The Internationalization of Small and Medium-Sized Enterprises: A Policy Perspective

Zoltan J. Acs
Randall Morck
J. Myles Shaver
Bernard Yeung

ABSTRACT. Small and medium sized firms play an important role in the process of creative destruction. The focus of the paper is on the international diffusion of small and medium sized firms innovations. Small and medium sized firms face two challenges in globalization: property rights protection and barriers to entry. We suggest that these barriers can frequently be circumvented by using existing multinationals as international conduits for small and medium size firms' innovations. However, such intermediated modes of expansion is adversely affected by transaction difficulties and intermediator's rent extraction. We raise two categories of questions: (i) is the private sector systematically making the wrong choice between the direct and intermediated mode of international expansion? and (ii) What should be the policy guidelines to improve the overall rate of international diffusion of innovation by small and medium sized enterprises.

Final version accepted on August 2, 1996

Zoltan J. Acs
U.S. Small Business Administration and
Merrick School of Business
University of Baltimore
Baltimore, MD 21201-5779

Randall Morck
Faculty of Business
University of Alberta
Edmonton, Alberta T6G 2R6

J. Myles Shaver
Stern School of Business
New York University
New York, NY 20012

and

Bernard Yeung
School of Business Administration
University of Michigan
Ann Arbor, MI 48109-1234

1. Introduction

Most of the giant corporations that dominate the landscape of the emerging global economy began as small businesses.[1] In many cases, the rise of these companies was due to their founders developing radical new skills, knowledge, and information. Henry Ford made the automobile an affordable consumer good with his use of assembly line production. William Boeing applied military technology to civilian aircraft production. John D. Rockefeller built a worldwide distribution system. Bill Gates created a standard computer operating system.

In the early decades of the twentieth century, Joseph Schumpeter (1934, 1942) wrote of the process of *creative destruction*, whereby the continual creation of new ideas by innovative firms steadily destroys the positions of stagnant firms. This process, or one much like it, is now thought by many mainstream economists to be fundamental to the prosperity of a capitalist economy. The continued ability of upstart companies to challenge industry leaders is thus of critical public policy concern. There are two key factors in the economic environment that gain importance: property rights and barriers to entry.

The employees of large firms are part of a team. Any innovation belongs to the firm, or at best to the team. This diffusion of *property rights*, along with bureaucratic inertia and other problems characteristic of large firms, dampen potential innovators' incentives to be creative. Thus, we argue that smaller firms are better at creating radical innovations because they better protect the innovator's property rights (National Academy of Engineering, 1995).

Small and medium size firms, however, have

Small Business Economics **9**: 7–20, 1997.

only very limited operations abroad. One reason for this is *barriers to entry*. These can be natural: financial market imperfections, differences in legal systems, cultures and languages can make international business ventures risky for small and medium size firms. Barriers to entry that limit international expansion are systematically higher for smaller firms than for larger firms.

We suggest that these barriers faced by SMEs in international markets can frequently be circumvented by using existing multinationals as international conduits for international expansion. Multinationals can be catalysts and facilitators of smaller firms' international expansion. While the direct mode of expansion by small firms is the subject of much discussion, the intermediated possibility has not been given much attention. We compare the two modes of international expansion, direct and intermediated, and identify the conditions for private market arrangements to be efficient.

In the next section, we outline the importance of small and medium size firms for economic growth. In the third section, we discuss small and medium size firms' patterns of internationalization, and propose some economic explanations. In the fourth section, we discuss the role of intermediated expansion via large multinational firms. Section five contains the policy implications, and the final section summarizes the paper.

2. The importance of small and medium size firms to economic growth

Mainstream economists increasingly accept that the fundamental force behind sustained improvement in the standard of living of market economies is *creative destruction*, as described by Schumpeter (1934). In the process of *creative destruction*, the continual emergence of "creative" new ideas underlies the sustained growth of capitalist economies. The ongoing "destruction" of firms that fail to innovate is the less attractive, but essential, aspect of economic growth (Acs and Audretsch, 1991; and Audretsch, 1995).

2.1. *Creative destruction and smaller firms*

Schumpeter argued that innovations give firms temporary monopolies: until someone else duplicates or betters their innovation, they have no competitors on the same playing field. Since developing, producing, and marketing products based on new ideas is costly, Schumpeter felt these temporary monopolies to be essential: they generate funds to finance further innovation. Because large firms are most able to develop and retain expertise in these areas, and thus reap maximum returns on their temporary monopolies, Schumpeter (1942) saw innovation as increasingly an activity of very large companies. He feared that the increasing bureaucratization of big companies, which was becoming evident even in his time, might eventually choke innovative effort in large firms and lead to macroeconomic stagnation.

In fact, in the modern economy, innovation remains largely the work of smaller firms. In a study of previously stagnant industries, Acs and Audretsch (1988) find the correlation of patents with rate of product and production innovation to be quit low among larger firms, but to be much higher among smaller firms.[2] In short, larger firms are less successful innovators. The same study also finds that industries in which large firms appear more dominant have higher levels of innovative activities, but these innovative activities mostly occur in smaller firms in those industries.[3] That is, smaller firms are the innovators in more innovative industries.[4]

2.2. *Property rights*

The critical role of property rights in maintaining the prosperity of capitalist economies is becoming increasingly evident, especially as more information about why economic growth in socialist countries, and the many third world countries that imitated them, was so low.[5] People must be able to keep a reasonable portion of the fruits of their labors or they will not work.

