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• **Title.**

The Missing Link Between Awareness and Use in the Uptake of Pro-Internationalization Incentives

• **Author names and affiliations.**

Miguel Matos Torres
Centre for International Business, Leeds University Business School, Maurice Keyworth Building, University of Leeds, Leeds, West Yorkshire, LS2 9JT, UK (miguelmatostorres@gmail.com)

L. Jeremy Clegg
Centre for International Business, Leeds University Business School, Maurice Keyworth Building, University of Leeds, Leeds, West Yorkshire, LS2 9JT, UK (L.J.Clegg@lubs.leeds.ac.uk)

Celeste Amorim Varum
DEGEI & GOVCOPP, University of Aveiro, Office 10.3.32, DEGEI, Campus de Santiago, 3810-193 Aveiro, Portugal (camorim@ua.pt)

• **Corresponding author.**

Miguel Matos Torres
Centre for International Business, Leeds University Business School, Maurice Keyworth Building, University of Leeds, Leeds, West Yorkshire, LS2 9JT, UK (miguelmatostorres@gmail.com)
Mobile: +351968246351

THE MISSING LINK BETWEEN AWARENESS AND USE IN THE UPTAKE OF PRO-INTERNATIONALIZATION INCENTIVES

Abstract

We investigate the process by which firms become participants in official programmes of public support designed to promote outward internationalization. This study builds on previous research that has established the distinct factors associated with firms' awareness and use of public support measures. These earlier studies have also shown that deficiencies within programmes manifest in low participation rates. However, scholars have not extended this reasoning to focus on the underlying processes involved, and have paid little attention to the steps through which firms elect to use public support, and how support operates upon, and within, the firm. In particular, the link between awareness of public incentives towards internationalization and the use of these incentives has been overlooked. General failure to understand this link is a potential source of policy inefficiency, reducing the effectiveness of those public programmes that employ incentives. We pose three research questions to examine the concept of such a link: (1) Do firms select public incentives that compensate for a lack of resources or capabilities in their possession? (2) Do firms react primarily to internal or external exigencies, for example, internal financial constraints or, rather, are they responding to unfolding circumstances, such as the more demanding market conditions experienced on internationalization? And (3) do firms use public support to "externalize" the increased risk to which they are exposed as internationalization proceeds, and thereby protect their external activities and investments from loss?

The process that firms go through to apply for any type of public support is normally two-staged. Firms first become aware of incentives and then decide whether or not to use them. This process can be handled empirically using a Heckman Selection Model, which we apply to explore our research questions using survey data collected from a sample of Portuguese firms. We find that the greater are the internal limitations of these firms with respect to resources and capabilities and the more demanding are the conditions in which internationalization takes place, then the greater is the use made of public support. We find that awareness of the availability of support is promoted by firms' in-house resources and capabilities and, at the same time, is positively associated with more demanding conditions of internationalization. The use of public support appears to be associated with the opportunity cost to the firm of public incentives, and with the increased risk inherent with internationalization. These results point to the existence of important sources of inefficiency within the process of application for policy measures, particularly with respect to the link between awareness and use. The use of public support is inversely associated with the opportunity cost to the firm of the resources deployed to apply for public incentives and, for firms with greater resources and capabilities, associated positively with the increased inherent risk of internationalization. We find evidence that it is the firms with greater resources and capabilities that predominate in the application for public incentives, allowing us to infer from the data that the typical recipient pursues more risky modes of entry, or selects locations with higher levels of risk, because of the availability of public support. These results point to the possible existence of important sources of inefficiency within the process of application for policy measures, particularly with respect to the link between awareness and use. This behaviour is quite distinct from the search for return on commercial investments and, therefore, is indicative of the possibility of social loss within this public policy intervention.

Keywords: public incentives; support processes; home country; outward internationalization.

