

Final Report

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Review of the Literature: The Role of International Trade and Investment in Business Growth and Development

Submitted to the UKTI by

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Executive Summary

- E.1 Our approach in this literature review has been to cover three substantive areas, namely:
- International entrepreneurship (Chapter 2);
 - Firm-level adjustment to globalisation (Chapter 3); and
 - The role of government in business internationalisation (Chapter 4).
- E.2 **Chapter 2** considers the wider literature on international entrepreneurship (much of it from the business and management area). This deals with the internationalisation process itself, in terms of why certain firms become international (and when – e.g. ‘born-global’ companies), the different options available (e.g. exporting vis-à-vis FDI), and the different processes available (e.g. the traditional evolutionary model – known as the Uppsala Model – whereby firms evolve from supplying domestic to export markets, and then to become multinational; to more recent literature on firms, including SME’s, that are ‘born’ international). We also cover the recent economics literature that emphasises micro (i.e. firm and plant) -level explanations to consider such issues as which firms export (introducing explanations linked to the importance of sunk costs and the heterogeneity of plants)
- E.3 Generally, we find that whether the traditional, incremental model of internationalisation is considered, or transaction cost models (emphasising the role of sunk costs), or monopolistic advantage models, a strong overlapping feature is the role and importance of firm specific assets (complimentary resources and capabilities and thus absorptive capacity) and knowledge accumulation. This is also true of the literature covering the more recent phenomenon of ‘born-global’ or ‘born-again global’ firms, that often internationalise very early (and which are dependent on knowledge-based technology).
- E.4 Of course, the literature points to other factors that determine internationalisation, such as sector (e.g. whether high-tech or not); the size of the firm; the presence or otherwise of networks/agglomerations; the importance of international experience among the owner/managers; and even ‘luck’ etc. But a recurring emphasis throughout all the extant literature is the core and essential role of (tacit) knowledge generation and acquisition, both within the firm and from its external environment.

- E.5 The more recent economic models of internationalisation that have been reviewed focus on the importance of sunk costs and heterogeneity across firms (i.e. differences in productivity). To overcome entry costs, firms need an adequate knowledge-base and complimentary assets/resources (especially R&D and human capital assets that lead to greater absorptive capacity); and of course productivity differences rely on firms having differing knowledge and resource-bases associated with differences in rates of innovation and other aspects of total factor productivity. Thus again, the importance of firm specific assets and knowledge accumulation are at the forefront of explaining the internationalisation process.
- E.6 However, despite this leading role for knowledge accumulation and factors such as absorptive capacity, we find relatively little evidence on how organisations learn (and what is most important for success in this area), and how exactly absorptive capacity can be measured (and its relative importance in determining productivity and entry into foreign markets). Thus, there is still much work that needs to be undertaken to enhance the extant literature and thus ‘flesh-out’ some of the concepts and arguments presented in Chapter 2.
- E.7 The second major area covered in *Chapter 3* is firm-level adjustment to globalisation. The relationship between international trade and productivity growth is at the heart of our understanding of economic adjustment to trade liberalisation, and we focus in this review on the impact at the micro (i.e. firm and plant) –level. A major issue is whether firms/plants that internationalise are more productive than non-exporting firms. The evidence on this is fairly unanimous that they are, but then the issue becomes one of whether this is a requirement of internationalisation and/or whether firms become more productive when they enter export markets as a result of a ‘learning-by-exporting’ effect. If firms have to have certain characteristics in advance that result in higher productivity, to allow them to overcome the sunk costs of entry, then ‘self-selection’ is likely to dominate.
- E.8 In our view, the jury is still out on whether there is a ‘learning-by-exporting’ effect at the firm/plant level. This seems to be because:
- a. This effect is likely to differ in terms of its importance across countries (i.e. it is dependent on the size of the domestic economy vis-à-vis the size of overseas markets and/or the overall exposure of domestic markets to foreign trade). Hence, a positive effect is found for Canada

while none is found for the US (and the evidence for the UK suggests there is a small effect that quickly disappears);

- b. There are sample-selection econometric issues that impact on our ability to measure (without bias) any ‘learning-by-exporting’ effect, which are linked to the fact that exporters do seem to ‘self-select’ into exporting (i.e. they are not a random sample of the population of all firms).
- c. There is some evidence that any ‘learning-by-exporting’ effect is relatively small and probably confined to only having an influence in the short-run, disappearing over the medium to longer term.

E.9 Irrespective of whether firms self-select into export markets and/or become more productive post-entry, there is a need to consider the potential impact of internationalisation on aggregate productivity growth. We find that despite the fact that this is a new area of research, there is already a considerable consensus (based on limited empirical evidence) that dynamic restructuring of the economy results in larger market shares for the most efficient (and usually larger) firms that export, and this has a sizeable impact on boosting aggregate productivity. Clearly, more evidence is needed covering a wider range of countries (including the UK) on how important such restructuring, due to increased internationalisation, really is. We also need more information on how import penetration (and inward FDI) impacts on competitiveness at the firm/plant level, since the evidence on spillovers from FDI is generally inconclusive, while evidence on the impact of import penetration is largely absent.

E.10 Finally, **Chapter 4** considers the ‘market failure’ arguments for government intervention with regard to business internationalisation, with such intervention being primarily to encourage firms to enter such markets (rather than subsidising export revenues). Undoubtedly there are certain features of international markets (such as the relatively high cost of information, leading to higher risk and uncertainty and important sunk entry/exit costs) that provide a rationale for government to act (not least because it has an advantage in providing information).

E.11 However, because of the differing needs of (potential) exporters, recent literature begins to argue that government assistance needs to be flexible, reflecting the heterogeneous nature of firms. Criticisms that policy is not sufficiently geared to ‘born-global’ firms, and not sufficiently flexible to cover different sub-groups of firms with different motivations for exporting, are presented. To a large extent the

changes in policy advocated as a result of these criticisms reflect differing resources that are available to different firms.

- E.12 When the rationale for policy is expanded to include the need to ensure that firms face the ‘right’ incentives to adjust to globalisation, and not just to cover ‘market failure’ arguments, this enforces the need for policies that help firms to acquire those characteristics (i.e., absorptive capacity and dynamic capabilities) that lead to higher productivity, and thus the ability to overcome sunk entry costs in international markets. This then benefits aggregate productivity through a reallocation of resources to higher productivity exporters.

1. Introduction

1.1 As part of the UKTI's work on drawing together evidence relating to the rationale for UKTI activities, a literature review was required that covers the following:

- To draw together and report on the theory and evidence on the role of 'business internationalisation' as it impacts upon business growth and development for high growth, high productivity, and innovative businesses;
- This review needs to consider such issues as:
 - To what extent can business internationalisation help high growth potential SME firms become medium-large firms?
 - To what extent can business internationalisation help innovative firms grow, achieve a higher performance and thus maximise their returns on innovations?
 - To what extent does business internationalisation contribute to aggregate productivity growth through both improvements in the performance of international firms and through a reallocation of resources to such firms away from lower productivity domestic producers

1.2 Our approach to the literature review is to cover three substantive areas, namely:

- International entrepreneurship (Chapter 2);
- Firm-level adjustment to globalisation (Chapter 3); and
- The role of government in business internationalisation (Chapter 4).

1.3 The first area considers the wider literature on international entrepreneurship (much of it from the business and management area). This deals with the internationalisation process itself, in terms of why certain firms become international (and when – e.g. 'born-global' companies), the different options available (e.g. exporting vis-à-vis FDI), and the different processes available (e.g. the traditional evolutionary model – known as the Uppsala Model – whereby firms evolve from supplying domestic to export markets, and then to become multinational; to more recent literature on firms, including SME's, that are 'born' international). We also cover the recent

economics literature that emphasises micro (i.e. firm and plant) -level explanations to consider such issues as which firms export (introducing explanations linked to the importance of sunk costs and the heterogeneity of plants)

- 1.4 When reviewing this international entrepreneurship literature, we find that whether the traditional, incremental model of internationalisation is considered, or transaction cost models (emphasising the role of sunk costs), or monopolistic advantage models, the role and importance of firm specific assets (complimentary resources and capabilities and thus absorptive capacity) and knowledge accumulation feature strongly. This is also true of the more recent phenomenon of ‘born-global’ or ‘born-again global’ firms, that often internationalise very early (and which are dependent on knowledge-based technology).
- 1.5 The second major area covered in Chapter 3 is firm-level adjustment to globalisation. The relationship between international trade and productivity growth is at the heart of our understanding of economic adjustment to trade liberalisation, and we focus here on the impact at the micro (i.e. firm and plant) –level. A major issue is whether firms/plants that internationalise are more productive than non-exporting firms. The evidence on this is fairly unanimous that they are, but then the issue becomes one of whether this is a requirement of internationalisation and/or whether firms become more productive when they enter export markets as a result of a ‘learning-by-exporting’ effect. If firms have to have certain characteristics in advance that result in higher productivity, to allow them to overcome the sunk costs of entry, then ‘self-selection’ is likely to dominate. The latter then complicates any attempts to test the ‘learning-by-exporting’ hypothesis. Clearly, there are major policy implications surrounding ‘self-selection’ and ‘learning-by-exporting’, with respect to government policy towards trade promotion at the firm level.
- 1.6 Irrespective of whether firms self-select into export markets and/or become more productive post-entry, there is a need to consider the potential impact of internationalisation on aggregate productivity growth. This is also considered as part of firm-level adjustment to globalisation, since the link between greater trade liberalisation and especially the heterogeneity of

plants features as an explanation of market restructuring, with its consequent impact on the nation's overall level of productivity growth.

- 1.7 This emphasis on the firm level extends a somewhat older branch of the economics literature which may be labelled the trade-growth literature, which examined technological flows and spillovers across large aggregate units such as countries or country sectors. While this more established trade-growth literature, with its explanation of indigenous growth being significantly determined by technology transfer from countries operating on the frontier of technology (with such transfer occurring through specific mechanisms such as international trade, including knowledge spillovers from FDI), is still relevant and important, by agreement with UKTI we concentrate here in this literature review on new developments related to firm-level adjustments.¹
- 1.8 Finally, in Chapter 4 we consider the role of government intervention in business internationalisation. As well as considering the traditional 'market failure' arguments (together with an overview of the type of market inventions typically undertaken by government), we also consider some of the extant literature that argues for a wider response by government. This includes both the needs of 'born-global' companies, and the need to ensure that all firms face the 'right' incentives when undertaking necessary adjustments to changes in the business environment due to trade and investment liberalisation and other aspects of globalisation.

¹ For recent contributions in the literature dealing with the impact of technology transfer (from countries operating on the frontier of technology) on indigenous growth, see: Cameron, Proudman and Redding (2005); Kneller (2005); Griffith, Redding and Van Reenen (2004); and Keller (2001). A related literature looks at spillovers from FDI and their impact on domestic productivity, with again the presumption that the greater the TFP gap between domestic and foreign-owned plants, the greater the potential for technology spillovers (e.g. Girma, 2005; Gorg and Greenaway, 2004; Griffith, Redding and Simpson, 2004; Harris and Robinson, 2003, 2004; Griffith and Simpson, 2000; Aitken and Harrison 1999, Driffield 1999, Doms and Jensen 1998; and Davies and Lyons 1991).

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2. International Entrepreneurship

Introduction

- 2.1 Understanding why some firms internationalise (and most do not), the different options available (such as exporting, FDI or joint ventures), and the different processes involved, helps us to understand better if certain firms can benefit in terms of their economic performance. Moreover, while many established firms continue to internationalise following a slow, evolutionary path of development (the so-called Uppsala model – see Johanson and Vahlne, 1990), other more dynamic (often high-tech²) and newly established firms have emerged in (mostly) the last decade that internationalise at founding or very shortly thereafter. Understanding the reasons why there has been an increase in the speed at which particularly SME's can now internationalise is important, especially as it is predicted that early internationalisation is likely to become more important overtime as globalisation increases (OECD, 1997)
- 2.2 There are different theoretical frameworks that have been put forward for why some firms internationalise (and the characteristics associated with exporting and/or engaging in FDI activities), that to some extent originate from different fields of research (economics versus the business and management area). Behavioural theories include process and stage models (Johanson and Vahlne, 1977, 1990; Cavusgil, 1980) and network theories (Turnbull and Valla, 1986; Johanson and Mattson, 1988; Coviello and Munro, 1997; Dana *et. al.*, 1999). Economics-based theories include monopolistic advantage theory (Hymer, 1976)³ and transaction cost theory (e.g. Buckley and Casson, 1976).
- 2.3 The more recent economics literature in particular will help motivate the material covered in Chapter 3 (on firm-level adjustment to globalisation), with its emphasis on sunk costs and firm-level heterogeneity as explanations of which firms internationalise. Such theoretical models have been developed to encompass and explain certain firm-level empirical facts that have emerged in

² Cf Crick and Spence (2005)

³ This also covers resource-based models (e.g. Barney, 1991, Kogut and Zander, 1996; Teece *et. al.* 1997) and more recent economics literature (linked to new trade theories) that includes firm heterogeneity and sunk costs as the major factors determining internationalisation.

recent years from the work of such as Bernard and Jensen (1995, 1999), and more recently others in different countries⁴, that:

- a. Exporting (and importing – see Bernard, Jensen and Schott, 2005) is concentrated among a very small number of firms who nevertheless are large and account for the preponderance of trade undertaken;
- b. Such firms have a greater probability of survival, growth is much higher (vis-à-vis those not exporting/importing), productivity is greater, they are more capital-intensive, pay higher wages, employ more technology and have more skilled workers (after controlling for other relevant covariates)

2.4 This literature considers the role of transport costs, the different relative (sunk) costs (such as entry costs) of different modes of market access (e.g. export versus FDI), and the key role played by firm heterogeneity (e.g. Helpman, *et. al*, 2004) which leads to productivity differences between firms having an important role in explaining the structure of international commerce. It also helps to explain whether exporting and FDI are alternative or complementary strategies for heterogeneous firms (e.g. Head and Ries, 2004), given that statistical evidence seems to suggest that exporting and FDI are positively correlated even though economic theory suggests such activities are usually substitutes.

2.5 An older economics literature exists that considers the choice of optimal market entry modes, when the decision to internationalise is taken as given. Here transaction cost approaches concentrate on comparing the efficiency of particular modes of entry (e.g. Williamson, 1985; Teece, 1986) given that asset specificity, uncertainty and information asymmetries exist. This literature clearly complements the more recent approaches mentioned in par. 2.4, except that they ignore the importance of firm heterogeneity (or rather take a different approach when including it, since resource-based theories of why some firms internationalise are implicitly assuming firms differ in their ability to respond to market opportunities).

2.6 The literature covered mostly in the business and management journals takes a different approach to explaining internationalisation, with its emphasis on

⁴ See, for example, Bernard and Wagner (1997); Clerides *et. al*. (1998); Aw *et. al*. (2000) and Deldago *et at*. (2002).

processes and its (more recent) concentration on the ‘born-global’ firm. We follow the approach taken in the existing literature that draws out the differences between the main theoretical frameworks that have been put forward for the traditional (cf. Bell, 1995; Johanson and Vahlne, 1990; Knight and Causgil, 1996; Larimo, 2001; Moen and Servais, 2002; Wickramasekera and Bamberry, 2001) and ‘born-global’ models of internationalisation (cf. Oviatt and McDougall, 1994, 1999; Madsen and Servais, 1997; Bell *et. al.* 2003).

- 2.7 Traditional models consider internationalisation (to exporting and then to FDI activities) as incremental, and crucially determined by the speed and ability to accumulate knowledge through exposure to overseas markets. Additional costs and uncertainties are faced when entering a foreign environment, but this literature is more concerned with explaining which processes are important in explaining how such potential barriers are overcome. As such, it has a less formal and more descriptive (and often case study) approach to describing the role of knowledge accumulation in countering barriers to internationalisation.
- 2.8 Another strand to explaining when and how certain firms internationalise can be linked to early theories of monopolistic advantage (e.g. Hymer, 1976) and more recently the resource-based view of the firm and its emphasis of organisational capabilities as determinants of organisational outcomes (e.g. Kogut and Zander, 1996; Teece *et. al.*, 1997). In this literature, international activities are determined by the resources and capabilities that a firm possesses and that allow it to overcome the initial (sunk) costs of competing in foreign markets. Here there is a direct link to the notion of absorptive capacity and the role of R&D and innovation activities in the internationalisation process, which are areas generally not considered in any detail in the economics literature. We shall present examples of models that have been developed in the literature that emphasise the importance of resources and capabilities and the role of absorptive capacity, since our reading of the literature leads us to believe that this is an especially important area that can help us to understand more fully why some firms internationalise, and the timing of such internationalisation.
- 2.9 The literature that concentrates on the ‘born-global’ firm also includes resources and capabilities (and thus absorptive capacity) as crucial, but also tends to emphasise other aspects such as the role of joint-ventures as a means of overcoming initial resource and competency gaps (i.e. sunk entry costs), since

such firms may not have the time to integrate prior knowledge and fully develop their international strategies before implementing them. Thus, this area of the literature (which often concentrates on particular sub-groups of firms such as high-tech SME's) tries to provide alternative (more eclectic) explanations about how firms internationalise, including the importance and role of networks and the use of inter-personal relationships (Harris and Wheeler, 2005), the importance of individuals in the firm with prior exposure to international markets, and also the role of 'luck' (or serendipity) – cf. Crick and Spence (2005). Others emphasise the need to apply a cognitive perspective to the internationalisation process and examine how entrepreneurs recognise and exploit opportunities in international markets (Zahra *et. al.* 2005).

Background Information on the extent of Firm Internationalisation

2.10 Information on which firms are engaged in international activities (exporting, importing, trading/operating abroad), and which are not, is difficult to come by. For the US in 2000, Bernard, Jensen and Schott (2005) report that the number of firms that export and import comprise 3.1 and 2.2 per cent of all firms. Eaton and Kortum (2004) found that some 17.4 per cent of French manufacturing firms exported in 1986. Data for the UK is reported in the Table 2.1, showing that in 2000 just over 26 per cent of UK firms exported (although nearly 44 per cent did so in the manufacturing sector and only some 15.6 per cent in services).

Table 2.1 Exporting (and export intensity) in UK firms, 2000 (figures are percentages)

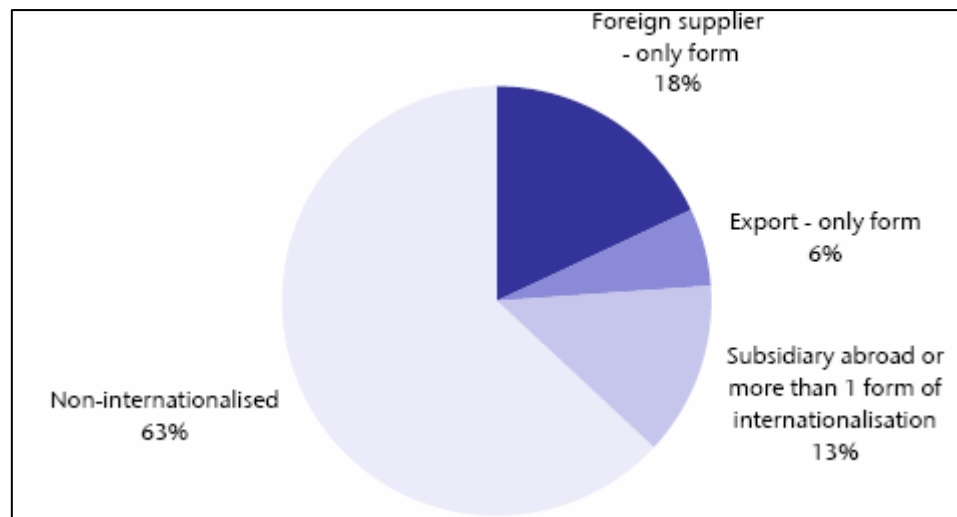
Employment size	Manufacturing		Services		Total	
	exports/sales	export>0	exports/sales	export>0	exports/sales	export>0
0-9	6.4	21.7	3.7	9.2	4.4	12.2
10-49	8.7	36.7	3.8	15.4	5.5	22.9
50-249	18.4	64.2	4.7	21.9	11.5	42.6
250+	25.9	72.5	4.4	25.3	16.4	51.5
Total	11.8	43.9	3.9	15.6	6.8	26.1

Source: weighted data from CIS3 (authors' own calculations)

2.11 Table 2.1 also shows that exporting increased with firm size (with over three-quarters of manufacturing firms employing 250 or more workers engaged in

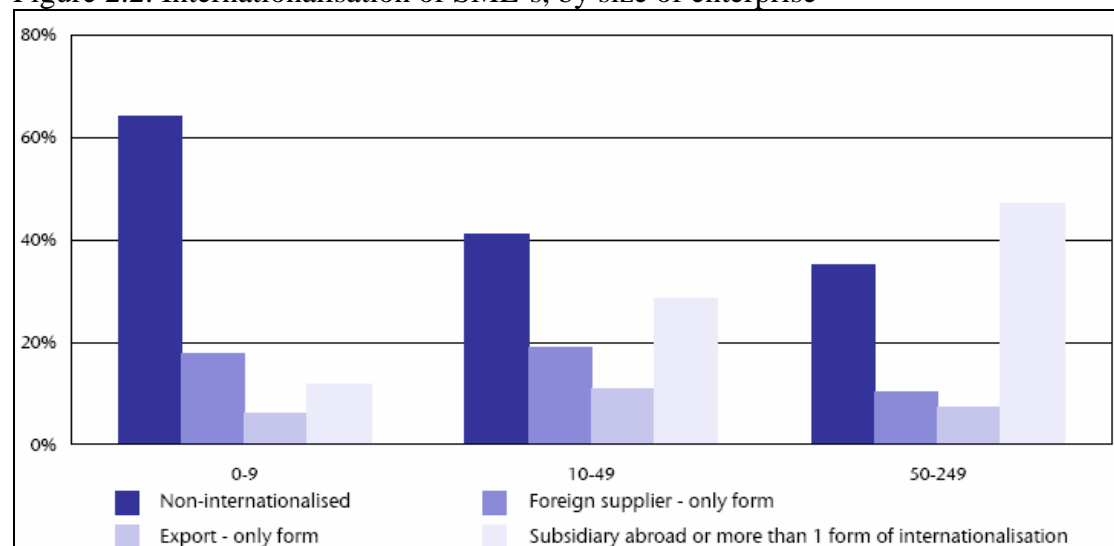
exporting), and that most firms that export did not specialise exclusively on supplying overseas markets (i.e. export intensity – exports divided by sales – is significantly smaller than the proportion of firms that exported some of their produce).

Figure 2.1: Prevalence of different forms of internationalisation among European SME's, 2003



Source: ENSR Enterprise Survey, 2003

Figure 2.2: Internationalisation of SME's, by size of enterprise



Source: ENSR Enterprise Survey, 2003

2.12 Figure 2.1 presents information for Europe from the ENSR Enterprise Survey for 2003 that shows that some 63% of SME's were not engaged in international activities, while some 18% bought in supplies from overseas, 6% exported and 13% had an overseas subsidiary or were engaged in more than one form of internationalisation.

