Intellectual Property Rights and Innovation Policy for SMEs in South-East Asia

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INTRODUCTION

The paper is derived from a report for the Association of South-East Asian Nations (ASEAN) (Macdonald, Turpin and Ancog, 2005) – Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar and Cambodia. The report focuses on the relationship between the region's intellectual property rights (IPR) system and the innovation of its SMEs. ASEAN policy makers felt that SMEs need IPR to be competitive, an opinion confirmed by pressure to comply with the Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS) regime. Despite an extensive survey and many interviews in SMEs and relevant agencies in the ASEAN countries, the authors could find little evidence to support for this belief.

SMES AND INNOVATION

The literature on SMEs and their innovation is very much concerned with government policy. Policy is directed at increasing the innovation, and hence the competitiveness, of SMEs. The argument is that market failure of various sorts prevents SMEs making the optimum use of their resources unaided, and that governments should intervene to help (Rothwell, 1986). A simplistic view of SMEs is common among policy makers. They tend to see SMEs as nascent large firms that should be exploiting innovation to realise their growth potential (e.g., Marsh, 1996). SMEs, it would seem, have no business being small. Of course, many managers of SMEs have no ambitions at all to manage large companies (Reid, Dunn, Cromie and Adams, 1999), and modern economies are dependent upon the part that SMEs play - as SMEs (Rothwell, 1989).

Innovation, and perhaps particularly innovation in SMEs, is complex. It is also the product of serendipity and happenstance as much as managed and controlled process. Yet policy leans heavily towards a linear view of their innovation. It is convenient to be able to justify input in terms of output, to relate resources in to innovation out. So, policy makers and politicians have an interest in maintaining the fiction of a linear innovation process no matter how high the chances that programmes based on this notion will fail (Culkin and Smith, 2000). The many European Union programmes to assist SMEs seem especially prone to failure (Dannreuther, 1999).

The reality of innovation in SMEs is often at variance with the theory behind policy for innovation in SMEs. The evidence is that SMEs are already surprisingly innovative. They have to be innovative to survive. Their problems lie elsewhere. Basically, SME managers are far too busy coping with a wide range of immediate demands to give much attention to less pressing matters. Thus, their horizons are limited, their views of the world restricted. The typical SME is isolated, which is presumably why SMEs look to their own resources for development. Inevitably, these resources are limited and often inadequate. The result is often

frustration, not just with failure in innovation, but also with government exhortations to succeed that are based on an inappropriate understanding of how SMEs innovate.

In theory at least, the IPR system is particularly appropriate for encouraging the creativity of small firms and independent inventors. Large organisations are more likely than small to have the internal resources to develop their own inventions, and so can keep the information of invention to themselves. Smaller organisations must generally seek these resources outside and so must reveal all. In practice, though, the protection that the IPR system affords the weak against the strong is often illusory, and the problems small firms encounter in protecting their inventions through the patent system are widely acknowledged. There is much less questioning of the advantage they and their innovation are claimed to reap from the other part of the patent bargain, the information the patent system makes available. Patent specifications, according to patent office officials, provide a particularly rich source of information for SMEs (e.g., Australian Patent Office, 1981: 2; Blackman, 1994: 47). Such assertions are in conflict with the evidence. Of all the many sources of information for innovation, SMEs use the patent system least of all (Macdonald and Lefang, 1997). In as much as SMEs find any use for the information the patent system provides, it is to prepare applications for their own patents. When this happens, the patent system is serving the system itself rather than the requirements of innovation. Even the SMEs that search to keep track of competitors are more interested in keeping track of their competitors' patenting than their competitors' technology.

So, SMEs make little use of the information in the IPR system for their innovation, but they rarely use the monopoly provisions of the system either. One survey of SMEs in the UK found that about half did not apply for patents even on inventions they thought were patentable (Macdonald, 2003). Of those that did patent an invention, 87% would have developed the invention even without a patent (see Kahaner, 1983). Licensing patents to others was not a popular course. Nor had the vast majority licensed patents from anyone else over the previous decade. Not a single firm could boast that it frequently licensed patents from others.

While the relationship between patenting and innovation has been a focus of debate for decades, other forms of IPR, including trademarks and copyright, are assumed to be more appropriate for SMEs and to contribute more to their competitiveness. A study of the internationalisation of SMEs in Finland, Australia, France, Mexico and the UK revealed that these firms had twice as many trademarks as patents, though neither was critical to their internationalisation (Rodriguez, 2005). Other forms of IPR can be used to underpin strategies to establish new markets, consolidate brand names, or raise finance for expansion.

