a subjective reference point. Another corner stone is that losses weigh more heavily than gains of equal magnitude. A third is that both losses and gains have diminishing marginal utility. In most cases, entrepreneurs have no large initial fortune to lose, but a potential one to win. Being ambitious, they may regard a future, more fortunate state as the relevant reference point, while staying at status quo is perceived as a loss. According to Prospect Theory this would favor risk-taking behavior because gains would be highly valued while the potential of further losses would not weigh heavily in their decision-making. For ageing, successful entrepreneurs, status quo is a more likely reference point. From that perspective, further financial gain has limited marginal utility. At the same time the entrepreneur has a lot to lose by putting one’s entire creation (or reputation) at stake in new risky projects. Furthermore, entrepreneurs do not have to continue to be entrepreneurial in order to prove themselves or to secure financial wealth (Ronen, 1983). Entrepreneurs may also weigh the cost of continuing to focus on the business at the expense of putting their personal and time resources into other areas such as family, hobbies, leisure and special projects. Microsoft’s founder Bill Gates explained his transition from a day-to-day role at Microsoft to devote more time to the Bill and Melinda Gates Foundation’s global health and education work, “This was a hard decision for me... I’m very lucky to have two passions that I feel are so important and so challenging... It’s not a retirement, it’s a reprioritization.” Hence, the wealth built through entrepreneurial success becomes a reason to avoid risk, and entrepreneurship kills itself.

INTER-INDIVIDUAL LEVEL

There is clear evidence in the literature that entrepreneurs inspire others to pursue entrepreneurial opportunities. This influence across individuals is what we refer to as the inter-individual level of analysis. In many studies the over representation of business founders with self-employed parents is the strongest predictor of entrepreneurship. For example, Delmar and Davidsson (2000) found that 50 percent of Swedish nascent entrepreneurs had parents who were or had been self-employed, compared with 37 percent in the control group. Stanworth, Blythe, Granger, and Stanworth (1989) report similar results from some early studies in the UK. The most impressive evidence is perhaps Sorensen’s (2007) analysis of a Danish longitudinal database comprising work histories of over 200,000 Danes, showing over-representation of 80 and 130 percent for women and men, respectively, of founders with self-employed parents.

Only recently have researchers begun to tease out the precise mechanisms behind the parenting effect. In part the influence is likely to be *genetic*. At least this is what the one published twin study we located suggests (Nicolaou, Shane, Cherkas, Hunkin, & Spector, 2008). Other suggested mechanisms are *transfer of financial (or physical) capital*; exposure leading to acquisition of entrepreneurial aspirations as well as relevant *skills*, and ‘inheritance’ of *social capital*. Neither Aldrich, Renzulli and Langton (1998) nor Sorensen (2007) report any evidence that financial capital is a major factor, while the latter found evidence that exposure to parental role models had positive effects even if the exposure was restricted to adolescence only. Aldrich et al (1998) also find that a child tends to choose the same industry as his/her parents. However, there is no evidence that children of self-employed were more successful. Hence, the main effect seems to be inspirational. This is in line with Delmar and Davidsson’s (2000) finding that those with a positive impression of the entrepreneurial role from observing self-employed family and friends are more likely to be nascent entrepreneurs, as well as results showing that those with more positive impressions of entrepreneurial role models’ experiences have stronger entrepreneurial intentions (Davidsson, 1995; Krueger, 1993). Davidsson (1995) found effects of self-employed spouses, siblings and friends as well, albeit somewhat weaker than the parental role model effect. Thus, entrepreneurship breeds itself through role modeling.

Individuals are influenced by those outside their family, friend and work networks. For example, Lockwood, Jordan and Kunda (2002: 855) cite several studies across domains that show that “Positive role models boost motivation by providing a guide to achieving success; they personify plausible desired selves that people can realistically aspire to become and illustrate the means for achieving these desired selves.” Research into ethnic and minority entrepreneurship suggests dense, supportive networks among ethnic communities spur entry into self-employment (Portes & Sensenbrenner, 1993). Data from the Global Entrepreneurship Monitor (GEM) project consistently shows, across time and space, that the instance of knowing an entrepreneur is significantly higher among those who are starting and running their own firms than among others (Reynolds, Bygrave & Autio, 2003).

Stanworth et al.’s (1989) review suggests that working as an employee for an owner-managed firm increases the propensity to eventually start one’s own business. More recent data from Germany indicates that nascent entrepreneurs are more likely to have experience from working in young as well as in small firms (Wagner, 2004). Most studies seem to assume this effect is due to vicarious learning from observing the owner-manager in action. Recent research suggests the effect is not always caused by the owner. Based on analyses of a large British panel data set, Parker (2007) concludes that the over representation of former small firm employees among business founders is predominantly due to self-selection. However, his results are not at odds with the idea that those with the right inclination benefit from getting some practice first in the ‘entrepreneurial environment’ of the small, owner-managed firm. Nanda and Sorensen (2006), again using large-scale longitudinal data, find evidence that having co-workers with self-employment experience increases the propensity to start a firm. They ascribe this to ‘knowledge spillovers’ as well as ‘entrepreneurial exposure,’ the former relating more to human and/or social capital and the latter more to inspirational role modeling and motivation.

As articulated above, the effects of being exposed to self-employed parents and other family, friends, employers and co-workers suggest that entrepreneurship tends to breed itself through inter-individual processes. But there are also inter-individual

processes where entrepreneurial action or success may be an obstacle to further entrepreneurship. For example, Portes and Sensenbrenner (1993) note that the dense networks among ethnic communities may facilitate start-ups but limit growth prospects. More fundamentally, there is evidence that too much success on the part of role models diminishes their ability to inspire. Lockwood et al. (2002: 855) cite several studies substantiating their claim that “Indeed, successful others prompt inspiration only when their achievements seem attainable.” Thus, hugely successful parents (and others) may be ‘too much’ to serve as inspiration. While it is hard to find systematic empirical research on the issue, at least psychoanalytic arguments hold that ‘celebrity’ status on the part of parents may have more or less severe negative effects on the children as they would always be in their parent’s shadow (Knafo, 1991) and as a result, “The son of a genius remains the son of a genius, and his chances of winning human approval of anything he may do hardly exist if he attempts to make any claim to fame detached from that of his father” (Freud, 1983; cited in Knafo, 1991: 263).

