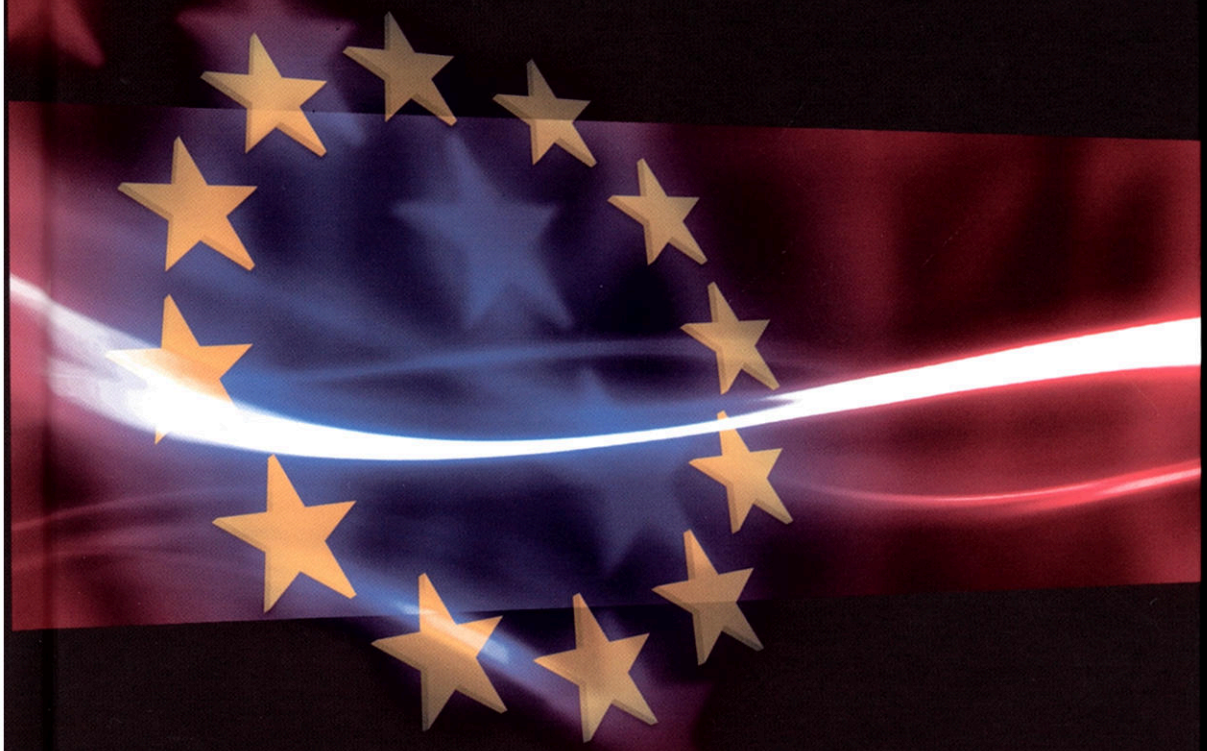

SCIENCE AND INNOVATION POLICY FOR THE NEW KNOWLEDGE ECONOMY

Edited by
Massimo G. Colombo, Luca Grilli,
Lucia Piscitello, Cristina Rossi-Lamastra

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Massimo G. Colombo, **Luca Grilli**, **Lucia Piscitello** and **Cristina Rossi-Lamastra** are in the Department of Management, Economics and Industrial Engineering at the Politecnico di Milano, Italy.

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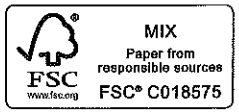

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7. The role of public policy in strengthening innovation through internationalization

Celeste Amorim Varum and Lucia Piscitello

INTRODUCTION

There is a consensus among academia, policy makers and practitioners that innovation and internationalization are becoming increasingly important for the survival, growth and long-term viability of business organizations. Although it is difficult to disentangle the directions of causality, innovation is clearly important to compete internationally (e.g. Karagozoglu and Lindell 1998; Wakelin 1998; Roper and Love 2002; Lachenmaier and Wößmann 2006), but firms may also innovate as a result of learning by internationalization (e.g. Chuang 1998; Branstetter 2006; Fletcher 2009; Huang and Wang 2009).[1] In fact, innovation increasingly depends on the international sourcing of resources and capabilities as well as on permanent contact with new markets and new technology trends worldwide. Through internationalization, firms may not only exploit ownership advantages generated at home in other countries, but also gain access to technology internationally and tap into worldwide centres of knowledge (Kotabe 1990; Cantwell and Piscitello 1999; Kuemmerle 1999; Frost 2001; Boekholt et al. 2009; European Commission 2010). From a country point of view it is now recognized that own firms' internationalization is critical for competitiveness through its effects on home country innovation performance, employment, exports structure, balance of payments, technology and knowledge (Lipsey 2002; Kokko 2006; Filippetti et al. 2009).