2.13 Larger SME's were significantly more likely to be internationalised vis-à-vis smaller SME's (Figure 2.2) and there is a significant difference in levels of internationalisation across different European countries; the larger the country the fewer the proportion of SME's involved in exporting and/or purchasing supplies from abroad. According to the ENSR survey, only around 20% of UK SME's were involved in exporting and/or sourcing from abroad, placing it third lowest of the Europe-19 countries covered.⁵

Traditional and 'Born-global' Internationalisation

2.14 Much of the early research on internationalisation was based on extensive empirical research that observed most firms that entered foreign markets did so in an incremental fashion, by building up resources before proceeding beyond markets that were 'close to home' (i.e. 'psychically close' because competitors also operated there and/or 'cultural' barriers were lower). Thus, larger firms (which are older and with more resources available) were more likely to build up their presence in domestic markets before entering first export markets, and then later on engaging in FDI or joint venture activities.

2.15 However, in the last decade attention from mostly the business and management literature has tended to shift to those (often much smaller, high-tech) firms that internationalise at founding or shortly thereafter (cf. Aspelund and Moan, 2002; Bell *et. al.* 2003; Jones, 1999; Larimo, 2001; Madsen *et. al.* 2000; McDougall *et. al.*, 2003; Moen, 2002; Rennie, 1993; Servais and Rasmussen, 2000). According to Rialp *et. al.* (2005), the emergence of these firms might indicate that important dimensions of the internationalisation process have evolved since the 1970s and 1980s, when much of the existing theory was developed, thus offering a challenge to traditional theory.

2.16 The drivers of early internationalisation have been linked to the increased importance of globalisation, which can be associated (Madsen and Servais, 1997) with: (1) new market conditions in many sectors of economic activity (including the increasing importance of niche markets for SMEs worldwide);

⁵ Aggregating firms employing 0 – 249 in Table 2.1, the CIS3 data for the UK shows that 25 per cent of UK SME's exported (15.3 per cent in services and just over 42 per cent in manufacturing) with an associated mean export intensity of only 6.5 per cent.

(2) technological developments in the areas of production, transportation and communication (leading to significant reductions in the costs associated with internationalisation as well as the rising importance of knowledge-based technologies);⁶ (3) the increased importance of global networks and alliances (that provide increased access to knowledge);⁷ and (4) more elaborate capabilities of people, including those of the founder/entrepreneur who starts early internationalising firms (cf. Knight and Cavusgil, 1996; Moen, 2002; Servais and Ramussen, 2000).

2.17 Thus on the ‘push’ side to early internationalisation, many new ventures that go international seem to be in high technology industries that may require some international sales as a condition of industry participation given the specialised global market niches served by such firms (Burrill and Almassy, 1993; McDougall *et. al.* 1994; Lindqvist, 1990; McDougall and Oviatt, 1996; Bryan *et. al.*, 1999). Thus sales to domestic markets alone would not be sufficient to cover the initial sunk costs of market entry, given the technological requirements that firms commit to high R&D expenditures and product innovation (or similar investments in new technology). Thus where technological change is rapid, short product cycles may naturally lead to increased internationalisation (cf. Vernon, 1966, and the product life cycle model).

2.18 On the ‘pull’ side, in many sectors of economic activity there has growing demand for goods and services with greater commitment to differentiation and quality (i.e. the establishment of ‘niches’), offering firms that can differentiate themselves from indigenous foreign competitors the opportunity to derive strong sales from a foreign market. Such firms are often smaller SMEs rather than the traditionally larger firms that gradually internationalise incrementally. Moreover, a dramatically increasing number of people (including business executives and entrepreneurs) have gained international experience during recent decades, with associated mobility across nations (Johnston, 1991; Reich,

⁶ With recent advances in modern communication infrastructures (e.g. the internet) information once it is produced is now more mobile and can be reproduced and transported very quickly at little marginal cost. Knowledge can thus be combined with less mobile resources in multiple countries. Thus, knowledge-intensive industries have been globalising quickly, and it becomes easier for new ventures with valuable knowledge to internationalise sooner.

⁷ As Hedlund and Kverneland (1985) argue, the increasing homogenisation of many markets in distant countries has made the conduct of international business easier to understand for all involved.

1991), languages, and cultures and thus with enhanced capabilities on offer to firms involved in (early) internationalisation (cf. Madsen and Servais, 1997).⁸

2.19 Whether early internationalisation is a new and highly sector-specific phenomenon or not is a key question and especially relevant when considering public sector involvement in encouraging/facilitating internationalisation. Also whether it will become more important over time (alongside increasing globalisation), is also important. Several authors (Autio and Sapienza, 2000; Bell *et. al.*, 2003; Jones, 1999; Sharma and Blomstermo, 2003) argue that early internationalisation is better suited to smaller knowledge-intensive firms (where technological intensiveness pervades). However, others have revealed that the phenomena is not necessarily limited to just new, high tech sector firms (Aspelund and Moen, 2001; Madsen *et. al.* 2000; McDougall *et. al.* 2003; Moen, 2002; Moen and Servais, 2002). Indeed Bell *et. al.* (2003) argue that early internationalising firms can be further classified as being either ‘knowledge- and/or service-intensive’ or ‘knowledge-based’. The latter relates more to the emergence of new technologies (IT, biotechnology, etc.), involving developed proprietary knowledge or acquired knowledge without which they would not exist, and thus is by definition limited to certain high-tech sectors. In contrast, knowledge intensive firms use knowledge to develop new offerings, improve productivity, introduce new methods of production and/or improve service delivery (e.g. CAD/CAM/JIT), and it is argued that such firms are going to continue to become increasingly important across more sectors and in more countries, challenging further the traditional incremental approach to internationalisation.

2.20 Lastly, so far we have focussed mostly on the dichotomy between traditional incremental and born-global (or early) forms of internationalisation. Bell *et. al.* (2003) consider ‘born again’ global firms which are those that experience ‘episodes’ of internationalisation and de-internationalisation. According to Bell, *et. al., op. cit.*, they tend to emanate from traditional industries rather than high-tech sectors, and it is certain ‘events’ (like a take-over, or technological product and/or process improvements in their particular industry) that increases their knowledge intensity and thus involvement in the internationalisation process.

⁸ International financing opportunities have also become increasingly available (Patricof, 1989; Valeriano, 1991).

Table 2.2 Differences in internationalisation behaviour

	‘Traditional’		‘Born global’ firms		‘Born-again’ global firms	
Motivation	<p>Reactive</p> <p>Adverse home market</p> <p>Unsolicited/enquiries orders</p> <p>‘Reluctant’ management</p> <p>Cost of new production</p> <p>Processes force export initiation</p>		<p>Proactive</p> <p>Global ‘niche’ markets</p> <p>‘Committed’ management</p> <p>International from inception</p> <p>Active search</p>		<p>Reactive</p> <p>Response to a ‘critical’ incident (MBO, take-over, acquisition, etc.)</p>	
Objectives	<p>Firm survival/growth</p> <p>Increasing sales volume</p> <p>Gaining market share</p> <p>Extending product life-cycle</p>		<p>Competitive advantage</p> <p>‘First-mover’ advantage</p> <p>‘Locking-in’ customers</p> <p>Rapid penetration of global ‘niches’ or segments</p> <p>Protecting and exploiting proprietary knowledge</p>		<p>Exploit new networks and resources gained from critical incident</p>	
Expansion patterns	<p>Incremental</p> <p>Domestic expansion first</p> <p>Focus on ‘psychic’ markets</p> <p>‘Low-tech’/less sophisticated markets targeted</p> <p>Limited evidence of networks</p>		<p>Concurrent</p> <p>Near-simultaneous domestic and export expansion (exporting may precede domestic market activity)</p> <p>Focus on ‘lead’ markets</p> <p>Some evidence of client ‘followership’</p> <p>Strong evidence of networks</p>		<p>‘Epoch’ of domestic market orientation, followed by rapid internationalisation.</p> <p>Focus on ‘parent’ company’s networks and overseas markets</p> <p>Strong evidence of client ‘followership’</p>	
Pace	<p>Gradual</p> <p>Slow internationalisation (small number of markets)</p> <p>Single market at a time</p> <p>Adaptation of existing offering</p>		<p>Rapid</p> <p>Speedy internationalisation (large number of markets)</p> <p>Many markets at once</p> <p>Global product development</p>		<p>Late/rapid</p> <p>No international focus then rapid internationalisation</p> <p>Several markets at once</p> <p>Adaptation/NPD</p>	
Method of distribution/entry modes	<p>Conventional</p> <p>Use of agents/distributors or wholesalers</p> <p>Direct to customers</p>		<p>Flexible and networks</p> <p>Use of agents or distributors</p> <p>Also evidence of integration with client’s channels, use of licensing, joint ventures, overseas production, etc.</p>		<p>Networks</p> <p>Existing channel/s of new ‘parent’, partner/s or client/s</p>	
International strategies	<p>Ad-hoc and opportunistic</p> <p>Evidence of continued reactive behaviour to new opportunities</p> <p>Atomistic expansion, unrelated new customers/markets</p>		<p>Structured</p> <p>Evidence of planned approach to international expansion</p> <p>Expansion of global networks</p>		<p>Reactive in response to ‘critical’ incident but more structured thereafter</p> <p>Expansion of newly acquired networks</p>	
Financing	<p>‘Boot-strap’ into new markets</p>		<p>Self-financed via rapid growth</p> <p>Venture capital,</p> <p>Initial public offerings (IPO)</p>		<p>Capital injection by ‘parent’</p> <p>Refinancing after MBO</p>	

Source: Bell *et. al* (2003, Table 2)

- 2.21 Table 2.2 summarises the three contrasting approaches to internationalisation, based mostly on case study evidence that Bell and his associates have collected in recent years.

Theoretical Models of Internationalisation

(a) Process models

- 2.22 Traditional process/stage models consider internationalisation as incremental and based on a risk-adverse and reluctant adjustment to changes in a firm or its environment (Johanson and Vahlne, 1997, 1990). Initially firms operate in the vicinity of their existing knowledge and supply only to domestic markets unless provoked, pushed, or pulled by events such as unsolicited export orders or adverse conditions in the home market. Once initiated, internationalisation starts in markets with the lowest uncertainty and risk (i.e. firms start in ‘psychically close’ markets) and with an entry mode that requires relatively few resources (e.g. exporting). The speed and ability to accumulate knowledge through exposure to overseas markets then determines the subsequent pace of internationalisation, as it positively feeds back to decisions to commit resources for future activities in foreign markets. So typically firms internationalise one market at a time and concentrate on a small number of key markets, adapting their existing goods and services to the needs of each new market (Bell *et. al.* 2003).
- 2.23 The process is seen as being reactive with little use for strategic choices when increasing exposure to overseas markets; indeed internationalisation proceeds irrespective of whether strategic decisions are taken by management (Johanson and Vahlne, 1990) and this deterministic aspect of the model is an important (and often criticised) feature of the model (especially in the literature on ‘born-global’ firms – cf. Turnbull, 1987; Andersen, 1993; McDougall *et. al.* 1994; Bell, 1995; Oviatt and McDougall, 1997; Leonidou and Katsikeas, 1997). In this traditional approach, the main goals of the firm are described as ensuring survival through increasing sales volume, greater market share, and/or extending product life cycles. In comparison, the ‘born-global’ literature (encompassing smaller firms that are early to internationalise) emphasised the formation of new ventures capable of competing in foreign markets almost from

(or indeed at) inception, which was argued to be inconsistent with the process model (cf. Bell, 1995; Knight and Cavusgil, 1996; Madsen *et. al.*, 2000; McDougall *et. al.*, 1994; Moen, 2002; Moen and Servais, 2002; Oviatt and McDougall, 1997, 1999; Roberts and Senturia, 1996; Shrader *et. al.*, 2000).

2.24 Despite criticisms of the process/stages model outlined above, there is empirical evidence that many firms do indeed internationalise in incremental stages, first entering those foreign markets that are most similar to their home market (cf. Bilkey, 1978; Cavusgil, 1980; Reid, 1981; Czinkota, 1982; Barrett and Wilkinson, 1985; Moon and Lee, 1990; Lim, *et. al.*, 1991; Crick, 1995; Burgel and Murray, 2000). They also tend to increase the level of commitment and resources over time as internationalisation proceeds in stages. Much of the recent criticism of the process model comes from recent evidence of the ‘born-global’ firm (see below) which enters foreign markets at a time (and in a manner) that appears inconsistent with the notion of incremental stages of internationalisation. However, if due emphasis is placed on the role and importance of the accumulation of knowledge for internationalisation, and the availability of complimentary resources and capabilities (and thus absorptive capacity – see below for details), then the process model simply states that those firms that lack the means and the relevant conditions for rapid internationalisation will be best served by proceeding in a more cautious and incremental fashion. As Erikson *et. al.* (1997, p. 353) state “in internationalizing, a firm must develop structures and routines that are compatible with its internal resources and competence, and that can guide the search for experiential knowledge about foreign markets and institutions”.

2.25 This points to the need to augment/extend process/stage models of internationalisation to include (or place more emphasis on) other perspectives that incorporate resource-based theories, organisational capability perspectives, knowledge – and/or learning-based views (e.g. Autio and Sapienza, 2000; Autio *et. al.* 2000; Madsen and Servais, 1997; Zahra *et. al.* 2003).

(b) Other behavioural factors

2.26 A more eclectic set of influences on internationalisation, that can be labelled as belonging to the class of behavioural models, includes the importance of

networks, trust, and the use of inter-personal relationships (Turnbull and Valla, 1986; Lindqvist, 1997; Coviello and Munro, 1997; Dana *et. al.*, 1999; Jones, 1999; Harris and Wheeler, 2005); the importance of individuals in the firm with prior exposure to international markets; and also the role of ‘luck’ (or serendipity) – cf. Crick and Spence (2005). Others emphasise the need to apply a cognitive perspective to the internationalisation process and examine how entrepreneurs recognise and exploit opportunities in international markets (Zahra *et. al.* 2005).

- 2.27 Networks are expected to be more important to SMEs when they begin to internationalise, as the acquisition of experiential knowledge about overseas markets is crucial when selecting which markets to entry and/or expand into. Access to, and encounters with, potential partners and clients allow firms to familiarise themselves with the ‘culture’ of business in overseas markets, and to build up trust as relationships/joint activities are established (Wilson and Mummalaneni, 1990).⁹
- 2.28 Crick and Spence (2005) found in their study of 12 high-tech UK SMEs that networks developed previously by the firms’ owner/managers were important in determining the internationalisation strategy of these firms. They also found that previous managerial experience of operating in international markets was crucial (and where this was not available, recruitment of an appropriate executive with the requisite contacts through networks took place). In short, the Crick and Spence study found that the main initial ‘triggers’ of an international strategy was (1) the availability and use of existing contacts, supporting the importance of networks; (2) the development and use of resources (especially managerial experience); and (3) serendipitous encounters, or ‘luck’.
- 2.29 A recent paper by Harris and Wheeler (2005) also considers in detail the important of inter-personal relationships in the internationalisation process for SMEs, noting that researchers are less clear about *how* relationships help this process, what are the specific origins of the most important relationships, and the strategies pursued that result in these relationships. What they found is that some of the relationships formed do not just “fulfil a marketing function, give

⁹ McPherson *et. al.* (2001) have noted that learning is facilitated using homophilic (‘people like us’) networks where more trust and experience is present with which to legitimise actions.

information, or yield access to networks...(they) do much more, they direct strategy, and can transform the firm... (moreover) relationships rarely originate within (overseas) customer, supplier or distributor firms...(they) are more likely to be at home than abroad...these relationships need to mature and develop into trusted inter-personal relationships, and this is done through extensive social interaction” (pp. 204-205).¹⁰ Assuming further research substantiates these results, this has important implications for government policy aimed at fostering internationalisation (in SMEs).

- 2.30 Lastly, some in the literature emphasise the importance of applying a cognitive perspective to internationalisation, based on how firms/entrepreneurs recognise and exploit opportunities in international markets (e.g. Zahra *et. al.*, 2005). They argue that managers and entrepreneurs are not necessarily well-informed, and thus cannot easily make rational comparisons of production and governance costs in different countries, and identify opportunities for leveraging their strategic assets in foreign markets. However, managerial cognition may be rationally bounded and influenced by experiences and environmental conditions (such as cultural, institutional, political and technological environments – Thomas and Mueller, 2000), which often leads to cognitive biases. Such bias includes temporal and spatial myopia (Levinthal and March, 1993), overconfidence (Busenitz and Barney, 1997), competitive myopia (Johnson and Hoopes, 2003), and the illusion of control. Understanding the role of such cognitive factors is therefore important in understanding the internationalisation process.

(c) Transaction cost models

- 2.31 Transaction cost models consider the choice of optimal market entry modes, when the decision to internationalise is taken as given. That is, the model does not deal with the decision of whether or not to engage in internationalisation *per se*, but rather transaction cost approaches concentrate on comparing the efficiency of particular modes of entry (e.g. Williamson, 1985; Teece, 1986) given that asset specificity, uncertainty and information asymmetries exist.

¹⁰ Bell (1995) found in his study of internationalising SME's in Finland, Ireland and Norway that some two-thirds of the firms studied indicated that the internationalisation strategies of their domestic clients had been a key factor in their initial decision to export and on the choice of foreign market.

- 2.32 Mode of entry matters in particular to young high-tech firms (where asset specificity, uncertainty and information asymmetries between buyer and seller are especially pertinent), since if they are forced to internationalise to cover the fixed costs of initial development expenditures and generate enough income to cover ongoing development activities, the cost of entry is likely to be relatively high whichever course of action is taken. In principle, such firms may wish to internalise their overseas transactions and avoid intermediaries (either through direct exporting or setting up their own overseas production and/or distribution network), in order to avoid the fixed costs and uncertainties associated with operating untried technologies with the cooperation of third parties.
- 2.33 However, young high tech firms often experience negative cash flow during their early years, and therefore they may lack the resources to operate an internal arrangement on their own in foreign markets. Cooperative arrangements with a foreign partner (to identify customers and provide pre- and after-sales support services) may on the surface seem a more cost effective option. The downside is that not only are profits shared, but additional fixed costs can arise for either or both parties (e.g. providing training, incentives and monitoring of the overseas partner; investing in co-specialised assets by the overseas partner to make the relationship work – cf. Teece, 1986). The partner who does not incur these sunk costs then has the opportunity to ‘take hostage’ the party facing such costs (unless contracts can be devised to minimise the risk of shirking by one of the parties). However, such arrangements are often difficult both in terms of the costs of arranging, monitoring, and enforcing, and because of the notion of the ‘incomplete contract dilemma (Klein *et. al.*, 1978) holds that it is unrealistic to specify a situation entirely.
- 2.34 So a dilemma arises, which ultimately comes down to the resources available to meet the relative costs of different forms of market entry (i.e. the firm is restrained by its resource-base). This (together with the fact that transaction based theories do not consider the question of whether to internationalise, only what form it should take) has led some to argue that the transaction cost approach has limited use (and resource-based approaches have more to offer – cf. Madhok, 1997).
- 2.35 Others have considered more directly how firms who already experience the risks of relatively small size and newness (and who by definition lack large

networks of foreign subsidiaries) also successfully manage the additional strategic risks of entering foreign markets early on in their existence (Shrader et al. 2000). The latter found evidence that such firms trade foreign location, entry mode, and foreign revenue exposure off against each other in each country they enter. That is, they found empirical support for the hypothesis that new ventures entering a specific foreign country simultaneously determined their degree of foreign market exposure, host country risk, and entry mode, and in addition that they traded off these three aspects such that when the level of one increased, the level of one or both of the others decreased. Thus, "... those entering higher-risk countries relied on those countries for lower percentages of their total sales, and chose less committed entry modes. Conversely, firms with high foreign revenue exposure in a specific country or using high entry mode commitment entered less risky countries" (Shrader *et. al. op. cit.* pp. 1239-1240).

(d) Monopolistic advantage and the resource-based approach

- 2.36 This theory holds that a firm can generate higher "Ricardian" rents¹¹ from the utilisation of firm specific assets which cannot be replicated by other firms. The thrust of these arguments are based on the established assumption (Hymer 1976) that despite the fact that local firms nearly always enjoy certain advantages over their foreign competitors (such as greater knowledge of the culture and a superior network of local business partners), firms that go international possess non-tangible productive assets (such as specialised know-how about production, superior management and marketing capabilities, export contacts and coordinated, quality-orientated relationships with suppliers and customers) that they are able to exploit to give them a competitive advantage.
- 2.37 The resource-based and organisational capabilities approach to the firm (e.g., Barney, 1991; Kogut and Zander, 1996; Teece *et. al.* 1997) is concerned with how resources, skills and capabilities (i.e. tangible and non-tangible assets) are generated, accumulated and deployed. The literature in this area concentrates on the firm defined as bundles of various assets (Penrose, 1959) – essentially technology, capital and labour. Thus the emphasis is on *internal characteristics*,

¹¹ Defined as returns in excess of their opportunity costs, to distinguish them from monopolistic rents when firms restrict output.

rather than the external environment (Barney, 1991), and therefore what a firm possesses determines what they can accomplish (Rumelt, 1984). But in addition to these tangible assets which operate through relatively clearly defined markets, there are intangible assets (Griliches, 1981), or firm-specific capabilities (Teece and Pisano, 1998; Pavitt, 1984) which largely define the dynamic capabilities that define the firm's competitive advantage.

- 2.38 Essentially Teece argues that the firms' dynamic capabilities are the sub-set of its competences and capabilities that allow the firm to create new products and processes and to respond to changing market conditions; they are the core of its competitiveness. According to Teece and Pisano (1998), these dynamic capabilities shape (and are shaped by) (i) the firm's managerial and organisational *processes* (i.e., its 'routines' or current practices and learning¹²); (ii) its *position* (current endowment of technology and intellectual property); and (iii) its *paths* (alternative available which will lock it into a trajectory i.e. the notion of path dependency – see David, 1985; Arthur, 1989).
- 2.39 'Processes' are essentially concerned with how an organisation has learned to behave such that its routines and practices epitomise the 'culture' of the firm – the idiosyncratic way the firm operates covering how the firm searches for opportunities, how it hears and processes threats and opportunities, how it mobilises creativity and innovation, how it manages learning and knowledge accumulation activities (Bessant *et. al.*, 2001). In all such processes define the firm's problem solving capability, they evolve over time and cannot be copied in any simple fashion.
- 2.40 As stated above, the firm's 'position' reflects its current endowment of technology and intellectual property, but also other assets such as relationships with key suppliers and customers – thus such competence is firm specific and mostly describes the static environment in which the firm currently operates. In contrast, the 'path' of the firm refers to the strategic direction it takes, and as such is both firm specific and shaped by its past experience and activities. Such a technological trajectory is thus path-dependent.
- 2.41 Fundamentally, Teece and other proponents of the resource-based view of the firm argue that such competencies and capabilities by their very nature cannot

¹² Nelson and Winter (1984) refer to this as the collectivity of routines.

be bought; they can only be built by the firm. That is, the factors that determine this rate and direction cannot easily be acquired, replicated, diffused, or copied – they therefore cannot easily be transferred or built-up outside the firm.¹³ This in part comes from the key role that learning plays both in enabling the firm to align its resources, competencies and capabilities, and in allowing the firm to internalise outside information into knowledge; and the way the firm learns is not acquired but it is determined by its unique ‘routines’, culture and its current position (stock of knowledge).