In the case of highly successful entrepreneurship within the family, there is also a much less speculative reason why successful entrepreneurship of one generation limits the entrepreneurial activity of the next: it may make much more economic sense to take over the parent’s successful firm than to try one’s own entrepreneurial capacity – an effort often doomed to be overshadowed by the parent’s achievements also in economic terms. The heirs could, of course, exercise entrepreneurship within the inherited family firm. As we will discuss in the following section, such efforts may be hampered by the fact that the firm is now larger and older and situated in a mature industry. In addition, the family firm becomes something of an heirloom (Karlsson, 1996) which may carry moral obligations with respect to future generations. Hence, although this issue does not seem to have been systematically investigated in the family business literature, it may well be the case that for this reason conservative and supposedly ‘low risk’ administration rather than continued entrepreneurial development may become the hallmark of the heir’s management of the family firm (cf. Chandler, 1990). In a nutshell, inter-individual level processes may not only breed, but also contribute, to killing further entrepreneurship.

FIRM LEVEL

At the firm level, entrepreneurial action and success may spur further entrepreneurial action in two different ways. First, in line with the previously discussed amplified tendency of firm founders originating from small, owner-managed firms, some firms spawn other start-ups at impressive rates. Second, similar to the motivational reinforcement discussed on the individual level, some firms develop an ability to amaze their competitors and customers with a continuous stream of new, innovative products, novel business model solutions, and other signs of continued entrepreneurship.

Gompers, Lerner and Scharfstein’s (2005) study of public corporations examines two views on firm spawning. In one view, young firms educate employees to become entrepreneurs and expose them to a network of entrepreneurs and venture capitalists. An example of prolific spawning is Fairchild Semiconductors. The second view holds that individuals become entrepreneurs because the large bureaucratic companies for which they work are reluctant to fund their entrepreneurial ideas. Xerox is often highlighted as an example. Gompers et al (2005) find more support for the former view. Younger firms that are backed by venture capitalists and that are located in the main hubs of venture capital activity (e.g. Silicon Valley and Boston) –

that is, firms that are more likely to deserve the title ‘entrepreneurial firms’ – spawn more new firms. The location dimension suggests the phenomenon is not purely firm level (see the ‘Region’ section). While Gompers et al.’s (2005) findings are based on high-technology/high-potential firms, other results support the notion that some (but not all) firms in highly entrepreneurial regions become inexhaustible spawners. For example, Wigren (2003) reports on the Hyltén’s Metal Goods Factory in the traditional industrial district of Gnosjö, Sweden. Over a few decades this company, never having more than 40 employees at any time, had 24 direct spin-offs and an additional 49 firms otherwise tracing their origin from it. Clearly, some firms breed entrepreneurship by spawning other firms. This process sometimes occurs through the founders themselves. Following the career histories of MBA alumni of an elite business school, Dobrev and Barnett (2005) show that with increasing size of the organization – arguably indicating greater initial success at entrepreneurship – the probability that the founder will leave to start another firm also increases.

Other firms breed continued entrepreneurship internally, showing a sustained ability to launch novelty in the market. Zahra, Sapienza and Davidsson (2006) ascribe a firm’s superior ability to create, define, discover, and exploit opportunities ahead of rivals to its ability to develop and apply *dynamic capabilities* which reconfigure a firm’s resources and routines. Their reasoning implies that firms that experience mixed success with their initial entrepreneurial activities and those active in dynamic environments are most likely to develop a dynamic capability for continuous entrepreneurial activity. However, substantive capability success does not lead to dynamic capabilities; rather it is a disincentive to develop and use them (cf. Miller, 1990). One example of a firm with dynamic capabilities is Yahoo’s evolution from a search engine to an Internet portal in the late 1990s (Rindova & Kotha, 2001). Yahoo began by competing on superior search capability, originally by staff members and later incorporating users’ input to provide relevant results. An increase in competitors led to a perception that search engine functions were a commodity. Yahoo founder Jerry Yang articulated a focus on media rather than tools and reconfigured firm resources to promote the brand. This move magnified the firm’s existing capabilities and expanded the content to include news, finance, sports, classified and other pages. To compete successfully against Excite and other firms, Yahoo reconfigured its organizational structure by increasing the proportion of branding and marketing staff to surfer staff. Yahoo established a principle to partner only with organizations that would not limit the firm’s evolution. To remain competitive, Yahoo enhanced its portal, adding interactive services including e-mail and e-commerce in a process Rindova and Kotha (2001:1272) labelled “continuous morphing.”

Successful, innovative firms survive and grow. As a result they get older and larger, which may hamper their innovative capacity. Nobel Prize laureate Kenneth Arrow (1962, 1983) provides theoretical arguments for the innovative prowess of young and small firms (as long as capital intensity is not prohibitive). Empirical results from Acs and Audretsch (1990), Hansen (1992), and Katila and Shane (2005) confirm these notions. The aging firm grows larger and loses its ability to innovate, a recurrent theme labelled variously as ‘incumbent inertia’ (Lieberman & Montgomery, 1988), ‘core rigidities’ (Leonard-Barton, 1992), ‘liabilities of obsolescence’ (Henderson, 1999) and ‘competency- and propinquity-traps’ (Ahuja & Lampert, 2001). As Scherer (1988:4) put it, large firms’ constraining bureaucracy includes “‘abominable no-men’ who block daring ventures.” Even the CEO is constrained by operating procedures and an inability to make decisions based on limited information (Arrow, 1983). Resisting this tendency to drift, as resources grow, from a more

entrepreneurial ‘promotor’ strategic orientation to a more administrative ‘trustee’ posture is also central to Howard Stevenson’s argument about corporate entrepreneurship and entrepreneurial management (Stevenson & Gumpert, 1991; Stevenson & Jarillo, 1990). Thus, at the firm level, successful entrepreneurship leads to survival and growth. As a result, the organization becomes older and larger, making innovation and renewal difficult to initiate and implement. Alternatively, the firm’s success leads to it being acquisition and repositioning within a larger and arguably less agile organization (Davidsson & Delmar, 2006). In addition, the organization’s ability to spawn new start-ups also decreases with increasing age and size (Dobrev & Barnett, 2005). Again, entrepreneurship inadvertently kills itself.