Reflecting the recognition of both the importance of the presence of internationally active firms, and the barriers to internationalize, there has evolved a rather well-established tradition by governments to support the internationalization of their firms (Wright et al. 2007). On the one hand, governments promote firms' internationalization in such a way as to help them to increasingly offshore not only production and marketing but also

R&D activities to other countries, in order to get access to new and diversified resources to potentially bring back home. At the same time many countries are concerned about the possible detrimental effects of internationalization on the home country employment and exports, and even more about the erosion of home-based knowledge-intensive competencies (Lipsey 2002; Kokko 2006; LTT Tutkimus Oy 2007; OECD 2008a). Hence, a major challenge for policy is to enable domestic actors to access world markets and leading knowledge in a way that benefits firms' competitiveness and strengthens the home country innovation system (CREST 2008; European Commission 2008, 2010; Serger and Wise 2010).

This chapter addresses these issues with a focus on the importance of internationalization for innovation, a direction of causality relatively neglected in the literature. It then examines the types of instruments used by governments to promote internationalization and, importantly, provides some evidence on the effectiveness of them. That allows us to focus on the need for appropriate and reliable evaluation techniques, an issue still under-investigated with reference to measures and policies addressed to companies' internationalization.

THE IMPACT OF INTERNATIONALIZATION ON COMPANIES' AND COUNTRIES' INNOVATIVE PERFORMANCE: CONCEPTUAL ISSUES AND EMPIRICAL EVIDENCE

A firm that is involved in international activities is likely to have higher innovation performance because: (a) higher exposure to competition in other markets pressures the firm to innovate; (b) access to resources and knowledge available elsewhere improves firm innovation capacity; and (c) an international presence enhances firms' exploitation of their technological competencies (see Table 7.1).

Competitive pressure is important for innovation. Firms operating in international markets are subject to high competitive pressures, which create a stimulus for them to innovate in order to remain competitive.

Second, there is learning by internationalization effects (Chuang 1998; Branstetter 2006; Fletcher 2009; Huang and Wang 2009). Such learning effects can occur because foreign market activities provide firms with access to knowledge and technologies that are not available in the domestic market and are necessary for the development of innovations that require substantial and diverse resources.

Internationalization enables a continuous flow of information about the changing needs and requirements of customers, allowing firms to

Table 7.1 Effects of internationalization on firm innovation

Type of effect	Increase	Decrease (costs from internationalization to innovation)
Drive to innovate	Competition pressures firms to innovation	
Innovation capability	Access to resources, ideas and know-how Increased organization learning Benefit from diversity of scientists Engage in local scientific cooperation Lower costs of R&D inputs Lower risk Benefit from R&D spillovers in host economy	Raise of transaction costs Difficulty of communication Increased communication costs Lower economies of scale for R&D sites
Exploitation / appropriability of innovation	Economies of scale React to foreign customers needs and demands Exploit many markets Charge premium prices Obtain strategic complementary assets	Risk of knowledge leakage

Source: Adapted from Kafouros et al. (2008).

recognize and react more quickly to customer demands and to develop new competencies when making direct contact with the host country's productive and scientific system (Kotabe 1990; Wagner 2006). Hence internationalization may enhance a firm's innovative capacity (Kafouros et al. 2008; Fletcher 2009).

In the context of multinational enterprises a solid line of research has shown that through foreign operations firms gain access to localized knowledge sources that might improve the whole firm's technological base (Cantwell 1995; Almeida 1996; Zanfei 2000; Cantwell and Piscitello 1999; Frost 2001). This process, occurring through 'reverse technological transfer' (Håkanson and Nobel 2000; Frost 2001; Piscitello and Rabbiosi 2006), concerns technological competencies, tacit know-how and competencies related to managerial skills, marketing, production and organization (Kogut and Zander; 1993; Lane et al. 2001). Internationalization also makes it possible to reduce innovation costs by having access to materials

Table 7.2 Effects of outward FDI of R&D for home countries

Benefits	Costs
Tap into other sources of expertise Reverse technology transfer Enhance access to foreign markets Economic benefits if the results are explored at home	Loss of jobs Loss of technical capability Hollowing out of industry Loss of economic benefits if results are explored locally

Source: OECD (2008a, p. 87).

and R&D inputs from the cheapest available sources, and even to locate R&D and other departments in the most productive regions. Firms with higher innovative capacity can develop better products and processes, faster and at a lower cost, which in turn boost firms' competitiveness. Additionally, operating in a large number of countries helps to exploit the competitive advantages created, spread the costs and reduce the risks associated with innovation (Cantwell and Piscitello 2000; Kafouros et al. 2008).