1. Introduction

Dating from Cyert and March (1963) the view of the firm as an information-processing and decision making system has paved the way for exploration of the complex nature of organizational processes that take place within its internal economy. This approach has been employed effectively within the sphere of international business research by scholars such as Aharoni (1961; 1966), Boddewyn (1979a and b), Johanson & Vahlne (1977) and by Vernon (1966a and b). Although the behaviour of the firm, and the firm's relationship with the external environment that it encounters, has encompassed the artefacts of government policy, the interaction of the firm's decision-making with government policy has remained under-explored – specifically with respect to the mechanism within the firm by which it responds to policy. This is nohere more true than in the case of internationalization and the process through which home country support measures towards internationalization (HCSMIs) exert traction upon the international strategy and behaviour of domestic enterprises. HCSMIs are official home country incentives provided through law to promote the internationalization of domestic firms. While they are widely recognized in academic literature, and in policy circles, the process through which they exert their effects is poorly understood, both by academic researchers and policymakers themselves.

In this study we do not adopt a regulatory perspective on HCSMIs, nor do we consider their effectiveness as a determinant of internationalization per se. Rather, we focus on one of the earliest decisions of firms within the process – that of application for HCSMIs and, in particular, why firms decide to use public support in the first place. This is the first, but necessary, step in understanding how policy to promote internationalization actually works, and how far it can be made to work better. The conventional wisdom prevalent in non-scientific studies invokes, as the causes of firms' uptake of policy measures, the presence of a desire for: the reduction of costs and uncertainty, the increase of sustainable competitive advantages, base opportunism and, in direct contrast to this, alignment with national policies (EU, 2007; UNCTAD, 2012). We restrict our focus to incentives specifically to promote outward internationalization, and pose three principal research questions: (1) Do firms become aware of public incentives on the basis of the experience, resources and capabilities they possess and do they select incentives that compensate for deficiencies in resources or capabilities under their control? (2) Do firms react primarily to internal or external exigencies, for example, financial constraints or, rather, are they responding to unfolding circumstances, such as more demanding market conditions experienced on internationalization, using public incentives according to principles of opportunity cost? And (3) do firms use public support to mitigate through "externalizing" the increased risk of internationalization, and thereby protect their external activities and investments from loss?

Our rationale is to add to knowledge on the determinants both of the awareness and of the use of incentives (Crick, 1997; Koksal, 2009), and to explore the link between these two, as we conjecture that it might hold the key to understanding the causes of policy inefficiency. There is evidence to indicate that government actions are liable to fail on account of this missing link in our understanding of the sources of inefficiency (Koksal, 2009; Spence, 2003; Storey, 1999). A case in point is the example of British export promotion, in which a survey by the British Chambers of Commerce, involving eight thousand companies – mainly small and medium sized – concluded that over 65 per cent were unaware of the existence of public support for exports (United Kingdom Parliament, 2013). In the light of evidence such as this, we consider not only the determinants of the decision to use public incentives, but take a step back to examine the antecedents to application for public

incentives, including a set of determinants of awareness that firms may have regarding the availability of public incentives. In doing so, we find that, to date, the contributory literature dealing with the internationalization of domestic firms as yet lacks a sound understanding of the effects of firms' characteristics – particularly of firms' resources and capabilities, as well as of the environmental conditions of internationalization – upon the awareness and use of official support by domestic firms.

Investigating policy effectiveness through a two-step model is justified for three main reasons. First, it elucidates the origins of inequality observed in the receipt of government support. It does this is in a manner analogous to research by Heckman & Smith (2004) regarding matters within the context of employment. Such a framework allows us to go beyond a simple, separated, comparison of statistical means for awareness or use of HCSMIs, and so to better explore the role of asymmetrical information across firms in explicating the process efficiency of participation in public incentives. We also aim for a deeper understanding of the parts played by resources, capabilities, and the specificities of risk encountered during internationalization upon firms' behaviour. We posit that it is important to consider whether patterns of firm behaviour towards the use of HCSMIs result from a lack of resources and capabilities necessary to internationalize, from the burden upon the firm of search and screening costs, or from no more than pure opportunism – in which category we include risk externalization.[1] Second, identification of the distributions of awareness and of use can yield practical information about the determinants of participation in public programmes aimed at encouraging activities – particularly those whose motive is, as in the case of internationalization policy, to create impact on economic growth (Keesing, 1967; Kravis, 1970; Penrose, 1956). Indeed, domestic economic growth led by the external sector is recognized as a priority for policy makers (Moran, 1998). Third, new insights into the policy participation process have important implications for strategies towards effective programme evaluation. We know that knowledge accumulated from evaluations can reveal how the determinants of participation vary between firms (Crick, 1995). But, robust scientific understanding promises to inform choices about from where to draw a control group, what variables to collect in a survey, and what targeting strategy should be adopted in differing circumstances (Abelson, Forest, Eyles, Smith, Martin & Gauvin, 2003; Heckman & Smith, 2004).