INDUSTRY LEVEL

The industry level is obviously an important arena for studying patterns of entrepreneurial success and demise. For example, Shane (2008) demonstrates that self-employment rates vary tremendously across industries and professions, and Audretsch (1995) shows that start-ups are most likely in industries in which small firms account for the greater percentage of innovations in the industry. Our core premise of entrepreneurship breeding and killing itself may be best reflected at the industry level. The breeding side is emphasized in Austrian economics, which puts a strong emphasis on the dynamic aspects of the micro-economic system. According to Kirzner (1973), entrepreneurship drives the market process. That is, new entrants in a market provide buyers with new choices to consider. In turn, new options lead incumbent firms to consider changing their market offerings as well as their modes of production and distribution. That is, the entrant triggers entrepreneurial responses by incumbent firms. This is one way in which entrepreneurship breeds itself on the industry level. If successful, the entrant will also attract other newcomers to the market who will introduce similar but at least marginally different concepts. That is, the entrepreneurship exercised by one entrant inspires further entrepreneurship by other entrants to the industry. The young Joseph Schumpeter, Hungaro-Austrian by birth but perhaps best described as his own school in terms of economic thought, purported essentially the same idea. According to Schumpeter (1934), major innovations are followed by ‘swarms’ of incremental innovations. Moreover, while perhaps not as strongly emphasized explicitly, a central notion in almost any strand of modern economics is that successful innovators in a market attract followers. That is, entrepreneurship breeds itself.

However, models of industry evolution typically include also the destructive element of entrepreneurship killing itself, and the empirical evidence largely agrees (e.g., Gort & Klepper, 1982; Klepper, 1997; Utterback & Suárez, 1993). In the typical suggested pattern, early breakthrough innovations are followed by high levels of product innovation and entry into the industry. Geroski (1995) mentions some astonishing figures: the UK aircraft industry had 200 producers in 1914, 771 in 1917 and 1529 in 1918, while the UK automobile industry had 400 competing products (presumably originating from an almost as high number of enterprises) prior to 1914. This early stage is followed by a phase of shake-out and the emergence of a ‘dominant design’ when process innovation becomes the name of the game. Later still, both product and process innovation fall to comparatively low levels.

This suggests a process in which entrepreneurship kills itself through shake-out and exhaustion. When the industry becomes over-crowded, it is not possible for most actors to reach sufficient levels of profitability. Entry and exit rates are highly

correlated (Geroski, 1995). Not only that; based on the empirical evidence, Geroski (1995: 434) also suggests that “One of the clearest features of the data on entry (...) is that most entry results in exit, first by recent entrants and then, in all likelihood, by the current entrant itself.” Thus, rather than pushing out the oldest incumbents, the innovative new entrants are likely to cull the previous generation of entrepreneurial firms. This is largely a quantity-based argument for entrepreneurship killing itself by shake-out and exhaustion. Applying microeconomic notions of rationality and marginalism, one can easily find an additional, quality-based argument. From the universe of possible product and process improvements in an industry, rational new entrants would first choose to introduce those with the greatest commercial potential. Thus, later entries would be based on new ideas with (probabilistically) lesser and lesser survival chances or the potential entrants would refrain from trying altogether.

Market/industry structure arguments also point at industry level entrepreneurship killing itself by driving the industry towards one of two theoretical extremes – monopoly or perfect competition – neither of which is optimal for continued dynamic development. Philips (1971) suggests that where exogenous developments to an industry provide a steady stream of innovative opportunities requiring large R&D expenditures and significant changes in the way firms operate, they can lead to a concentrated market structure. According to Klepper (1997) this implicitly involves a process whereby success breeds success, so that successful firms take over a greater share of the market over time, leading to greater concentration. However, in our firm level review, we encountered some negatives of large organizational size for innovation. From a market/industry structure perspective, we are reminded that basic micro-economics points out that monopolists – or colluding oligopolists in a cartel acting like a monopolist – have little incentive to innovate (Mansfield, 1979). At the same time, for potential entrants the task of challenging the monopolist may appear a futile undertaking. Hence, the continued level of entrepreneurial activity is likely to stay low in a mature, concentrated industry.

While industry concentration over time is the norm, some industries may instead get stuck in a situation more resembling the theoretical model of perfect competition. Under theoretical perfect competition, there is in equilibrium no competitive action at all and hence no entrepreneurship (Kirzner, 1973). A real-world situation with features resembling this theoretical state is not conducive to continued dynamic development because firms cannot make the above-normal profits that may be needed for investment in significant innovations. Further, low entry barriers and free or low-cost flow of information makes it hard to reap the benefits of innovation. In addition, no actor has the size and market power needed to take the bold action that could potentially take the industry out of the impasse. Several empirical observations suggest this state of an industry is not an unlikely occurrence. For example, Gort and Klepper (1982) report that in 19 of 46 products studied, the number of firms never declined below 70 percent of the peak number, or if it did so, only temporarily and subsequently recovered to over 90 percent of that number. It is also well known that entry is dominated by rather modest, imitative start-ups (Aldrich, 1999; Shane, 2008) or ‘clones’ as Low and Abrahamson (1997) would dub them. Further, Geroski (1995: 423-4) notes that net entry rates are a modest fraction of gross entry rates and that some patterns suggest entry barriers are low while ‘survival barriers’ are high. Although there also exist situations where high industry density is associated with high levels of entrepreneurship (Porter, 1980; Feldman, 1993), these patterns suggest that many industries are characterized by considerable churning that is not necessarily associated with dynamic development. Presumably, ill-informed and non-sustainable

entrants put a downward pressure on profitability for all in the industry while better informed potential entrants shun the industry altogether, as does the external capital that could potentially break the deadlock. That is, while the early entrants that created the industry breed further entrepreneurship by attracting followers to it, these followers kill further (innovative) entrepreneurship by exhausting the space and bringing down profitability to levels that make innovation hard to finance for incumbents and entry hard to justify for well-informed potential entrants.

REGIONAL LEVEL

Prevalent entrepreneurial activity and success in a region may spur further entrepreneurial action. This is a significant level of analysis as it is hardly disputable that some regions in a country enjoy sustained higher rates of new firm birth than others. A high proportion of regional variation in new firm births in Europe is attributed to regional differences within countries (Reynolds, 1992). This finding is further substantiated in Reynolds and Maki (1990) who find that within a country, there are wide variations in the rates of new firm formation (see also Davidsson, Lindmark & Olofsson, 1994b; Reynolds, Storey & Westhead, 1994). Classical examples include 'third Italy' where the rate of new firm birth is much higher than the rest of Italy and Gnosjö area of Sweden that has an exceptionally high rate of new firm formation. We argue that entrepreneurship breeds itself in regions that are entrepreneurial. So what are the mechanisms and processes that underlie new firm births in these regions?