Overall, then, it may be concluded that internationalization by domestic firms stimulates and creates better conditions for innovation, minimizes costs and enhances the returns from innovation.

However, it must be also emphasized that a high degree of internationalization increases the risk of knowledge leakages and the costs of coordination and control of the international operations. Thus, while there are benefits from having more internationally competitive firms, the risks of internationalization and offshoring of production or R&D,[2] are jobs and specialization losses and little control over domestic firms' capabilities. The risks are particularly highlighted when we consider the internationalization of R&D activities (see Table 7.2).

As far as the empirical evidence, the importance of innovation for successful internationalization has already received vast support from the empirical literature (e.g. Karagozoglu and Lindell 1998; Wakelin 1998; Roper and Love 2002; Lachenmaier and Wößmann 2006), while the learning-by-internationalization hypothesis has so far received relatively less attention. However studies conducted in the last decade show that the causality from internationalization to innovation is also strong.

Previous studies have mainly focused on the link between exports and innovation (Roper and Love 2002). Along these lines, Wagner (2006) argues on the basis of German evidence that exporters and foreign direct investors are more active in generating new knowledge than domestically oriented counterparts. He stresses that this difference is not to be

attributed to differences in firm size, different industries or a higher enrolment of research, but to the higher learning from external knowledge sources. The results from a survey conducted in 2009–2010 (Torres and Amorim Varum 2010) in Portugal shows that many firms internationalize through exports but very few internationalize through foreign direct investment (FDI) abroad. Out of 424 firms that responded to a questionnaire survey on their international activities, only 87 stated that they had FDI operations. Out of these nearly half reported that their outward FDI projects had high positive effects on the home country activities of the firm. The most positive effects were at the levels of overall competitiveness, added value and financial performance, and technological capacity.

Castellani and Zanfei (2007) show that Italian manufacturing companies exhibit different economic and innovative performances according to their involvement in foreign activities. In particular, exporters show intermediate innovative performance between non-internationalized firms and those carrying out foreign production. The results suggest that involvement in international operations can be a distinct channel of knowledge accumulation. Likewise, a recent study by the European Commission (2010) allows a distinction to be made between the various international activities. About 22 per cent of the small- and medium-sized enterprises (SMEs) that developed products or services by themselves indicated that this was a consequence of activities in foreign markets.[3] When looking at the different modes of internationalization it appears in particular that firms that invested abroad (53 per cent) and to a lesser extent firms that are a subcontractor to a foreign main contractor (43 per cent) are most often triggered to innovate by foreign market activities. Thus, FDI and subcontracting seem to be the most important routes for 'learning by internationalization'.

In a recent study Kafouros et al. (2008) offer a theoretical framework that explains how and why a higher degree of internationalization, by affecting both innovative capacity and a number of appropriability factors, influences the effects of innovation. Relying on firm-level data for the UK manufacturing sector (84 large companies for the period 1989–2002), the study empirically tests this proposition. The results confirm that internationalization enhances a firm's capacity to improve performance through innovation. However, they also show that firms are unable to benefit from innovation if their international activity is below a certain threshold level.

Pradhan and Singh (2008) investigate Indian outward FDI and find that with outward FDI these companies gained access to new markets, technologies and managerial and marketing skills, with positive effects on their R&D activities. The physical presence of Indian companies in innovative developed countries also provides opportunities for considerable

Table 7.3 Firms' degree of international activity and innovation (per cent of firms reporting innovations)

	Firms internationally active		Firms with plan to become internationally active		Firms not internationally active	
	Product or service	Process	Product or service	Process	Product or service	Process
Introduced new for their sector	26	11	8	5	8	3
Introduced new for their own firm	21	19	14	13	11	11
None	52	68	77	79	79	85
Do not know	1	2	1	2	1	1
Total *N*	*N* = 5999	*N* = 5999	*N* = 336	*N* = 336	*N* = 3145	*N* = 3145