Society must protect innovators' property rights to the gains from their innovations. The creation and application of new knowledge are fundamentally the work of human beings. An innovator in a large company often has only very limited property rights in her innovation. The new product, process, etc. generally belongs to the firm, not the employee who invented it. Even in organizations that share profits with their employees, creative employees must share the

returns to their innovative effort with many other employees, even when their names are distinctly associated with an innovation.[6] *This reduces creative employees' incentives to work hard for the company.*

The lack of clear property rights in large corporations creates perverse incentives for both employees and managers. Both can benefit from "free riding" on other people's innovative efforts and results. If someone else in the company devises a new product, everyone benefits; so everyone sits back and wishes their colleagues good luck. Furthermore, the job security, bureaucratic promotion process, and incentives to conform that characterize careers in a large company may dull incentives to be truly creative. Employees and managers may turn their creative efforts towards the extraction of resources from the corporation rather than socially useful innovation.

The suboptimal incentive structures in many large corporations can allow bureaucratic inertia to drive corporate decisions. Managers and employees' interest lie in protecting their claims on the firm's cashflows. Thus, when firms try to overcome the "free rider" problem by assigning bonuses only to those employees directly involved in an innovation, this may actually stifle more radical initiatives. This is because senior employees and managers, who were involved in past innovations, may push for refinement to those older ideas (which generate income for them), rather than more radical innovations (which reward only younger innovators). This might take the form of directing corporate resources towards "ideas with proven track records" or "lower risk".

Indeed, if radical new ideas threaten the values of the older innovations, senior people in the firm actually have a monetary incentive to stifle the new ideas! Even where innovations merely require substantial adaptive effort from older employees, pressures to retard change may result. These pressures may manifest themselves as bureaucratic delays, funding problems, or administrative roadblocks. Thus, large corporations may pay inadequate attention to radically new ideas.

These problems may be especially intractable in large publicly-held firms, where managers' interests align least with value maximization. Cockburn and Henderson (1995) report privately held pharmaceuticals firms (presumably with managers under greater pressure to maximize profits) to have more linkages with public sector research organizations than publicly-held pharmaceuticals firms have. They find such linkages to be strongly associated with innovative success. They also find privately-held firms to adopt better innovation development procedures more quickly.

In contrast to innovative employees in large firms, where the legal and economic systems permit it, independent innovators can hold clear property rights, can have every incentive to undertake radical innovations, and can be largely free of red tape. Thus, smaller firms serve as better vehicles for innovation.

2.3. *Barriers to entry*

Why then, are large firms so important in modern economies? We believe there are a number of barriers to entry, both natural and deliberate, that frequently prevent new upstart firms from gaining market share. Acs and Audretsch (1988) show that a high concentration ratio has a greater negative impact on small firm innovation than on large firm innovation.[7] If concentration ratio is related to entry barriers, as many economists believe, we can infer that in industries with higher entry barriers, smaller firms become less innovative. We now examine several forms these barriers might take.

Financing problems

Smaller firms must be able to grow quickly to apply innovations to large scale production. Ready access to capital seems of critical public policy concern here. As Schumpeter recognized, economic growth is dependent on a sophisticated financial system. People with money but no ideas and people with ideas but no money must be brought together. This is what financial markets and institutions do. King and Levine (1993) show that developing countries with more advanced financial systems have faster economic growth, all else equal. This finding is consistent with the view that poor access to capital can stymie the expansion of innovative small firms, to the detriment of the economy as a whole.[8]

It is arguable that large corporations remain important in modern industrial economies because of the formidable resources they can direct at

innovation, and the speed with which they can undertake the large scale exploitation of innovations. These advantages essentially stem from access to capital, and perhaps can compensate in many ways for the poor property rights protection large firms offer innovators.

Much of the modern literature in this area stems from Diamond (1985, 1989, 1991), and emphasizes the information collection and processing functions of banks, and the idea of creditors' reputations. According to Diamond banks invest in acquiring information about creditors, while creditors acquire reputations as credit-worthy. Because acquiring information and establishing reputations are both costly and subject to various moral hazard and adverse selection problems, small firms have imperfect access to capital.

Venture capitalists step into this information gap to act as intermediaries between large investors who lack information and independent innovators who lack capital. However, they usually demand roles in management decisions, and still require insiders to put up substantial funds.[9] Thus, insiders' wealth constrains such firms' growth. Evans and Jovanovic (1989) and Holtz-Eakin et al. (1994a, 1994b) present empirical evidence supporting this view.

This limits the size of the physical operations innovators can establish, and the number of people with administrative, operations, and marketing expertise they can hire. Thus, their imperfect access to capital may force new, innovative firms to begin with very small scale production. This, in turn, limits the profits their innovations generate. In contrast, large firms can readily use internal capital reserves or raise funds on financial markets. Thus, a large multinational can begin marketing an innovation around the world almost immediately. This lets larger firms earn higher returns than smaller firms on similar innovations.

Imperfect information

Many barriers to entry are ultimately due to new entrants' information disadvantages or others' poor information about the new entrant.[10] Poor information about labor, raw materials or output market conditions can lead new entrants to make costly mistakes. New market entrants also may find it difficult to attract good workers and support firms because employment and contracts with established firms, especially larger ones, are seen as less risky.

However, steady entry might erode these informational barriers. Later entrants can learn from the mistakes of early entrants. Also, a higher steady flow of entrants reduces suppliers' and workers' dependence on established firms and thus their resistance to switch jobs and business partners. In other words, more frequent new market entry reduces information based entry barriers.

Entry barriers erected by entrenched firms

Other entry barriers are erected by established firms, resolved to maintain their profits by deterring prospective new competitors. A popular view of such barriers among economists is of established firms colluding to overcharge customers and build up war chests, which they then can use to finance predatory pricing to drive away new competitors.

A sensible antitrust regime can work to limit this sort of behavior, but a complete elimination of market power is neither feasible nor desirable. After all, a critical feature of the process of creative destruction is that innovators should benefit from short-term monopolies due to their innovations.[11]

Entry barriers erected by government

Perhaps the highest and most economically damaging entry barriers are those erected by governments. Government regulations and restrictions, legal logistics, taxes, and also corruption increase the costs of establishing a new firm. Baumol (1990), Shleifer and Vishny (1993), Murphy, Shleifer and Vishny (1993) argue that artificial barriers to entry encourage innovative people to invest in exploiting the system, rather than in socially useful innovation.