There are a few theoretical reasons for entrepreneurial activity and success in a region to spur further entrepreneurial action. One of the strongest results in research on regional variations in entrepreneurship is that regions that already have many owner-managed firms also have the highest rates of new firm formation (Davidsson, Lindmark & Olofsson, 1994b; Reynolds, Storey & Westhead, 1994). This finding is consistent with the research on *regional clusters* or *industrial districts*. These industrial districts are large groups of spatially concentrated and closed linked firms, such as producers, wholesalers, and retailers, which seem to provide a continued capacity for economic dynamism (Becattini, 1991; Piore & Sabel, 1984). This is supported by Kirchoff and Acs (1997) who review five studies and conclude that regions with high proportions of population employed in small firms are more likely to have higher rates of new firm formation. Industrial districts are the geographic regional areas characterized by agglomeration economies, with a synergistic combination of dense local networks, local innovation, and learning as well as the formation and clustering of small firms (Piore & Sabel, 1984; Scott, 1988; Staber, 2001). In their study of the emergence and transformation of Branson, Missouri's musical theatre district, Chiles, Meyer and Hench (2004) credit spontaneous fluctuations that initiated a new order, positive feedback loops, coordinating mechanisms that stabilized order and the recombination of existing resources to create a new order.

Further empirical evidence suggests that entrepreneurship tends to spawn more frequently in *dense industrial districts* because these regions allow individuals to muster knowledge, social ties, and confidence necessary to start new ventures (Sorenson & Audia, 2000). This is because individuals tend to develop localized network of friends, acquaintances and contacts and they become embedded in the local network structure. Thus, we expect entrepreneurs to be geographically 'locked in' in their choice of location for a new business venture. The empirical literature also

supports this. Most first-time entrepreneurs establish their new business near their home (Johnson & Cathcart, 1979; Cooper & Dunkelberg, 1987). Furthermore, immigrant research suggests that ethnic business community emergence and maintenance is due to immigrants' preference to socialize among themselves. Examples include Chinatowns around the world, including Sunnybank, Brisbane (Ho, Yang & Peng, 2008).

Additional empirical evidence shows that the geographical proximity of industrial districts enables entrepreneurs to utilize social ties necessary to mobilize essential resources as in the case of Chinese and Indian immigrants who helped their own ethnic people to start new firms by providing vital contacts and financial support in Silicon Valley (Saxenian, 1999; Stuart & Sorenson, 2003). Such networking effects are similar to social capital factors discussed at the individual level. Entrepreneurs are mobilized through social networks in the industrial districts and continue to breed entrepreneurship in that region.

It is also likely that industrial regions with high population density have lower entry barriers to labor market and infused cultural diversity. Empirical findings suggest that low barriers of entry in the regional labor market and diverse culture attract a particular kind of human capital that promotes innovation and accelerates information flow, which eventually leads to the higher rate entrepreneurial activities (Lee, Florida & Acs, 2004).

Scholars have recently recognized the link between *social institutions* and new firm formation (Davidsson & Henrekson, 2002). It is long recognized that social institutions can both constrain and enable firm behaviors (Kiggundu, Jorgensen & Hafsi, 1983; North, 1990; Scott, 1995). Local institutional environment and government policy play a critical role in the formation of new firms and rise of industrial districts. Feldman, Francis and Bercovitz (2005) provide the formation of biotechnology cluster in Washington D.C. as empirical evidence that entrepreneurship tends to spawn in regions where entrepreneurs with skills and capabilities are able to capitalize on opportunities, conducive government policies, and local resources.

Other regional institutions in the form of networks, such as venture capitalists, bankers and regional institutions such as libraries, universities, local government, business associations, and competitive firms may play a critical role in new firm births. In Silicon Valley, these networks provide regular, sustained social interaction, encouraging an exchange of information, new ideas and collective learning. The result is that there are few boundaries among technology firms, venture capitalists, local government officials, the university research community, and the banking community. People move freely between organizations, exchanging ideas and shifting places of employment. In Silicon Valley a regional culture has emerged, one in which shared understandings and practices exist which serve to unify the community and encourage members to collectively learn and take risks. The management practices that have become part of this culture include open-mindedness, creativity, meritocracy, high tolerance for failure, acceptance of treachery, collaboration, risk taking, enthusiasm for change, and a love for the product. In the United States, four examples are Silicon Desert (Utah and Arizona); Silicon Alley (New York); Silicon Hills (Austin) and Silicon Forest (Oregon and Washington). Models in other countries include Egypt's Smart Village, Hong Kong's Cyberport, Malaysia's Multimedia Super Corridor, the United Kingdom's Cambridge Cluster 'Silicon Fen' and high tech clusters in India's Bangalore and Hyderabad.

We concur with Feldman, Francis and Bercovitz (2005) that a region is entrepreneurial when a sufficient number of new firms are formed and regions with

higher numbers of entrepreneurs also have higher rates of new firm formation. Regional differences may perpetuate themselves and regional entrepreneurship may breed itself in a self-enforcing loop if those regional characteristics are sustainable.

At the other end of the spectrum, entrepreneurship may kill itself at the regional level as a result of regional lock-in, a situation in which a local institutional regime gets stuck in a process of rigidification and growing inflexibility (Grabher, 1993). The lowest start-up rates can be found in traditional industrial towns dominated by one or a few employers (Leslie & Kargon, 1994), usually in the manufacturing sector. Mirroring the results from individual level research (cf. above), this presumably reflects the importance of role models and of the prevalence of more or less tacit knowledge about how firms are founded and new economic activity successfully created. Audretsch and Fritsch (1996) find additional evidence that regions in Germany with higher death rates of firms tend to, in subsequent years, experience lower growth rates.