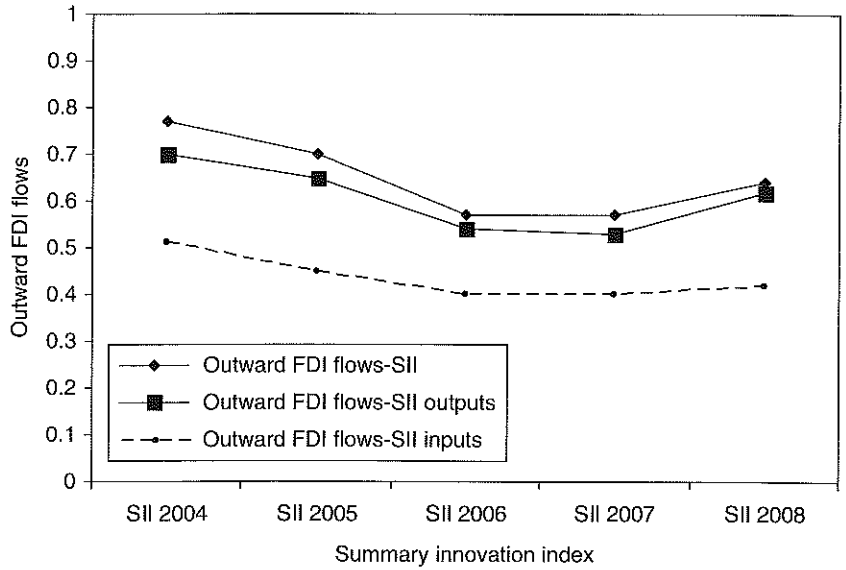
Note: 44% of the SMEs in the sample (weighted) were involved in at least one mode of internationalization (i.e. imports, direct exports, investments abroad, technological cooperation with enterprises abroad, subcontractor to foreign main contractor, and foreign subcontractors) and thus classify as 'internationally active'.

Source: Adapted from European Commission (2010).

technological and organizational learning simply because of the proximity to innovative competitors and the local system in general.

Previous studies have examined the phenomenon of increased international dispersal of knowledge sources within multinational enterprises (MNEs), and have noted its effect on enhancing MNE capabilities and innovation (e.g. Cantwell 1995; Almeida 1996; Zanfei 2000; Frost 2001; Piscitello and Rabbiosi 2006). The ability of multinational corporations (MNCs) to leverage their innovation competencies across globally dispersed subsidiaries is an increasingly valuable source of competitive advantage (LTT Tutkimus Oy 2007).

The study from the European Commission in 2009 (European Commission 2010) on the internationalization of SMEs addresses specifically the relationship between internationalization and innovation. The results, as reported in Table 7.3, confirm that internationally active firms introduce product/service and process innovations more often than non-internationally active firms. Almost half of the internationally active firms introduced new products or services in the last three years (overall average only 32 per cent) and in the same period almost one-third introduced process innovations (overall average 22 per cent). There is hardly



Notes: Includes data for 32 countries, EU27 Member States and also Croatia, Turkey, Iceland, Norway and Switzerland. The SII is a synthetic composite indicator part of the European Innovation Scoreboard. It is based on 29 indicators (input for innovation and outputs of innovation). Data for outward FDI includes Outward FDI flows for all industries as percentage of GDP (data from UNCTAD).

Source: Own elaboration based on data for correlation from Filippetti at al. (2009).

Figure 7.1 Level of correlation between outward FDI and Summary Innovation Index (SII) at country level

any variation in the extent to which firms involved in different modes of internationalization introduced innovations. The data also reveal that 60 per cent of the internationally active SMEs that introduced new products or services developed these new products or services by themselves.

As far as country level studies, Filippetti et al. (2009) test the hypothesis that the extent to which a country's businesses, institutions and industries are linked with resources and capabilities located outside the country is likely to impact positively on the innovation performance of that country, and its industry and firms. The study is carried out for 32 countries (including the EU Member States). In their study, the variables related to outward FDI were found to show a strong association with innovation at all levels of analysis (country, industries and firms) (see Figure 7.1).

Likewise, Huang and Wang (2009) show that one of the main purposes of the Chinese 'going out' strategy is to gain access to overseas advanced

technology and enhance Chinese firms' technological innovation capability. As an integral part of the 'going out' strategy, outward FDI can facilitate technology spillovers into the home country through the R&D resources sharing mechanism, one-way technology communication mechanism and overseas market competition mechanism. Huang and Wang (2009) conduct an empirical study of the relationship between the outcome of patent and outward FDI, using the data from 1985 to 2007. They form the conclusion that outward FDI is significantly and positively related to Chinese patent applications and patent licensing, which indicates the existence of significant reverse technology spillovers from outward FDI.