SMES AND IPR IN PRACTICE

There is surprisingly little research on the actual use of IPR by SMEs. What has been carried out is almost unanimous in declaring that, with few exceptions, SMEs make little use of IPR (e.g., Arundel and Steinmuller, 1998; Blackburn, 2003). There is little interest in why this might be. The problem for government policy is seen to be simply how to help SMEs make more use of IPR (Burrone and Guriqbal Singh, 2003). Typically this is to be achieved by exhortation, public relations, advertising, roadshows, and so on; and by adapting the IPR system to make it more appropriate for SMEs with petty patents and the like. It has been suggested that at least some of the troubles SMEs encounter with IPR might be overcome by catering for their special circumstances. A major problem is that SMEs often cannot afford to enforce their IPR monopolies. Various schemes by which SMEs might insure against infringement are currently under investigation in the UK and by the European Commission. The difficulty, of course, is that the weaker the monopoly claim, the greater the private benefit from insurance, and the greater the public cost in terms of preserving the monopoly. Various schemes for technical arbitration, at least for patents, offer a way round this obstacle

(Kingston, 2000), but it is unclear under what circumstances arbitration would be adopted, and how arbitration would relate to other IP law.

The innovation of SMEs tends to be fortuitous, spurred by threat or opportunity, often to supply only a niche market, and then perhaps but temporarily. The IPR system, on the other hand, envisages much planning with resources permanently dedicated to research and development. It was always optimistic to assume that a single IPR system would suit all organisations, the small engineering firm as much as the multinational oil company. And it was always disingenuous to present IPR theory in terms of the particular benefits the IPR system affords the small and the weak. IPR practice has long meant that these benefits have generally been reaped only by the large and the strong. And yet governments are immensely fond of presenting case studies in which SMEs succeed through their use of IPR, and particularly patents. Other SMEs are exhorted to follow their example. The reality is that SMEs make little use of IPR in their innovation. How then, can IPR support the competitiveness of SMEs? What needs to change and how?

The IPR system has changed a great deal in the last 20 years. The scale and scope of the patent has been much extended with the result that its value has grown both absolutely and in relation to other forms of IPR. The patent has become very much the IPR of choice in the global economy. There is now very much more IPR, especially patents, and much more interest in protecting and exploiting the value in IPR. Corporate strategy is increasingly finding a central place for IPR, though not necessarily to facilitate innovation. IPR can have a strategic value in its own right, quite detached from any part it might play in innovation.

The administration of IPR has also changed. National patent offices find themselves pushed into the limelight, expected to be leading actors in government innovation policies. They are often agencies, distinct from government departments and forced to justify their existence not in terms of public benefit, but rather in terms of transactions. Many are supposed to turn a profit from their IPR business. Integration of national IPR activities by international agreement, consolidation of functions in such organisations as the European Patent Office, and contracting out such IPR tasks as searching, are turning IPR administration into a global business.

Then there is TRIPS. TRIPS establishes a common set of international standards and procedures for the protection of IPR, and recognises the need for effective enforcement of trade-related IPR. Under TRIPS, each member country can determine the method by which obligations are implemented within its own legal system and practice. In recognition of the problems facing the least developed countries, TRIPS allows phased timing for introducing changes for compliance with the agreement (see Blakeney, 1996; Innes and Turpin, 1999).

The literature is generally consistent in arguing that neither the new strategic importance of IPR nor the growing internationalisation of its administration seems to be making the IPR system more attractive to SMEs. On the contrary, the value that SMEs might find in IPR seems to have become more elusive than ever. The more the value of IPR lies in grand international strategy, the less likely are SMEs to be able to realise this value. There are, of course, exceptions, most notably the high technology SME, its business dominated by a single new product or process and instantly global. For these SMEs, innovation is inseparable from the strategic exploitation of IPR. But these are not typical SMEs. The innovative advantage of the typical SME lies in speed to temporary niche market. This is not an advantage that recent changes in the IPR system have done much to complement.

It is all too easy to assume that it is through innovation that SMEs benefit from IPR: the small and the weak seize the advantage offered by temporary monopoly in order to innovate. But it is quite clear that, in many cases, the small and weak are unable to enforce their monopoly.