Government organized barriers to entry in developed countries are usually more subtle. Restrictions on entry into "culturally sensitive" industries like broadcasting and magazines are on the books in Canada. Lenway, Morck and Yeung (1996) present evidence that U.S. government protection keeps inefficient old firms afloat and can reduce innovative firms payoff and thus interest to enter. In the United States, trade barriers against wood products, agricultural goods, automobiles, and many other imports act as barriers

to foreign entrants. In many countries, inspection procedures, safety standards, environmental standards, and other seemingly worthwhile bureaucratic practices may mask barriers to entry that really serve to protect politically entrenched special interests.

The ubiquitous nature of government created barriers to entry throughout the developed and developing world is undeniable. Larger firms may find government created entry barriers easier to overcome than do small firms or independent innovators. Large firms have more resources, contact and clout. They can afford delays, lawyers, bribes, and campaign contributions.

Property rights, entry barriers, and innovation

The elimination of entry barriers and the protection of property rights creates a fertile environment for Schumpeterian innovation (Thurik, 1996). Abundant anecdotal evidence suggests that economies with a high proportion of smaller firms are often more dynamic. In Hong Kong, Taiwan, and other parts of South East Asia, entry barriers appear to be low, and small and medium size firms' entry rates and market shares are both high. These regions' economic growth is well above the global average. The rapid growth of South Korea in the 1980's was accompanied by an increasing market share for small and medium size firms, probably a consequence of the elimination of credit rationing policies that favored large firms (Nugent, 1994).

China's recent rapid growth is also linked to the emergence of many new small firms in village townships and in coastal areas, often in new industries. The economies of the eastern bloc under socialism, in contrast, relied on gigantic state-owned enterprises. Even without the perverse incentives of socialism, it is arguable that such gigantic enterprises were incapable of maintaining a pace of innovation to match that set by creative destruction in the West. Recently, after painful efforts to liberalize their economies, some Eastern bloc countries are beginning to grow, and simultaneously to depend more heavily on small and medium size firms.[12]

In summary, for the global economy the fundamental driving force behind rising living standards is the ability to innovate. Radical innovations are more likely to take place in small firms than large firms because of the advantages that small firms offer in protecting property rights. Refinement and full fledged commercialization of innovations are more likely to take place in larger firms because of the availability of resources. High rates of innovation therefore require property rights protection and low barriers to entry.

3. International expansion by small and medium size firms

Given that smaller firms are important initiators of innovation, the internationalization of these firms would represent a global diffusion of innovation. In this section, we first describe some empirical observations about the international expansion of smaller firms, and then discuss some theoretical explanation for them. Our basic point is that barriers to entry that limit international expansion are systematically higher for smaller firms than for larger firms (Fujita, 1995). What follows is evidence that this is so, and explanations for why it is so.

3.1. *Smaller firms are homebodies*

A way to quantify smaller firms' multinational operations relative to those of large firms is to ask whether the formers' share of foreign direct investment exceeds their market share in their home economies. The United Nations' report on "Small and Medium-sized Transnational Corporations" (1993) suggests that, among developed countries with high outward foreign direct investment activities, small and medium size firms conduct disproportionately less outward foreign direct investment. For example small and medium size firms in 1982 employed 33.5% of U.S. workers in the manufacturing sector. However, small and medium sized firms accounted for only 1.1% of all employment by U.S. owned foreign affiliates in that sector.

In the U.S., small and medium size firms accounted for about 98% of all business establishments in 1982, but they accounted for only about 20% of all multinational firms in 1988. In the U.S., roughly 35% of large publicly traded firms are multinationals (Morck and Yeung, 1991). Assuming this to be the proportion of all large firms that are multinationals, simple arithmetic

reveals less than 0.2% of small and medium size firms to have multinational operations! The same pattern occurs in Italy, Japan, Sweden, and the United Kingdom.[13] Moreover, what little international investment small and medium size firms do undertake is a recent phenomenon. According to the U.N. report, about two-thirds of foreign direct investment by small and medium sized firms occurred after 1980.[14]

Exporting is an initial step towards international expansion. Small and medium size firms' share of exports is also disproportionately lower than their share of home economy sales. However, the disparity here is less dramatic than for foreign direct investment. For example, in Italy, small and medium size firms' share of home economy sales is 49%, and their share of exports is 45%, which is only marginally less. However in Japan, the export share is about 12.9% while their share of home economy sales is 61.4%.[15]

Finally, international expansions by smaller firms are more likely to fail. Newbound et al. (1978), show slightly better performance from larger firms. Evans et al. (1991) and others confirm this finding. Based on inward foreign direct investment made in the U.S. in 1987, Shaver, Mitchell and Yeung (1995) show that the survival probability of foreign subsidiaries in the U.S. is higher when the parent is publicly traded. Larger firms are more likely to be publicly traded.

3.2. *Why do smaller firms stay at home?*

If, as we have argued, smaller firms can be vehicles for innovation, their strong links to their home economies would seem to be economically suboptimal. Why are small firms generally homebodies? There are two caveats that must be kept in mind in interpreting the above numbers, and then two broad classes of reasons. We first consider the caveats.

Caveat (i): Only some small firms are innovators
The most important small and medium size firms are those that carry radical innovations; however, these need not be the majority of smaller firms. Many smaller firms undertake no innovative activity. Some may be serving local niche markets relying on owner's control. Some simply have no competitive advantage to justify international expansion. Others are unable to expand without the owner losing control. Still other small firms might be unsuccessful innovators. The fact that overseas expansion is not a general characteristic of smaller firms does not mean that those smaller firms that would benefit from it are unable to expand abroad.