There is considerable applied research on the promotion of internationalization, notably with respect to exports, for example, Gil, Llorca & Martinez (2008); Girma & Görg (2007); Greenaway & Kneller (2007); Martincus & Carballo (2008). All of these studies provide evidence to support the existence of a form of 'synchronization' between a firm's resources and capabilities and its use of public incentives. However, there is disagreement over the causal mechanism of this apparent synchronicity. Compounding the lack of evidence on the true nature of the processes through which public incentives are allocated between firms, such evaluations of policy measures to support private investments as there are – be it for internationalization or for other purposes – have focused on the aggregate impact of incentives, so neglecting the question of the "bridge between awareness and use" (Bannò & Piscitello, 2010; Colombo, Grilli & Verga, 2007; Bergemann & Välimäki, 2002; Heckman, 2010). Our enquiry, although novel in exploring the mechanism within the firm by which it responds to policy, belongs to a small family of evaluative studies that seeks to understand the mechanisms through which public incentives exert traction upon firms' aspirations, strategies and needs. Such evaluations, are typically commissioned by public officials to measure the impact of policies, often to demonstrate to the taxpaying electorate and the

[1] By which we here mean the systematic use of public incentives to defray the cost of engaging in more risky projects.

business community how far programmes are cost-effective, and to improve the design and administration of programmes (OECD, 2009).

In general, the process that firms go through to apply for any type of public support consists of two stages. First, they become aware of the availability of incentives, and only then can they decide whether or not to use them. Thus, within our present exploratory study we propose an empirical analysis, which applies a variant of the proposition tested by the Nobel Laureate James Heckman in several works to deal with two-staged problems, for example, Heckman (1978), Heckman & Robb (1985), and Heckman & Smith (1999). We draw on discoveries from this body of work, but we also develop novel arguments on the decoupling of awareness and the use of public incentives – an issue that has received only scant attention in the extant literature. First, our framework stipulates awareness to be a *sine qua non* for the use of HCSMIs. We analyze data from a unique and detailed survey which covered 11 different types of HCSMIs aimed at promoting the internationalization of Portuguese firms, and which were in force continuously between 1994 and 2009. Thus, in identifying a mechanism underlying the degree of effectiveness of policies and programmes that operate at the micro level, our study offers potential for beneficial application to the design of public policy. Second, in incorporating the economic concepts of opportunity cost and firm scale economies in the explanation of public incentives' efficiency, our model extends understanding and the means by which to conceptualize the application process for public support. Third, the model accommodates insights from strategy and organizational research, to highlight the coupling between companies and governments, and their motivations.

The mission of this study is to explore, and to advance theory using empirical evidence on the conditions under which the adoption of public incentives towards outward internationalization leads to the achievement of the goals set by policy makers. We use the theoretical perspective of the resource based view and the contextual environment of foreign markets in which internationalizing firms come to be involved. This combination offers a sharp analytical lens through which to tease out the impact of firm behaviour upon the effectiveness of public incentives. Our results provide evidence that firms with fewer resources and capabilities, and those exposed through internationalization to more difficult market conditions, tend to be more aware of public incentives and make greater use of them. Controlling for awareness, it transpires that firms self-select in their use of public incentives. We find that while higher capability firms, as a group, are less likely to use the support measures available, those firms involved in more arduous and risky conditions of internationalization, that is, more demanding environments, are more likely to use HCSMIs. Pervading the findings is a relatively low level of awareness of the availability of public support measures. This may be an indication that search, screening and application costs are form that block the process of firms' uptake of support. But a striking finding is that for firms facing more exigent conditions of internationalization, the pattern of use of public support is consonant with the argument that some firms employ support as a tool of "risk externalization".