Nor do SMEs generally innovate by exploiting the information the IPR system makes available. This tends to be information about the IPR behaviour of others rather than information for their own innovation. SMEs have never innovated by meticulously trawling IPR databases. Indeed, the very databases that patent offices offer SMEs to aid their innovation are inaccessible in practice, and unsuited to their requirements anyway. They are suited to IPR professionals, practiced and skilled in their use, people who are searching for very specific information for very specific purposes. They are not appropriate to SME managers after a quick and easy way to assess threats and opportunities.

An effective role for IPR in supporting the competitiveness of SMEs cannot be built on the simple assumption that IP protection and the diffusion of information through the IPR system will increase innovation. Just as SMEs have always been able to use IPR only by accommodating it within their business strategy, so the new IPR regime must also be accommodated. A recognition of this reality must be central to efforts to utilise the IPR system for enhancing the competitiveness of SMEs. This observation has important implications for the support of SMEs in the ASEAN region. As ASEAN moves further towards an ASEAN Free Trade Area, business pressures and opportunities will change. A new approach to IPR will be required.

IPR IN THE ASEAN REGION

It is not easy to discover the extent of IPR use in the ASEAN region. Government departments responsible for IPR have different working practices and operate under a range of regulatory and legislative IPR regimes. Even the terminology of IPR differs from country to country. Statistics are collected in most ASEAN states, and published in all but Myanmar, but there is vast variety in how consistent and comprehensive these statistics are. Although there have been moves towards an ASEAN agreement on IPR, little progress appears to have been made in making the IPR data of ASEAN countries compatible and, importantly, readily accessible

Some ASEAN countries make annual returns to the World Intellectual Property Organisation (WIPO) in Geneva, the body responsible for international IPR data, but most do not. Only two or three ASEAN countries make regular returns, and even these can be very late. There are huge inconsistencies and illogicalities in the data, and sometimes typographical errors. Consequently, even ASEAN policy makers with responsibilities for IPR must often be at a loss to know what is going on. Those less familiar with IPR must be even less certain. There is simply no sound statistical basis for determining what impact IPR may be having on the economy, or what impact the economy may be having on IPR.

It is important to place ASEAN IPR in context. There were over 1,300,000 patent applications made in the world in 2001, 81% by residents of Japan, the United States and Europe. Residents of all other countries combined accounted for just 19% of all patent applications. ASEAN data does not allow even an estimation of what proportion of world patent applications is made by ASEAN residents, but US data does provide some sort of proxy. Because of the size of the US market, US patents are keenly sought. All the ASEAN countries together were responsible for just 0.3% of the total for 2003, Singapore accounting for nearly all of this. The striking difference is that, although there is significant domestic patenting in Indonesia, the Philippines and Malaysia, only Singapore patents are registered in any number in the United States.

It is tempting to conclude that there has been an increase in patenting in several ASEAN countries in recent years, but the figures are too irregular and unreliable to draw even such an elementary conclusion. Occasional data series allow a glimpse of who makes most use of the

IPR system in ASEAN countries. In Malaysia, for example, between 1988 and 2000, 38% of patents were granted to US residents, 21% to residents of Japan, 24% to residents of Europe, and only 3% to residents of other ASEAN countries. In Thailand between 1992 and 2002, 26% of patents granted were granted to US residents, 26% to Japanese residents, 17% to European, and just 0.3% to residents of other ASEAN countries. In Vietnam, 28% of patents granted in 1999 were granted to US residents, and 27% to Japanese residents. Quite clearly, ASEAN residents make almost no use of the monopoly provisions of their own patent systems. This is not necessarily an indication of underdevelopment. Most countries award vastly more patents to non-residents than to their own residents. However, there is always a trade-off between the inventiveness of the national economy as reflected in a propensity to patent, and the attraction of its market to patentees elsewhere.

Of course, patents are not the only form of IPR, and for SMEs probably not the most significant sort. Trademarks, industrial designs and copyright are likely to be more important. Here, though, data problems are even more grave. If patent statistics in the ASEAN region are unreliable, trademark and industrial design statistics are even more so. Copyright statistics are almost non-existent. Despite these limitations, it seems that there are many more applications for trademarks in the ASEAN countries than there are for patents. ASEAN countries are as active as developed countries in trademark registration, and Singapore does not dominate in trademarks in the way that it does in patents. Industrial design registration exhibits a not dissimilar pattern. ASEAN registrations of industrial designs are increasing rapidly and residents are responsible for most applications for industrial design registrations in ASEAN countries. Because Singapore is outstanding among ASEAN nations in IPR activity, it might be assumed that Singapore is a hub for ASEAN IPR, attracting applications from throughout the ASEAN region. In fact, it is no such thing. Other Asian countries, and especially Japan, are much more likely to be active in registering their IPR in Singapore than ASEAN countries.