Hence, overall, the majority of existing studies provide support for the 'learning-by-internationalization' hypothesis. Innovation is not only necessary to enter foreign markets but may well also be a consequence of a firm's foreign market activities. We need however further and better evidence before we can conclude that there is no reason to expect home countries to lose competitiveness through the offshoring of activities, and of R&D in particular.

POLICIES TO PROMOTE INTERNATIONALIZATION

Types and Classification of Policy Measures to Promote Internationalization

The recognition of the importance of internationalization for firms' competitiveness in general and for innovation in particular is driving countries increasingly to promote the internationalization of their domestic firms.

Under the umbrella of internationalization policy, we consider a variety of measures used by home countries specifically to promote or otherwise influence the international activities of domestic firms. These may include laws, regulations, policies and programmes in home countries that are launched to affect the international activities of domestic firms.

The promotion of internationalization in the form of exports has been a prominent element of government policies for a long time (Seringhaus and Rosson 1989; Wright et al. 2007). In several countries governmental support has been broadened towards other forms of internationalization (Brewer 1993; UNCTAD 2001, 2010; Te Velde 2007; European Commission 2007, 2008; OECD 2008b). Policy support has also expanded in scope, from the promotion of internationalization of production and marketing to R&D activities. The internationalization of science, technology and innovation is receiving more attention from policy makers (Edler

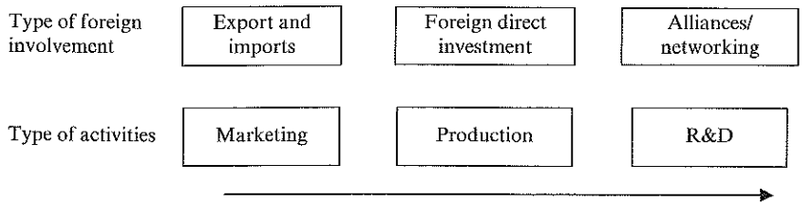


Figure 7.2 Broadness and scope of internationalization policies over time

and Boekholt 2001; CREST 2008; OECD 2008a; Serger and Wise 2010).[4] Figure 7.2 represents the evolution of the broadness and scope of internationalization policies over time.

These measures are used not only by developed but also by emerging and developing economies (UNCTAD 2001; CUTS 2003; Kline 2003; Te Velde 2007; Lou et al. 2009). Table 7.4 provides a classification of the most common home country measures to promote internationalization.

The policy measures to promote internationalization seek to reduce economic and political risks due to unanticipated changes in the business environment, foreign markets and the 'liability of foreignness' (Zaheer 1995). In fact, compared to domestic investments, investment in an environment that is distant in geographical, cultural and institutional terms generally implies higher costs. Policy measures may be launched to alleviate any shortfalls in resources (financial and knowledge) and capabilities in a company to deal with these specificities related to the internationalization processes.

In the case of investments in developing countries, measures may also be directed to support the economic fundamentals and governance structures

Table 7.4 Classification of home country measures (HCM) to promote internationalization

Based on how they affect motivations for internationalization	Based on the nature of HCM
Reducing economic risk and political risk	Financial and fiscal incentives
	Investment insurance
Reducing information and coordination failures	Information provision and technical assistance
Supporting host country fundamentals	Market access regulations
	Measures aimed at facilitating transfer of technology

(like the strengthening of infrastructures and macroeconomic stability) that are required for successful investment projects (CUTS 2003; Te Velde 2007).

Financial support, financial envelopes, loans and equity participation for internationalization projects are proactive external measures[5] (Morgan and Katsikeas 1997) that correct for market imperfections to finance FDI projects, increase the profitability of the investment and reduce the economic risk related to the unfamiliar foreign context and to the firms' liability of foreigness (UNCTAD 2001; CUTS 2003; Kline 2003; Te Velde 2007). Obtaining sufficient financing serves as a cushion against unforeseen setbacks and allows firms to explore and better exploit a broad range of international activities. The effect is larger for firms that are more dependent on external finance (for example SMEs) (Maeseneire and Claeys 2007).

Fiscal measures, such as fiscal incentives, tax exemptions, deferrals or credits for taxation of foreign source income, and general tax sparing provisions increase the financial viability of the investment and permit investors to receive the full benefits of the host country tax reductions.

Investment insurance schemes protect investing firms from political and other non-commercial risks related to the investment. They can be an effective support for FDI directed to developing countries that tend to pose greater political risks.

Finally, *information provision and technical assistance* through organized offices, seminars and workshops or investment missions help the international investor to assess whether it is worth investing in the country. This measure is particularly important for SMEs, which on their own lack the resources needed to conduct a global search of sites.