Overall, our results are in agreement with the recommendations of Bannò & Piscitello (2010), Blanes & Busom (2004), González, Jaumandreu & Pazó (2005), and Hall & Van Reenen (2000) advocating that policy makers should focus on communications strategy and the application stage when developing and implementing policy programmes. The likelihood of unexpected barriers (or indeed the possibility of potential facilitators) to participation in public programmes means that these aspects can assume importance for programme performance.

In exploring the relationship between firms and public institutions, our study provides new evidence on the trade-off that any firm must make between its economic

functions, that is, transactional economic costs, and its capability to manage institutional idiosyncrasies (Henisz, 2000; 2003). In this respect, our findings yield implications for how to improve the design and administration of programmes for the promotion of internationalization and, more generally, for the branch of study that concerns public incentives to private activities with external social effects. Our research might also make for increased understanding on the parts of politicians and public officials of the benefits of establishing an evaluation culture, of engaging in debates within as wide a constituency of evaluation as possible, and of holding open discussions on the procedures and methods to be used in policy programmes.

The paper is organized as follows. The next section explores the determinants of awareness and use of public support. Section 3 sets out the methodology, including the empirical setting, the process of data collection, the econometric model, and the definition of variables and their measurement. Sections 4 and 5 present, respectively, the results (including the statistical validation of the econometric model) and our discussion of the statistical evidence. Section 6 concludes.

2. The missing link between awareness and the use of public incentives

Rather than being a slavish sequence of administrative routines, the implementation of policy is a complex process of discrete steps, and involves the cooperation of a variety of actors (Corbett & Lennon, 2002; Schilder, 2000). Heckman & Smith (2004) provide guidelines on how to improve understanding of the application process for public incentives, in particular, through decomposing the application process in the round. These guidelines advocate that policy makers first set the criteria for eligibility, to be implemented by those agencies with responsibility for the management of the programmes. But setting eligibility does not guarantee policy effectiveness. Several studies demonstrate that low participation rates by eligible firms abound in the performance of public programmes aimed at promoting internationalization (Giebe, Grebe & Wolfstette, 2006; Meier & Pilgrim 1994). For example, these enquiries single out a lack of awareness of the availability of business assistance services as a reason for the poor take-up rate of government programmes, though evidence to support this is anecdotal. This dearth of scientifically established knowledge helps to explain why researchers, and those in policy circles, know surprisingly little about shortcomings within the process of application for public support (Colombo, Grilli & Verga, 2007) – neither its underlying causes and consequences, nor how potential applicants decide whether to apply, nor what are the determinants of firms' access to public support, and not even what forces are involved in such processes.

Based on firms' awareness – that is, the extent to which those eligible are informed about the availability to them – of a suitable public measure, the firms' managers, as agents, decide whether, or not, to submit an application. In this way, firms self-select to participate via the application process. The point of closure is when public agencies choose which firms' applications will be accepted for enrolment in a programme, and for the receipt of support (Heckman & Smith, 2004). In our study, we attend to the link between two key points within this process: (1) awareness and (2) use. These two are, by their nature and in turn, intimately associated with those critical obstacles that firms report facing during international expansion. These obstacles are: (i) a lack of resources and capabilities, and (ii) increasingly demanding conditions encountered as internationalization progresses (Cuervo-Cazurra, Maloney, & Manrakhan, 2007). To these two we add (iii) that it is a premise that internationalization can only be pursued at increasing opportunity cost; expansion abroad requires an escalation in the resources sacrificed to the task – resources that could be

employed elsewhere within the scope of existing business activities. And, it being a precept that overseas projects are riskier by their nature, therefore expansion abroad involves conditions of increasing risk-return trade off. To this standard model we add that the compliance costs involved in the application process for public support naturally bear heavily upon firms, generating increasing opportunity cost of application. Firms unable to mitigate these costs through firm-specific proficiency will face truncated ability to gain support.