IPR AND TECHNOLOGY TRANSFER

A major purpose of intellectual property rights – some would say the only purpose - is to prevent others appropriating intellectual property without the consent of the owners of the IPR. Appropriation takes the form of copying, piracy, passing off and counterfeiting. The argument is that the incentive to create is reduced if the creator cannot appropriate the product of his creativity. In consequence, the economy is less innovative, and so less competitive, and so less prosperous.

It seems relevant to observe that innovation in SMEs generally takes place outside the IPR system. And if the IPR system is marginal to SME innovation, it follows that erosion of IPR by copying will hardly reduce the incentive of SMEs to be creative. Indeed, the IPR system can easily become a barrier to creativity. It is not surprising then that the most enterprising SMEs should seek ways to overcome this barrier. And it is not really surprising that copying should be prominent among these ways. While the IPR system may demand absolute novelty, innovation is simply what is new to the adopter. Thus, copying is essential for nearly all innovation; otherwise, the wheel would have to be invented again, and again, and again.

It is argued that the SME has only to consult the various IPR databases to find out what new technology is available, and has then but to take out a licence from whoever owns the IPR to use the new technology quite legally. But there are problems with this argument too. One limitation of the IPR system is that, while it is a repository of information about innovation, it tends to collect this information for its own purposes rather than those of firms (Macdonald and Lefang, 1997). The inexperienced, in which category most SMEs reside, have particular trouble finding patent information and then using what they find to innovate (Arundel and

Steinmuller, 1998). Of course, technology transfer is not supposed to be accomplished by licence alone; the licensor must go to great lengths if technology is to be transferred successfully to the licensee, often sending individuals knowledgeable in the art to convey tacit information. This is not the sort of hand-holding that can generally be afforded by individual SMEs, even though SMEs are the very organisations that require the most assistance.

In short, the IPR system is unlikely to be an efficient means by which technology is transferred to SMEs. This may be why they sometimes disregard it in their copying. On the face of it, such copying is a cost to the owner of the IPR. But owners of IPR can also benefit from copying. New products usually have no market until one is created, a process in which copying can be an effective mechanism. In the case of fashion products, where demand tends to be related to demand itself rather than to price, copying may boost sales of a whole range of both exclusive and popular fashion products. Though they may benefit from copying, those whose IPR has been infringed by copying still tend to complain, often observing that stricter regulation is required and that compensation would be in order. Yet, cases in which the market is confused between the copy and the genuine article are probably the exception. The copied goods produced by the SMEs of ASEAN are unlikely to be taken for the real thing; those who own the IPR do not usually claim that the fake is as good as the genuine article. They insist instead that their market is being eroded. Yet, the market that pays a few dollars for copied goods is usually quite distinct from the market that pays a few hundred dollars. What copying does do, though, is allow SMEs to establish a basic competence through technology transfer on which they can build with their own innovation – something at which SMEs are inherently good.

Though TRIPS is supposed to bring benefits to the developing world in terms of technology transfer, it is hard to see how these benefits are to be realised by the SMEs of the developing world. Just how, in practice, does the IPR system assist the transfer of new technology from, say, a large American firm, to an Indonesian SME? Probably the only practical way by which the SME can acquire new technology is by copying. Even were the SME to take out a licence, it could hardly expect individual support from the IPR holder and would probably still have to resort to copying to secure technology transfer.

Copying has long played an important and not dishonourable part in technology transfer. It was probably the major means by which the innovation of the agricultural and then the industrial revolutions of the 18th and 19th centuries spread from Britain to Continental Europe (Macdonald, 1993). Then, British firms often welcomed imitators, arguing both that copying extended their market and that their rate of innovation outpaced the rate at which copies could be made. Indeed, copying was seen as not just the means by which innovation could be brought about through technology transfer, but also the means by which new innovation would be stimulated in firms that had been copied. This is reminiscent of the style of thinking in modern SMEs: it is very different from the thinking in many large companies. The modern manager is trained to value information as a fundamental resource. The logic is that something so valuable should be owned by the organisation and suitably guarded so that it is not seized by others. The IPR regime, as an instrument of knowledge management, is seen as having an important role to play here (Macdonald, 2004).