We note that 'one company towns' tend to be particularly poor entrepreneurial milieus. However, what created these 'one company towns' in the first place, if not tremendous entrepreneurial success in the early days? As a case in point, in his work on the Business Dynamics in Sweden project (see, e.g., Davidsson, Lindmark, & Olofsson, 1994a, 1994b, 1996) the first author made the following (non-reported) observation. In the otherwise entrepreneurial Småland region, there was one labor market area that stood out because of its particularly and unexpectedly low level of new firm formation. This was Älmhult, a small community which is the site for the birth, (partial) headquarters, and significant operations of IKEA, perhaps the most pyramidal Swedish entrepreneurial success in the post-WWII period. Arguably, this successful business has created all the employment needed in the area (and more) thus reducing the need for others to strike out on their own. As discussed on less aggregated levels of analysis, by becoming a large firm, IKEA has also created an employment environment that is less likely to spur start-ups and the founder's extreme success makes him hard to identify with as a realistic entrepreneurial role model. Again, entrepreneurship has managed to kill itself.

The downfall of the rubber industry in Akron, Ohio, is another case in point. In 1870, Dr. Benjamin Franklin Goodrich of New York moved to Akron and established B.F. Goodrich. By the turn of the century, B.F. Goodrich supplied the U.S. army and about 20 other rubber companies were also established in the area, including fast-growing General Tire, Goodyear and Firestone. In 1972, France-based Michelin introduced the technologically superior radial tires, an improvement to the cross-ply bias which dominated Akron's production. From 1977 to 1982, Akron's manufacturing employment declined 29%. By 1985, Akron no longer produced tires for passenger automobiles. Goodyear is the only rubber tire manufacturer still headquartered in Akron. In Akron, the firms and the industry was based around a core technology which was once leading, but soon became obsolete. According to Safford (2003: 31) and others, Akron's tire manufacturing multinationals spoke in an 'echo chamber' with one another. Furthermore, the city's flagship educational institution, the University of Akron, had network ties which were 78% to itself with the next sizeable group being ties to other universities outside the area. Akron's small and medium sized technology-based firms had network ties which were 95% internally directed and had little linkages to Akron's universities. In summary, Akron was 'locked in' its previous success and thus the once entrepreneurial rubber industry killed itself.

Institutional environments that lack continual renewal tend to have fewer growth-oriented nascent entrepreneurs and lower levels of employment contribution by high-growth firms (Davidsson & Henrekson, 2002). Endriessse and Western (2009) provide empirical evidence from their comparative study on the fisheries industry on either side of the Thai-Malaysian border. The Satun region of Thailand is characterized by entrepreneur-friendly policies and has higher growth of new firms than the Perilis region of Malaysia where the institutional mechanisms suppress growth of entrepreneurship. Thus, regional level mechanisms can breed entrepreneurship, but can also contribute to killing it.

NATIONAL LEVEL

Although more difficult to assess empirically, the effects found on the regional level are valid also for the national level and will be briefly described. McClelland (1961) and Baumol (1990) present fascinating, albeit not systematic, accounts of how entrepreneurship can vary over time due to cultural and institutional changes, which are set off in part as a result of the level of entrepreneurial activity and success that prevails in a country. The multi-country Global Entrepreneurship Monitor (GEM) study established a link between entrepreneurial activity and national framework and entrepreneurial framework conditions (Reynolds et al, 2005). GEM national framework conditions include external trade openness, role and extent of government, efficiency of financial markets, R&D/technology level of intensity, physical infrastructure, management skills, flexible labor markets, institutions which are unbiased and governed by law. GEM entrepreneurial framework conditions include financial, government policies, government programs, education and training, R&D transfer, commercial and legal infrastructure, internal market openness, access to physical infrastructure, and cultural and social norms (Reynolds et al, 2005).

Judging from the case of Sweden, the process behind this dynamic appears to be something like the following. First, institutional changes (which may, in turn, have been forced by shifts in mentality) open up entrepreneurial opportunities, as was the case during the liberalization of the Swedish economy in the late 1800s (Myhrman, 2003). This gradually creates an almost epidemic entrepreneurial culture, where pursuit of one's own entrepreneurial projects or at least direct investment in those of others become the norm of middle class society. The result is a vibrant economic climate, e.g., Gratzner's analysis of the emergence and growth of a new industry in around the year 1900 (Gratzner, 1996; 1999). Another example can be found in Baumol's (1990) thesis on the supply and productive contribution of entrepreneurship. Baumol examines the prevalence of productive (e.g. innovation) and unproductive (e.g. organized crime) activities in national-level societies across time and provides an example of early Chinese institutional impediments,

“imperial China reserved its most substantial rewards in wealth and prestige for those who climbed the ladder of imperial examinations, which were heavily devoted to subjects such as Confucian philosophy and calligraphy. Successful candidates were often awarded high rank in the bureaucracy, high social standing denied to anyone engaged in commerce or industry, even to those who gained great wealth in the process (and who often used their resources to prepare their descendants to contend via the examinations for a position in the scholar bureaucracy).”

Thus, imperial Chinese society, once it established itself, put into place a set of institutions which did not encourage entrepreneurial behavior.

Some of Sweden's greatest entrepreneurial successes – companies like ASEA (now half of ABB), ASTRA (now half of AstraZeneca), Electrolux, Ericsson, Sandvik, SKF, Volvo (an SKF spin-off) grew to become powerful and important actors in the economy. As a result, institutions gradually changed to favor this group. An unintended but inevitable consequence was the relative discrimination of new and small firms – as well as of not-yet-existing economic activity. In the Swedish case, this systematic bias led to low rates of new firm formation and low prevalence of high growth firms (Davidsson & Henreksson, 2002). To make matters worse the continued success of large firms over several decades created a 'taken-for-grantedness' as far as economic growth is concerned, and a general disinterest in economic issues. The most creative and intelligent in the young generation therefore turned to other occupations and interests. And once the entrepreneurial spirit evaporated, it is not easily restored (cf. Myhrman, 2003).

At the country level, economists have shown that the relationship between entrepreneurship and economic development is u-shaped (Acs, Audretsch, and Evans, 1994). That is, entrepreneurship declines over time as economies become more developed, at some point the level of entrepreneurship turns up. The reasons for this are varied and simple. First, entrepreneurship generally declines with secular economic growth. However, the increased importance of services and of technological change brings an increase in entrepreneurship. Furthermore, extensive entrepreneurial efforts by indigenous populations in poor countries may not actually enhance those countries' economic development. True Schumpeterian entrepreneurship involves innovation which can only be made possible from spillovers of knowledge-based assets from efficient large firms which tend to be found in developed countries. Indeed, over the last three decades, OECD countries have gradually transitioned from 'managed economies' dominated by large companies with mass production, differentiated products and massive economies of scale to 'entrepreneurial economies' characterized by smaller firms which rely heavily upon knowledge, initiative and flexibility (Acs & Audretsch, 1990).