Indeed, there is some evidence that what foreign direct investment smaller firms undertake does come from firms that look like Schumpeterian innovators. Smaller firms that expand abroad are more profitable than those that do not. The former report profit to sales ratios of 7.9% in 1990, while the latter report only 4.2%. Smaller multinational firms also invest more in innovation; the U.N. Report (1993) points out that "in contrast to small and medium sized firms in general, not only do transnational small and medium sized firms conduct more R&D, but they produce more patented products."[16] Also, smaller firms with foreign affiliates have larger domestic market share, 30% of the market in their primary product, and their affiliates hold 38% of their markets. These large market shares and high R&D spending rates are consistent with smaller multinationals having innovative "edges".

Caveat (ii): The numbers may be misleading
Small and medium size firms' disproportionately low share of foreign direct investment might be exaggerated. A multinational firm's operation is, by nature, greater in scale and scope. As a small firm builds up its foreign operation, it presumably quickly attains a size that qualifies it to be classified as a large firm.[17] Indeed, Vernon's (1966) product life cycle theory posits that the diffusion of new products takes time. Information about a new product may reach domestic consumers first, causing domestic growth to precede international growth. Thus, a dearth of small firms among multinationals does not mean small firms will not expand abroad.

Despite these caveats, smaller firms may well be less likely to move into foreign markets than larger firms. There are two broad classes of reasons for this.

(i) *Barriers to entry in foreign expansions are probably higher for smaller firms*

Each of the barriers to entry we discussed in section II that limit the scope for expansion of smaller firms is probably an even greater obstruction when international expansion is contemplated.

The same shortcomings of financial institutions and markets that we argued might prevent innovative small firms from growing rapidly would present even greater barriers to foreign expansion. If a small U.S. company cannot get a bank loan to expand domestically, it is unlikely locating the collateral abroad would improve the firm's creditworthiness. Moreover, if a country's banks will not lend to a small domestic firm, it is unlikely foreign banks would. Consistent with this, among firms with foreign operations, small and medium size firms tend to have partially owned foreign affiliates while large firms have fully-owned affiliates. Only 47% of smaller firms' foreign affiliates are wholly owned, compared to 53% for large firms.[18] Also, 26% of small and medium size firms' foreign expansions take the form of joint ventures, versus 17% for large firms. Nevertheless, they are consistent with capital constraints disproportionately affecting smaller multinationals.

If lack of information about how labor, input, and product markets work is a barrier to domestic expansion, as we argued above, it is a blockade against foreign expansion. Organizing production and marketing in foreign countries is even harder than doing so domestically for a new firm. The entering firm has to work with a new legal system, bureaucratic regime, and set of social customs. It must hire and manage a labor force accustomed to the local economy. It must send out expatriate managers and experts. Evans et al. (1991) find that initial foreign expansions are often thwarted by sub-optimal management. Simply put, mangers inexperienced in foreign direct investment may not have necessary knowledge to be efficient international operators.

As we argued above, larger firms have inherent advantages in overcoming artificial barriers to entry. They can afford more delays, lawyers, campaign contributions and other bribes. De Soto (1989) and others argue that artificial entry barriers, especially those maximally impregnable barriers due to government, are more pervasive in developing countries. Smaller multinationals do indeed concentrate their foreign direct investment in developed countries, although this could also be consistent with their having less information about more exotic countries.[19]

(ii) *Many foreign markets offer poor protected for property rights*

The key advantage smaller firms have over larger firms as vehicles for innovation is the better protection of innovators' property rights the former offer. Perversely, this importance of property rights over innovations may be critical in limiting small innovative firms' overseas expansion. Shlieifer and Vishny (1993), DeSoto (1989) and others argue that poorly protected property rights are a pervasive problem in many developing countries. This is especially true for property rights over intangible assets like patents, trademarks, etc.[20]

A firm that expands into a country which offers no real recourse against the theft of such assets, risks setting up competitors that otherwise would not be viable. Yet these intangible assets are precisely the things that might make international expansion desirable in the first place for the small firms that own them. Since property rights are least protected in developing countries, this might also explain the preference of small multinationals for operations in other developed economies.

In contrast, the sorts of intangibles larger multinationals might bring, things like managerial, production, or marketing expertise, may be harder to steal, rendering international expansion by larger firms relatively more attractive. Also, large firms might have more credibility in threatening foreign governments and companies with retaliation when their patents or trademarks are stolen.

Therefore, the disadvantages that keep small firms small in domestic markets are likely to have similar or stronger effects in keeping them from expanding abroad, and the key advantage of smaller firms have as vehicles for innovation, their better protection of innovators' property rights, becomes less clear cut when foreign expansion might put those property rights at risk in underdeveloped or corrupt legal systems.[21]

4. Intermediated expansion via larger multinational enterprise

In principle, one might imagine small start up firms creating new ideas and then slowly developing into large, capital rich firms as they market their products on a steadily larger scale. This is the thrust of the corporate life cycle outlined by Jovanovic (1982). Modern global economy of the 1990s', however, leads us to a new course; there is now a "symbiotic" relationship between small and large firms in the creative destruction process.

Global competition makes larger firms pay closer attention to innovations available with a view towards buying or applying them. Large firms often rely heavily on support groups of suppliers and other vertically related alliances. For example, the competitiveness of big automobile manufacturers depends critically on the efficiency of their parts suppliers. The success of many high-tech firms depends on a large pool of independent scientists and freelance software writers. In many ways, large multinationals compete on the strength of their supporting casts as much on their own strengths (Gomes-Casseres, 1996).

The implication is that large multinational firms often serve as international conduits for the innovations of smaller firms.[22] Global competition induces multinationals to source from the most efficient suppliers worldwide. When multinationals purchase an input from an innovative supplier in one country for use through its international operations, they are essentially applying that supplier's innovation worldwide. Yet, the supplier need not expand abroad directly. Indirect international diffusion of this sort makes innovative suppliers more profitable. Because of the greater scale and scope of multinational firms' global markets, the small innovative support forms can earn greater returns, and they do not even have to spend resources to overcome barriers against international expansion themselves! The existence of successful multinational firms therefore encourages innovation by smaller firms. Aitken, Hanson, and Harrison (1994) present evidence that multinational firms do in fact induce more exports by smaller firms.