The irony is that many of the countries now so strident in defending the IPR of their own companies, and in attacking infringement by foreign companies, were once themselves guilty of allowing their own firms to copy and to infringe the IPR of others (see Asasen and Asasen, 2003). These countries permitted their nationals to disregard foreign IPR throughout most of the 19th century, and often allowed their citizens to claim foreign IPR as their own (Chang, 2002). As long as technology elsewhere was more advanced, it seemed sensible to focus on its acquisition and IPR was seen as an obstacle, not an aid, to this acquisition. Only once these

countries had acquired a technological infrastructure, in part through illicit copying, did they become interested in exploiting IPR to deter the copying of others. The US did not acknowledge foreign copyright until 1891. It was pressure from the more developed countries that resulted in the Paris Convention of 1883 on patents and the Berne Convention of 1886 on copyright, both declaring that signatories must provide the same IPR as they offered their own citizens. It is important to appreciate how new is this switch in policy. Pharmaceutical firms may insist that patents are essential to their survival, but many developed countries did not allow the patenting of pharmaceutical inventions until very recently: France in 1960, Ireland in 1964, Germany in 1968, Japan in 1976, Switzerland in 1977, Italy and Sweden in 1987, and Spain in 1992 (Dutfield and Suthersanen, 2005).

Some observers have detected more than a whiff of hypocrisy in the current attitude of the developed world to the use of IPR to transfer technology to the developing world (e.g., Dutfield and Suthersanen, 2005). Having found IPR a hindrance to their own acquisition of new technology, developed countries now declare that the IPR system will actually assist technology transfer to the countries that are currently developing. Having copied themselves to acquire new technology in defiance of IPR, they seem determined that the modern developing world will not take the same course to development. The harmonisation offered by TRIPS may prove to be an obstacle to the discretionary application of IPR that has been fundamental to the development of those very countries. The demonisation of copying reflects an attitude to innovation more appropriate to the R&D programmes of large, high technology companies from the developed world (Kingston, 2004): it ill suits the methods of technology transfer upon which ASEAN SMEs depend for their innovation and competitiveness (see Turner, 1998).

CONCLUDING THOUGHTS

The extent to which the ownership of trademarks, industrial designs, copyright, and patents can contribute to firm competitiveness is not determined by a linear economic process that converts knowledge into product or process. Rather, it is a product of the various ways that IPR can become usefully embedded in business strategy (Ricketson, 1984). IPR within business strategy is important for SMEs, not IPR itself.

SMEs comprise the vast majority of all firms in the ASEAN region and elsewhere. They must be competitive if local prosperity is to grow. However, innovation is not the only route to competitiveness in SMEs: competitiveness in SMEs is a function of a whole host of factors, including the skills and education of managers and the workforce, as well as local and national government policy. IPR generally plays only a very minor role in any competitiveness springing from innovation. This does not mean that IPR cannot make a greater contribution to SME competitiveness, but this route lies through the accommodation of IPR in business plans rather than through innovation.

Some SMEs will engage in IPR activity: some will claim monopoly rights, some will license, some will search the IPR system for information. But the vast majority of SMEs in most ASEAN countries are simply not in this game. Their competitiveness relies on deft marketing and building strategically on niche opportunities. If the IPR system is to enhance the competitiveness of these SMEs, action is required in five key areas. There is need for:

- more user friendly information about IPR, presented in the context of current and potential business plans.
- involving industry associations/professional bodies in preparing and disseminating such information.

- confidence among SME managers in (a) the value of IPR in business strategy, and (b) the capacity of the system to protect their IPR.
- more focus on the role of SMEs in the value chain and in industrial clusters and networks in order to identify where and when they can most benefit from different forms of IPR.
- a regional database on the current uptake of IPR by SMEs and the sectors and types of business activity in which they are most engaged.

Above all, while government policy in the ASEAN region must accommodate TRIPS, it could do much more to take advantage of what flexibility TRIPS allows for innovation and technology transfer (May, 2000). One size does not fit all and an IPR system that satisfies the requirements of a global pharmaceutical firm is unlikely to be particularly relevant to the needs of a SME in the developing world. To pretend otherwise does not serve the interests of the developing world, or its SMEs.

REFERENCES

Arundel, A. and Steinmuller, E. (1998) 'The use of patent databases by European small and medium-sized enterprises', *Technology Analysis and Management*, 10, 2, 157-73.