2.1. Determinants of awareness

It follows that, irrespective of the policy area of intervention, achieving corporate awareness of public incentives should be a primary goal for governmental agencies (Kumcu, Harcar, & Kumcu, 1995). We know that there are several organizational and environmental determinants that impact upon firms' awareness and, in particular, with regard to incentives to outward internationalization (Koksal, 2009). In the simplest case, we might assume that firms' awareness of public incentives depends on a combination of the promotional efforts of government agencies and the degree of alignment between firms' strategies and government policies (Torres & Clegg, 2014). The initial screening of the external environment by firms within the decision to apply for support has extraordinary relevance to determining the final decision to apply (Cyert & March, 1963). Thus, adopting the perspective of the firm, we should consider whether and how far the burden of significant search and screening costs compromises the effectiveness of policy tools, as these costs truncate eligible candidates' awareness of available measures (Feinberg & Huber, 1996) – it having already been established that only a very small proportion of information available is ever recorded and processed by firms (Cyert & March, 1963).

In view of the above discussion of existing theory and the limited evidence, our first research hypothesis proposes that raised information gathering and screening costs (Stiglitz, 1975) will depress the awareness of novice firms regarding public incentives through, at the outset, generating barriers to their participation in internationalization support programmes. *Per contra*, firms previously involved in international activities are expected to have accumulated a larger number of relevant contacts and developed more efficient channels to receive and screen relevant information about available support measures for internationalization (Erramilli, 1991; Henisz & Zelner, 2005). Therefore, while significant search and screening costs are a barrier for less internationally experienced firms, more experienced firms will exhibit a greater proficiency in mitigating their impact on awareness.

Hypothesis 1.1. Awareness of HCSMIs will have an increasing relationship with the firm's proficiency in mitigating search and screening costs.

With respect to the resources possessed by firms, size and age are commonly used as proxies to measure the internal accumulation of resources. Larger and older firms are considered likely to enjoy higher awareness of public support incentives. Such firms have higher levels of corporate memory-related resources (Brooking, 1998) and, while they are less numerous, they tend to be more visible and so easier for public agencies to target. Such firms are also likely to have more interfaces – and of higher quality – with the external environment and with professional networks which, in turn, also reduces the potential difficulties of being reached by governmental agencies (Pfaffermayr, 2004). Moreover, those firms with greater capabilities, often measured through the skills of human capital, generally enjoy higher awareness of existing public support. Higher skilled individual employees tend to have more extensive personal connections with relevant networks

(Laamanen & Wallin, 2009), are more open to the external environment, and are better able to understand and handle flows of information from external sources (Inkpen & Tsang, 2005). Thus, firms with a higher complement of skilled human capital are expected to lie above the norm of awareness with regard to public incentives available for outward internationalization.

Hypothesis 1.2. Awareness of HCSMIs will exhibit an increasing relationship with the resources and capabilities of the firm.

If, to the above reasoning, we add the possibility of the existence of internal financial constraints experienced by the firm on internationalization, then this may lead the firm to develop strategies to overcome their difficulties (Cuervo-Cazurra, et al, 2007). These strategies may go beyond screening for external sources of funds from private sources of capital. For example, they may comprise indebtedness to banks (De Maeseneire & Claeys, 2012), cooperative strategies taken with other firms, such as joint-ventures or international alliances (Contractor & Lorange, 2002) and a search for support endorsed or managed by public institutions. In general, we expect that the greater the need, that is, the greater the level of financial constraints and environmental difficulties, the greater will be the attention (Tallon-Baudry, 2004) given by the firm to the flows of information about public incentives and, consequently, the level of awareness of public support available.

Hypothesis 1.3. Awareness of HCSMIs will be positively associated with financial constraints on the firm.

We now develop the argument on the link between the firms and its external environment. We expect that firms involved in more difficult conditions of internationalization – either because they are involved in a higher number of export markets (Johanson & Valhne, 1977), or because they have a greater spread and number of subsidiaries in host economies (Engwall & Hadjikhani, 2014) – will exhibit a greater need and desire for external support. This works through increasing the opportunity cost to the firm of internal resources progressively deployed to more risky investments abroad, so stimulating the firm to seek further, or alternative, external sources of resources.[2] This is the basis for arguing that these firms will search more intensively for external support – in particular, support of a public nature. This family of expectations may translate into progressively higher levels of awareness of available public support.

Hypothesis 1.4. Awareness of HCSMIs will exhibit a positive relationship with the difficulty and hazards of internationalization.