Moreover, industries that are vertically related to multinationals compete internationally even though they have no direct investment or even sales abroad; the competition takes place as the multinationals compete. Direct international competition between supporting industries in different countries is not necessary to bring about efficiency improvements. Chung, Mitchell, and Yeung (1994) show that U.S. automobile parts makers became more productive as competition between U.S. Japanese auto assemblers increased. They argue that heightened international competition downstream increased the penalties on "unfit" suppliers, and they either improve or did not survive.

The sort of intermediary role for multinationals need not be confined to vertically related suppliers. Independent smaller firms with a new final product might find using multinational firms as intermediary agent in global marketing more efficient than breaking into foreign markets directly. Multinational firms have existing networks of global affiliates and established marketing skills. Distributing the innovation internationally via a multinational firm means giving that firm a cut, and so reduced the ultimate return from foreign sales, yet it calls for very little investment in building up foreign organizational and distribution infrastructure. Highly innovative garment producers and footwear producers in the Far East got rich this way. In the process, they displaced many less efficient producers in North America and elsewhere.[23]

Sometimes, the greatest synergy might be achieved through continual mergers of new small firms with innovative products into large firms with international market access. Thus, highly innovative small pharmaceutical companies are continuously absorbed into larger multinationals as the industry is forced to become more efficient. Williamson (1975, pp. 205–206, *emphasis added*) has also emphasized the inherent tension between hierarchical bureaucratic organizations and entrepreneurial activity. He concluded:

> "I am to regard the early stage innovative disabilities of large size as serious and propose the following hypothesis: An efficient procedure by which to introduce new products is for the initial development and market testing to be performed by independent inventors and small firms (perhaps new entrants) in an industry, *the successful development then to be acquired, possibly through licensing or merger, for subsequent marketing by a larger multidivision enterprise*."[24]

Larger firms thus act as catalysts, or facilitator, allowing smaller firms to expand internationally by proxy. Indeed, given the list of reasons for small innovative firms to forego foreign expansion, indirect access to foreign markets via multinational might well be the efficient choice. Small firms need not expand internationally themselves for the world economy to benefit fully from their innovations. They need only supply multinationals, which then serve as the intermediator of the international diffusion of small firms' innovation.

There are two drawbacks in the intermediated modes of foreign expansion. First, there are transaction difficulties. Innovations are often information based. Transactions of innovations will face the usual agency problem and the information asymmetry problem ("market for lemon problem"). Also, the small firm has to be concerned that its transaction partner, the large multinational firm, will hijack its innovation. Moreover, commercializing an innovation involves investing in specific assets. The small innovating firm may be concerned that the multinational firm extracts ex post its rightful earnings by hold-up means.

Transaction problems are mitigated by designing mutually incentive compatible contracts. A government can reduce transaction difficulties by establishing and enforcing a transparent and reliable contractual regime. For example, by raising the punishment on legal contractual violations, a government makes commitment to legal contract more credible and thus makes legal contracts a more useful tool to formulate incentives compatible contracts.

Another drawback in the intermediated modes of international expansion is that large multinational firms may have bargaining power over small innovative firms. For instance, if a single large multinational is the monopoly supplier of access to world markets for smaller firms in a given country, region or industry, it could extract monopoly rents and inhibit innovation. A large number of competing multinationals would insure that indirect access to foreign markets for smaller firms is efficiently priced. This consideration suggests that we need open competition both globally and in the home country (Morck and Yeung, 1995).

5. Policy implications

We have argued above that many small and medium size firms are initiators of Schumpeterian innovations. The optimum rate of, international diffusion of these innovations enhances global welfare.

Small and medium size firms' observed low rate of direct international expansion often leads to suggestions about giving them special policy help.[25] We urge caution. First, as we have pointed out in Section III, the observed home-boundedness of small and medium size firms may be exaggerated due to data definition. Also, many small and medium size firms are local niche players undertaking no innovation activities. Policy favoritism towards them should be for the redistribution objective, with little obvious help towards efficiency improvement.

Second, as we have argued in Section IV, the internationalization of small and medium size firms' innovations can be intermediated by large multinationals, not just via direct international expansion by small and medium size firms. With its presence, there is no presumption that there is too little international diffusion of small and medium size firms' innovation, even when direct international expansion by small and medium size firms is truly taking place at an extraordinarily low rate.

Still, the policy assumption that there is too little international diffusion of small and medium size firms' innovation appears plausible, particularly in consideration of the formidable entry barriers we mentioned in Section II. While we shall proceed with the assumption, we emphasize that the fundamental question whether we have too little or too much creative destruction is unresolved, a point we address in our concluding section.

Accepting the current policy assumption, we raise two categories of policy questions: (i) Is the private sector systematically making the wrong choice between the direct and intermediated mode of international expansion? If so, what needs to be done? (ii) What should be the policy guidelines to improve the overall rate of international diffusion by SMEs innovation?

There are three sets of costs fundamental to the choice between the direct and the intermediated

mode of international expansion. The first set of costs is associated with entry barriers and protection of property rights. In the direct mode, smaller firms must each build up an organizational and tangible asset infrastructure to support international operations. As well, they must each separately pay the costs of becoming efficient operators in global markets. All these costs stem from the need to overcome entry barriers and to protect property rights. In the intermediated mode, there will be savings on the above costs because multinational firms already have established their international network and are more able to protect property rights. In other words, in direct international expansion, the expanding small and medium size firm incurs some socially redundant investment.