2.42 Thus, processes of knowledge generation and acquisition *within* the firm (i.e. internal knowledge generation) are essentially organisational learning processes (Reuber and Fisher, 1997; Autio, *et. al.*, 2000). The processes of incremental learning are important sources of both codified and tacit knowledge which may have great competitive impact. Although firms could develop and acquire much of the knowledge internally (through their own resources and routines), few (and especially SMEs) virtually possess all the inputs required for successful and sustainable (technological) development. Therefore, the fulfilment of firms’ knowledge requirements necessitates the use of external sources to acquire and internalise knowledge (Rosenkopf and Nerkar 2001; Almeida *et. al.*, 2003 set out the main *external* sources of knowledge available to firms).

2.43 The relationship between internal and external knowledge sourcing is complex in nature. Much of the theoretical literature concerned with transaction cost economics and property rights considers the choice between internal development and external sourcing (‘make or buy’) and the conditions that may favour one route rather than the other, or not to proceed with a particular development at all (Coase, 1937; Williamson, 1990). The resource based view of the firm stresses competences and internal capabilities as key elements in determining firm performance (see above) and it is appropriate to consider these factors in relation to the processes of knowledge acquisition, transfer and conversion.

¹³ As if to emphasise the point about dynamic capabilities, Teece (1996) sets out what he considers the fundamental characteristics of technological development: its uncertainty, path dependency, cumulative nature, irreversibility, technological interrelatedness (with the complementary assets), tacitness of knowledge (organisational routines), and inappropriability (which means that firms’ cannot necessarily obtain full property rights over their technology). All of this points to the outcome that technological ‘know-how’ is ‘locked-in’ to the firm and future alternatives are path dependent.

Knowledge, learning and absorptive capacity

- 2.44 Knowledge and learning can be expected to have a fundamental impact on international growth in that internationalising firms must apprehend, share, and assimilate new knowledge in order to compete and grow in markets in which they have little or no previous experience (Autio, *et. al.* 2000). In a seminal paper, Cohen and Levinthal (1990) demonstrated that the ability to exploit external knowledge is a critical component of a firm's capabilities. They argued that: *'...the ability to evaluate and utilize outside knowledge is largely a function of prior related knowledge. At the most elemental level, this prior knowledge includes basic skills or even a shared language but may also include knowledge of the most recent scientific or technological developments in a given field. Thus, prior related knowledge confers an ability to recognize the value of new information, assimilate it, and apply it to commercial ends. These abilities collectively constitute what we call a firm's "absorptive capacity".'*¹⁴
- 2.45 Their analysis first considered the ***absorptive capacity of the individual*** and its cognitive basis, including the importance of prior related knowledge for learning (i.e. assimilating existing knowledge), and diversity of background. These are important because, even if knowledge is nominally acquired, subsequently it will not be well utilised if the individual does not already possess the appropriate contextual knowledge and prior experience. Problem solving skills represent the capacity to create new knowledge and develop in a similar way to learning capability. Prior knowledge and skills, which permit recognition of associations and linkages that may never have previously been considered, provide a foundation for creativity.
- 2.46 In summary, the ability to assimilate information is a function of the richness of the individual's pre-existing knowledge structure. This implies that learning is cumulative and learning performance is greatest when the object of learning is related to what is already known. As a result, learning is more difficult in novel domains, but even in this case a diverse background will increase the probability that incoming information will related to something already known.

¹⁴ Note, absorptive capacity was developed by Chen and Levinthal (*op. cit.*) in the context of innovation for which outside sources of knowledge are critical. However the usefulness of the concept extends to all questions relating to the identification, assimilation and application of new, external information (Bessant *et. al.* 2005)

- 2.47 The authors then considered *absorptive capacity of the organisation*, which will also tend to develop cumulatively. While it depends on individual absorptive capacities, it also depends on transfers of knowledge across and within sub units that may be quite removed from the original point of entry. Knowledge transfers across boundaries are primarily determined by the structure of communication between the external environment and the organisation, the structure of communication among its sub units, and also on the character and distribution of expertise within it *i.e.* it depends on the links across a mosaic of individual capabilities. The firm's absorptive capacity depends on the individuals who stand at the interface of either the firm and its external environment or at the interface between subunits within the firm. Interface functions may be diffused across individuals or be quite centralised. The optimum approach will be determined by the distribution of relevant expertise. Liao *et. al* (2003) state that it is critical for the firm both to have the ability to process new knowledge and also the responsiveness to act on it.
- 2.48 Communication across these links and the intermeshing of complementary functions depends on there being a sufficient level of shared knowledge and expertise. However, uniformity can result in limited scope to absorb diverse types of knowledge and result in groups that are excessively inward looking. Hence there are benefits to the firm of having diversity of knowledge structures *across* individuals that parallel the benefits of an individual having a diverse knowledge base. The importance of both commonality and diversity of knowledge across individuals suggests that, at the organisational level, there is a trade off between the two. It also follows that if one or other is excessively dominant, knowledge processes will be dysfunctional.
- 2.49 The authors argued that *the development of absorptive capacity is history- or path-dependent*. This results from the effective assimilation of new knowledge being dependent on accumulated prior knowledge. For example, the possession of related expertise permits a firm to assess more accurately the nature and commercial potential of technological advances. This in turn will affect the incentive to make further investments in developing capability in that domain. So, the development process is cumulative and is domain specific. Further, where a firm has not invested in a domain of expertise early on, it is liable to find it less attractive to invest in it subsequently even where it is a promising

field because of the impact on current output. The result is that firms may become locked into inferior procedures, locked out of technological opportunities and exhibit high degrees of inertia with respect to changes in their external environment. This is true for both the innovation and internationalisation strategies adopted by the firm.

2.50 When a firm internationalises, it must absorb completely new knowledge of how to organise for foreign competition (Eriksson *et. al.* 1997), thus facing the dual challenge of overcoming rigidities and taking on novel knowledge. Thus, developing absorptive capacity is a necessary condition for the successful exploitation of new external knowledge. Indeed, Barkema and Vermeulen (1998) have argued that internationalising firms must unlearn routines before new routines can be learned. McDougall and Oviatt (1996) note that the literature on ‘born-global’ firms shows that the strategies of purely domestic firms and those with international sales have been found to be significantly different. Thus it is reasonable to assume that as ventures expand internationally they must change their strategies to be congruent with their new environment, in order to be successful.

2.51 The following critical factors affect the likelihood of a firm investing sufficiently in developing its absorptive capacity:

- Where the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base, it is more likely to invest
- Where a firm wishes to acquire and use knowledge unrelated to its ongoing activity, then it must dedicate resources to generating new capacity. If the firm is not able or prepared to sacrifice current output, it is likely to under-invest to its long term detriment (i.e. it gets locked-out of certain types of knowledge if it does not acquire it early on, developing “competency traps” whereby the firm is limited to the pursuit of a narrow set of opportunities suited to existing competencies – see above).

2.52 The latter parallels the process/stage models of internationalisation, where experiential knowledge of a foreign market is linked to increased speed of commitment to the market (Johanson and Vahlne, 1990). It also compliments this literature, since it can be hypothesised (Autio, *et. al.* 2000) that the firm’s age at first foreign entry will affect how quickly it will gain new foreign

knowledge (and how likely it will be to favour continued international expansion as a growth strategy) – i.e., firms that internationalise at a later age are likely to have developed competencies constraining what they see and how they see it. Autio *et. al.*, *op. cit.*, found strong evidence that the age of a high-tech firm at international entry is negatively related to its subsequent growth in international sales, and that the knowledge intensity of such firms are positively related to their growth in international sales. In all their results supported knowledge-based and learning views of international expansion, and especially support for the concept of “learning advantages of newness”. This is consistent with the earlier work of Brush (1992) who found that early internationalising firms held more positive attitudes towards foreign markets than did late those that internationalised late.

- 2.53 At a practical level, studies point to the critical role of R&D investment and training that firms undertake in order to absorb, assimilate, and manage foreign technologies (Mowery and Rosenberg, 1989; Cohen and Levinthal, 1989, 1990; Globerman, 2000). Baldwin and Gu (2004) made use of data for Canadian manufacturers to test whether exporters had higher levels of R&D and/or undertook more training as part of a firm’s general development strategy. The results show that undertaking R&D is 10% higher (after controlling for other relevant covariates such as size) for exporters (but there is no statistically significant differential in favour of exporters prior to their internationalisation); In contrast, there was much weaker evidence of more training being undertaken in exporting plants.

Resource-based models of internationalisation

- 2.54 We conclude this sub-section by reviewing some recent models of internationalisation that have been developed for mostly the ‘born-global’ phenomenon, and which are based on resource-based approaches.
- 2.55 An early and simplified model developed by Blood good *et. al.* (1996) posited that internationalisation was determined by the extent to which top management had had international exposure, various sources of competitive advantage (low cost strategies, product and marketing differentiation), innovation and the size of the firm. The greater the international work experience (not schooling) of top management, the greater product differentiation and the larger the size of the

firm, the higher was internationalisation; while more innovative plants were not more internationalised, which might seem counterintuitive. However, Hitt *et. al.* (1997) considered the links between internationalisation, firm performance and innovation, for internationalised firms' who also typically engage in product diversification strategies, finding that the latter can impact positively on performance but negatively on innovation.

- 2.56 Bell *et. al.* (2003) provide an integrated model of internationalisation which has at its core the extent to which sources of competitive advantage (and most especially knowledge as the leading source) can explain different forms of internationalisation (i.e. the traditional, 'born-again global' and 'born global' pathways), as well as the pace of internationalisation. As can be seen in Figure 2.3, the greater the sophistication of the knowledge base (and thus the greater the competitive advantage – cf. Coviello and McAuley, 1999; Jones, 1999; Autio *et. al.*, 2000; Yli-Renko *et. al.*, 2001), the higher the probability of a firm internationalising early and more rapidly than firms with more basic capabilities. The model also retains the distinction between firms that are knowledge-intensive and knowledge-based (see par. 2.19 and Table 2.2).
- 2.57 As pointed out by the originators of the model, it recognises that the internationalisation process (especially for smaller firms) is neither linear nor unidirectional, and 'epochs' of internationalisation are possible. Also, while the model presents three different internationalisation patterns, these are not intended as rigid 'pathways' since in practice the actual trajectory for a particular firm is highly individualistic, situation specific, and unique. And finally, a strength of the model is that it recognises that several theories are relevant to explain internationalisation, and so it incorporates dimensions of extant incremental 'stage' theories and network perspectives, as well as recognising the importance of contingency approaches and allied resource-based theories.

Figure 2.3: Bell *et. al*'s (2003) integrative model of small firm internationalisation

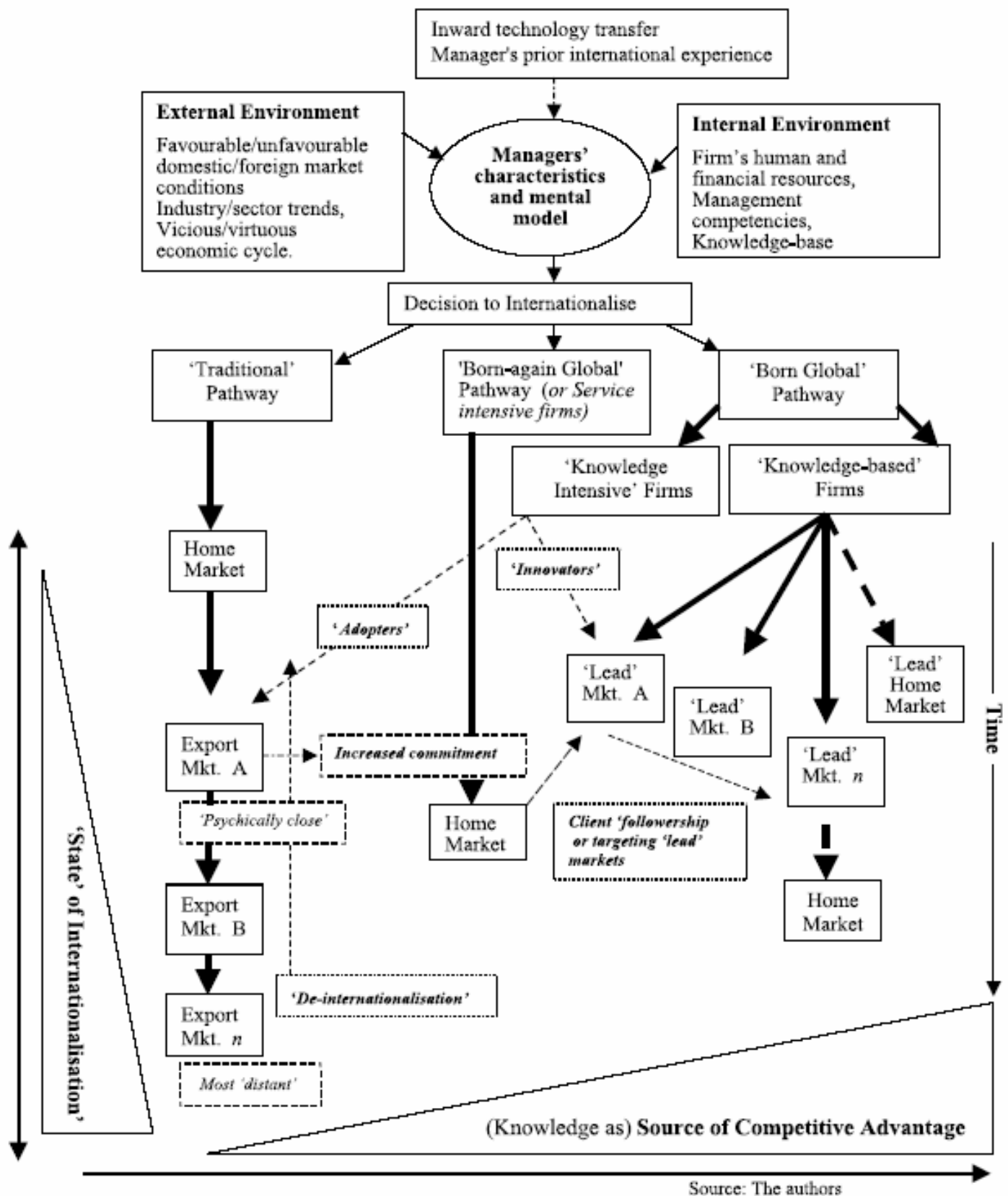
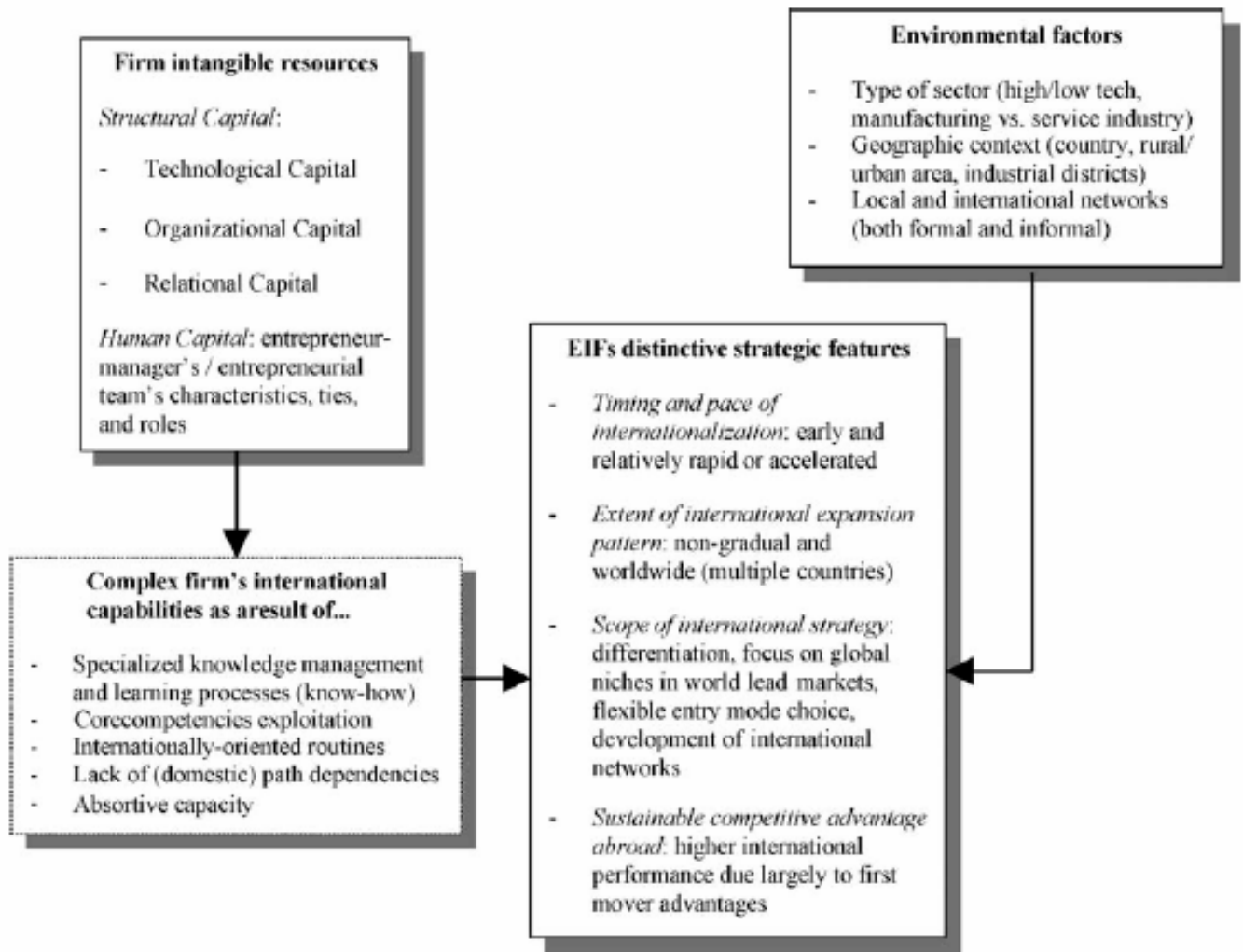


Figure 2.4: Rialp *et. al.*'s (2005) model of the early internationalising firm (EIF)



2.58 After reviewing most of the major literature on early internationalising firms up until 2003, Rialp *et. al.* (2005) also produced a model based on the resource-based approach to internationalisation. It is presented in Figure 2.4. They highlight (pp. 161-162) three key issues covered by the model:

- (1) that a firm's intangible resource base (which basically consists of organizational, technological, relational, and human capital resources) may be of the highest importance in generating a critical level of firm internationalization capability;
- (2) that firm-specific international capability can be regarded as an unobservable or 'invisible' strategic asset mostly characterized by scarce home-based path dependencies but high levels of tacitness and causal ambiguity in its accumulation

process. Essentially, it is the result of mixing primarily intangible resources in such a way that generates complex interactions among them as well as internationally intensive routines through which all the firm's resources are coordinated (Fahy, 2000; Grant, 1991). Interestingly, the less observable and more difficult a firm-specific capability is to understand by others, the greater the likelihood that it will become a source of sustainable competitive advantage. And, finally (3) that the external environmental conditions of the firm (type of sector, geographic setting, and interconnected home and international networks) may also play a critical role in moderating the way in which intangible resources creating firm international capabilities contribute to the development of both the strategic behavior of early internationalizing firms (rapid pace, non-gradual extent of internationalization, and enhanced scope of the firm's international strategy), and sustainable competitive advantage abroad.

Empirical models of early internationalisation

- 2.59 The evidence from the business and management literature on what engenders the early internationalisation process comprises a number of (mostly) qualitative, case-study based papers and a similar number of quantitative, survey-based studies (most are cross-sectional in nature).
- 2.60 The case-study literature includes the following papers which have been considered for this review: Jolly, *et. al.* (1992); Bell, *et. al.* (2001); Larimo (2001); McDougall *et. al.* (1994); Coviello and Munro (1995); Oviatt and McDougall (1995); Boter and Holmquist (1996); Murray (1996); Rasmussen *et. al.* (2001); Roberts and Senturia (1996); Sharma and Blomstermo (2003).
- 2.61 The survey-based studies include: McDougall (1989); Bell (1995); Aspellund and Moen (2001); Lindqvist (1991); Rennie (1993); Reuber and Fischer (1997); Autio and Sapienza (2000); Burgel and Murray (2000); Knight (2000); Madsen *et. al.* (2000); Moen (2002); Ripolles *et. al.* (2002); Wickramasekera and Bamberly (2001); Zahra *et. al.* (2000, 2003). The panel data studies include

Autio *et. al.* (2000); Bloodgood *et. al.* (1996); McDougall and Oviatt (1996); Servais and Rasmussen (2000); and Shrader *et. al.* (2000)

2.62 Rialp *et. al* (2005, p. 160) summarise the results from this literature in terms of which factors are mostly to be associated with early internationalisation (not necessarily in any order of importance) as:

- (a) a managerial global vision from inception;
- (b) high degree of previous international experience on behalf of managers;
- (c) management commitment;
- (d) strong use of personal and business networks (networking);
- (e) market knowledge and market commitment;
- (f) unique intangible assets based on knowledge management;
- (g) high value creation through product differentiation, leading-edge technology products, technological innovativeness (usually associated with a greater use of IT), and quality leadership;
- (h) a niche-focused, proactive international strategy in geographically spread lead markets around the world from the very beginning;
- (i) narrowly defined customer groups with strong customer orientation and close customer relationships; and finally
- (j) flexibility to adapt to rapidly changing external conditions and circumstances.

2.63 A more recently published, large scale panel study by Burgel *et. al* (2004) of over 2,000 respondent firms in high-tech industries, legally independent and under 10 years of age and with at least 3 or more 'full time equivalent' workers, operating in Britain and Germany also provides a range of important results (most in accord with the summary provided above). They looked at the incidence and degree of internationalisation, as well as the timing of entry, mode of entry and the effect of internationalisation on performance.

2.64 In terms of what determined whether to internationalise and the degree to which this took place, the following characteristics were found to be important in most cases for both incidence and the extent to which firms internationalised:

- (a) While they found that most firms remained small (only one fifth of all firms growing to over 20 FTE employees), firm size was of great significance in determining the degree of internationalisation.
- (b) Older firms were more likely to internationalise

- (c) The industrial sector of the firm had an impact.
 - (d) R&D (and its persistent use) was extremely important for internationalisation activity, confirming that absorptive capacity (which is often linked to R&D activities – see Coen and Levinthal, 1990) plays an important role
 - (e) The prior international experience of managers.
 - (f) The product embraced novel technology
- 2.65 Note, the adoption of a niche-based production and marketing strategy such that the product was highly customised (and often a ‘consumer good’ and of ‘end product’ variety) was *not* associated with internationalisation in the Burgel *et. al* (2004) study, which is somewhat at odds with other literature. However, they put their results in the following terms: the products of internationalising firms were “not customised, one-off designs for one or a few customers but incorporate significant design and customer experience allowing for their rapid installation and use across a wide range of users” (p. 228).
- 2.66 Finally, the Burgel *et. al* (2004) study looked at the impact of internationalisation on firm performance, comparing those that operated in domestic markets with those operating in foreign markets. They found a significant association with sales growth (an elasticity of sales growth rate from internationalisation of 13%).¹⁵ Others have not found such a significant impact; McDougal and Oviatt (1996) found that the rate of return on investment was not significantly higher for ventures which had achieved higher levels of internationalisation, although they did find that *increased* internationalisation was correlated with higher rates of return. This suggested that changes in strategy (which accompanied internationalisation) are necessary for a venture to achieve higher returns.