IMPLICATIONS: DOES “ENTREPRENEURSHIP BREEDS AND KILLS ITSELF” APPLY TO CHINA?

We address implications by providing empirical evidence of how entrepreneurship breeds and kills itself in China. We draw on Wenzhou, a prefecture-level city with a population of 7.7 million in the southeastern Zhejiang province, situated between the East Sea and the mountains. Wenzhou was one of the Chinese regions to establish individual and private enterprises and shareholding cooperatives. The 'Wenzhou Economic Model' of opening up private economies is one of China's most successful economic development stories and is primarily driven by entrepreneurs. Wenzhou's GDP has increased from 1.32 billion RMB in 1978 to 160 billion RMB in 2005. In parallel, urban residents' GDP per capita has increased from 422.6 RMB in 1981 to 21,716 RMB in 2006, the third highest in China behind Dongguan and Shenzhen. Wenzhou has over 240,000 individually owned commercial and industrial units and 130,000 private enterprises including 180 group companies of whom 4 are among China's top 500 enterprises and another 36 are among China's top 500 private enterprises. We apply the framework to examine forces that breed entrepreneurship in Wenzhou and also conjecture on what conditions entrepreneurship could 'kill' itself in Wenzhou.

Wenzhou is known for its port and related commerce, and specialized manufacturing, including textile, garments, low-voltage electronics, leather and shoes. Wenzhou has a strong local dialect, locally based networks, local labor markets and local supply chains. Wenzhou's many exports include food, tea, wine, timber and aluminate, a non-metallic mineral used to make alum and fertilizer. Wenzhouese are heavily influenced by the Song Dynasty's 'Yongjia School of Thought,' which emphasizes commercialism and wealth (Zhang, Qian & Wang, 2005). During the Mao era, Wenzhou received minimum central government investment as a result of a possible war with Taiwan. Wenzhou has limited arable land per capita and the fiscal income per capita was only 30 yuan in 1980 (Wenzhou Statistic Yearbook, 2001).

Prior to formal economic reforms, entrepreneurial Wenzhouese left the province to seek business opportunities, primarily by obtaining orders from state-owned enterprises in other parts of China. Through these activities, Wenzhouese established private entrepreneurial firms in the following light industries: low voltage electronics, buttons, cigarette lighters, and leather products. These developments were clearly driven by private entrepreneurial firms.

By 2000, 120,555 of 122,775 (98.2%) enterprises were private enterprises (Zhang, 2007). By 2005, 95% of Wenzhou's GDP came from the private sector, compared to 29.5% in Suzhou, another coastal city of similar size. Liu (1992) summarizes the Wenzhou model success as 'three Ms:' mass initiative, mobility and markets. The lack of central government investment in heavy industries left Wenzhouese with little choice but to focus on labor-intensive consumer products. Furthermore, entrepreneurial firms were prevalent: 2105 of the 122,755 firms (about 1.7%) had sales over five million yuan (Wenzhou Statistic Yearbook, 2001). (For a detailed description of the economic development in Wenzhou, please see Shi, Jin, Zhao & Luo, 2002).

The forces that drive the fast new firm births in Wenzhou can be observed at the multiple levels discussed above. We recognize that the empirical evidence does not always clearly lends itself to a certain level, thus resulting in some overlapping observations, such as in the case of industry and regional levels which are often intertwined.

There is evidence that Wenzhou entrepreneurs engage in a continuous loop of breeding further entrepreneurship. Successful Wenzhouese entrepreneurs engage in further entrepreneurial endeavors, a 'breeding' facilitated by entrepreneurs' motivation, specific human capital and domain-specific social capital (Huang, Zhang & Zhu, 2007). For example, Wenzhou's footwear industry grew from 19 firms in 1978 to 99 firms in 1981 to over 4,000 firms in 2005. Following the economic reform in 1978, many individuals with skills and craftsmanship left the large state-run traditional footwear company to start their own businesses. The modularization of the production process enabled many individuals without deep knowledge of the industry to start their own business, sometimes with an initial investment of just 500 yuan. Many of these individuals had prior experiences with entrepreneurial activities. The Wenzhou entrepreneurs' accumulated human and social capital enabled them to set up their business and grasp emerging market opportunities fairly quickly (Huang et al. 2007).

Wang Zhentao, founder of Aokang Group, was inspired by the people doing business in his hometown of Hefei, Anhui Province. In 1988, Zhentao left his carpentry trade to start a shoe company which he grew to be China's largest private

shoe company with over 20,000 employees and 30 subsidiaries in China and around the world (Zhang & Chen, 1999).

An entrepreneur's success often lures relatives and friends to imitate, resulting in births of numerous new firms (Zhu, 2005). For example, Yu Ashou, founder of Jierda Footwear Co., LTD. had 16 apprentices, 15 of whom later established their own companies (Huang et al, 2007). Another example is Nan Chunhui, the founder of CHNT, one of the largest low-voltage electric producers. Chunhui was inspired by hundreds of entrepreneurs engaged in electric business in his hometown, Liu Shi, Wenzhou, and also his father who ran his own shoe repair shop.

Evolution of the Wenzhou model suggests that in the intense competition a few firms emerge as industry leaders continuously surprising their competitors and customers with a stream of new innovative products and new technology. Sonobe, Hu and Otsuka (2004) found that in Wenzhou Yueqing's low-voltage electronic industry, leading innovators developed more than twice as many new products and marketing strategies than followers, laggards and converts in early 1990s when the competition was fierce.

In addition, a few cases available to us indicate the spawning of new firms from entrepreneurial firms occurs in Wenzhou. Nan Chunhui started his first firm, Qiu Jing Starter Factory, in 1984. It was spun off into two firms, including CHNT, of which Chunhui is CEO. Since the spin-off, CHNT has established 50 subsidiaries and over 400 sales outlets worldwide. Yaohua Electric Plant, established in 1986, has over 20 new companies and now manages a conglomerate of 39 companies and employs 50,000 across China (Zhang & Chen, 1999). The above evidence suggests that entrepreneurial firms tend to spawn further entrepreneurial action.