The second set of costs is the transactions costs incurred in the intermediated mode of international expansion. We have mentioned in the previous section that in the intermediated mode of foreign expansion, there are transaction difficulties between a small and medium size firm and its intermediator. To counter transaction difficulties, the transaction partners must spend resources to develop an incentive compatible contract and spend resources to make the contract credible, e.g. making credible pre-commitments and spending on monitoring. These are non-trivial costs. Also, the second best nature of incentive compatible contracts, as a resolution to transaction difficulties, implies that the value created in intermediated foreign expansion may be less, ceteris paribus, than that created in direct foreign expansion.

The third cost arises when the intermediator has market power in serving to internationally diffuse the small and medium size firm's innovation. The intermediator then will extract rents from the small firm; this cost is a transfer from the small firm to the intermediating multinational.

Assume that a small firm develops an innovation that would have value in international markets. In the direct mode of international expansion, the cost of going overseas, from the social perspective, is the small firm's investment in the market entry and property rights protection. In the intermediated mode, again from the social perspective, the cost is the large firm's investment in the market entry and property rights protection and the dead-weight loss due to transaction difficulties between the large and the small firm. Hence, the optimal social choice between the two modes of international expansion depends on the savings in the market entry costs and property rights protection costs in the intermediated mode and the dead-weight transaction cost incurred in the same mode. When the former exceeds the latter, the intermediated mode of international expansion should be chosen over the direct mode.

In making its private choice, the small and medium size firm will opt for the intermediated mode if the associated savings in market entry costs and property right protection costs exceeds the dead-weight transaction costs and the rent extraction by the intermediating large firm. The small firm's maximum receipt from the intermediating large firm is the potential value of the innovation on international markets minus the large firm's spending on market entry and property rights protection and the deadweight loss transaction costs. The actual receipt is the difference minus further the rents extracted by the intermediating large firm. The difference between the small firm's earnings in intermediated and direct international expansion then is equal to the savings on market entry and protection of property rights minus the dead-weight transactions costs and the rents extracted by the intermediating firm.

Hence, the private choice between the two modes of international expansion is socially efficient as long as rent extraction by the intermediating firm in the intermediated mode is zero. If rent extract by the intermediator is non-trivial, the private market will choose direct international expansion more often than it should, leading to too much redundant investment in market entry and protection of property rights. The above reveals that the first and foremost policy guidelines should be to mitigate rent extraction and to resist policies in favor of helping small and medium size firms to expand internationally.

The policy concern should go beyond just correcting potentially wrong private market choice between the direct and the intermediated modes of international expansion. If the rate of creative destruction is indeed too low, public policies should also aim to increase the creation and international diffusion of innovations by small firms. The above analyses suggest that policies should

aim to reduce the costs in international expansion. That is, policies should aim to reduce private market costs incurred for the protection of property rights, to reduce entry barriers, and to reduce transaction costs.

The analysis also suggests that policy subsides to help small and medium size firms to expand overseas will lead to excess direct international expansion. Such policy measures reduce the small firm's market entry and protection of property rights costs. They thus reduce the beneficial savings in market entry and property rights protection costs when intermediated international expansion is chosen over direct international expansion. As a consequence, direct international expansion is chosen too often, leading to excess redundant investment in market entry and property rights protection undertaken via small firms.

6. Conclusions

In this paper we have argued that small firms are indeed the engines of global economic growth. Creative destruction plays an important role in the process of economic growth. Small firms play a crucial role in the process of creative destruction because the diffusion of property rights, along with bureaucratic inertia and other problems characteristic of large firms, dampen potential innovator's incentives to be creative. Thus, we argue that smaller firms are better at creating radical innovations because they better protect the innovator's property rights.

The continued ability of upstart companies to challenge industry leaders is a critical public policy issue However, there has been a lack of solid public policy analysis on the subject of public policy towards small firms. A theme of this paper has been the relative advantage of *direct* versus *intermediated* international expansion by small and medium size firms. We raise several conceptual considerations important in comparing the two modes of international expansion.

What is at the disposal of policy-makers is the ability to either increase or reduce the speed of creative destruction and therefore the rate of economic growth through creative public policy. Those policies include as we have suggested: the elimination of as many barriers to entry as possible; protecting innovator's property rights; maintaining an efficient institutional environment to mitigate transaction costs; open domestic markets to multinationals.

The role of government can be stated simply. Government policies that *weaken* property rights or strengthen barriers to entry slow the process of creative destruction. Government policies that *strengthen* property rights or lower entry barriers speed it up.

What is the socially optimal rate of creative destruction? Is more innovation always better? Ready access to global markets increases the returns to innovation and therefore the incentive to innovate. Rapid innovation, in turn, leads to further globalization as firms seek greater economies of scale on which to apply their innovations. This positive feedback spiral is the motive force behind the emerging global economy.

An increased rate of innovation is good in that it reduces production costs and/or increases consumer choice. These societal gains stem from the "creative" side of creative destruction. More rapid innovation is bad in that it can make existing physical and human capital obsolete. In doing this it can disrupt careers and communities. These societal costs stem from the "destructive" side of creative destruction.

No well-accepted theory of a socially optimal rate of creative destruction currently exists. Many economists writing about the increased pace of innovation and the rise of the global economy immediately assume more innovation is socially good. This view is presumably shared by firms that lobby for R&D subsidies and by the branches of government that grant them. While this view may well be right, it is important to recognize that there is no compelling economic theory backing this up.

The decision as to the optimal rate of creative destruction is essentially political. The policy recommendations we make above would enhance the positive feedback spiral of increasing innovation and globalization. If this is viewed as socially undesirable, the recommendations above should instead be viewed as proscriptions.

Acknowledgements

We wish to thank Lee Preston, Frank Stafford, and seminar participants at the October 1995 *CIBER*

conference on Small and Medium Sized Enterprises (SMEs) and the Global Economy, at the University of Maryland, and the sixth conference of the International Joseph A. Schumpeter Society, Stockholm, Sweden, June 1996 for helpful comments. All errors and omissions remain our responsibility.