Economic models of internationalisation

- 2.67 A more recent economics literature considers the importance of sunk costs and firm heterogeneity (e.g. differences in productivity) as determinants of internationalisation. While both sunk costs and productivity differences

(implicitly) feature in the above discussion of the literature covering the theoretical models of internationalisation, it is useful to consider the more recent advances from economics separately (especially as this material helps to motivate the literature reviewed in the next chapter on firm-level adjustment to globalisation).

- 2.68 One of the earliest theoretic attempts in this area was provided by Bernard and Jensen (2001) who modelled the decision to export (or not) allowing for firms to have different characteristics (which impact on their profitability¹⁶) and for them to face (sunk) entry costs into foreign markets.^{17,18} The latter potentially include the cost of information about demand conditions abroad (i.e. market research), or the costs of establishing a distribution system, or the need to modify products for different markets and to comply with institutional arrangements and regulations (including differences in the ‘culture’ of the way business is carried out). It is also assumed that such non-recoverable entry costs recur in full if the firm exits the export market for any amount of time.
- 2.69 Ultimately, firms only internationalise if the present value of their profits (which are affected by their characteristics) exceeds these fixed costs of entry. Moreover, we want to know whether firm entry into export markets (and continuing to export with or without increasing export intensity) is due to certain plants being more export-orientated because of their attributes, and/or because of the presence of sunk costs. In principle, this model can differentiate between the competing determinants of exporting (although in practice the proxy used in empirical work for measuring sunk costs is usually less well defined and unobserved plant heterogeneity has to be accounted for which can also contaminate the empirical proxy used to measure sunk costs – as discussed later on). In practice, as might be expected, both heterogeneity and sunk costs

¹⁵ Although the study reports regressions using an instrumental variable approach, it is unclear which variables were instrumented and what the instruments used comprised.

¹⁶ These include size, labour composition, productivity, product mix, and ownership structure.

¹⁷ They also recognised that other exogenous factors affect profitability and thus the decision to export or not, such as exchange rate movements, other shocks to demand, indirect and direct subsidies to exporters, and potential spillovers from the presence of other nearby exporters. However, it is firm heterogeneity and sunk costs that dominate (especially in empirical applications of this type of model – see below).

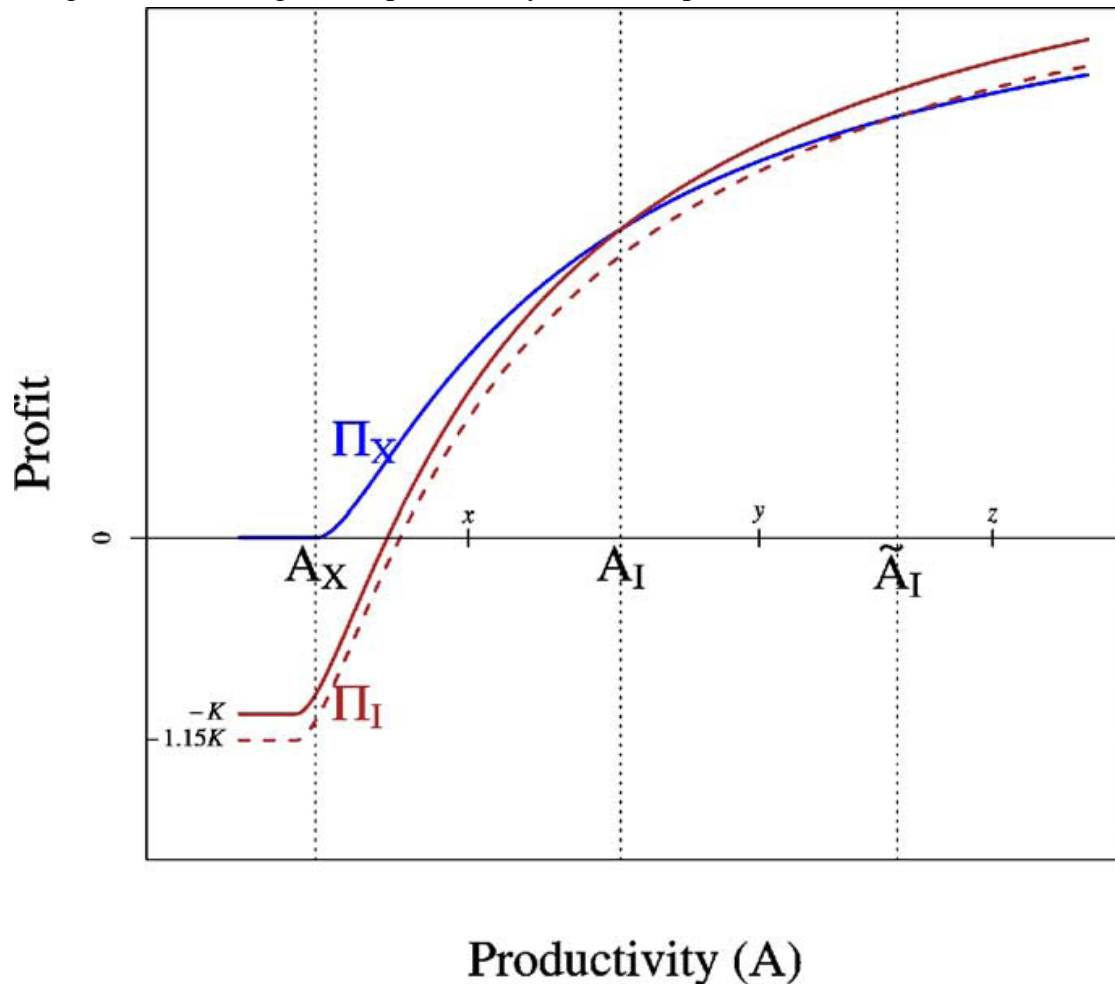
¹⁸ The theoretical literature on sunk costs and exporting is developed in papers by Dixit (1989a, b), Baldwin (1988), Baldwin and Krugman (1989), and Krugman (1989).

have been found to be important determinants of internationalisation (as Bernard and Jensen, 2001, and others, have shown)

- 2.70 Helpman *et. al* (2004) develop a model with similar features to the Bernard and Jensen (*op. cit.*) approach. Assuming monopolistic competition, firms exogenously differ in their levels of productivity (captured by differences in the marginal costs of production); they produce a differentiated good; consumers have standard Dixit-Stiglitz preferences; and different modes of market entry (exporting versus FDI in foreign markets) have different relative costs (some of which are sunk – e.g. entry costs – while others vary with output – e.g. transport costs and tariffs). Thus this model not only determines which firms internationalise, but also the mode of entry. Firms choose FDI over exporting if the benefits from avoiding transportation costs exceed the fixed costs of establishing capacity in a foreign market (i.e. when transport costs are relatively high and when plant-level returns to scale are relatively weak). They are able to show that the least productive firms do not internationalise (and indeed the worst exit the industry), and of those that do only the most productive engage in FDI, while firms with intermediate productivity levels export. Thus, the extent of intra-industry firm heterogeneity plays a key role in determining the volume of FDI sales relative to the volume of exports, and thus the composition of trade.
- 2.71 Head and Ries (2003) also consider differences in firm productivity as an explanation of different modes of foreign market entry. Their Figure 1 (Figure 2.5 here) shows that for firms with very low productivity levels ($A < A_X$) neither exporting nor FDI are profitable. In terms of firms that internationalise, since there are additional (higher) fixed costs of establishing a foreign plant through FDI (i.e. K) the solid profit-productivity relationship for firms using FDI as their mode of entry is lower (Π_I), but as productivity increases FDI profits rise more rapidly than exporting profits.¹⁹ Thus, at point A_I , firms choose FDI over exporting. Thus the model predicts that within the same industry firms that conduct FDI and firms that export co-exist.
- 2.72 The model can also be used to show why an individual firm might engage simultaneously in both exporting and FDI; if fixed costs differ between different

markets ($-1.15K < -K$), a firm with productivity y will export to the high-fixed-cost market and carry out FDI in the low-fixed-cost market. Thus, trade costs are positively related to FDI but negatively related to exports, whereas fixed sunk costs are positively related to exports but negatively related to FDI.

Figure 2.5: Heterogeneous productivity and the export versus FDI decision



Source: Head and Ries (2003)

2.73 As Head and Ries (2004) point out, the empirical evidence confirms the sorting of plants by productivity into those that do not internationalise (with the lowest levels of productivity) through to those that engage in FDI (with the highest productivity) – cf. Head and Ries (2003), Girma *et. al.* (2003); Girma *et. al.* (2004); Helpman *et. al.* (2004).

¹⁹ Comparative production costs in domestic and foreign markets (particularly trade costs) determine the slope of the profitability-productivity relationship.

Table 2.3 Probability of entering an export market in Canadian manufacturing, 1984-1996

	Specifications		
	(1)	(2)	(3)
Tariff changes	—	—	<u>-1.9993</u> (-2.01)
Canadian tariff changes	-2.9985 (-2.19)	-3.2180 (-2.33)	—
US tariff changes	4.0713 (1.53)	2.1754 (0.81)	—
Relative labour productivity	0.0386 (4.52)	0.0417 (4.73)	0.0284 (2.39)
Relative labour productivity × tariff changes			<u>-1.7204</u> (-1.74)
Foreign-controlled plants		-0.0188 (-1.26)	-0.0186 (-1.25)
Plant size		0.0954 (18.08)	0.0960 (18.20)
Young plants		0.0629 (4.69)	0.0630 (4.70)
Dummy for period 1990–6	0.0346 (2.88)	0.0358 (2.96)	0.0354 (2.92)
Observations	10,523	10,523	10,523
Log likelihood	-6,188.75	-6,018.62	-6,018.24

Source: Baldwin and Gu (2004, Table 2)

2.74 Others have examined the link between tariff reduction and plant-level internationalisation (Bernard *et. al.* 2003; Melitz, 2003; Baldwin and Gu, 2004) using similar approaches which show that only the most productive plants enter the export market to overcome trade barriers. As barriers fall, export intensity rises and (the most productive) non-exporters now internationalise (since production costs fall as imports become cheaper and competitiveness rises with lower tariffs). Evidence is provided in Baldwin and Gu (*op. cit.*) who considered the impact of tariff reduction on Canadian manufacturing between 1984-1996. Table 2.3 produces their results, confirming (specification 3, underlined estimates) that cuts in tariffs both increased the probability of internationalising for all plants and more particularly for those with the highest levels of relative labour productivity. The results also show that larger, younger and more productive plants are more likely to export.

2.75 Further empirical evidence on the factors that determine whether firms internationalise is provided in Bernard and Jensen (2001) for the US and

Greenaway and Kneller (2004) for the UK.²⁰ Lagged export status (i.e. whether the plant exported in the previous period) is used as a proxy for sunk costs, and is always highly significant as a determinant of exporting. In the US initial results from Bernard and Jensen (*op. cit.*) found that exporting last year raised the probability of exporting this year by 66%, but when they allowed for fixed effects to allow for plant-level heterogeneity, the effect declined to 20%. The results for the UK showed that the impact was 83%, which seems improbably high (and presumably is biased upwards by an inability to account for unobserved plant level characteristics).

- 2.76 Bernard and Jensen (*op. cit.*) for the US also found that spillover effects were not significant, and that state export promotion had a slight positive effect (but it was insignificant). However, size, wage (representing human-capital intensity) and productivity were important influences on the probability of exporting, with larger, productive plants much more likely to export. Greenaway and Kneller (*op. cit.*) found similar results, although the impact of TFP on the probability of exporting was not significant (although TFP was significant in determining export market entry), while industry agglomeration effects (which are associated with spillovers) were important in the case of the UK.²¹
- 2.77 To summarise, those firms that internationalise (with most evidence being related to those that export) tend to be a non-random sample of all plants in that they are typically larger, more productive and have the capabilities/resources to overcome sunk fixed costs associated with entering foreign markets. This has implications for the discussion in the next chapter on the issue of whether ‘better’ plants self-select into exporting and/or whether there is any evidence that plants become more productive through internationalisation through a ‘learning-by-exporting’ effect.

²⁰ Evidence of a similar nature for other countries is provided in Roberts & Tybout (1997) for Colombia; Bernard & Wagner 2001 for Germany; Clerides et al. 1998 for Columbia, Mexico and Morocco; and Girma et al. 2004 for the UK.

²¹ Other studies for the UK using panel data provide similar results, confirming the importance of sunk costs and productivity, but also the role of resource, innovation and human-capital factors that all positively impact on the decision to export (cf. Wakelin, 1998; Bleaney and Wakelin, 2002; Roper and Love, 2002; and Gourlay and Seaton, 2004).

Conclusions

- 2.78 This chapter considers the various models that have featured in the literature that attempts to explain why certain firms internationalise, and others do not. Whether the traditional, incremental model of internationalisation is considered, or transaction cost models (emphasising the role of sunk costs), or monopolistic advantage models, a strong overlapping feature is the role and importance of firm specific assets (complimentary resources and capabilities and thus absorptive capacity) and knowledge accumulation. This is also true of the more recent phenomenon of 'born-global' or 'born-again global' firms, that often internationalise very early (and which are dependent on knowledge-based technology).
- 2.79 Of course, there are other factors that determine internationalisation, such as sector (e.g. whether high-tech or not); the size of the firm; the presence or otherwise of networks/agglomerations; the importance of international experience among the owner/managers; and even 'luck' etc. But a recurring emphasis throughout all the literature is the core and essential role of (tacit) knowledge generation and acquisition, both within the firm and from its external environment.
- 2.80 The more recent economic models of internationalisation that have been reviewed focus on the importance of sunk costs and heterogeneity across firms (i.e. differences in productivity). To overcome entry costs, firms need an adequate knowledge-base and complimentary assets/resources (especially R&D and human capital assets that lead to greater absorptive capacity); and of course productivity differences rely on firms having differing knowledge and resource-bases associated with differences in rates of innovation and other aspects of total factor productivity (see Chapter 3 for a discussion).
- 2.81 However, despite this leading role for knowledge accumulation and factors such as absorptive capacity, we still have little evidence on how organisations learn (and what is most important for success in this area), and exactly how absorptive capacity can be measured (and its relative importance in determining productivity and entry into foreign markets). Thus, there is still much work that needs to be undertaken to enhance the extant literature and thus 'flesh-out' some of the concepts and arguments presented here.

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3. Firm-Level Adjustment to Globalisation

Introduction

3.1 Alongside the issue of why and how businesses go international is another equally important question regarding the process of internationalisation – how do firms adjust to globalisation. Given the importance of productivity issues, the relationship between international trade and productivity growth is at the heart of our understanding of economic adjustment to globalisation. This linkage has been extensively researched and well established in the macroeconomic literature, from the conventional Heckscher-Ohlin model to new trade models. More recently, a rapidly growing literature has focused on globalisation and its impacts on firms, exploiting the heterogeneity of individual firms. In this chapter, we review this emerging literature in light of the linkage between a firm's export activity and productivity growth. Exporting is believed to bring about several *benefits* from a firm perspective, including-

- Economies of scale and diversification of risks: increasing exposure to international markets leads to a higher demand for products. This may then lead to an expansion in production and thus firm size and therefore the exploitation of economies of scale. Equally, the diversification of products across countries may also reduce risk and encourage greater investment;
- Enhanced competence base: it is widely believed that international exposure will improve organisational efficiency in globalised firms due to international competition and the exploitation of external knowledge;
- International knowledge spillovers: as a public good, knowledge spillovers constitute a positive externality. Operating in global markets, firms that export are in a better position to exploit foreign knowledge spillovers and outperform their domestic counterparts. Moreover, there may well be positive spillover effects from exporting on indigenous non-participants, who can achieve higher technological standards more easily.

3.2 In the following section, we briefly review related macro and micro models of international trade. In the third section, we introduce two hypotheses (and the evidence in the literature) with respect to the causality issue between export and

productivity, and then we discuss possible explanations for discrepancies in empirical findings. In the fourth section, we examine some other factors affecting firm behaviour, such as structural factors, industrial characteristics, innovation and international outsourcing. The final section describes how trade impacts upon aggregate productivity via reallocations of resources, bridging the knowledge gap in terms of the interaction of firms, industries, and the whole economy.

From Macro to Micro Trade Models

- 3.3 In recent years, the economics literature has paid close attention to the characteristics of globalisation and how economies and in particular firms adjust to such changes. Central to this issue is the relationship between international trade and productivity growth, which has been extensively researched and is thus well established in the macroeconomics literature. In conventional Heckscher-Ohlin type models, comparative cost theory is employed to explain the pattern of trade: as a consequence of trade, countries shift away from producing goods in most industries to producing goods in comparative advantage industries. One of the most notable feature of these models is that they assume homogenous productivity across countries, which is a substantial drawback that has given rise to a new generation of trade models – the so called ‘*new trade*’ models, e.g. Krugman (1980). An original contribution of Krugman’s model included a consideration of the causes of trade between economies with similar factor endowments as well as the impact of a large domestic economy on export. This new framework incorporated scale economies, product differentiation and imperfect competition; nevertheless, based on the restrictive assumption of homogenous firms, it failed to acknowledge the impact of differences in firm productivity.
- 3.4 These macroeconomics-oriented models, arguably, only provide a limited understanding of how firms behave in an increasingly globalised market, and thus they have a limited role in informing policy, which is to a considerable extent targeted at individual firms. In recent years there has been a surge of interest in studying the microeconomic evidence such that there is now a rapidly growing literature focusing on globalisation and its impact on firms, taking into

account the importance of heterogeneity among plants. This emphasis on firm-level evidence has been partly triggered by the availability of some quality data at plant level, as well as the recent developments in the use of theoretical modelling and econometric techniques to exploit these usually more intricate micro data.²²

- 3.5 In addition to offering new insights that explain trade-firm productivity linkages, more recent studies also provide the theoretical underpinnings for a causal link between trade and aggregate productivity growth²³. For instance, Bernard *et al.* (2003) provide an extension of Ricardian theory incorporating several countries, the importance of geographic (trade) barriers and imperfect competition. They find evidence for several basic facts about the US economy that cannot be justified by conventional trade theory: such as the much larger size and higher productivity of exporters; alongside observing that only a small fraction of firms actually export and of these that do only a small fraction of their revenues come from exporting. In an important paper, Melitz (2003) extends Krugman's (1980) model to accommodate firm level differences in productivity in order to analyse the intra-industry effects of trade. It is shown that as a consequence of increasing exposure to trade, the most productive firms are induced to participate in export markets while less productive firms continue to serve the domestic market only, whereas the least productive firms drop out the market. It follows that trade-induced reallocations towards more efficient firms will eventually lead to aggregate productivity gains. As an extension to Melitz's model to incorporate more than just exporting as an option when firms go global, Helpman *et al.* (2004) have identified firms sort according to their productivity: the most productive firms set up overseas affiliates; the next most productive export; the less productive firms serve only the domestic market; whereas the least productive leave the industry.²⁴

²² For the effect of globalisation on firm performance in terms of exporting see Aw and Hwang (1995); Bernard and Wagner (1997); Clerides *et al.* (1998); Kraay (1999); Wagner (2002); Delgado *et al.* (2002); Castellani (2002); Girma *et al.* (2004); in terms of multinationality/FDI, see Davies and Lyons (1991); Caves (1996); Doms and Jensen (1998); Aitken and Harrison (1999) Gomes and Ramaswamy (1999); Driffield (1999); Griffith and Simpson (2000); Harris (2002); Harris and Robinson (2003).

²³ For recent evidence on the positive trade-growth nexus in the macroeconomic literature, see Grossman and Helpman (1991); Sachs and Warner (1995); Ben-David and Loewy (1998); Edwards (1998); Rodrik and Rodriguez (2000).

²⁴ Other most recent international trade models incorporating firm-level heterogeneity also include Bernard *et al.* (2003) based on Ricardian differences in technological efficiency; Bernard *et al.* (

- 3.6 Lastly, using longitudinal micro data for the UK, Criscuolo *et. al.* (2004) decompose aggregate productivity data to find that external restructuring (entry and exit) has a considerable impact on aggregate productivity growth. They then go on to show how this can at least in part be explained by globalisation (as measured by sectoral import competition), and the growth in use of information and communication technology (ICT).

Export-Productivity Nexus

- 3.7 There are several dimensions to how firms adjust to globalisation, with the most rapid growth in the literature concentrating on entry into international markets and whether this impacts upon firm-level productivity performance (and thus aggregate productivity growth). Therefore, to gain a better understanding of this aspect of firm-level adjustment to globalisation, in this chapter we focus our review on the literature regarding the linkage between trade and productivity in a context of export market entry.
- 3.8 Productivity issues are central to analysing economic welfare thus providing a clear policy context. It follows that productivity/performance is the principal concern when considering the impacts of globalisation, and a better understanding of the globalisation - productivity relationship will provide further knowledge about how firms behave when facing intense international competition. It's important to note that, 'productivity' is used here not as the definitive, single characteristic that's crucial to export, but more as a proxy for a range of characteristics that distinguish the better firms from the others, such as absorptive capacity, competence bases, human/organisational capital, etc. (Baldwin & Gu, 2003). Our principal focus here is the linkage between export-market participation and performance (often measured by productivity) as well the potential intervening role of other trade-induced adjustments that may impact upon any productivity – export relationship.
- 3.9 Research on this exporting-productivity relationship was initially empirically driven and it is universally found in the literature that exporting is positively associated with firm performance (see Greenaway and Kneller (2004) for a

2005b) on heterogeneous productivity; and Yeaple (2005) on heterogeneous competing technologies, trade costs and labour skills.

recent survey). Nevertheless, despite this positive linkage, there is still much controversy about the causal direction of this link – whether causality runs from export to productivity, or the other way around (or both, i.e. a feedback relationship). These issues are often examined empirically by testing two competing hypotheses, viz. self-selection and learning by exporting.

Self-selection Hypothesis

- 3.10 The *self-selection hypothesis* assumes that plants that enter export markets do so because they have higher productivity prior to entry, relative to non-entrants. Underlying these selection effects is substantial evidence of differences between those that participate in export markets and those that do not. The general consensus based on evidence from a number of countries is that exporters are, on average, bigger, more productive, more capital intensive and pay higher wages vis-à-vis non-participants. (e.g. Girma *et al.*, 2004; Baldwin and Gu, 2004; Greenaway and Kneller, 2004). The reasons for export-oriented firms to exhibit better performance are intuitively appealing: since increasing international exposure brings about more intensive competition, firms that internationalise are forced to become more efficient so as to enhance their survival characteristics; meanwhile, the existence of sunk entry costs means exporters have to be more productive to overcome such fixed costs before they can realise expected profits.
- 3.11 Based on evidence from industries and countries, it is broadly acknowledged in the literature that more productive firms self-select into export markets.²⁵ However there are some disparate studies where exporters are not necessarily more efficient than non-exporters, e.g. Bleaney and Wakelin (2002) with regard to UK manufacturing when controlling for innovating activity; Greenaway *et al.* (2003) for Swedish manufacturers with a relatively high level of international exposure on average; and Damijan *et al.* (2005) on firms in Slovenia where higher productivity is required only in those firms that export to advanced countries rather than those who export to developing nations.

²⁵ See Alvarez (2002) for Chile; Krray (1999) for China; Clerides *et al.* (1998) for Colombia; Mexico and Morocco; Bernard and Wagner (1997) for Germany; Castellani (2002) for Italy; Delgado *et al.* (2002) for Spain; Greenaway and Kneller (2004) for the UK; Bernard and Jensen (1999) for the US; Aw and Hwang (1995) for Taiwan.