Finally, we argue that involvement in other and high profile public support programmes will predict awareness of the availability of HCSMIs. We include innovation intensity as a proxy for the firm's proficiency in perceiving and recognizing the beneficial opportunities available under support programmes. We choose innovation intensity to proxy this capacity on the basis that R&D expenditures are customarily widely subsidised by society, and therefore the more innovation intensive a firm is, the more it tends to be attuned

[2] The logic is that, the greater the spread of either export markets, or of hosts markets, then the greater the likelihood that the internationalising firm has progressed from doing business in safer and more familiar markets to deriving earnings from (and incurring costs in) riskier economies.

to the availability of public support.[3] Innovation intensive firms are, in general, very familiar with applying for support. Society supports research and development effort on the basis that technological development yields benefits to society that go beyond the benefits to the firm, and therefore that – in the absence of support – the level of innovation will be socially suboptimal. This is very similar reasoning to that underpinning support for internationalization – that it will be suboptimal in the absence of societal support. We argue that the familiarity which innovation intensive firms develop in ordering their cases for support – and in accessing the information needed to justify and to comply with the requirements of support programmes for R&D effort – enables them to be highly proficient in knowing about available support opportunities. This expertise is directly re-employable in searching and screening for support for any project, including internationalization. An added consideration is that R&D intensive firms typically seek to join innovation clusters in other economies located outside the home economy, and that support for this lies not in the domain of support for domestic R&D but in the domain of support for internationalization (Hall & Van Reenen, 2000; Van Reenen, 1996). Therefore, it is a natural sequitur that firms using support for innovation should, at an early stage, be aware of support for internationalization.

Hypothesis 1.5 Awareness of HCSMIs will have an increasing relationship with the firm's proficiency in identifying beneficial support programmes

2.2. Determinants of Use

Firms that are aware of the availability of support for international involvement, if they are to make effective applications, must then decide if they will proceed to seek to benefit from the programme of support in question. Here we reason that the impact of search and screening costs declines with international experience. The proficiency developed by the firm through experience naturally links to the decision to use – or not to use – HCSMIs, essentially because the costs involved in deciding and executing an application are better understood, and the true value of the HCSMIs to the firm can be better judged. This true value will have a tendency to diminish, as the firm's expansion path abroad will, as a rule, select the most lucrative projects first. Along with this are considerations of opportunity cost. The firm will make a decision whether or not to apply for support based, at least partly, on how burdensome the application process is, and on the expected value of the support – both in the light of historical success rates and the actual benefit expected of the investment.[4] It is reasonable that application costs deter the use of public incentives, and that application costs decrease the firm's use of HCSMIs by depressing the relative benefit of external assistance – because transaction costs are raised (Williamson, 1979). The greater the burden of these costs of application, then the lower the likelihood of firms proceeding to completion and submission. While this burden of application declines with experience as the firm becomes more proficient and practised specifically in compliance, the decline in the

[3] The argument for subsidy by society is that the opportunity cost to the firm, here of innovation effort (or, indeed, as in our study, of internationalisation) is naturally higher than the opportunity cost to society. Therefore subsidization is required to move closer to the social optimum.

[4] The longer the time commitment required for application, as influenced, for example, by the length of pro formas, and the greater the need for hard-to-access information to complete the application, then the greater the opportunity cost of the firm's resources deployed to fulfilling compliance with the application process. Exacerbating this would be the burden of any necessary monetary costs of hiring external assistance for the purpose of application.

expected (incremental) benefit to the firm from support is likely to dominate.[5] We therefore predict that the firm's proficiency in identifying, and accurately reckoning true, search and screening costs – along with benefits – will be linked to the firm's experience of internationalization, and that, on balance, the expected relationship with use will be a decreasing one.

Hypothesis 2.1. Use of HCSMIs will have a decreasing relationship with the firm's proficiency in reckoning search and screening costs and benefits.