Notes

[1] For a review of the literature on small firms see Acs (1995, 1996) and Storey (1994).

[2] Acs and Audretsch (1988), p. 683. Among large firms, the correlation coefficient is 0.107; that among smaller firms is twice as large. The measure of innovation activities is the number of innovations in each four-digit SIC industry recorded in 1982. Innovation is defined as "a process that begins with an invention, proceeds with the development of the invention, and results in the introduction of a new product, process, or services to the market place."

[3] Acs and Audretsch (1988), p. 687.

[4] This is true at least in those industries where information asymetries create a divergence of opinion about the value of new knowledge. If the information is undervalued agents may have to take it outside of the organization.

[5] See Shleifer (1995).

[6] In some corporations, employees have to sign agreements in which they surrender the property rights to their inventions to the firm.

[7] Acs and Audretsch (1988), Table VII, p. 687.

[8] At the 1995 White House Conference on Small Business of the 60 public policy issues cited access to capital was the one most frequently mentioned (U.S. Small Business Administration , 1995).

[9] See Lerner (1994 and 1995).

[10] Capital market imperfections are a special case of this more general information problem. Investors are unwilling to buy into firms about which they know little.

[11] Acs and Audretsch (1989) obtained empirical evidence that concentration deters the entry of small firms, but apparently does not impede the entry of larger firms.

[12] "In a Polish Shipyard, Signals of Eastern Europe's Revival – Medium size companies are the engines of a region's growth", *New York Times*, July 4th, 1995. See Loveman and Johnson (1995).

[13] In Italy in 1982, small and medium size enterprises' (sme's) share of establishment is 96.9% and share of employment is 53.4%, but its share of multinational enterprises (mne's) is only 28.7% and its share of mnes' foreign employment is only 7.4%, even in 1987. In Sweden, sme's share of establishment in 1988 is 97.5%, share of employment is 63.4%, while its share of mne establishment is 74% and its share of mne foreign employment is merely 2%. In U.K., same's share of establishment is 98.4% (in 1981) but its share of mne establishment is only 25%.

[14] U.N. Report (1993), p. 53.

[15] U.N. Report (1993), p. 21.

[16] U.N. Report (1993), p. 97.

[17] The U.N. definition of a large firm is above 500 employees in manufacturing, above 100 in wholesaling, and above 50 employees in retailing and services.

[18] U.N. Report (1993), p. 83.

[19] U.N. report, p. 51, Table III.1.

[20] SMEs are less likely to file for patents abroad than large businesses across all technology areas. When only the highest-value patents within each technology area are considered, a smaller proportion of SMEs patents is still filed abroad in the majority of technology areas. Small and large business patents that are filed abroad, however, are quite similar in the number of countries in which applications are filed. This suggests that SMEs with valuable inventions face special barriers in obtaining foreign patent protection because of limited resources (Mogee, 1996).

[21] Intellectual property protection was the most frequently cited international policy recommendation at the 1995 White House Conference on Small Business (U.S. Small Business Administration, 1995)

[22] Large multinational firms can also serve as conduits for circumventing market fragmentation of various sorts. It is well known that trade barriers stimulate foreign direct investment. Canada's "National Policy" of high tariffs early this century exploited this to crete an economy of subsidiaries. Multinational firms can also by-pass capital market controls and other restrictions.

[23] Foreign direct investment appears to augment home and host country productivity, and this appears to be due to both technology diffusion and increased competitive pressure. See Blomstrom and Persson, 1983; Blomstrom, 1986; Caves, 1974; and Chung, Mitchell and Yeung, 1994.

[24] Many large multidivisional firms are also multinational.

[25] U.N. Conference on Trade and Development Program on Transnational Corporations – Small and Medium Sized Transnational Corporations: Role, Impact and Policy Implications, 1993.

References

Acs, Zoltan J. (ed.), 1996, *Small Firms and Economic Growth*, Volume I and II, Chelteneam, U.K.: Edward Elgar Publishers Limited.

Acs, Zoltan J. (ed.), 1995, 'Symposium on Harrison's "Lean and Mean"', *Small Business Economics* **7**(5), 333–363.

Acs, Zoltan J. and David B. Audretsch, 1991, *Innovation and Small Firms*, Cambridge: The MIT Press.

Acs, Zoltan J. and David B. Audretsch, 1988, 'Innovation in Large and Small Firms: An Empirical Analysis', *American Economic Review* **78**(4), 678–690.

Acs, Zoltan J. and David B. Audretsch, 1989, 'Small-firm Entry in U.S. Manufacturing', *Economica* **56**, 255–265.

Audretsch, David, B., 1995, *Innovation and Industry Evolution*, Cambridge: The MIT Press.

Aitken, Brian, Gordon H. Hanson and Ann E. Harrison, 1994, 'Spillover, Foreign Investment, and Export Behavior', working paper, Columbia University.

Baumol, William J., 1990, 'Entrepreneurship: Productive,

Unproductive, and Destructive', *Journal of Political Economy* **98**(5), 893–921.

Blomström, Magnus and Håkan Persson, 1983, 'Foreign Investment and Spillover Efficiency in an Underdeveloped Economy: Evidence from the Mexican Manufacturing Industry', *World Development* **11**(6), 493–501.

Blomström, Magnus, 1986, 'Foreign Investment and Productive Efficiency: The Case of Mexico', *The Journal of Industrial Economics* **35**(1), 97–110.

Caves, Richard E., 1974, 'Multinational Firms, Competition, and Productivity in Host-Country Markets', *Economica* **41**, 176–193.

Chung, Wilbur, Will Mitchell and Bernard Yeung, 1994, 'Foreign Direct Investment and Host Country Productivity: The Case of The American Automotive Components Industry', University of Michigan Institute of Public Policy Studies and Department of Economics Discussion Paper No. 367.