Learning-by-Exporting Hypothesis

- 3.12 Turning now to the *learning-by-exporting hypothesis*, export-oriented firms are assumed to experience an acceleration in productivity growth *following* entry. If this is not true, this has important policy implications – if better firms do self-select into export markets, and exporting does not further boost productivity, then export subsidies could simply be a waste of resources (involving large-scale dead weight and possibly even displacement effects given that firms that export also usually sell to domestic markets as well²⁶).
- 3.13 The learning-by-exporting proposition has, unfortunately, received somewhat less support in the literature. Many early empirical studies raised doubts about the causality running from exporting to productivity, since they found productivity growth did not increase post entry, notwithstanding that exporting firms on average experienced significantly higher growth in terms of employment and wages. (Aw and Hwang, 1995, for Taiwan; Bernard and Jensen, 1995 and 1999a, for the US; Bernard and Wagner, 1997, for Germany; Clerides *et al.*, 1998, for Columbia, Mexico and Morocco; Delgado *et al.*, 2002, for Spain; Wagner, 2002, for Germany). For example, applying a novel non-parametric analysis of productivity distributions for Spanish firms, Delgado *et al.* (2002) failed to find significant differences between new exporters and continuing exporters by analysing the post entry productivity growth distribution. Analogically, exporters were found to be no different from non-exporters, although limited learning effects could be found among younger exporters.
- 3.14 Nevertheless, some of the literature covered in Chapter 2, particularly in the business management field, emphasises the importance of exporting (or internationalisation in general) as a learning process. The process of going international is perceived as a sequence of stages in the firm's growth trajectory, which involves substantial learning (and innovating) through internal and external channels, so as to enhance its competence base and improve its performance. Thus, the learning-by-exporting proposition is consistent with

²⁶ Robust empirical evidence shows that exporters tend to sell very small fractions of their output abroad (Aw *et al.*, 1997; Campas, 1999; Sullivan *et al.*, 1995). Note also, UK government policy is not to provide subsidies to exporters but to rather increase export market entry through combating market failures – see Chapter 4. However, the issue of deadweight and possible displacement is still relevant – see the discussion in par. 4.32 (chapter 4).

other areas of literature on business internationalisation. Indeed, positive learning effects for firms engaged in exporting have been identified, particularly for some of the economics literature and where different econometric methodologies are adopted.

- 3.15 For instance, in an attempt to examine the learning-by-exporting hypothesis, Kraay (1999) finds (using data for a sample of Chinese industrial enterprises) that past export is significantly associated with better total factor and labour productivity performance and he further shows that these learning effects are most pronounced among established exporters although they can be insignificant and occasionally negative in new entrants to export markets.. Moreover, in a firm-level survey on manufacturing productivity in five East Asian economies, Hallward-Driemeier *et al.* (2002) not only identify higher productivity post export-market entry but go one step further to explore the sources and mechanisms of this productivity growth – it is in aiming for export markets that firms consistently make a series of decisions that consequently accelerate their productivity, with regard to their investment, training, technology, selection of inputs etc. This is consistent with the notion of absorptive capacity and the resource-based view discussed in Chapter 2.²⁷
- 3.16 What's more, there's also a strand of literature documenting evidence on the co-existence of selection and learning effects. Baldwin and Gu (2003) explore the export-productivity linkage in Canadian manufacturing and find evidence that productivity improves following export-market participation; in contrast to Kraay (1999) they find learning effects of export are stronger for younger businesses. Using data for the UK chemical industry, Greenaway and Yu (2004) test both hypotheses and find strong evidence that firms self-selected into export markets; they however also report more varied learning effects dependent on the age of establishments – significant and positive for new entrants, less significant for more experienced exporters and negative for established exporters. More recently, Girma *et al.* (2004) use 'propensity score matching' techniques to overcome problems of selectivity bias when evaluating the causal effect of exporting on performance characteristics, and thus suggest that firms do self-

²⁷ Castellani (2002) also reports a positive relationship between labour productivity and exporting intensity for Italian firms between 1989-1994– only firms substantially involved in exporting have significantly faster productivity growth.

select into export markets but that exporting also further boosts firm-level productivity.

- 3.17 Arguably the empirical evidence still remains inconclusive regarding the causal mechanisms underlying the well-established empirical association between export orientation and productivity growth, in particular whether the learning-by-exporting hypothesis holds. Nevertheless, there may be several explanations to account for such discrepancies amongst the empirical literature in this area.
- 3.18 To begin with, there are structural differences between the various databases used when testing for learning effects. Baldwin and Gu (2004) put forward a convincing explanation as to why there should be different learning effects in Canadian and US plants: learning from international best practices was more important for productivity growth in Canadian plants that export vis-à-vis US plants, whose principal source of raising productivity is technology developed domestically. In addition, given a smaller market size in Canada where competition is not as intense as in the US, exposure to international competition is more likely to induce participants to become more productive and competitive. Thirdly, expanding into much larger foreign markets relative to domestic market, Canadian producers will benefit from greater product specialisation and longer production runs, which is more likely to have an impact on productivity; whereas this is less of an issue in US firms given the already bigger domestic market. *all* of these will contribute to a greater export impact on productivity growth in Canada.
- 3.19 Similar mechanisms of raising productivity may also apply in the UK. For instance, learning benefits are likely to be less in the US firms that export vis-à-vis UK firms, since the US firms are overall likely to be closer to technological frontier (which is set by the US), and they are also exposed to a more competitive market (Girma *et al.*, 2004). In contrast, Sweden has a high participation rate for firms involved in export markets and high degree of openness, which to some extent resembles more the US economy. This may partly explain the similar performance profiles found between Swedish exporters and non-exporters (Greenaway *et al.*, 2003).
- 3.20 In addition to these country-specific differences associated with the learning process, firm performance characteristics may well differ both within and across industries as well. From a resource-based viewpoint, in order to learn when

operating in foreign markets, and in order to internalise international knowledge spillovers, a firm needs to invest more in training and innovation so as to enhance its absorptive capability to exploit and assimilate (often tacit) knowledge that is obtained externally. This argument is substantiated by the evidence of significant learning effects uncovered in the UK chemical industry, which is a typical high-tech sector that undertakes a large amount of R&D expenditure. (Greenaway and Yu, 2004).

- 3.21 Secondly, the heterogeneity of export markets may also play a role in determining the extent to which participants will gain higher productivity from exporting. For instance, Damijan *et al.* (2005) suggest that learning from exporting is crucially dependent on the degree of competitive pressures facing firms in different foreign markets – exporting *per se* does not warranty productivity gains; rather, productivity only improves significantly when firms are serving advanced, high-wage export markets.
- 3.22 Lastly and most importantly, there are also certain methodological issues involved when testing for productivity effect of exporting. A problem usually encountered in microeconomic evaluation studies is *sample selectivity*.²⁸. This problem arises when making comparisons between a ‘treatment group’ (e.g. export-market entrants) and the rest of the population, when it is known (or at least suspected) that the treatment group are not drawn randomly from the whole population. This issue is of paramount importance when interpreting the results obtained from comparing exporters and non-exporters, and upon which policy conclusions are then based.²⁹
- 3.23 More specifically, participants in export markets may possess certain characteristics such that they achieve better performance (in terms of higher productivity) vis-à-vis non-participants even when they do not enter export markets, and this productivity gain is correlated with the decision to participate

²⁸ Another possible econometric problem may arise when most of the empirical studies tend to pool information across all firms with heterogeneous export histories to examine these learning effects of exporting. In fact, distinct learning effects are uncovered among firms of different age (Krray, 1999; Delgado *et al.*, 2002; Baldwin and Gu, 2003; Greenaway and Yu, 2004). For instance, Krray (1999) allows export history to have an effect on learning effects (by allowing the coefficient on lagged export to vary with the export history of the plant), and finds significantly positive effects of exporting merely in more established Chinese firms.

²⁹ See Harris (2005) for a brief survey; Blundell and Costa Dias (2000) and Heckman and Navarro-Lozano (2004) for a comprehensive review of the sample selectivity issue and various approaches to this. More technicalities of the selection problem are treated in the Appendix for interested readers.

in the global market. This will mean that standard estimation techniques lead to biased results. These characteristics would likely include superior managerial capability, organisational skills, absorptive capacity, etc. They are associated both with achieving higher productivity and the decision to self-select into export markets.

- 3.24 That ignoring selectivity problem leads to biased results is indeed reinforced by the theoretical evidence of the heterogeneity of firm productivity prior to entry (Head and Ries, 2003; Melitz, 2003; Helpman *et. al.*, 2004) and the unanimous empirical evidence of significant differences between exporters and non-exporters (in terms of productivity, employment, capital-intensity, R&D, etc.), but similar characteristics between new exporters and continuing exporters.
- 3.25 Several standard approaches have been proposed in the literature to combat this selection problem. One approach is ‘matching’ i.e. selecting a valid ‘control’ group to compare exporters’ performance with only those non-exporters with similar characteristics to those that export are chosen for the control group. This approach therefore assumes that the treated and non-treated groups are effectively the same in all relevant respects (except the non-treated group do not export) so that the productivity outcome that would prevail in the absence of treatment is the same in both cases. Using a propensity score matching approach, Girma *et. al.*, (2004) found significantly positive post-entry learning effects for UK exporters.
- 3.26 Another technique for eliminating selectivity bias is the difference-in-difference estimator. For example, in conjunction with matching, Greenaway and Kneller (2004) use a difference-in-difference approach to control for changes in other observable determinants of productivity post entry, and find that there are significant productivity gains from exporting in the unmatched sample but these disappear when they use a matched sample. Other approaches suggested in the literature to deal with self-selection bias include instrumental variable estimation and Heckman two-stage estimation, which are closely linked in a way.^{30,31}

³⁰ For instance, Kneller and Pisu (2005) provide an example of deploying Heckman selection process to model two decisions of whether to export or not and how much to export, but in a different setting - export spillovers from FDI. To our knowledge, there are few studies utilising instrumental variable estimation to examine the causality between export and productivity, possibly due to lack of appropriate instruments.

3.27 In a nutshell, although the empirical literature presents compelling evidence in favour of the self-selection hypothesis, the findings are less conclusive with respect to the learning-by-exporting hypothesis. The results obtained in the literature are of great importance for policy making and their policy implications will be discussed in Chapter 4.

Other Characteristics of Firm-Level Adjustment

3.28 In order to get a complete picture of firm-level adjustment to globalisation, we also need to examine some other factors characterising firm behaviour in a global market. This will help to put the export-productivity relationship into context, and explain the underlying resources for such a relationship.

Innovation

3.29 First and foremost, *innovation* is generally perceived as the major driving force behind exporting in trade theories (Vernon, 1966; Krugman, 1979, 1995). From a firm perspective, exporters need to invest in R&D and training to develop internally by absorbing, assimilating and managing technologies and ideas obtained in foreign markets. Innovation facilitates a firm's competency development and brings about scale and scope economies. The resulting greater production efficiency enables firms to expand their domestic market share through import substitution, and most importantly, to penetrate new foreign markets and increase their exports share.³² This is in line with the notion of absorptive capacity and the crucial role of R&D in developing such capacity, thereby allowing firms to internalise external knowledge (Cohen and Levinthal, 1989, 1990). This may help to explain how differences in productivity effect export-market participation as observed in heterogeneous firms, industries and countries.³³ Empirically, Bleaney and Wakelin (2002) and Roper and Love (2002) have reported significant differences in terms of R&D expenditures at plant level between exporters and non-exporters in UK manufacturing, and thus

³¹ A comparison of relative merits of all approaches is available in the Appendix.

³² Note, firms that export usually only sell a small proportion of their output in foreign markets. Therefore when they expand due to efficiency gains, they can capture additional shares in both domestic and foreign markets.

³³ See Aw *et al.* (2000) for a comparative study between Taiwan and South Korea.

the moderating effect of innovation on the export-productivity nexus; similar findings are also suggested for the US (Bernard and Jensen, 2001), and Canada (Baldwin and Gu, 2004). In particular, Baldwin and Gu (2004) made use of data for Canadian manufacturers to test whether exporters had higher levels of R&D. The results show that undertaking R&D is 10% higher (after controlling for other relevant covariates such as size) for exporters (but there is no statistically significant differential in favour of exporters prior to their internationalisation). Thus, they show some evidence for increased innovation activity after internationalising, which is consistent with their arguments that benefits from export-market entry are not ‘automatic’ – in order to achieve post-entry productivity gains, exporters invest more in R&D and human capital to acquire more foreign technologies and develop enhanced absorptive capacities.

Industrial/Spatial Agglomeration

3.30 Others concentrate on the role of certain structural factors in increasing the probability of export market entry. Firstly, the importance of geographic factors is captured in Overman *et. al.*’s (2003) survey of the literature on the economic geography of trade flows and the location of production. If information on foreign market opportunities and costs is asymmetric, then it is reasonable to expect firms to cluster within the same industry/region so as to achieve information sharing and therefore minimise entry costs. Co-location may help improve information about foreign markets and tastes so as to provide better channels through which firms distribute their goods (Aitken *et. al.*, 1997). There are usually two dimensions to these *agglomeration effects* – a regional effect and an industrial effect. The former comprises the spatial concentration of exporters (from various industries). Whereas the industry effect is where exporting firms from the same industry co-locate. Greenaway and Kneller (2004) provide empirical evidence that shows that the industrial dimension of agglomeration would appear to be more important for the UK while Bernard and Jensen (2001) found it to be insignificant in explaining the probability of exporting in the US. The benefits brought about by the co-location of firms on

the export decision have also been documented in other empirical studies, for instance, Aitken *et al.* (1997) for Mexico.³⁴

Market Concentration

3.31 In a similar way, *market concentration* is also expected to positively impact upon a firm's propensity to export and its performance post entry. A high level of Concentration of exporters within an industry may improve the underlying infrastructure that is necessary to facilitate access to international markets or to access information on the demand characteristics of foreign consumers. Therefore, we might expect a higher propensity for non-participants to go international in a market with a higher degree of concentration of export activity. Evidence for UK manufacturing covering the 1988 to 2002 period is provided by Greenaway and Kneller (2003).

Export Spillovers

3.32 Alongside these location effects is the impact of *export spillovers*, i.e. knowledge spillovers from foreign firms that impact on the export decision of domestic firms. These spillovers take place if there is a transfer of knowledge from about foreign markets to domestic firms. This linkage is derived from the literature on international knowledge diffusion. International trade is argued to be a conduit for the transfer of knowledge and thus conducive to productivity growth (Grossman and Helpman, 1991). From a firm perspective, participation in international markets brings firms into contact with international best practices and facilitates learning and competency development. Following Coe and Helpman's (1995) seminal piece on international R&D spillovers, there has been an increasing interest on the impact of spillovers. It is widely felt that such spillovers provide positive information externalities (Aitken *et. al.*, 1997), and as a public good these knowledge spillovers can help domestic recipients to achieve higher technological standards with less effort.

3.33 The positive effect of export spillovers result from both supply and demand side impacts. The supply side argument is derived from the existence of sunk entry costs as discussed in Chapter 2. Export market entry costs arise as a result

³⁴ In contrast, in a recent study for US plants, Bernard and Jensen (2004) find negligible spillovers resulting from the export activities of other plants; nevertheless, this discrepancy between other studies

of imperfect information when establishing foreign marketing channels, developing new packaging/product varieties, and learning bureaucratic procedures, etc. By their very nature, information spillovers can significantly reduce any problems of information asymmetry and therefore lower start up costs, so allowing rational firms to enter export market when the present value of their anticipated profits exceed current fixed costs. In contrast, there may also be a demand-side impact associated with export spillovers: following the establishment of a presence in overseas market, foreign awareness of (and thus demand for) domestically produced goods may also rise, pulling more domestic firms into export markets.

- 3.34 In addition, Kneller and Pisu (2005) examined the role of FDI industrial linkages in explaining export activity at the firm-level. They found that the decision to enter an export market was positively related to the presence of foreign plants in the same industry and region; the decision concerning how much to export was affected positively by the presence of foreign firms in downstream industries. In a recent study using a large panel of UK firms, Greenaway *et. al.* (2004) also find evidence of positive spillover effects from multinational enterprises (henceforth MNEs) on the decision to export of domestic (UK) firms, and on their export propensity.

International outsourcing

- 3.35 Finally, we detect a growing interest in the literature of the impact of international outsourcing on productivity in globalised firms. The rationale for expecting a positive effect from outsourcing in international markets is consistent with the notion of learning and absorptive capacity as discussed in Chapter 2. As pointed out by Görg, *et. al.* (2005), in the short run domestic plants that are engaged in international outsourcing may have greater access to internationally traded inputs at lower costs/higher quality than is available domestically; in the long run, such outsourcing activity may also bring about a reallocation of factor shares, and consequently a further impact upon productivity. Therefore we might expect the increasing use of internationally traded inputs to boost productivity in these ‘extroverted’ plants.

may be explained by their sample selection criteria (restrictive to large plants only) and measures of industry (2 digit level) and regions (measured by states).

3.36 Recently Grossman and Helpman (2005) have developed a general equilibrium model to theoretically analyse the relationship between trade and outsourcing. Motivated by this work, several empirical studies have emerged to test the implications of the Grossman and Helpman (op.cit) model. Egger and Egger (2005) examine the link between international outsourcing and labour productivity (of low skilled workers) and found that in the short run, the productivity of low skilled workers is negatively correlated with cross-border fragmentation in the EU; whereas in the long run, this linkage turns out to be positive. This turnaround is explained by short-run labour market rigidities and long-run factor mobility respectively. Based on panel data from Irish manufacturing, Görg *et al.* (2005) also provide empirical evidence of positive productivity gains attributed to international outsourcing for Irish firms that exported.

Microeconomic Implications for Reallocations of Resources and Aggregate Productivity

3.37 Having discussed firm-level productivity advantages that are conferred by participation in global markets, we now explore the linkage between export market dynamics and aggregate productivity. There is an emerging strand of literature that focuses on the impact of firm-level exporting (or importing) on inter or intra industry reallocations of resources and therefore aggregate productivity growth. This approach provides a holistic view of the interaction of plants, industries and the aggregate economy as a whole.

Export Market Dynamics

3.38 The process of entry and exit in export markets³⁵ differs from market entry and exit in the conventional sense, since the firm can continue to produce for the

³⁵ As discussed in Chapter 2 (and in this chapter), general empirical findings show that the determinants of a firm's entry decision include trade liberalisation (Baldwin and Gu, 2004), sunk entry costs (Das *et al.*, 2001; Bernard & Jensen 2004a; Girma *et al.*, 2004) and some firm-level characteristics such as size (Aw and Hwang, 1995; Roberts and Tybout, 1997; Bleaney and Wakelin, 2002; Gourley and Seaton, 2004); experience including ex-ante success (Bernard and Jensen, 1999a; Greenaway and Kneller, 2004; Kneller and Pisu, 2005); export spillovers (Aitken *et al.*, 1997; Greenaway *et al.*, 2004); foreign networks (Sjoholm, 2003). A firm's exit decision depends mainly upon industrial characteristics such as the level of sunk costs; the firm will exit once it is not productive enough to secure non-negative profits (Das *et al.*, 2001; Bernard and Jensen, 2004a).

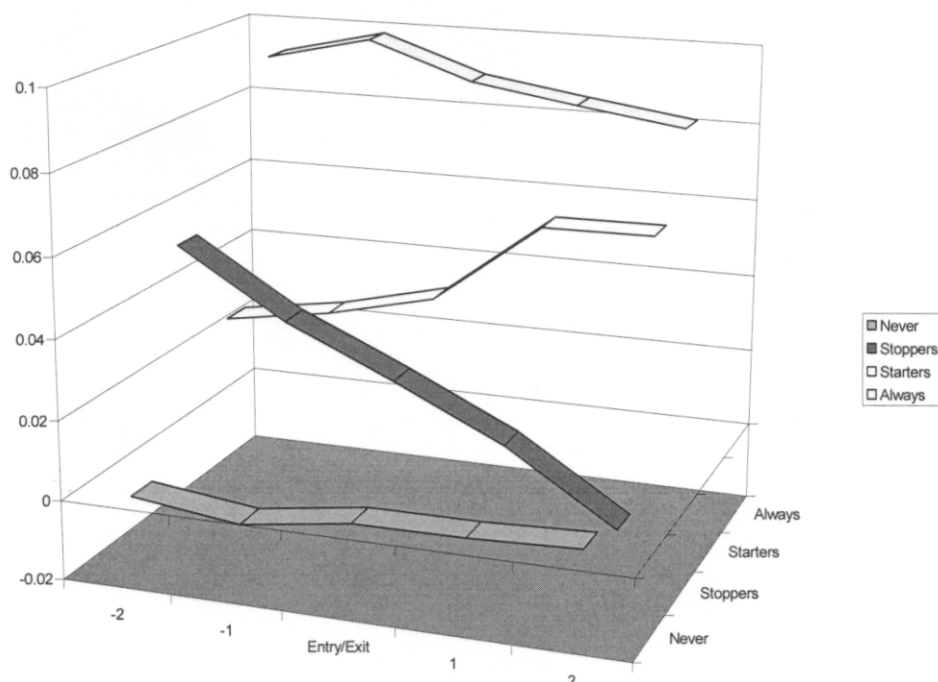
domestic market. Baldwin and Gu (2003) found export entry to involve substantial experimentation. They emphasise the importance of an ‘entry fee’ as an initial investment, which is in line with the general consensus of the importance of sunk costs.³⁶ Entrants to export markets have to achieve superior performance before they enter and are rewarded with even better performance after they penetrate these foreign markets.

- 3.39 Export market dynamics have been modelled in recent studies by incorporating intra-industry heterogeneity. In their model, Bernard *et al* (2003) show that in a setting of Bertrand pricing rules, trade liberalisation expands the market shares of the most productive firms by providing them with large export markets, while at the same time such liberalisation forces firms at the lower end of the productive efficiency distribution to quit as international competition intensifies. In a slightly different setting, Melitz (2003) develops a forward-looking model of steady-state trade with heterogeneous firms and imperfect competition to show that trade liberalisation increases a country’s imports and erodes domestic sales and profits. Firms at the higher end of the productivity distribution expand their export sales more than they contract their domestic sales; whereas those non-exporters at the lowest end of the productivity distribution have to contract or quit. Consequently, freer trade induces aggregate productivity gains, as ‘better’ firms expand their market shares and the ‘worst’ firms contract or exit.
- 3.40 Empirically, the effect of transitions into and out of export markets on firm performance is often captured by its *export premium*, which measures how much a firm’s performance changes when its export status changes (Bernard and Jensen, 1999 for the US; Aw *et. al.*, 2000 for Korea and Taiwan; Silvente, 2005 for the UK). The studies of the US, Korean and Taiwan found that when firms switch from being non-exporters to becoming exporters, their performance improves, while switching from being exporters to being domestically-oriented firms retards their performance. In Silvente’s study, which covers a sample of UK small firms over a 7 year period, it is also shown

³⁶ A persistence transition in and out of exporting has been observed by Bernard and Jensen (2004) – a high degree of re-entry by former exporters and high propensity to stop exporting in former non-exporters. There are at least two competing views to explain this persistence – the sunk costs argument (i.e. exporting begets exporting) and view of firm’s heterogeneous attributes (certain firms are more export-oriented). In Bernard and Jensen (op. cit), attempt to identify the roles of both sunk costs and plant heterogeneity and confirm the significant presence of both. Nevertheless, it remained unanswered as to how firms acquire these characteristics that facilitate their entry into foreign markets.

that there are symmetric effects on the export premium between entrants and exiters – new exporters enjoy considerable gains while exiters from overseas markets suffer significant losses in terms of employment, wages, sales and productivity growth rates.³⁷

Figure 3.1 Paths of TFP for Different Types of Firms in US Manufacturing (purged of industry and year effects)



Source: Bernard and Jensen (2004b)

3.41 Figure 3.1 reports productivity differentials between distinct sub-groups of firms in US manufacturing. New entrants into export markets are rewarded with a surge in TFP especially during the first year post entry, and thereafter their productivity path becomes flatter, following that of continuous exporters (although with significantly lower productivity levels). In contrast, those that exit from exporting are characterised by a substantial deterioration in productivity to eventually resemble the flat growth trajectory of continuous non-exporters. On the whole, firms that always export achieve TFP growth that is 8 to 9 percent higher than those that never enter export markets. Thus, changing export status is indeed associated with considerable fluctuations in productivity. Nevertheless, these drastic changes in TFP during transition do not seem to

³⁷ The results from these studies control for the impact of covariates, such as size and industry effects.

persist in the long run, and with reference to the learning-by-exporting hypothesis, continuous export behaviour does not appear to lead to more rapid productivity growth; rather, TFP growth slows down.