Market access regulations influence the relative profitability of outward investments by enhancing the host country's attractiveness, for example for export-oriented FDI (through favoured treatment like the granting of special tariffs, quotas or duty preferences to imports from selected developing countries).

Transfer of technology measures aim to facilitate the transfer of technology associated with foreign direct investment. It exists in several international agreements, and often involves reforms in regulation that establish the framework for transferring privately held technology. These are particularly important in the context of investing in developing countries (CUTS 2003).

The measures used by developed countries are mostly non-monetary in nature and concentrate on administrative and managerial support, the provision of information and consultancy services for learning opportunities, establishing operations abroad, and establishing international

collaborations and licensing technologies. These measures target internationalization in general, whether via exports or FDI. However, the vast majority of the measures still focus on exports (European Commission 2007, 2008; OECD 2008b). The focus on exports may reflect the belief by policy makers that the national economy benefits more from exports than from other forms of internationalization. The measures foster the internalization of marketing, distribution, production or R&D activities.

The promotion of international R&D is a blurred zone, where internationalization policy and innovation policy[6] overlap. Regarding the promotion of internationalization of innovation there is apparently more emphasis on the promotion of networking (including Science and Technology agreements and mobility schemes) and collaboration to link domestic firms to foreign knowledge.[7] Other actions stimulate firms to purchase services, licences or technology from a foreign entity to complement an R&D project, or promote collaboration for marketing and distribution to take products to the market. Nonetheless, currently only a very limited set of countries (for example the UK, Finland, Sweden, Germany) think about the formulation and implementation of comprehensive policies working towards the internationalization of (industrial and public) R&D (Edler and Boekholt 2001; CREST 2008; OECD 2008a; Serger and Wise 2010).

Evaluation of Public Measures to Promote Internationalization

In spite of the vast number of measures used by governments, recent results reveal that only a small share of firms use them. In a recent study in Europe (European Commission 2010) only 16 per cent of the firms reported awareness of the existence of public support programmes for internationalization that could be used by their own enterprise. Even in the cases of firms with international activities, only 22 per cent of the firms were aware of their existence. The percentage of internationally active firms actually having used such programmes during internationalization is also low according to the EC study: only 9 per cent for financial support and 6 per cent for other forms of support. Larger firms show a higher degree of awareness and usage of the programmes. Hence the vast majority of internationally active firms state that they are not using public support measures. Whereas smaller firms are at least showing similar exposure to barriers, larger firms are more aware of the existence of the support and use the support measures more often. Similar results were obtained in the study conducted in Portugal on the use and effectiveness of public measures to support internationalization (Torres and Amorim Varum 2010).

Among the companies that received the support, about 55 per cent mentioned at least one positive effect from using the incentive. About 11 per cent of the firms reported that they would not have internationalized without such support, 20 per cent reported that they internationalized earlier because of the support and 35 per cent reported more international business because of the support. More than 35 per cent stated that the support was welcome but it only facilitated operations. The results from the study conducted in Portugal reveal that only a small fraction of the firms that conducted FDI considered the measures to be very or extremely important for their investment abroad (Table 7.5).

Table 7.5 Evaluation of public support measures to promote internationalization in Portugal by firms with outward FDI

Measures	Percentage of firms with O-FDI that did not use public support	Percentage of firms with O-FDI that used support and considered it very or extremely important
Market/trade or state missions	33%	11%
Training or consulting services	51%	9%
Informational services	18%	9%
Support to host trainees from foreign firms	69%	1%
Investment/credit insurance	57%	6%
Risk capital	82%	2%
Fiscal benefits	56%	6%
Financial support	45%	14%
International protocols	78%	3%
International agreements to promote/protect investments	78%	2%
Support for marketing activities	70%	0%

Source: Torres and Amorim Varum (2010).

These results do not come as a surprise because the extensive evidence on the role and efficiency of government export promotion programmers (Leonidou et al. 2010) in a number of selected countries (e.g. Crick 1997; Moini 1998; Wilkinson and Brouthers 2000; Spence 2003) also suggests that the direct effect of such measures is relatively minimal (Morgan and Katsikeas 1997). From their review, Wright et al. (2007) conclude that a case for more balanced policy support towards SME internationalization is needed.