Wenzhou's industrial structure is a platform for entrepreneurial activities (e.g., Sonobe, Hu & Otsuka, 2004; Huang, Zhang & Zhu, 2007; Wei, Li and Wang, 2007). The lack of central government investment in heavy industries in Wenzhou led to the spawning of light and consumer industries. In the early stage of economic reforms, Wenzhou entrepreneurs devoted their energies to leather, shoe, low voltage electronics, garment, and cigarette lighter industries. The production process of these industries was decomposed into small steps that enabled the division of labor and lowered entry barriers, attracting new entrants. For instance, at the peak time, there were about 5000 private electrical firms operating in the 50 square kilometer area of Liu Shi, Yueqing.

Wenzhou's growing number of entrepreneur-initiated business associations further breed entrepreneurship in several ways. First, this organized network of entrepreneurs provides a voice in major industry-related disputes and facilitates information dissemination and industry monitoring for quality improvement (Zhang, 2007). This could extend beyond strong ties to widen one's social circle. Such entrepreneurship with strong industrial leverage in Wenzhou may perpetuate itself.

The Wenzhou experience demonstrates that entrepreneurship breeds itself in dense industrial districts (or industry clusters). The orthodox Wenzhou model resembles a classic Marshallian Industrial District (MID), a territorial agglomeration of small firms relying on interlinked networks and markets. These small-scale, family-run manufacturing businesses engage in flexible production and endogenous development, use local distribution networks and are embedded in thick local institutions. MID clusters' agglomeration effects enable the birth and survival of small firms. In 2000, about 30 towns in Wenzhou had several industrial clusters with outputs of over one billion yuan, including Liushi (low-voltage electronics), Longgang (printing), Qiaotou (buttons), and Ruian (clothing) (Wei, Li & Wang,

2007). By 2003, there were 17 formally established major industrial districts, most with specialized markets (see Table 1). For example, the footwear industrial district has the following markets which facilitate daily commerce: accessories, ornamental materials, original leather, leather and footwear machines, and leather chemicals. Some MID firms have grown to become Fordist-like corporations. CHNT, Delixi, CHYH, and Aokang are among China's Non-state Fortune 500 companies.

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Evidence suggests that the Wenzhou institutional environment acted as a breeding ground for entrepreneurial activities even before the reforms started in China. The local government acquiesced and was even sympathetic to the local capitalist activities; they were ambivalent toward Mao's leftist campaigns and were tolerant of many practices which could be deemed as illegal or semi-legal during the reform years (Liu, 1992). Furthermore, the Wenzhou government was tolerant of many border-line business practices during earlier years of reforms and has been more active in implementing local policies one step ahead of other Chinese localities (Wei, et al., 2007). For example, the local Wenzhou government reformed the property right policy to encourage and legitimize private cooperative enterprises, with the result that the number of private cooperatives nearly doubled in a few years (Li, Weng & Zhu, 2004).

On the other hand, the lack of a robust legal and credit system, which implies that the cost of enforcing contracts by legal means would be very high, led firms to resort to social trust and long term relationships to help enforce contracts and reduce transaction costs, as discussed earlier in trade credits. This further facilitates the use of social capital and thus encourages entrepreneurial activities.

However, empirical evidence suggests that the Wenzhou model may have planted seeds for entrepreneurial demise. Wei and colleagues (2007) find that during 2002 and 2003, Wenzhou's growth rate in GDP, investment and exports were lower than the provincial average and suggest that Wenzhou experienced three regional lock-ins: relational, intergenerational and structural.

Wenzhouese are famous for placing heavy emphasis on kinship relations, including one's immediate family, clan, and village. Wenzhou business people place trust in their business circle and form strong ties. Firm founders leveraged rich personal networks to start and operate their businesses. As founders age and changes are made to the leadership structure, the importance of the original networks may lessen and there may appear vacuum in the network system. If there is no sufficient replacement for the networks, the firm may suffer from relational lock-in.

As discussed earlier, Wenzhou's industrial districts are dominated by small firms that are predominantly under family control. These small firms tend to have low technology and to lack innovative capabilities. In 2002, among Yueqing's 20,611 private firms, 20,055 or 97.3% had outputs of less than 5 million yuan (Yueqing Statistical Bureau, 2003). In 2004, among 147,115 enterprises in Wenzhou, only 377 were large and medium-sized firms. Even majority of these large firms are under family control. Such tight family control may potentially suffer two types of generational lock-in.

In *Scale and Scope* (1990), Alfred Chandler argues that family firms are too conservative to be competitive over time, and should therefore be handed over to

professional (non-family) management to replace supposedly 'low risk' administration with more entrepreneurial development. Many Wenzhou family businesses are currently facing this dilemma. Wenzhou's older generation entrepreneurs grew up in a guerrilla warfare era and may not have the necessary skills, education, and acumen to take their firms to the next stage. For example, most Wenzhouese entrepreneurs have less than 14 years of formal education (Huang et al, 2007). However, Wenzhouese founders' children are not very keen to take over the family businesses and prefer to start their own firms (CITE?). Even when the younger generation joins the family business, some aspects of Wenzhou spirit, such as entrepreneurship and work ethic, have been lost. Thus, the family business is locked in the older generation's domain.

Second, as mentioned above, Wenzhouese are famous for placing heavy emphasis on kinship relations and they build closely-knit social networks (Guanxi) which they often rely upon when doing businesses. Such thick local networks do not easily allow infusion of cultural diversity and embrace immigrants. Immigrants with technology and management skills are not easy to retain and do not easily adapt to local society. Further, thick local networks could result in a lack of recruiting outsiders and in implementing innovative strategies which are outside the network. Without continuous innovation, their products will be unable to compete in both national and international markets. Thus, two types of generational lock-in may plant seeds for demise of entrepreneurial action.