- 3.42 Similarly, Baldwin and Gu (2003) also point to a negative impact for those that exit - the 'ebb and flow' induced by international competition culls some participants from export markets. The least successful entrants have to withdraw back to domestic markets and then lag further behind those that continue serving foreign markets. That is, productivity growth is lower for quitters than continuers, and substantially lower when compared to new entrants to export markets.³⁸

Restructuring and Aggregate Productivity Growth

- 3.43 So how does this export market restructuring impact on aggregate productivity growth? Before addressing this issue, we consider the interaction of firms, industries and aggregate productivity growth.
- 3.44 A rapidly growing body of research has sought to provide micro evidence on the role of resource reallocation for productivity growth.³⁹ Some of the representative studies include Baily et al. (1992), Bartelsman and Dhrymes (1998), Olley and Pakes (1996), Haltiwanger (1997) and Foster et al. (2001) for the US; and Disney et. al. (2003) and Harris (2004) for the UK. These are mostly based on some form of decomposition of an index of industry-level productivity. For instance, Olley and Pakes (1996) examined the dynamics of productivity in the US telecommunications equipment industry over three decades, and show that since 1975 most of the productivity growth in the industry had arisen from a reallocation of resources, particularly the high exit probabilities for plants in the low end of the productivity distribution.
- 3.45 However, none of these studies include the aggregate productivity enhancing effects of internationalisation. More recent studies for the US, UK, Canada and Sweden have sought to overcome this omission, and we now turn to examine each of these in turn.

³⁸ In addition, the negative impact of exit on firm efficiency is also captured in Bernard and Wagner (1997) and Clerides *et. al.* (1998).

³⁹ See Bartelsman and Doms (2000) for a survey of the literature in this regard. Note, resource reallocation can comprise intra-firm reallocations (no firms become more efficient), inter-firm reallocations (as less efficient firms lose market share), and the impact of new firm entry and exit (with a presumption that new firms are more productive than those that exit).

The United States

- 3.46 Motivated by the empirical evidence of the effect of trade on productivity Melitz (2003) developed a theoretical model that allows for heterogeneous firms, to analyse trade, intra-industry reallocations and aggregate industry productivity effects. In a general equilibrium setting, the model shows how trade liberalisation induces only the more productive firms to participate in export markets whilst simultaneously forcing the least productive ones out of the market. Here the additional sales gained by more efficient firms, and exit of the least efficient ones, jointly contribute to a reallocation of market shares towards the more productive firms and this eventually leads to aggregate productivity gains. Thus profits are also equally reallocated towards more the productive firms. This model highlights an important transmission channel for understanding the interaction of firms and industry performance, incorporating the two most frequently cited views of what determines the export status of a firm viz. the existence of sunk entry costs as well as firm-level heterogeneity. Above all, it is crucial to treat establishments differently in the sense that the impact of trade is distributed differently across firms with different levels of productivity. That is, the trade-induced reallocation effect among heterogeneous firms generates changes in a country's aggregate productivity that cannot be explained by a model based on representative firms (as in most conventional trade models).
- 3.47 A more recent development in the theoretical modelling of trade can be found in Bernard *et. al.* (2005b). In a similar fashion, they show how the interactions of firms, industries and countries can affect the way economies respond to globalisation, again within a general equilibrium setting incorporating monopolistic competition and heterogeneous firms. However they take a different approach in that they concentrate on comparative advantage. Their model generates a number of novel predictions about the impact of falling trade costs on job turnover, aggregate productivity and the welfare gains obtained through a reallocation of resources. First of all, intra- and inter-industry reallocations of resources brought about by trade liberalisation improve average industry productivity and sectoral firm output, but relatively more so in industries with a comparative advantage than in industries with comparative

disadvantages industries. Secondly, these trade-induced reallocations also lead to considerable job turnover in all industries, with ultimately net job creation in comparative advantage industries and net job destruction in comparative disadvantaged ones. Thirdly, the creative destruction of firms taking place in all sectors in the steady state, but this is more highly concentrated in comparative advantage industries vis-à-vis comparative disadvantage ones. Lastly, the productivity gains from creative destruction, which is associated with heterogeneous firms, magnify ex ante comparative advantages and therefore constitute a new channel for welfare gains, as trade costs fall.

- 3.48 This model distinguishes itself from that developed in Melitz (2003) principally in that it allows for different results across industries and countries with comparative advantages. For instance, the importance of firm self-selection varies with the complex interactions of country and industry characteristics; and the strength of gross job flows and the extent of steady-state creative destruction all differ across industries and countries.
- 3.49 Lastly, Bernard and Jensen (2004b) provide an empirical study of trade-induced aggregate productivity growth, utilising micro data for US manufacturing. It is shown that foreign exposure does indeed foster productivity growth for firms, industries and manufacturing as a whole. In particular, increased export opportunities are associated with both intra- and inter- industry reallocations (from less efficient plants to more efficient ones), accounting for 40% of TFP growth in the manufacturing sector, half of which is explained by an intra-industry reallocation of economic activity. Thus, the higher productivity levels as well as the faster growth rates found in exporters (in terms of employment and output) offer an additional reallocative channel for explaining aggregate productivity growth.⁴⁰

The United Kingdom

- 3.50 Emerging evidence on industrial restructuring has shown that UK productivity growth is increasingly due to a market selection process, in which more productive entrants replace less productive establishment whilst high

⁴⁰ A limitation of this study was that market entry and exit was not considered; all plants in the dataset existed throughout the period of study. Thus, there is no comparison of the relative importance of

productivity incumbents gain market shares (Oulton, 2000; Disney *et. al.*, 2003; Harris and Robinson, 2001). In particular, the study by Disney *et. al.* suggest that between 1980 and 1992, 50% of labour productivity growth and 80-90% TFP growth could be explained by what they termed external restructuring effects (i.e. the impact of market entry and exit as well as inter-firm reallocations in market shares). Using comparable data and a similar approach, Harris (2004) reports that over the 1990-98 period, the growth in manufacturing TFP did not benefit from incumbents improving or through a reallocation of market shares from ‘worse’ to ‘better’ plants; rather TFP benefited mostly from the ‘churning’ of plants whereby plants with higher TFP entered and those with below average TFP were more likely to exit.

- 3.51 Given the importance of industry restructuring effects on productivity growth in the UK, Criscuolo *et. al.* (2004) extend Disney *et. al.*’s (2003) analysis to cover the 1990s (i.e. for 1980-2000 period), for UK manufacturing. Unfortunately, it is not possible to assess the contribution of exporters for the UK, in terms of restructuring effects due to lack of data. The innovative feature of this study is their attempt to explain entry/exit restructuring effects in terms of the contribution of globalisation (and ICT), and thus how the latter impact on aggregate productivity growth. They found that the reallocations of resources (through entry and exit) affected aggregate productivity to an increasingly large extent – roughly 25% of productivity growth could be accounted for by this net entry effect in 1980-85 and this amount went up to around 40% of labour productivity growth in 1995-2000. They then went on to show that globalisation (as measured by sectoral import penetration and the use of ICT) was important in determining the share of net entry in explaining labour productivity growth in UK manufacturing. However, the results suffered from a high level of aggregation and co-linearity problems, precluding any precise estimates of what proportion of aggregate productivity growth was due to import penetration effects.

Other Countries

‘creative destruction’, and most importantly how internationalisation interacted with market entry and exit.

3.52 Finally, a limited amount of micro evidence of trade-induced productivity growth, is available for some other countries. For instance, Baldwin and Gu (2003) found exporters accounted for almost 75% of productivity growth in Canadian manufacturing during the 1990s (even with less than 50% employment), 28% of which was accounted for by export market entry (both existing and new entrants). Moreover, Falvey *et al.* (2004) also found that exporting had a sizeable effect on industry productivity growth using Swedish manufacturing data, in terms of increasing market shares for higher productivity exporters.

Conclusions

3.53 In this chapter, we address the issues associated with the export-productivity nexus from a firm perspective. The relationship between international trade and business performance is central to our understanding of firm-level adjustment of globalisation and also provides important implications for policy making. In particular, we have focused on the causal link between export and productivity at plant level, i.e. whether productivity leads firms to participate in international markets, or whether exporting further boosts productivity, or both?

3.54 We have reviewed two related hypotheses and evidence in the literature to address this causality issue. With respect to the self-selection hypothesis, the empirical findings mostly suggest that exporters are indeed significantly different from non-exporters, e.g. bigger, more productive, more capital-intensive, etc. Nevertheless, it is the learning-by-exporting hypothesis that still remains controversial arising from various empirical studies.

3.55 In terms of the pronounced differences in empirical findings regarding the existence of the ‘learning-by-exporting’ hypothesis, some possible factors that may account for this are as follows:

- This effect is likely to differ in terms of its importance across countries (i.e. it is dependent on the size of the domestic economy vis-à-vis the size of overseas markets and/or the overall exposure of domestic markets to foreign trade). Hence, a positive effect is found for Canada

while none is found for the US (and the evidence for the UK suggests there is a small effect that quickly disappears);

- There are sample-selection econometric issues that impact on our ability to measure (without bias) any ‘learning-by-exporting’ effect, which are linked to the fact that exporters do seem to ‘self-select’ into exporting (i.e. they are not a random sample of the population of all firms).
- There is some evidence that any ‘learning-by-exporting’ effect is relatively small and probably confined to only having an influence in the short-run, disappearing over the medium to longer term.

3.56 Irrespective of whether firms self-select into export markets and/or become more productive post-entry, there is a need to consider the potential impact of internationalisation on aggregate productivity growth. We find that despite the fact that this is a new area of research, there is already a considerable consensus (based on limited empirical evidence) that dynamic restructuring of the economy results in larger market shares for the most efficient (and usually larger) firms that export, and this has a sizeable impact on boosting aggregate productivity. Clearly, more evidence is needed covering a wider range of countries (including the UK) on how important such restructuring, due to increased internationalisation, really is. We also need more information on how import penetration (and inward FDI) impacts on competitiveness at the firm/plant level, since the evidence on spillovers from FDI is generally inconclusive, while evidence on the impact of import penetration is largely absent.

Appendix

Sample Selectivity Associated With Learning Effects

A3.1 A particular issue when testing *learning-by-exporting hypothesis* has been that of sample selectivity (or matching).⁴¹ Here we describe the econometrics of the selectivity problem in more detail.

A3.2 A number of studies attempt to make comparisons between a ‘treatment’ group (e.g. those plants that participate in export markets) and the rest of the population when it’s known or suspected that the treatment group are not a random sample drawn from the population of all plants. To illustrate the problem, the standard evaluation problem in the literature will be briefly presented (cf. Heckman, 2000, and Heckman and Navarro-Lozano, 2004). The key issue is measuring without bias the outcome Y_i for plants in terms of whether they exported D_i or not. That is:

$$E[Y_i|D_i = 1] - E[Y_i|D_i = 0] \quad (A3.1)$$

To measure the impact using equation (A3.1), we only have the following information:

$$E[Y_i^1|D_i = 1] - E[Y_i^0|D_i = 0] \quad (A3.2)$$

that is, the difference between what exporters ($D_i=1$) experience in terms of outcome (Y_i^1) and what non-exporters ($D_i = 0$) experience (Y_i^0). What is not observed is the outcome for exporters had they not exported (i.e. $E[Y_i^0|D_i = 1]$). The latter counterfactual can be used to expand (A3.2) to give the following:

$$E[Y_i^1 - Y_i^0|D_i = 1] + \{E[Y_i^0|D_i = 1] - E[Y_i^0|D_i = 0]\} \quad (A3.3)$$

⁴¹ See Moffitt (2004).

A3.3 Equation (A3.3) shows that a comparison between exporting and non-exporting plants (in terms of what is observable – cf. equation A3.2) equals the effect of what is known as ‘treatment on the exporting’ (the first term in equation A3.3) plus a bias term (the second major term). As pointed out by Angrist, *et. al.* (1999), this bias would be zero if exporting plants were randomly assigned (or at least assigned to ensure independence between D_i and Y_i^0).⁴² So, for example, if entrants select into international markets in a manner independent of (say) the plant’s potential productivity gain if it did not go international, then the bias term would be zero. But this seems unrealistic because selection into export markets is likely to be made taking account of the potential productivity gains from operating in distinct markets, and it might be expected that those most likely to benefit will have a higher probability of deciding to penetrate export markets (and possibly have a greater probability of survival and success). Put another way, and referring to the second term in equation (A3.3), bias occurs because the characteristics of export-market entrants are such that they achieve better performance than non-entrants even when they do not participate, and this ‘better performance’ is correlated with the decision to internationalise.

A3.4 There are several approaches that attempt to eliminate the bias that arises from self-selection (cf. Blundell and Costa Dias, 2000). The first is matching. Essentially, this involves matching every exporting plant with another plant that has (very) similar characteristics but does not export (plants not participating in international markets that have non-similar characteristics to those who do

⁴² Note if D_i is also independent of Y_i^1 (as would be expected in a ‘laboratory-type’ experiment where plants were randomly assigned) then $E[Y_i^1 - Y_i^0 | D_i = 1] = E[Y_i^1 - Y_i^0]$ and the ‘treatment on the exporting effect equals the unconditional average treatment effect (that is, the impact on a participant drawn randomly from the population of plants).

participate are of course not included in such an analysis of the impact of exporting). Different approaches can be used to match from using simple propensity score matching algorithms such as the probit/logit regression approach, to covariate matching estimators. It assumes therefore that the exporting and non-exporting groups are effectively the same in all relevant respects so that the outcome that would result in the absence of exporting is the same in both cases.⁴³ There are a number of issues with this matching process, including the need for a rich dataset that includes all relevant variables (X_i) that impact on outcomes and all variables that impact on participation in export markets (Z_i). Matching is done on the set of variables $W = (X, Z)$, so that any selection on unobservables is assumed to be trivial and does not affect outcomes in the absence of the exporting. As Heckman and Navarro-Lozano (2004) point out, this requirement can lead to problems since "...if the analyst has too much information about the decision of who takes treatment, so that $P(W) = 1$ or 0 , the method breaks down because people cannot be compared at a common W ...(thus) methods for choosing W based on the fit of the model to data on D are potentially problematic".^{44, 45} Further discussion of matching – especially the practical issues faced in empirical design of matching plants – is available in Bryson *et. al.* (2002), Imbens (2004) and Zhao (2004).

A3.5 A second approach to dealing with self-selection bias is instrumental variable (IV) estimation. If a variable(s) can be found (belonging to Z_i) that affects

⁴³ In terms of equation (A3.3), it is assumed: $E[Y_i^0 | D_i = 1] = E[Y_i^0 | D_i = 0]$. Thus matching

assumes that Y_i^1 and Y_i^0 are independent of D_i .

⁴⁴ Typically 'unsupported' exporting plants in the non-exporting population are dropped, which can reduce significantly the size of the exporting sub-group included in any analysis. So where there is little common support between the exporting and non-exporting comparators, matching breaks down.

⁴⁵ Another issue is that by definition, matching assumes that the effect for the average plant participating in foreign markets is the same as the effect for the marginal plant (the 'treatment on the

participation in export markets but does not affect outcomes (Y_i) directly (i.e. Z_i is not completely determined by X_i) then such a variable(s) can be used to instrument for D_i and overcome the problem of self-selection.⁴⁶ Put another way, such a variable(s) affects outcomes indirectly since it determines participation in export markets (which is correlated with outcomes), but it does not need to enter the outcome equation directly (i.e. does not belong to X_i) and is consequently a source of exogenous influence that can be used to identify the causal impact of D_i in the model.⁴⁷ The main issue with the approach is finding an appropriate instrument(s) that affects the export participation decision but does not directly affect outcomes (other than through its effect on whether the plant exports). As Angrist and Krueger (2001) point out: "...good instruments often come from detailed knowledge of the economic mechanism and institutions determining the regressor of interest" (p. 73).

A3.6 The standard Heckman two-stage approach is a third approach to dealing with self-selection bias, and one that is closely linked to the IV approach. This approach begins with a first-stage use of a probit/logit estimator to generate first-stage predicted values when there is a dummy endogenous regressor (export versus non-export), with the second stage estimation of outcomes including the sample selectivity correction from the first-stage model. Several authors (Puhani, 2000; Smith, 2004; Angrist and Krueger, 2001) point out some of the problems associated with the Heckman approach. First, the model tends to instability if $X \in W$, i.e. there is a need for exclusion restrictions otherwise

treated effect equals the unconditional average treatment effect). Heckman and Navarro-Lozano (op. cit.) argue that this is an unattractive implication.

⁴⁶ Note, the fact that D_i is dichotomous is not a problem according to Angrist (2001).

⁴⁷ For example, a valid instrument is one that 'forces' a plant into entering export markets but is not correlated with the factors that determine (say) total factor productivity, even though exporting is

the model may be identified (through the nonlinearity of the selectivity parameter included in the second stage equation) but it can often lead to what Puhani (*op. cit.*) refers to as “...rather unrobust results due to collinearity problems” (p. 57). Moreover, using a *nonlinear* first stage to generate fitted values for the second stage does not result in consistent estimates unless the first stage model is exactly correct (Angrist and Kruger, 2001, p.80).

A3.7 The last approach considered here for eliminating the bias that arises from self-selection is the difference-in-difference estimator. If information is available for a pre- and post-entry period (denoted t' and t , respectively), then measuring the impact of export-market participation can be achieved using an amended version of equation (A3.2):

$$\left\{E[Y_{it}^1|D_i = 1] - E[Y_{it'}^0|D_i = 1]\right\} - \left\{E[Y_{it}^0|D_i = 0] - E[Y_{it'}^0|D_i = 0]\right\} \quad (\text{A3.4})$$

where the first term represents the experience of plants with international exposure between $(t - t')$ and the second term is the experience between $(t - t')$ of those without such exposure. To justify this difference-in-difference estimator, it is assumed that (in terms of the counterfactual) what entrants into export markets would have experienced post entry, had they not entered, is the same as the experience of non-entrants, i.e.

$$\left\{E[Y_{it}^0|D_i = 1] - E[Y_{it'}^0|D_i = 1]\right\} = \left\{E[Y_{it}^0|D_i = 0] - E[Y_{it'}^0|D_i = 0]\right\} \quad (\text{A3.5})$$

The missing counterfactual is now known since rearranging (A3.5) gives:

$$E(Y_{it}^0|D_i = 1) = E(Y_{it'}^0|D_i = 1) + \left\{E[Y_{it}^0|D_i = 0] - E[Y_{it'}^0|D_i = 0]\right\} \quad (\text{A3.6})$$

correlated with TFP. To the best of our knowledge, no appropriate instruments have been identified in the literature to test the productivity effect of exporting.

that is, the outcome that export-market entrants would have experienced post entry, had they not entered, equals their outcome effect before entry takes place adjusted for what happens over the period to all those not participating in international markets (the last major term in equation A3.6). As Smith (2004) shows, a relatively simple difference-in-difference model is to estimate (omitting the X variables for simplicity):

$$Y_i = \beta_0 + \beta_T T_i + \beta_D D_i + \beta_{DD} T_i D_i + \varepsilon_i \quad (A3.7)$$

where $T_i = 1$ in period “ t ” and $T_i = 0$ otherwise; β_T measures the impact of common influences impacting on all i plants; β_D is the time invariant difference between the export-market entrants and non-entrants; and β_{DD} estimates the average impact of export-market entry on the entrants.⁴⁸

A3.8 A major issue with this approach is the assumption underlying equation (A3.5), which is needed to justify the difference-in-differences estimator. Essentially it is assumed that the outcome effect for export-market participants would have been the same as that experienced by non-participants in the absence of participation in overseas markets; but this seems unlikely if participants are a self-selected sub-group exhibiting characteristics that make it more likely they will do better if they expand into international markets.

A3.9 In summary, all the above techniques to deal with selectivity have something to offer, but which is most useful depends on an investigator’s knowledge of the selection process. For example, if no appropriate instruments are available, then the IV approach is likely to provide unreliable results. If a comprehensive

⁴⁸ If panel data are used, equation (A3.7) becomes:

$$Y_i = \beta_0 + \beta_D D_{it} + \mu_i + \mu_t + \varepsilon_i \quad (A3.7')$$

where β_D is the panel data impact estimator, D_{it} is the time-varying indicator for exporting and μ terms are the usual panel data terms to pick up plant- and time-specific effects.

dataset is not available to capture what determines selection and outcomes, then the matching approach is also likely to be biased.

4. The Role of Government in Business Internationalisation

Introduction

- 4.1 In this chapter we consider the case for government intervention with regard to business internationalisation. The traditional ‘market failure’ arguments are examined first, together with an overview of the type of market interventions typically undertaken by government. Note, in line with the rest of this literature review, we largely ignore the role of both inward FDI, and the role of importing. This is not because these are not important, but rather because this review has focused on firm-level internationalization and adjustment to globalisation.
- 4.2 Following the discussion of ‘market failures’, we consider some of the extant literature that argues for a wider response to business internationalisation by government. This includes both the needs of ‘born-global’ companies, and the need to ensure that all firms face the ‘right’ incentives when undertaking necessary adjustments to changes in the business environment due to trade and investment liberalisation and other aspects of globalisation.
- 4.3 Where necessary, we also pick up on any issues that relate to government policies as they have featured in the literature reviewed in earlier chapters.

Market Failure

- 4.4 The standard neoclassical Arrow-Debreu model of the perfectly competitive, general equilibrium economy states that the market, consisting of individuals motivated by self-interest (i.e. seeking to maximise profitability and utility) who engage in the production, exchange and consumption of goods or services, provides an allocation of the economy’s resources which is socially beneficial. Such an efficient allocation of resources combines the utility maximizing choices of consumers with the profit maximising choices of producers. Market forces determine the *optimal* quantity of a good or a service (such as exports) that will be supplied and consumed by individuals or firms in order to maximise social welfare. At this point no individual can be better off without at the same time making another individual worse off. This is the First Theorem of Welfare Economics: in such a system the allocation of resources is Pareto-efficient.

However, in reality, markets may not be perfectly competitive and may fail to produce an efficient allocation of resources. In this standard approach, such deviations from optimality are called market failures and arise due to the characteristics of goods or services, such as the presence of externalities or public goods, and the characteristics of markets, such as monopoly, oligopoly and inadequate information.