There are very few studies empirically addressing government

programmes explicitly designed to promote firms' outward FDI (Brewer 1993; Globerman and Shapiro 1999; UNCTAD 2001; CUTS 2003; Te Velde 2007). At least to the authors' knowledge, only a few empirical studies specifically address the effectiveness of FDI promoting programmes at the firm level. Namely, Duran and Ubeda (2001) show some degree of efficiency in Expotecnia, a programme of fairs showing products in various countries with the aim of increasing exports and direct investment, launched in the 1980s by the Spanish Institute for Foreign Trade. Likewise, Maeseneire and Claeys (2007) provide an exploratory empirical analysis of the access to external finance by a sample of 32 Belgian SMEs undertaking foreign direct investments; and Bannò et al. (2010) test the direct impact of an Italian public incentive, using data from 237 Italian firms that received the support to promote Italian companies' FDI outside the European Union in the period 1991–2007 vs. a counterfactual sample of firms that internationalized their activity in the same period without any incentive. This is one of the first attempts to develop a rigorous evaluation of a policy for firms' outward internationalization exploiting the availability of detailed information on the functioning of the programme of incentives. They found positive effects of the financial support on firms' growth as compared with the counterfactual sample where firms did not benefit.

Thus, although results are not entirely consensual, they may, however, contribute to deriving suggestions on how to improve the effectiveness of public support.

First of all, the importance emerges of focusing on context-specific factors, such as the industry type and the internationalization phase. Regarding the latter, the factors responsible for initiating exporting (stimuli) differ from factors sustaining exports at subsequent stages (motivators), although they are closely related.

Second, the review of the empirical evidence highlights that the design of policies to support internationalization should focus more on the entrepreneur (and not only on the firm). Wright et al. (2007) defend the case for more balanced policy support towards SME internationalization: 'one that takes into account the diversity of SMEs (and entrepreneurs) that operate, or are capable of operating, in foreign markets' (2007, p. 1013). Additionally, governments need to adopt a more long-term and sustained programme of assistance and incentives.

An important issue concerns the extent to which internationalization research can guide policy design in this area. Understanding firms' internationalization motivation structure and barriers is vital, as it can offer valuable guidelines for the development of appropriate strategies and national promotion and assistance programmes. Further evidence is also

needed regarding the evaluation of policy measures. However, particular attention must be given to issues surrounding the size and representativeness of samples, the techniques used and the validity and reliability of the measures operationalized in the studies. Particular problems relate to establishing whether there is a causal link between internationalization and policy measures. Policy definition, improvement and practice would benefit from cross-country studies conducted systematically, using longitudinal datasets allowing the application of panel data estimation techniques. In a review of the available research, Leonidou et al. (2010) argue that the research on the factors stimulating the initiation and subsequent development and sustainment of export operations is still at the identification and conceptualization stage, due to incomplete conceptual foundations, unsophisticated methodologies and inconsistent research findings. Storey (1998), Mosselman and Prince (2004) and Storey and Potter (2008) still argue that the methods of evaluation employed to measure the effectiveness of public programmes have rarely been at the intellectual frontier.

CONCLUSIONS

This inter-relationship between internationalization and innovativeness poses challenging issues for governments and public authorities (Filippetti et al. 2009). Identifying good policy practices for promoting the internationalization of business activities, as well as providing justification for the use of such instruments, will be among the major tasks for policy in the years to come (Edler and Boekholt 2001; European Commission 2008; Storey and Potter 2008; Serger and Wise 2010).

To justify intervention in a market economy it is necessary first to identify precisely where the market failure exists, and whether it is possible to rectify that market failure through intervention. Consequently, the costs of the intervention have to be carefully assessed and the benefits estimated (Storey 1998). There is a need to investigate carefully whether the support measures designed by the states do address a market failure and do not directly compete with private support offered adequately in the market place. Monitoring and evaluation of support measures are necessary, and for such it is necessary to specify clearly the objectives for the policy concerned to develop sound methodologies (Storey 1998; Storey and Potter 2008).[8] The exercise implies continuous evaluation throughout time, because a decision perceived as 'correct' in the current period may lead to an unwanted outcome in the future (Table 7.6).

From the perspective of policy, a central question is how can policy

Table 7.6 Challenges and implications for home country policy

Challenges for home country policy	Implications for home country policy
Cost of policies	Definition of objectives Evaluation and monitoring Development of methodologies and indicators Identify best practices
Promote internationalization to the benefit of the home economy (innovation system, firms' competitiveness and growth)	Development of targets and indicators Higher focus on absorption
Broadening of international activities and increased complexity	Prioritization and selectivity Better and more specialized services Articulation between policies at national level
Countries with different challenges but similar goals	Prioritization and selectivity Articulation between national and European levels

react to and influence internationalization for the benefit of a country's competitiveness and innovation capacity? Most of the policy measures at the moment concentrate on the attraction of FDI and R&D, rather than supporting agents in gaining relevant knowledge abroad or reaping the benefits of outward FDI and international R&D (Edler and Boekholt 2001). More emphasis should be laid upon increasing the benefit from the international activities of domestic firms, and home countries should emphasize policies of 'absorption', that is, policies to develop their domestic absorptive capacity and networking (CREST 2008; OECD 2008a).