Larger and older firms are more likely to have the relevant capabilities to pursue international opportunities autonomously, that is, not to be dependent on external support (Aharoni, Maimon & Segev, 1981). Since Penrose (1959) and the structured understanding of the part played by firms' resources and capabilities in determining external performance (Barney, 1991; Rumelt 1984; Wernerfelt, 1984) it has been well accepted that larger and older firms have some competitive advantages over smaller and younger firms – no matter how skilled their management might be (Autio, Sapienza & Almeida, 2000; Spence & Crick, 2001). Furthermore, the market connections of larger and older firms tend to be more extensive, their internal funds greater, along with their standing in capital markets. Such firms possess valuable accumulated experience and, by virtue of their size and networks, they can take advantage of many technological and organizational economies not accessible – or more difficult to access – at smaller scales of operation (Weder, 2003). Additionally, firms with more highly qualified employees enjoy superior capabilities. In line with Colombo & Grilli (2005), we therefore expect firms with more highly skilled human capital to attribute a lower value to available public support incentives and therefore to use them less.

Hypothesis 2.2. Use of HCSMIs will have a decreasing relationship with resources and capabilities of the firm.

Financial constraints are expected to encourage the use of public support. The market for capital for real investment purposes is subject to significant imperfections, which frequently result in financial constraints to firms (Antràs, Desai & Foley, 2009). And, moreover, due to the volatile and asymmetric information typical of internationalization projects, the firms in question will face yet greater difficulties in accessing finance (De Maeseneire & Claeys, 2012). Market failures prevailing in markets for finance will therefore curb investment projects, and limit the capability to engage in internationalization (Mondria & Quintana-Domeque, 2013; Van Tongeren, 1998). At the same time, use of support that assists the firm in achieving financial efficacy, in particular specific subsidies to help overcome financial constraints, can be of value in promoting the internationalization process of firms. This is the social rationale for subsidizing internationalization.

Hypothesis 2.3. Use of HCSMIs will be positively associated with financial constraints upon the firm.

Underlying the higher level of complexity and uncertainty faced by firms engaged in more demanding projects of internationalization are various factors, such as, a greater spread

[5] For there to be an increase in uptake of support, it would require that the incremental benefit to the firm would have to rise, and this is unlikely. As the firm expands internationally, the effect of the support will become diluted, contributing a diminishing impact the more international the firm.

of export markets, a higher number of subsidiaries, and riskier host economies encountered as the range of investments widens (Agarwal & Ramaswami, 1992; Brouthers, 2013). Therefore, perceived risk becomes associated with more demanding internationalization projects, In this context, the opportunity cost of applying for support must be taken into account by the firm: the more onerous the application process, the greater the increment in the firm's resources forgone for other economic and productive activities. We argue that (and contrasting with H2.1 above) the relative benefit to firms of securing support is greater under more demanding conditions compared with less demanding environments as, unavoidably, the risk-return trade-off will be less favourable. We posit that firms in more demanding environments will find that the potential benefit to them of securing external support is higher, as it can be used to defray the exposure to loss. For this reason we predict that in more demanding conditions firms will attach a higher level of importance to using public support.[6] Figure 1 depicts the relationships outlined above.

Hypothesis 2.4. Use of HCSMIs will be positively associated with the difficulty and hazards of internationalization encountered by the firm

Figure 1: Hypotheses structure
ABOUT HERE
Source: authors

3. Methodology

3.1. Empirical Setting

This study seeks to ascertain: (1) whether the firm's level of experience, resources and capabilities determines both awareness and self-selection of public incentives, following through to a hypothesized mechanism in which public support is sought to compensate for a lack of resources or capabilities; (2) how far firms respond to internal and external internationalization difficulties using public incentives according to internal opportunity cost; and (3) whether or not firms protect their international activities and investments through employing public support to "externalize" the increased risk of internationalization. To do this, we use the case of firms from a small economy, Portugal, in which there was a stable policy towards the promotion of internationalization over a time span of 15 years, between 1994 and 2009, making Portugal an ideal test bed for our enquiry. The Portuguese policy principally consisted of the encouragement of exports, with investment promotion abroad in a subsidiary role. The lack of prior research on the mechanism of policy uptake in this domain, and the resulting originality of the research questions, is employed as justification for a single country study, which is, nevertheless, of potential generalizability to theory and to other economies.