Finally, the breeding floor of industrial districts may become less fertile for entrepreneurial activities. Wenzhou's low technology industries may not enjoy long term comparative advantages as other regions are imitating their success. Wenzhou may also suffer from the double-edge sword of out-migration and immigration. On one hand, out-migrants extend Wenzhou MIDs to other localities and facilitate sales and distribution of products in those regions (for example, many large enterprises had as many 800 sales agencies that relied on out-migrants throughout China by later 1990). On the other hand, out-migrants could establish their own industrial base in those places and become major competitors to those in Wenzhou and eventually might attract talents from Wenzhou and hollow out the MIDs back home. As Wenzhou loses its comparative advantages in job opportunity, rising living costs (due to land and energy shortages and serious pollution) make it increasingly difficult to keep skilled and talented migrant workers in the region. This effect is exacerbated by the difficulty for outsiders to embed themselves into the local society characterized by closed networks and location-specific relational assets (such as the unique Wenzhou dialect). Skilled and talented migrant workers may simply seek work elsewhere. Wenzhou's fierce regionalism, coupled with bureaucratic local government, lack of R&D investment² and foreign direct investment,³ is a source of potential regional lock-in. Furthermore, these inherent problems prompted larger firms to consider relocating outside Wenzhou. It was estimated that more than 100 large enterprises relocated outside Wenzhou and 250 relocated the entire enterprises (Wei et al. 2007). Such relocation could lead to outflow of financial and social capitals, thus negatively impacting local economies, creating further regional lock-in.

² Wenzhou does not have national-level universities or research centers.

³ FDI has traditionally been low in Wenzhou, with only \$209 million in 2004, lowest among the comparable cities and regions in China. Thus, Wenzhou is not seeing many technology transfers from foreign firms.

CONCLUSION

China is currently experiencing vibrant economic development characterized by abundant entrepreneurial opportunities. Regions like Wenzhou have shown an ability to benefit from economic reform and establish an entrepreneurial economy. In line with our reasoning about how entrepreneurship breeds itself, this early success is sustainable if successful first-time entrepreneurs become habitual entrepreneurs, entrepreneurial role models inspire others to follow suit, entrepreneurial firms spawn other firms with related special competence, the entrepreneurial wealth of the region is plowed back into new entrepreneurial endeavors through formal or informal venture capital, and networks among related firms in specialized industrial districts create a regional level advantage in term of specialized skills, social capital and other resource pools. In these regards, the future of Wenzhou and similar regions in China looks bright.

However, our analysis shows that the battle for sustained entrepreneurial dynamism is never won once and for all. Circumstances may change, and often it is the very entrepreneurial action and success that eventually sets off a counter-trend that stifles entrepreneurship. That is, entrepreneurship tends to kill itself. For Wenzhou, there are some warning signs. As described, successful entrepreneurs may become complacent, risk averse or so immensely successful that they do not function as realistic role models any more. The heavy reliance on strong (often family) ties may make things run smoothly at small scale and early stages of economic development but may be sub-optimal once the game changes to one of international competition for innovative leadership. The concentration into specialized MIDs offer advantages at the current stage of development but may lock regions firmly into structures that are not conducive of success in technologies and industries that will start to emerge tomorrow. Further, as these specialized regions mature, a process of consolidation and concentration will leave them dominated by a small number of large firms, which are typically not a fertile seedbed for the creation of new entrepreneurs and new ventures.

The challenge for Wenzhou and similar regions is to keep the entrepreneurial machinery going. Like Baumol (1990), we hold that this is not a micro level problem. The fact that some successful entrepreneurs or firms become 'fat cats' is not a cause for concern as long as there is a sound undergrowth of new entrepreneurs and firms that take over the role of change agents in the economy. Indeed, Schumpeter's (1934) notion of 'creative destruction' compels us to embrace not only successes but also 'failures', because without experimentation with uncertain outcomes there would be little innovation, and without the freeing up of resources that happens when obsolete structures are dismantled there would not be any low cost resources available for the creation of the next generation of entrepreneurial ventures. Therefore, the best recipe for sustained entrepreneurial success at an aggregate level is likely to be the creation of institutional arrangements that do not overly focus on supporting current success but facilitates the emergence of new ventures and new industries that do not have voice today but could be the basis of prosperity tomorrow.

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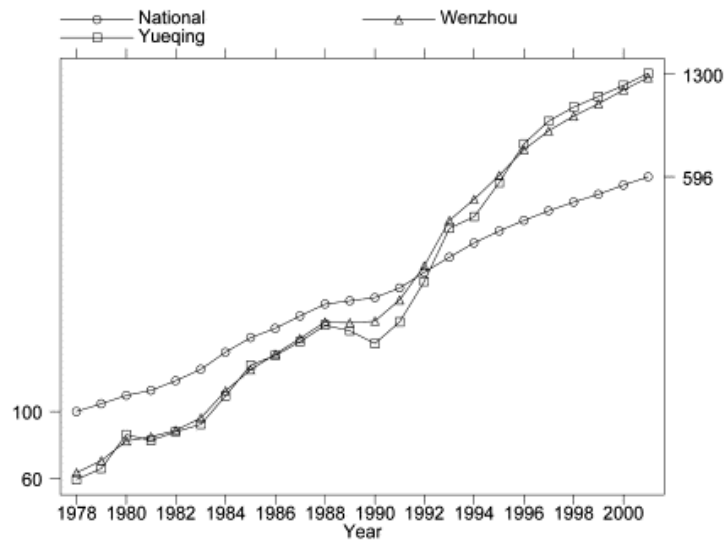
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Table 1. Industrial Districts in Wenzhou

1. China Metal Shell Lights Production Base	◆ 2001	
2. China Shavers Production Base	◆ 2001	
3. China Plastic Membrane Production Base,	◆ 2002	
4. China Shoes Metropolis	◆ 2001	
5. China Low-voltage apparatus Metropolis	◆ 2001 乐清	
6. China Locks Metropolis	◆ 2002	
7. China Printing City	◆ 2002	
8. China Plastic Weaving City	◆ 2002 温州	
9. China Artificial Leather Metropolis	◆ 2002	
10. China Watercolor pen capital	◆ 2002 乐清芙蓉	
11. China Aiguille Production	◆ 2002 永嘉桥头	
12. China Zip & Button Town	◆ 2003 平阳	
13. China Gifts Production Base	◆ 2003 温州	
14. China Spectacles Production Base	◆ 2002 永嘉瓯北	
15. China Valves' Town 2002.9	◆ 2003 乐清	
16. China Precision Mould Production Base	◆ 2003 瑞安	
17. China Motor Parts Production Base		

Figure 1. GDP per capita: Annual growth rates for Wenzhou, Yueqing, and China



Source: Sonobe, Hu and Otsuka (2004)