Asasen, Choompon, Asasen, Kanchana AND Chuangcham, Nataya (2003) *A Proposed ASEAN Policy Blueprint for SME Development 2004-2014*, ASEAN-Australia Development Cooperation Program, Jakarta.

Australian Patent Office (1981) *Patent Literature – A Source of Technical Information*, AGPS, Canberra.

Blackburn, R. (ed.) (2003) *Intellectual Property and Innovation Management in Small Firms: Results from a Research Programme*, Routledge, London.

Blackman, M. (1994) 'Taking patent information services to small and medium enterprises', *Intellectual Property in Asia and the Pacific*, 40, 44-67.

Blakeney, M. (1996) *Trade Related Aspects of Intellectual Property Rights: A Concise Guide to the TRIPS Agreement*, Maxwell and Sweet, London.

Burrone, E and Guriqbal Singh, J. (2003) *Intellectual Property Rights and Innovation in Small and Medium-Sized Firms*, WIPO, Geneva.

Chang, H-J. (2002) *Kicking away the Ladder*, Anthem, London, 55-8, 84-5.

Culkin, N. and Smith, D. (2000) *An Emotional Business Ventures out into the Big Wide World: What Chance Government Ever Getting to Grips with the Small Firm Market?*, University of Hertfordshire Business School, Marketing Paper 14.

Dannreuther, C. (1999) 'Discrete dialogues and the legitimation of EU SME policy', *Journal of European Public Policy*, 6, 3, 436-55.

Dutfield, G. and Suthersanen, U. (2005) 'Harmonisation or differentiation in intellectual property protection? The lessons of history', *Prometheus*. 23, 2, 131-48.

Innes, J. and Turpin, T. (1999) *Intellectual Property Legislation and Innovation in Asia Pacific Economies: Case Studies of Intellectual Property Law in Australia, China, Indonesia, Korea, the Philippines and Thailand*, Law Crest, Melbourne.

Kahaner L (1983) 'Changes pending for the patent system', *High Technology*, 3, 12, 48-57.

Kingston, W. (2000) 'Compulsory arbitration – empirical evidence', *European Intellectual Property Review*, 4, 154-8.

Kingston, W. (2004) ‘Making patents useful to small firms’, *Intellectual Property Quarterly*, 4, 369-78.

Macdonald, S. (1993), ‘Nothing either good or bad: Industrial espionage and technology transfer’, *International Journal of Technology Management*, 8, 1-2, 95-105.

Macdonald, S. (2003) ‘World’s apart: Patent information and innovation in SMEs’ in R. Blackburn (ed.), *Intellectual Property and Innovation Management in Small Firms: Results from a Research Programme*, Routledge, London.

Macdonald, S. (2004) ‘When means become ends. Considering the impact of patent strategy on innovation’, *Information Economics and Policy*, 16, 1, 135-58.

Macdonald, S. and Lefang, B. (1997) ‘Patent information survey. Information for innovation: Survey of innovating and patenting small firms’, *Computer Law and Security Report*, 13, 5, 344-8.

Macdonald, S., Turpin, T. and Ancog, A. (2005) *Maximising the Contribution of IP Rights to SME Growth and Regional Competitiveness*, REPSF Project No. 03/005, Mates Consulting Pty. Ltd., Sydney.

Marsh, R. (1996) ‘Innovation in small and medium sized enterprises, 1995 survey’, *Economic Trends*, 516, October, 24-41.

May, C. (2005) *A Global Political Economy of Intellectual Property Rights*, Routledge, London.

Reid, R., Dunn, B., Cromie, S. and Adams, J. (1999) ‘Family orientation in family firms: A model and some empirical evidence’, *Journal of Small business and Enterprise Development*, 6, 1, 55-67.

Ricketson, S. (2002) ‘Business method patents: a matter of convenience?’ (Steven Stewart Memorial Lecture 2002) 97–130.

Rodriguez, J. (2005) *The Internationalisation of the SME: The Notion of Awareness*, Unpublished Ph.D. thesis, University of Sheffield.

Rothwell, R. (1986) ‘Reindustrialisation, innovation and public policy’ in Hall, P. (ed.) *Technology, Innovation and Economic Policy*, Philip Allan, Oxford, 65-83.

Rothwell, R. (1989) ‘Small firms, innovation and industrial change’, *Small Business Economics*, 1, 51-64.