- 4.5 Table 1 contains a list of market failures as identified in the literature. We shall take each in turn, and relate them specifically to how they hinder internationalisation. A common rationale for government intervention is on the grounds that there has been a market failure due to inaccurate or incomplete information, and to the costs of acquiring information. Imperfect information in product markets impedes internationalisation since potential buyers and sellers need access to the identity and location of potential suppliers and customers, and about the prices and quality of the goods and services that they may be traded. Connections between buyers and sellers of differentiated products have to be made through a process of search, resulting mostly in small-valued, short-lived transactions because of the uncertainty about the reliability of buyers and sellers. As Besedes and Prusa (2004) argue: "...by starting small the buyer can efficiently ascertain the supplier's type. A good match will result in a deepening of the relationship. A poor match will lead to the termination of the relationship. In effect, even though they are modest in value, small orders play a large role in creating trade flows" (p. 1). A major reason for this pattern of trade (for which they present robust US evidence) is that entry into foreign markets involve large sunk costs (see Chapter 2 and below), and therefore before undertaking costly (irreversible) investment to overcome entry barriers trade takes place with a small order over the short run, in order to reveal if the buyer-seller relationship is mutually beneficial and sustainable.

Table 4.1: Taxonomy of market failures impeding internationalisation

Type	Description
<u>Market failure due to imperfect markets</u>	
(1) Imperfect information	firms using inaccurate or incomplete information to assess costs and benefits of international production
(2) Asymmetric information	costs of acquiring information make it more available to some more than others leading to adverse selection and/or moral hazard
(3) Financial barriers	firms without sufficient collateral or track record have less access to finance
(4) Missing markets	there is no market for externalities; public good elements; extreme cases of asymmetric and imperfect information
(5) Appropriability failure	problems with the enforceability of property rights, especially over knowledge and technology.
<u>Barriers to entry and exit</u>	
Sunk costs	irreversible fixed costs of internationalisation result in entry and exit being costly undertakings.
<u>Institutional failure: government</u>	
public good argument	In situations where the government has a comparative advantage in supplying a good or service (usually information)
<u>Institutional failure: networks</u>	
Group formation	networks may not possess the right portfolio of skills, information and knowledge and membership rules may exclude some firms
<u>Systemic failure</u>	
Bounded rationality and path dependency	lead firms to make sub-optimal choices of technology to which they may become locked in.

Source: based on Harris and Robertson (2001, Table 1)

4.6 Besedes and Prusa (*op. cit.*) test their search model using US data and find strong support for its predictions: “many trade relationships start small but those that start large have longer duration. The more reliable the supplier, the greater the fraction of trade that start large. Relationships involving more reliable

suppliers have longer duration. The data indicate the chance of a trade relationship ending is highest during the first few years (i.e. the learning phase) and a small fraction of relationships end even after the supplier has proven to be successful” (pp. 25-26).

4.7 Note, Booth di Giovanni (1998, par. 9) comments on this search process from the government viewpoint, arguing that search models cannot inform policy regarding the existence or otherwise of market failures since:

(a) The fact that businesses may lack relevant information, and the existence of uncertainty, does not, by itself, imply that market processes are inefficient but rather that information is costly. This does not mean that there is no rationale for government intervention, assuming that it sees a direct increase in economic benefits from more firms gaining information and thus acting on that information (e.g., by internationalising.). Casson (1999) argues that in this situation the government has a comparative advantage in information, and it is on this basis (not market failure) that it can justify intervention.⁴⁹

(b) A certain proportion of poorly informed decisions leading to business venture failures are likely to be consistent with optimal search behaviour. That is, it can be argued that information costs leading to asymmetric outcomes are one of the features of the market, and they are in part necessary as a selection device (for promoting the fittest firms) and in providing incentives for learning and discovery, which is crucial to the process of variety creation upon which an evolutionary view of markets is based.⁵⁰

(c) Search model analysis suggests that in general businesses should invest more resources in (prior) information gathering when risk is higher, as it is likely to be in international markets.

4.8 Thus searching for information is costly, and when firms do not engage (fully) for this reason they only have a partial knowledge about the market, and thus may underestimate the potential benefits of internationalisation (both private

⁴⁹ Although he argues that in such a situation there is little in the way of a case for government to pass on that information through subsidising the activity from the public fund. Rather he argues that government can and should pass on the information available but be prepared to charge for this activity.

benefits to themselves and the social benefits that greater trade may bring to the wider economy⁵¹). It is a moot point whether this is a market failure *per se*,⁵² but anyway there would appear to be a robust case for government intervention because it has a potential advantage in the provision of information that can boost transactions in the market resulting in a net gain to all those involved (i.e., the government helps to ‘complete’ the market through the provision of relevant information). Research carried out as part of DTI evaluations of trade promotion activities “has repeatedly shown that without support many firms would fail to undertake important marketing activities – including participation in trade fairs and missions – even though, having gained experience of these activities, they would undertake them on subsequent occasions without further support” (Booth di Giovanni, 1997, par. 17(c)).⁵³ In particular, trade fairs bring together niche market buyers and sellers in diversified technological goods.

- 4.9 As to asymmetric information costs, access to efficient, and appropriately priced information and advisory services is especially important for smaller firms for whom the costs of information access and absorption are relatively larger. However, information asymmetry potentially exists for firms of all sizes before parties enter into a contract for buying/supplying goods and services. For example, firms that need to ‘prove’ the quality of a new niche product have information that other (more risk adverse) parties do not share, leading to a case of ‘adverse selection’ where trade at an agreed price cannot be (easily) found. Moral hazard problems occur after a (trade) contract is signed. Here both parties cannot perfectly verify that the contract is being properly fulfilled, leading to an opportunity for shirking by one of the parties. Contracts may be designed to try to transfer the higher risks from one party to the other, but the costs of arranging, monitoring and enforcing often lead to inefficiencies occurring (the

⁵⁰ As Metcalfe and Georgiou (1997) point out: “a profit opportunity known to everybody is a profit opportunity for nobody”.

⁵¹ Such benefits include technology transfer (in its widest sense, including access to better sources of knowledge and expertise), and demonstration effects leading to spillovers (externalities).

⁵² Clearly, such communication costs, that inhibit perfect and instantaneous distribution of information, result in a market failure within the static model perfectly competitive (Arrow-Debreu) general equilibrium model, assuming one believes that such an economy could and should exist.

⁵³ Evaluation findings include: (i) participating in a trade fair or undertaking government assisted export marketing research has additional effects on *activity* levels for two sub-groups (SMEs and companies exporting less than 10-15% of their turnover, irrespective of their size); and (ii) the value of additional sales/income generated tends to be larger for larger firms, outweighing the deadweight loss in support for smaller firms.

notion of the ‘incomplete contract dilemma’ – Klein *et. al.*, 1978 – holds that it is unrealistic to specify a situation entirely).

- 4.10 Financial barriers are usually deemed to be a market failure when (particularly) SME’s find it difficult to convince potential lenders or equity providers to support them because they have insufficient collateral and/or a track record to reduce the risk associated with the activity under consideration. And given the information requirements of internationalisation, and problems discussed above of imperfect and asymmetric information, risk and uncertainty is generally a major feature of such markets.
- 4.11 For example, the Export Credits Guarantee Department (ECGD)⁵⁴ is justified on the grounds that high entry costs (and corresponding difficulties in obtaining finance) is associated with the high risks of failure of this activity, and thus small firms in particular cannot proceed. To the extent that the problem is due to financial institutions and the owners of firms taking a short-termist approach (leading in part to problems of corporate governance, adverse selection, moral hazard and principal-agent issues), this barrier may be deemed an institutional failure. Thus, there would appear to be good grounds for government intervention (e.g. the ECGD⁵⁵), or in attempting to provide a ‘missing market’ such as the encouragement (through tax concessions) of suppliers of capital.
- 4.12 We have just mentioned missing markets as an example of market failure. In extreme cases of imperfect information and/or asymmetric information, the outcome may be that both buyers and sellers cannot be found (to agree a price for trade). Moreover, some types of information have the nature of public goods, which markets alone cannot supply – these include unique, reliable and impartial access to information, such as through the global embassy network and other Government channels and contacts, which become available through the Government’s very long-term, and non-commercial attachment, to overseas markets. In addition, since increased globalisation exposes firms to trends in international product and process development and business developments, as

⁵⁴ The role of the ECDG is to help UK manufacturers and investors trade overseas by providing them with insurance and/or backing for finance to protect against non-payment. Insurance is particularly necessary for companies who are looking to win contracts in the developing world or with buyers that they might be unfamiliar with)

⁵⁵ Note, ECGD complements the insurance that is available from the private market. Private sector insurance tends only to be available for contracts with buyers in the developed world and for orders that involve relatively short delivery/credit periods and where contract values are reasonably small.

well as customer preferences and needs, there are likely to be beneficial spillovers (externalities) through demonstration effects that lead to changes in domestic firms own business practices. Such externalities (and public good aspects) would not be paid for by the private sector, and this in part would constitute a missing market.

4.13 Appropriability failure occurs when investments in innovative (or similar type) activities (which often are a prerequisite for entering foreign markets) do not yield the necessary property rights which can be reserved for the exclusive use of the investor. Information (once released or pirated) becomes public knowledge and is easily diffused and thus property rights are often difficult to enforce. In this instance the problem is partly one of coordination: the seller of know-how (incorporated into a new niche product) may have to disclose (or cannot prevent disclosure) of the object of the exchange (i.e. the product).⁵⁶ The purchaser and vendor therefore cannot coordinate effectively and at the same time allow the exporter to extract the full private rent from the innovation. This therefore leads to a disincentive to internationalise, and cannot usually be corrected through institutions (such as patenting and licensing bodies with jurisdiction in only one territory) that grant perfect property rights that are enforceable. Thus, there is a rationale for government intervention. The government (according to Casson, 1999) cannot grant itself full property rights either, but it can appropriate by another means – taxation – and therefore there is a direct link between government subsidies of trade provision activities that are financed out of taxation.

4.14 Barriers to entry and exit are mostly the consequence of the significant sunk costs associated with internationalisation (such as export market entry). These costs have already been discussed above (and in Chapter 2); to recap, they potentially include the cost of information about demand conditions abroad (i.e. market research), or the costs of establishing a distribution system, or the need to modify products for different markets and to comply with institutional arrangements and regulations (including differences in the ‘culture’ of the way business is carried out). It is also assumed that such non-recoverable entry costs

⁵⁶ This is the Arrow paradox (1962). If a full description of a technology must be communicated prior to any transaction this obviates the need to buy and so the seller has good reasons not to disclose their full knowledge.

recur in full if the firm exits the export market for any amount of time. Too few buyers and sellers in any market can lower competition, and thus have a detrimental impact on (dynamic) efficiency (and consumer welfare).

- 4.15 The grounds for government entry are therefore to lower such barriers through (mostly) the provision of information services and (possibly) through subsidising the sunk cost element involved in entry/exit. However, there is also the possibility that government – through assisting certain sub-groups in the industry – might create barriers to entry and/or exit of their own. For instance, if they subsidise inefficient plants, or if government help leads to displacement.
- 4.16 Government failure as a hindrance to firms and markets arises when the government has a comparative advantage in supplying a good or service (often knowledge), but fails to do this. The classic examples are public goods (those whose consumption by one firm does not preclude their use by others), where because of the free-rider problem the private sector would produce too low a level of demand and thus consumption and production, to the detriment of society. Information about quality standards (and the extent to which they are met by particular goods and services), as well as regulation by efficient institutional and legal systems, all have public good elements that are important in facilitating trade. In addition, the export sale potential of any (new, niche) product may depend on establishing a brand image for a company, which unless it is large (and established already internationally) may be difficult to achieve. Government therefore can have a role in raising the profile of the UK, with this acting to help with establishing a brand image for a company. It can also seek to improve overseas perceptions of the UK to overcome any distorted perceptions of UK capabilities among overseas customers. In addition, through its overseas embassies, the Government can acquire and maintain knowledge about particular countries and sectors, including factors that influence business opportunities and performance.
- 4.17 Searching for information is often pre-conditioned on proximity and existing business and personal contacts (networks). Chapter 2 discussed the increased importance of global networks and alliances (that provide increased access to knowledge); it was noted that networks are expected to be more important to SMEs when they begin to internationalise, as the acquisition of experiential knowledge about overseas markets is crucial when selecting which markets to

entry and/or expand into. Access to, and encounters with, potential partners and clients allow firms to familiarise themselves with the ‘culture’ of business in overseas markets, and to build up trust as relationships/joint activities are established. There is therefore a role for government to facilitate access to networks of business contacts in overseas markets (especially for SMEs); while publicly financed expenditure on knowledge-generating export promotion activities is further justified if networks act as an informal barrier to market entry (if they limit the extent to which information is made available to outsiders).

- 4.18 More generally, network failures arise because technological know-how (broadly defined) is partly tacit and therefore cannot be diffused easily. This is argued to be especially important in the internationalisation process where transfer depends on inter-personal contacts. Here networks can be important for the transfer of such tacit knowledge, and they can also partly overcome the problems associated with firms experiencing bounded rationality and consequently bounded vision. However, it has been argued by Teece and Pisano (1998) that even where networks assist in providing information, replication and imitation are not easy especially if productive knowledge (or its absence) is embodied in the dynamic capabilities of a firm. This needs to be set alongside the arguments put forward by Carlsson and Jacobsson (1997) that networks (i) may improve the resource base of the firm (shaping the internal capabilities of firms), thus making it more receptive, and (ii) that “...the character of the networks to which the firm belongs has a bearing on the type of information and knowledge to which the firm has access... (so) innovation and diffusion turns... into a collective activity, in addition to being an individual one.. (and thus) networks are central to the innovation process” (p. 301). Network failures arise when firms are not well connected to other firms with an overlapping technology base or when the network goes in the wrong direction and takes firms with it. Government assistance, through providing information to networks, may therefore be important.
- 4.19 Finally, there is the issue of systemic failure at the level of the entire technological system. “Thus while individual firm competence is the central basis of innovative performance, firms operate within ‘systems of innovation’ which intermesh their activities with those of other organizations.” (Dodgson

and Bessant, 1995, p.20). This has far reaching policy conclusions, which we return to later when discussing the government's role in providing the 'right' incentives to adjust in the face of increased globalisation; but for now we need to briefly look at this system and the links between all its participants. Various writers (e.g. Freeman, 1987; Patel and Pavitt, 1997) stress that firms are located within specific regional (or national) technological systems that contain specific and unique competencies, networks and institutions that define the context in which the firm operates.⁵⁷ These systems are also on an increasing returns, path dependency trajectory that results in different, uneven and divergent outcomes across regions and nations. There are elements here of the 'cumulative causation' models that date from Myrdal (1957) and Hirshmann (1958) and which have been formalised in a regional context by Dixon and Thirlwall (1975). Such models operate under increasing returns with virtuous circles of spread and backwash (feedback), but which can also fail if: firms, institutions and networks become locked-in to 'old' technologies; or if they hinder the process of diversity creation (e.g., preventing the emergence of newer branches of industries). Systems are highly complex, involving the financial, educational and science and technology institutions in the region or nation, all of which impact directly on the operating environment of the firm, but these systems also involve more difficult to measure elements such as culture, and the legal and statutory framework which may help or hinder development. In terms of government interventions to overcome systemic failures, the common theme in the literature is the need to create variety and to increase connectivity in these technological systems (e.g., Metcalfe, 1998).

Government response to market failures

4.20 The specific trade promotion objectives set out in the late 1990's by the DTI are reproduced in Box 4.1. These (mostly) have already been discussed when

⁵⁷ Carlsson (1995) also adds technology systems that are similar but are not necessary confined to geographical boundaries, but can be international as well. It is also possible to identify 'clusters' which relate closely to the notion of industrial districts, and the idea that firms in a cluster share external agglomeration economies that provide specific benefits (e.g., specialised labour markets; business services, educational support). Complexes are another variation, with again the importance of networks and institutions at the core of what defines the system.

considering the sources of market failures in the last section. Indeed it is important to note that the major principle followed by government, in providing trade promotional activities that meet these objectives, has been that policy should be focused on increasing export market entry (through combating market failures to mostly lower sunk costs).

Box 4.1: Trade Promotion: Objectives

- Ultimate Economic Objective:** Increase sustainable GDP and GDP growth by:
- Efficiency gains from trade, through improved allocation of effort across markets;
 - Enabling more firms to take successful advantage of export market opportunities in pursuing their business growth and development goals;
 - Upgrading innovation, quality, design, management through enhanced exposure to international marketplaces and best practice.
- Intermediate objectives:**
- a) To increase the efficiency of international markets and market places, both by reducing barriers to trade and investment, and by addressing market failures which would otherwise inhibit access to international market places, such as trade fairs;
 - b) To ensure that firms, especially SMEs, have access to efficient information and advisory services relating to business opportunities in overseas markets;
 - c) To raise the level of international marketing and export competencies among firms across a wide spectrum of exportable goods and services sectors;
 - d) To facilitate access to networks of business contacts in overseas markets, especially for SMEs;
 - e) To raise awareness about international trade and investment among firms across a wide spectrum of sectors, and encourage more firms to take an active approach to exploiting overseas market opportunities;
 - f) To reduce procedural barriers to exporting, and promote efficient procedures and best practice in trade transaction information management;
 - g) To strengthen institutional links for international business, such as bilateral links among business communities, chambers of commerce, bilateral channels for networking and information, etc;
 - h) To enhance the “country image” of the country in overseas markets as a supplier of goods and services; to raise the profile of national suppliers overseas.

Source: Booth di Giovanni (1997)

4.21 This contrasts with policies (such as a direct export subsidy that is proportion to export revenues) that lower the marginal costs of exporters and thus affect the export volume decisions of firms. It is argued that export subsidies distort markets and are therefore trade distorting (and ultimately harmful to overall

trade), whereas trade and investment promotion (especially when it is rigorously identified with market failure) is trade enhancing, as it encourages firms to internationalise, without impacting directly on the export intensity of firms.⁵⁸

Box 4.2: Overall range of export service provision from UKTI

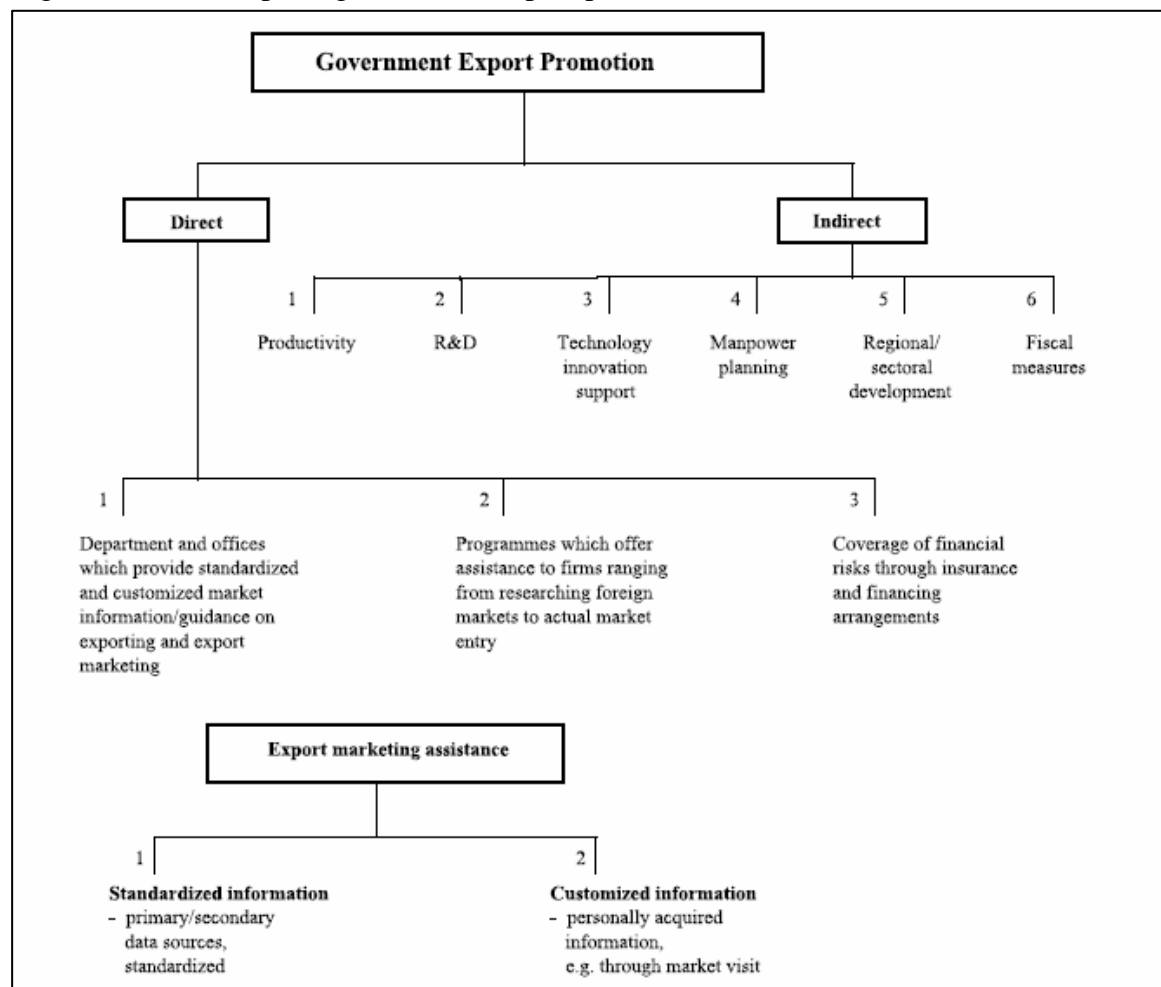
• “Getting information”	- web site
	- TPUK Information Centre
	- support to export clubs
	- a variety of local services
• “Identifying opportunities”	- the Trade UK database
	- export advice from a variety of sources
	- research support such as Tailored Market Information Reports (TMIRs)
• “Making it happen”	- support for market visits (e.g. Export Explorer)
	- advice on countertrade
	- a diverse range of advice on “getting the process right”

Source: TPUK (2000)

4.22 It is not our intention to discuss the various export promotional activities of the UK Government in this review (such as Passport to Export or the Global Partnerships Programme); rather the broad range of services available is listed in Box 4.2 (note Trade Partners UK and Invest UK, both part of British Trade International, have been amalgamated in UK Trade and Investment – UKTI). As can be seen, the emphasis is on the provision of advice and information (which is consistent with the objectives outlined in Box 4.1, and the market failures discussed in Table 4.1). This approach is not dissimilar to the approach taken by many national Export Promotion Organisations (EPO’s). Seringhaus and Botschen (1990) and Diamantopoulos *et. al.* (1993) set out the key goals and types of export promotion covered by EPO’s, while Figure 4.1 summarises the latter.

⁵⁸ It is worth pointing out now that Bernard and Jensen (2004) included a measure that captures most of the promotional activities typically undertaken by government to reduce entry costs and thus promote export participation; they found this variable was not important as a determinant of whether a US plant exported or not. Secondly, Das *et al.* (2001) have simulated the impact on exporting of government export subsidies vis-à-vis those designed to reduce the sunk costs of foreign market entry. Subsidies produced a much larger impact; sunk cost defrayment only had a minimal impact. The relative inefficiency of market entry subsidies of course reflected the fact that they only act on the entry/exit margin, which is populated by marginal suppliers, inducing no sales responses among established export suppliers.