Cockburn, Iain and Rebecca Henderson, 1995, 'Do Agency Costs Explain Variation in Innovative Performance', working paper, Massachusetts Institute of Technology, presented at the NBER IO Summer conference, Cambridge.

De Soto, Hernando, 1989, *The Other Path*, New York: Harper & Row Publishers.

Diamond, Douglas W., 1991, 'Monitoring and Reputation: The Choice Between Bank Loans and Directly Placed Debt', *Journal of Political Economy* **99**, 689–721.

Diamond, Douglas W., 1989, 'Reputation Acquisition in Debt Markets', *Journal of Political Economy* **97**, 828–867.

Diamond, Douglas W., 1985, 'Optimal Release of Information by Firms', *Journal of Finance* **40**, 1071–1094.

Evans, David S. and Boyan Jovanovic, 1989, 'An Estimated Model of Entrepreneurial Choice under Liquidity Constraints', *Journal of Political Economy* **97**(4), 808–827.

Evans, Wendy, Henry Lane and Shawna O'Grady, 1991, *Border Crossings: Doing Business in the U.S.*, Scarborough, Ontario: Prentice Hall Canada Inc.

Fujita, Masataka, 1995, 'Small and Medium Sized Transnational Corporations: Trends and Patterns of Foreign Direct Investment', *Small Business Economics* **7**(3), June, 183–204.

Gomes-Casseres, Benjamin, 1996, *The Allinace Revolution: The New Shape of Business Rivalry*, Cambridge: Harvard University Press.

Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen, 1994a, 'Entrepreneurial Decisions and Liquidity Constraints', *Rand Journal of Economics* **25**(2), 334–347.

Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen, 1994b, 'Sticking It Out: Entrepreneurial Survival and Liquidity Constraints', *Journal of Political Economy* **102**(1), 53–75.

Jovanovic, Boyan, 1982, 'Selection and the Evolution of Industry', *Econometrica* **50**, 649–670.

King, Robert G. and Ross Levine, 1993, 'Finance and Growth: Schumpeter Might be Right', *Quarterly Journal of Economics* **108**, 717–737.

Klitgaard, Robert, 1990, *Tropical Gangsters*, New York: Basic Books.

Lenway, Stefanie, Randall Morck and Bernard Yeung, 1996, 'Rent-Seeking, Protectionism and Innovation in the American Steel Industry', *Economic Journal* **106**.

Lerner, Josh, 1994, 'Venture Capitalists and the Decision to Go Public', *Journal of Financial Economics* **35**, 293–316.

Lerner, Josh, 1995, 'Venture Capitalists and the Oversight of Private Firms', *Journal of Finance* **50**, 301–318.

Loveman, Gary and Simon Johnson, 1995, *Starting Over in Eastern Europe: Entrepreneurship and Economic Renewal*, Cambridge: Harvard Business School Press.

Mogee, Mary E., 1996, 'Foreign Patenting Behavior of Small and Large Firms', Prepared for the U.S. Small Business Administration Office of Advocacy under Contract No. SBA-8140-OA-94.

Morck, Randall and Bernard Yeung, 1991, 'Why Investors Value Multinationality', *Journal of Business* **46**(2), 165–187.

Morck, Randall and Bernard Yeung, 1995, 'The Future of Foreign-Owned Subsidiaries in Canada', in Ron Daniels and Randall Morck (eds.), *Corporate Decision Making and Governance in Canada*, *Industry Canada*, Canadian Government Printing Office.

Murphy, Kevin M., Andrei Shleifer and Robert W. Vishny, 1993, 'Why is Rent-Seeking Costly to Growth?', *American Economic Review* **82**(2), 409–414.

National Academy of Engineering, 1995, *Risk & Innovation*, Washington D.C.: National Academy Press.

Newbould, G. D., Peter Buckley and J. C. Thurwell, 1978, *Going International – The Experiences of Smaller companies Overseas*, New York: Wiley & Sons.

Nugent, Jeffrey B., 1994, 'What Explains the Trend Reversal in the Size Distribution of Korean Manufacturing Establishments', *Journal of Development Economics*.

Petersen, Mitchell A. and Raghuman G. Ragan, 1994, 'The Benefits of Lending Relationships: Evidence from Small Business Data', *Journal of Finance* **49**, 3–37.

Schumpeter, Joseph A., 1934, *The Theory of Economic Development*, Cambridge Mass: Harvard University Press.

Schumpeter, Joseph A., 1942, *Capitalism, Socialism and Democracy*, New York, N.Y.: Harper and Row.

Shaver, Myles, Will Mitchell and Bernard Yeung, 1995, 'The Effect of Own-firm and Other-firm Experience on Foreign Direct Investment Survival in the United States, 1987–1992', working paper, Stern School, New York University.

Schleifer, Andrei, 1995, 'Establishing Property Rights', Harvard University, mimeo.

Shleifer, Andrei and Robert W. Vishny, 1993, 'Corruption', *Quarterly Journal of Economics* **108**(3), 599–617.

Storey, David, 1994, *Understanding the Small Business Sector*, London: Routledge.

Thurik, Roy, 1996, 'Small Firms, Entrepreneurship and Economic Growth', in Piet Hein Admiraal (ed.), *Small Business in the Modern Economy*, F. de Vries Lectures.

United Nations Conference on Trade and Development Program on Transnational Corporations, 1993, *Small and Medium-sized Transnational Corporations: Role, Impact and Policy Implications*, New York: United Nations.

United States Small Business Adminisration, 1995, 'Foundations For A New Century', The White-Houlse

Conference on Small Business Commission, Washington, D.C.

Vernon, Raymond, 1966, 'International Investment and International Trade in the Product Cycle', *Quarterly Journal of Economics* **81**, 190–207.

Williamson, Oliver, E, 1975, *Markets and Hierarchies: Antitrust Analysis and Implications*, New York, NY: The Free Press.