International business activities are becoming increasingly complex (in terms of the degree of international involvement and activities). There is an increased demand for a broader range of support services and a more engaged role for public support services (innovation and internationalization agencies). There is a need, not only for financial support, but also for agents that facilitate the initial stages of cooperation and/or internationalization. There seems to be a need for an increased role of the public sector as an intermediary taking the role of stimulator and facilitator for internationalization. Whilst many companies are building more international distribution, production and R&D networks, few have really begun to build the internal capabilities to manage these operations efficiently. Firms (as well as research institutions) may have difficulty in

constructing, obtaining and maintaining networks, contacts, advice and information themselves. Public agencies can provide a great help in this regard (European Commission 2007, 2010; OECD 2008b, 2009).

From an initial focus on issues related to the development and commercialization of products and knowledge, national strategies nowadays are increasingly focused on issues related to the global access to knowledge, the integration into and positioning within global value chains, the promotion of open innovation and the joint development of solutions to global challenges. The broadened scope of policy prompts an increased need for strategic planning and prioritization, as well as a greater need for coordination between a number of policy areas: competition policy, foreign policy, development policy, innovation and internationalization, and so on.

Policy makers must also be aware that the main policy concerns arising from the accelerated internationalization of activities, and of R&D in particular, differ depending on a country's current position in the global value chain and its competitiveness (OECD 2008a). For home countries of leading R&D-intensive MNEs, their concern is the possible erosion of home-based R&D due to offshoring and outsourcing abroad. Small countries may have neither sufficient domestic resources for the specific skills they require nor the advanced users needed to test their inventions. This prompts an increased need for strategic planning and prioritization according to national specificity (OECD 2008a).

Considering the convergence of goals between the national and European levels, there is an opportunity here for the EU level to complement the national level efforts.

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NOTES

1. Filippetti et al. (2009) argue that there is causal interaction between internationalization and innovation and that this leads to a cumulative process in which the innovation and internationalization elements affect each other in a virtuous or vicious circle. Innovative firms are more successful in international business. This puts them into contact with alternative business cultures, innovation and technologies, thus adding to their overall business knowledge. This in turn makes them more innovative and thus more able to

compete internationally. Less innovative firms and countries may become locked into an opposite vicious circle.

2. Productive or R&D offshoring is defined as a firm's relocation of domestic production or R&D to another country, either by obtaining services from an unaffiliated foreign company or by investing in a foreign affiliate or joint venture.
3. Additionally the most frequently mentioned reason among internationally active SMEs for developing products or services themselves is that this is a consequence of competition from foreign enterprises in the enterprise's home market. Thus policy makers should not underestimate the catalysing role that foreign firms may play in the home market in stimulating domestic firms' innovativeness.
4. A number of policies may affect the degree of internationalization of firms of an economy, even when launched with other purposes. Considering outward foreign direct investment, for example, measures that contribute to an overvalued currency, and the liberalization of capital movements, as well as restrictions on prices, are likely to increase outward FDI. Wage controls, privatization programmes and the enforcement of restrictive policies towards MNEs are otherwise bound to smooth foreign investments by domestic firms (Brewer 1993). Finally, there are other policies that affect the viability of investment projects, such as trade preferences and tax, labour and competition policy, which may enhance the host country's attractiveness or otherwise anchor firms in their home economies (for example restrictive labour policies).
5. The access to the incentive is associated with the firm's aggressive behaviour and deliberate search for market opportunities overseas, but the origin of the stimuli is the external environment.
6. This policy targets not only business R&D, but also public and private science, technology and research in general.
7. See, for example, the cases of Sweden and Canada's Global Value Chain Initiatives or the Going Global Innovation, and the strengthening of the network of Trade Commissioners worldwide. Germany implemented a high-tech strategy and also established German Houses of Science and Innovation in several target countries to help German companies to enter and establish new partnerships. It also financially supports international cooperation. China uses financing support more intensively for establishing R&D in foreign countries (Serger and Wise 2010).
8. Storey (1998) reviews various methodological approaches to the evaluation of small business support policies found in developed countries.

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