Figure 4.1: The scope of government export promotion



Source: Diamantopoulos *et. al.* (1993)

4.23 Bell *et. al.* (2003) argue that this approach is geared towards offering support and assistance to firms pursuing the traditional incremental pathway to internationalisation (see Chapter 2, and discussion of the Uppsala model). They argue that: “although such an emphasis is consistent with the prevailing views on internationalisation during the 1980s, it is debatable if it is of any real value to ‘born global’ firms, or indeed to rapidly internationalising ‘born-again globals’. These firms are highly motivated to internationalise and recognise the benefits of doing so. Further attempts to stimulate export activity are akin to preaching to the converted and an inefficient use of scarce EPO resources” (p. 354).

4.24 This criticism of the traditional approach to export promotion is substantiated by noting that ‘born global’ firms, targeting global niches, are more likely to have better market knowledge than firms that internationalise incrementally, and as

players in knowledge-based sectors, they are also more likely to have better access to the shared intellectual capital embedded in the global industry. What such firms face is the problems surrounding developing new products for multiple markets (often entering these concurrently), with such activities incurring substantial up-front product and market development costs. They also face shorter life-cycles, and thus with their more complex offerings, they are high-risk ventures.

- 4.25 Bell *et. al.* (op cit.) therefore argue that assistance from EPO's that come under the "indirect" promotion activities listed in Figure 4.1 are likely to be of more relevance and therefore beneficial. Moreover, their informational needs are specific (not general) and it is argued that EPO's should seek to become repositories of 'hard' market intelligence. There is also a call for greater support for R&D and innovation activities, greater access to venture capital for these type of firms, and greater support in developing international network relationships. In all, it is argued that EPO's need to adopt a more holistic approach to SMEs that recognises that firm internationalisation is much broader than exporting; there is a need to assist internationalising SMEs to identify, leverage, and harness additional human, financial, and knowledge resources. This is fully consistent with the arguments surrounding the resource-based approach to internationalisation set out in Chapter 2.
- 4.26 Lastly, Bell *et. al.* (op. cit.) also comment on the need to recognise that internationalisation may result (at least in part) from contacts in the domestic market (rather than overseas), and so there is a need to help develop such domestic networks as well. This echoes the points made by Harris and Wheeler (2005), who considered the importance of inter-personal relationships in the internationalisation process for SMEs. What they found is that many of the relationships formed are more likely to be at home than abroad.
- 4.27 Others have also called for a more flexible, and pragmatic approach, from government. For example, several studies for the East of England (involving collecting primary data in the region from exporters, as well as in depth interviews, and conducting workshops) culminated in a classification of exporters in the knowledge-based economy into segments, based on their motivations for exporting (Pragmedic, 2003). Table 4.2 and Figure 4.2 classify firms into 7 sub-groups (ranging from those for whom internationalisation is

necessary – such as ‘born global’ firms – to those who have little or no international activity and a sceptical attitude to its benefits, and fear of the risks involved).⁵⁹ They then cross-classified those 7 sub-groups by exporting experience and the likely level of support needed (labelled as ‘level of consultant involvement required’ in Figure 4.2).

Table 4.2: Classification of Knowledge-based sector on the basis of observed motivations for exporting

Segment Label	Characteristics
TINA	There is no alternative (to internationalisation). Characterised by the belief that the domestic market is simply too small for a viable business and hence international trading is essential rather than simply desirable.
Gung Ho	Characterised by a belief that international markets are attractive and that barriers to internationalisation are relatively trivial.
Networker	Characterised by involvement in a global value chain in which trading is between other (international) companies in the value chain.
Incubator	Characterised by early life cycle, pre-production, stage. Heavily R&D focused and seeking commercialisation via sales and marketing partners.
Aspirant Responder	Characterised by accidental or coincidental international activity in response to customer enquiries but also by a positive attitude to the benefits of internationalisation
Passive Responder	Characterised by accidental or coincidental international activity in response to customer enquiries but also by a negative attitude to the benefits of internationalisation and a fear of the difficulties associated with it.
Reluctant Virgin	Characterised by little or no international activity, a sceptical attitude to its benefits and a deeply held fear of its risks.

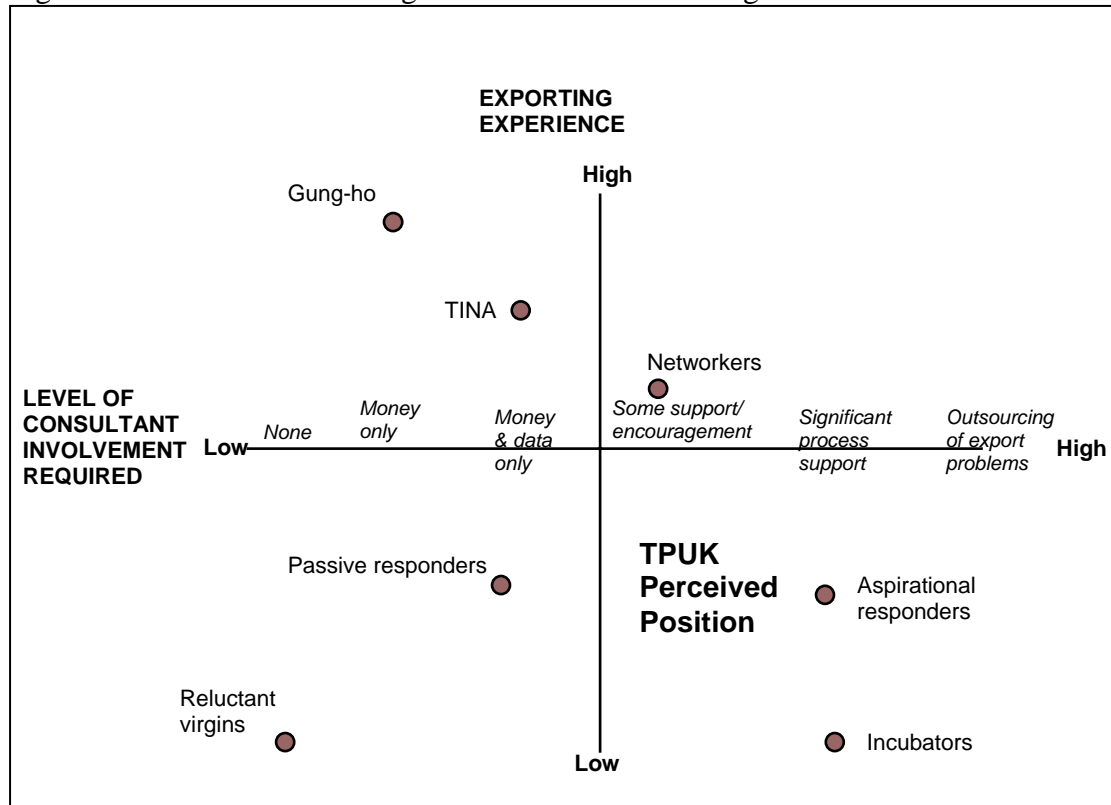
Source: Pragmedic (2003)

4.28 The authors of the study argue that the current support offered by UKTI straddles the needs of the segments and does not meet the needs of any segment with great specificity (cf. Figure 4.2); government offers a moderate amount of

⁵⁹ Note, the sub-groups identified in Table 4.2 could not be linked in any straight-forward way to standard descriptors like size, industry sector (or even the level of export activity). This suggests that

support which is too little for some and too much for others, as well as being perceived as aimed mostly at inexperienced exporters and biased towards low technology products⁶⁰.

Figure 4.2: Motivator based segmentation in the knowledge-based sectors



Source: Pragmedic (2003)

4.29 Thus, a more focused approach is called for based on the needs of the 7 sub-groups identified in Table 4.2, but recognising that since it might not be feasible to have such a purely segmented approach, a three mega-segments approach might be more practical. They put (see Table 4.2) the Gung-ho, TINA (there is no alternative), and networking sub-groups into a 'confident' meta-segment; aspiration responders and incubators go into an 'aspirants' sub-group; and passive responders and reluctant virgins comprise a 'reluctants' sub-group. Figure 4.3 summarises the policy response that is recommended for each meta-segment.

government provision of support designed around such simple descriptors would result in sub-optimal support packages as they would not recognise the role of motivation explicitly.

Table 4.3: Proposed meta-segment approach to promoting internationalisation

Meta-Segment	Confidants	Aspirants	Reluctants
Proposition summary	Internationalisation Support Menu – “You know what you want, we’ve got it”	Internationalisation Support Partnership – “We have the solution to your aspirations”	Internationalisation Awareness Programme – “Internationalisation without fear”
Communication	Known clients: ‘Customer Relationship Management,. Narrowcast, problem specific direct communications to advertise availability of specific services & business opportunities. Many communications initiated by client. Unknown clients: make aware of offering to counter perception that TP is for novices & time-consuming	Key issue is identifying aspirants. Broadcast: techniques can include networking seminars designed to attract aspirants, and awards, such as an award for a product with international potential Narrowcast: salesperson + support.	Needs to take account of limited resources available. - Broadcast media, e.g. PR in specialist journals: “a survey by TP has said...” to generate interest - Educational resources: seminars, white papers
Package	Present all services (including Selection and Management of Overseas Partners) as a ‘buffet’ for client to dip into as required	Passport to Export, plus: - Improved selling to address control issues - Not assuming non-exporters – many are aspirant responders - Rewording of collateral	Package up services as an easy guide to exporting to encourage successful fulfilment of accidental orders.
Channel	Largely self-help using Web and telephone (inc. Gateway/country desks) – ideally single ‘contact centre’ appearance to client. ITA brokering of services	General business adviser to screen, then specialist. For buffet services: as Confidants.	Largely remote: - Web: self-help guide, frequently asked questions, online diagnostics etc - Telephone: for access to buffet - Shading to general business advisers
Involvement	Much of relationship is remote, transactional; some personal brokering	High, personal. Graduated general to specialist to cross-brokering	Mostly remote, low involvement

Source: Pragmedic (2003)

Government response to firm adjustment to globalisation

4.30 Hoekman and Javorcik (2004) argued that governments have a twofold role in facilitating business internationalisation: (i) to intervene in areas where there are market failures; and (ii) to ensure that firms face the ‘right’ incentives to adjust

⁶⁰ Note, the UKTI web-site (see <http://www.invest.uktradeinvest.gov.uk>) clearly distinguishes information into the following export sub-groups: support for new investors, support for current investors, and global partnerships

to globalisation.⁶¹ The authors argue that governments often fail in the latter role e.g. through pursuing inappropriate macroeconomic policies (such as overvaluation of the exchange rate following trade liberalisation, and trade policies that attempt to mitigate against the short-run impacts of liberalisation but which create perverse incentives not to adjust), or inappropriate microeconomic policies (hindering firm entry and exit, operating inflexible labour markets, and other policies that slow down adjustment to liberalisation). In summary, they point to the need for credibility of the overall policy stance (i.e. that firms believe in the permanency of the government response to liberalisation) since it impacts significantly on the incentives of firms to incur the costs of adjustment.

4.31 In terms of the effects of globalisation on indigenous firms, they highlight the importance of the following effects:

(a) Competition effects

Due to increased imports and inward FDI, there is increased competition in domestic markets. It is argued that since a significant body of evidence points to ‘churning’ (entry and exit) as a significant source of productivity enhancement, with such churning related to import penetration (cf. Criscuolo, C. *et al*, 2004, for the UK; and Bernard and Jensen, 2004b, for the US), then trade liberalization needs to be complimented by measures that facilitate/allow the reallocation of factors of production from low to higher productivity firms. This includes promoting entry, removing exit barriers, and promoting innovation (R&D) to ensure firms have adequate levels of absorptive capacity. This also includes the need for policies that ensure that labour-market flexibility is complimentary and facilitates such churning, since economies with sluggish labour markets gain least from globalisation as trade barriers are removed.

(b) Technology transfer

Trade liberalisation results in access to new technologies, thus potentially upgrading indigenous firms. However, this also requires absorptive capacity to adapt such new technology, and such capacity is related to human capital endowments and investment in R&D (see chapter 2). FDI

⁶¹ They acknowledge that in practice intervention by governments may be driven by a combination of ensuring there are incentives to adjust and addressing market failure.

can also bring about transfers through demonstration effects and a range of other potential spillover impacts (Harris and Robinson, 2004, Table 1, provide a typology of such spillovers and evidence on whether they are positive or not in the UK; others – such as Gorg and Greeaway, 2004 – also provide similar evidence). Hoekman and Javorcik (*op. cit.*) argue that all this suggests that a ‘one size fits all’ approach to policy in this area is inappropriate.

(c) Access to new markets

Globalisation also creates new opportunities for domestic firms to make improvements that are necessary to sell in export markets. If firms that do not export have unfavourable characteristics (such as low capabilities and absorptive capacity), and such characteristics are a pre-requisite for entry into export markets, then Hoekman and Javorcik (*op. cit.*) argue that policy intervention to encourage such firms to export may be a waste of resources. However, if the choice not to export is due to imperfect information associated with the uncertainty about the (sunk) costs and profitability of entry, then there is a case for intervention to overcome such market failure.

4.32 This leads onto the issue that was raised in Chapter 3 as to whether there is a ‘learning-by-exporting’ effect or not. If there is no post-entry improvement in productivity (but rather entry requires firms in advance to have those characteristics that lead to higher productivity, thus self-selecting into export markets), then it suggests that government promotional policies to increase business internationalisation may be largely ineffective (thus involving deadweight and possibly displacement effects).⁶² This is not to suggest that there is no room for policy; but rather the emphasis needs to be on promoting a competitive business environment rather than targeting support on market failures.⁶³ This comprises both the macroeconomic environment (see par. 4.28 above, but also covering macroeconomic stability, helping to maintain fair and open international markets, providing a conducive legal and regulatory framework for business, minimising burdens on trade through bureaucracy, and

⁶² There is little econometric evidence to show whether combating market failure has a significant effect on firm entry into international markets; what there is (e.g. Bernard and Jensen, 2004) provides little evidence that government promotional activities are effective.

⁶³ In an ideal world with unlimited resources, government might do both. Moreover, in many situations, both areas are covered simultaneously.

ensuring overall that business conditions are favourable to growth) and industrial policy. That is, there is a more general need for policies that help firms to acquire those characteristics that lead to higher productivity, and thus have the ability to overcome sunk entry costs in international markets.

- 4.33 Therefore, policies that enhance the absorptive capacity and dynamic capabilities of firms would appear to be the key requirement for boosting participation rates in export markets.⁶⁴ This then benefits aggregate productivity through a reallocation of resources (i.e. market shares) to higher productivity exporters, and the forcing out of the industry/economy of the least efficient firms (as various models, most notably that analysed by Melitz, 2003, show). Moreover, it is not particularly crucial that there be any ‘learning-by-exporting’ effect; as Melitz (*op. cit.*, p. 1719) points out “... trade-induced reallocations towards more efficient firms explain why trade may generate aggregate productivity gains *without necessarily improving the productive efficiency of individual firms*” (emphasis added to original). He also points out that “of course... policies that hinder the reallocation process or otherwise interfere with the flexibility of the factor markets may delay or even prevent a country from reaping the full benefits from trade” (p. 1719).

Conclusions

- 4.34 This chapter has considered the ‘market failure’ arguments for government intervention with regard to business internationalisation, primarily to encourage firms to enter such markets (rather than subsidising export revenues). Undoubtedly there are certain features of international markets (such as the relatively high cost of information, leading to higher risk and uncertainty and important sunk entry/exit costs) that provide a rationale for government to act (not least because it has an advantage in providing information).
- 4.35 However, because of the differing needs of (potential) exporters, government assistance needs to be flexible, reflecting the heterogeneous nature of firms. Criticisms that policy is not sufficiently geared to ‘born-global’ firms, and not

⁶⁴ Note, UKTI policy is not to increase exports/internationalisation *per se*, or to increase the number of exporters/internationalising firms, but rather focuses on the market failure argument so *allowing* more firms to overcome barriers to entry associated with ‘failures’. In that sense the policy does seem to be about promoting internationalisation.

sufficiently flexible to cover different sub-groups of firms with different motivations for exporting, were presented. To a large extent the changes in policy advocated as a result of these criticisms reflect differing resources that are available to different firms.

- 4.36 When the rationale for policy is expanded to include the need to ensure that firms face the ‘right’ incentives to adjust to globalisation, and not just to cover ‘market failure’ arguments, this enforces the need for policies that help firms to acquire those characteristics (i.e., absorptive capacity and dynamic capabilities) that lead to higher productivity, and thus the ability to overcome sunk entry costs in international markets. This then benefits aggregate productivity through a reallocation of resources to higher productivity exporters.

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5. Major Conclusions

- 5.1 Our approach in this literature review has been to cover three substantive areas, namely:
- International entrepreneurship (Chapter 2);
 - Firm-level adjustment to globalisation (Chapter 3); and
 - The role of government in business internationalisation (Chapter 4).
- 5.2 The first chapter considered the wider literature on international entrepreneurship (much of it from the business and management area). This dealt with the internationalisation process itself, in terms of why certain firms become international (and when – e.g. ‘born-global’ companies), the different options available (e.g. exporting vis-à-vis FDI), and the different processes available (e.g. the traditional evolutionary model – known as the Uppsala Model – whereby firms evolve from supplying domestic to export markets, and then to become multinational; to more recent literature on firms, including SME’s, that are ‘born’ international). We also covered the recent economics literature that emphasises micro (i.e. firm and plant) -level explanations to consider such issues as which firms export (introducing explanations linked to the importance of sunk costs and the heterogeneity of plants)
- 5.3 Generally, we found that whether the traditional, incremental model of internationalisation is considered, or transaction cost models (emphasising the role of sunk costs), or monopolistic advantage models, a strong overlapping feature is the role and importance of firm specific assets (complimentary resources and capabilities and thus absorptive capacity) and knowledge accumulation. This was also true of the literature covering more recent phenomenon of ‘born-global’ or ‘born-again global’ firms, that often internationalise very early (and which are dependent on knowledge-based technology).
- 5.4 Of course, the literature pointed to other factors that determine internationalisation, such as sector (e.g. whether high-tech or not); the size of the firm; the presence or otherwise of networks/agglomerations; the importance of international experience among the owner/managers; and even ‘luck’ etc. But a recurring emphasis throughout all the extant literature was the core and

essential role of (tacit) knowledge generation and acquisition, both within the firm and from its external environment.

- 5.5 The more recent economic models of internationalisation that have been reviewed focused on the importance of sunk costs and heterogeneity across firms (i.e. differences in productivity). To overcome entry costs, firms need an adequate knowledge-base and complimentary assets/resources (especially R&D and human capital assets that lead to greater absorptive capacity); and of course productivity differences rely on firms having differing knowledge and resource-bases associated with differences in rates of innovation and other aspects of total factor productivity. Thus again, the importance of firm specific assets and knowledge accumulation are at the forefront of explaining the internationalisation process.
- 5.6 However, despite this leading role for knowledge accumulation and factors such as absorptive capacity, we found relatively little evidence on how organisations learn (and what is most important for success in this area), and how exactly absorptive capacity can be measured (and its relative importance in determining productivity and entry into foreign markets). Thus, there is still much work that needs to be undertaken to enhance the extant literature and thus ‘flesh-out’ some of the concepts and arguments presented in Chapter 2.
- 5.7 The second major area covered in Chapter 3 was firm-level adjustment to globalisation. The relationship between international trade and productivity growth is at the heart of our understanding of economic adjustment to trade liberalisation, and we focused in this review on the impact at the micro (i.e. firm and plant) –level. A major issue was whether firms/plants that internationalise are more productive than non-exporting firms. The evidence on this was fairly unanimous that they are, but then the issue becomes one of whether this is a requirement of internationalisation and/or whether firms become more productive when they enter export markets as a result of a ‘learning-by-exporting’ effect. If firms have to have certain characteristics in advance that result in higher productivity, to allow them to overcome the sunk costs of entry, then ‘self-selection’ is likely to dominate.
- 5.8 In our view, the jury is still out on whether there is a ‘learning-by-exporting’ effect at the firm/plant level. This seems to be because:

- d. This effect is likely to differ in terms of its importance across countries (i.e. it is dependent on the size of the domestic economy vis-à-vis the size of overseas markets and/or the overall exposure of domestic markets to foreign trade). Hence, a positive effect is found for Canada while none is found for the US (and the evidence for the UK suggests there is a small effect that quickly disappears);
- e. There are sample-selection econometric issues that impact on our ability to measure (without bias) any ‘learning-by-exporting’ effect, which are linked to the fact that exporters do seem to ‘self-select’ into exporting (i.e. they are not a random sample of the population of all firms).
- f. There is some evidence that any ‘learning-by-exporting’ effect is relatively small and probably confined to only having an influence in the short-run, disappearing over the medium to longer term.

5.9 Irrespective of whether firms self-select into export markets and/or become more productive post-entry, there was a need to consider the potential impact of internationalisation on aggregate productivity growth. We found that despite the fact that this is a new area of research, there was already a considerable consensus (based on limited empirical evidence) that dynamic restructuring of the economy results in larger market shares for the most efficient (and usually larger) firms that export, and this has a sizeable impact on boosting aggregate productivity. Clearly, more evidence is needed covering a wider range of countries (including the UK) on how important such restructuring, due to increased internationalisation, really is. We also need more information on how import penetration (and inward FDI) impacts on competitiveness at the firm/plant level, since the evidence on spillovers from FDI is generally inconclusive, while evidence on the impact of import penetration is largely absent.

5.10 Finally, Chapter 4 considered the ‘market failure’ arguments for government intervention with regard to business internationalisation, with such intervention being primarily to encourage firms to enter such markets (rather than subsidising export revenues). Undoubtedly there are certain features of international markets (such as the relatively high cost of information, leading to higher risk and uncertainty and important sunk entry/exit costs) that provide a

rationale for government to act (not least because it has an advantage in providing information).

- 5.11 However, because of the differing needs of (potential) exporters, recent literature has begun to argue that government assistance needs to be flexible, reflecting the heterogeneous nature of firms. Criticisms that policy is not sufficiently geared to 'born-global' firms, and not sufficiently flexible to cover different sub-groups of firms with different motivations for exporting, were presented. To a large extent the changes in policy advocated as a result of these criticisms reflect differing resources that are available to different firms.
- 5.12 When the rationale for policy was expanded to include the need to ensure that firms face the 'right' incentives to adjust to globalisation, and not just to cover 'market failure' arguments, this enforced the need for policies that help firms to acquire those characteristics (i.e., absorptive capacity and dynamic capabilities) that lead to higher productivity, and thus the ability to overcome sunk entry costs in international markets. This then benefits aggregate productivity through a reallocation of resources to higher productivity exporters, and is consistent with government policy related to productivity and its drivers (in particular the role of innovation activities such as R&D which as we have seen are closely connected to a firm's absorptive capacity, and thus its ability to internationalise).
- 5.13 A key issue that has featured strongly in this literature review is: are barriers to internationalisation due principally to market failures or are they more to do with absorptive capacity and dynamic capabilities in firms? Government policy to improve productivity (especially through boosting R&D and other innovative activities) helps to improve capabilities and thus clearly plays a role which perhaps needs to be more fully recognised by UKTI when promoting internationalisation. But if firms need first to have the capabilities to enter international markets, and market failures are relatively less important as barriers, then this does raise the issue about the relative effectiveness of UKTI policy.

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