In common with other European economies in the 1990s, Portugal launched a set of initiatives to promote the competitiveness of domestic firms in the international arena (Nugent, 2010). The formal instrument it applied was the Programa de Apoio à Internacionalização das Empresas Portuguesas (also known by the acronym, PAIEP). This compliance tool aimed to make available support of an extensive and diverse nature, in order

[6] This is not, however, with the intention of securing greater returns for the same risk (as the risk-return tradeoff normally becomes less favourable as internationalization progresses) but to mitigate private downside risk, making internationalization loss more affordable. Upside variations in returns are retained by the firm as private earnings.

to reach all types of firms. Table 1 illustrates the legal instruments associated with 11 different types of HCSMIs identified by this study. These instruments become our dependent variables, which can be divided into two categories: (1) non-financial incentives, and (2) financial incentives.

Non-financial support is mainly focused on the provision of informational resources and capabilities, in the form of technical assistance to reduce information asymmetries, to lower the avoidable risk attaching to investment and to mitigate the cost of firms' outward internationalization. This type of incentive does not necessarily require the flow of financial resources. Examples include, logistical support for participating in trade fairs or state missions, training and consulting services, informational services, support for hosting trainees in foreign firms, and support through international investment agreements.

Financial incentives afford firms access to capital at lower cost, through applying a lower valuation of risks. Indirectly, financial support strengthens the firm's capabilities and productive capacity to better explore the broad range of foreign investment activities. These incentives may raise the likelihood of engaging in additional profitable projects and investments but, in the event of creating overinvestment, they may also give rise to allocative inefficiencies. This type of incentive is a conduit for financial inflows of funds from agencies to firms, for example, support through investment and credit insurance and mutual funds, venture capital, fiscal benefits, financial packages, preferential credit conditions through protocols with banks, and support for acquiring or developing brands.

Table 1: Pro-internationalization incentives and legal instruments
ABOUT HERE
Source: authors

The lack of secondary data on which to test our hypotheses necessitated a primary data collection strategy. This employed (formal) contacts with 89 Portuguese business associations and with a number of commercial lawyers used to dealing with firms' official applications for these incentives. Through close collaboration with these two groups, we collected data via two main routes. First, we explored and classified the law relevant to outward internationalization that had been enacted and implemented between 1994 and 2009. Then, using the HCSMIs included in Table 1, we developed a questionnaire, which was applied to a sample of 4,637 firms, proportionally distributed by industry and by region in Portugal which was supplied to the researchers by the business related organizations. Over a time span of six months, between December 2009 and May 2010, we received a total of 1,024 responses through an on-line survey. For the purpose of this study, we only considered a sample of 441 firms, in which each firm had participated in at least in one of the 11 types of incentives described in Table 1.

Table 2 depicts the descriptive statistics of the dependent variables, awareness of the availability, and use, of support regarding each of the 11 HCSMIs. We find that, apart from in one instance, the percentage of firms aware of public incentives is greater by at least a factor of two compared with the percentage of firms reporting having used them. For most firms, awareness is highest with respect to the availability of fiscal incentives and informational services. In contrast, the least numbers of firms reported knowing of protocols between government agencies and banks, and about public support for acquiring or developing brands, marketing or sales. As regards the measures of which firms reported making the greatest use, public support through informational services, venture capital, and fiscal incentives were most prominent. Those measures used to the smallest extent include other public financial incentives, protocols between governmental agencies and banks,

investment and credit insurance or mutual funds.

Table 2: Use and awareness of incentives towards outward internationalization
ABOUT HERE
Source: authors

3.2. Statistical Inference

3.2.1. Method of Analysis

The dependent variables are Awareness (0: not aware and 1: aware) and Use (0: no use; 1: use) of public incentives. Given the relationship, as set out above, between the two dependent variables, we apply the Heckman Selection Model, also known as Heckman Correction. This is a two-stage procedure that corrects for sample selection bias in regression analysis (Heckman, 1979). This model employs two equations that capture the two successive theoretical stages and, in so doing, predicts all parameters: first in the equation for selection, and second in the outcome equation. In our analysis, the first (selection equation) estimates the likelihood that each independent variable has a role in determining awareness, while the second (output equation) tests the use of public support incorporating the results of the first equation. This model requires that the selection (Awareness) equation has one more variable than the output (Outcome or Use) equation (Heckman, 1978). When the error terms from these two equations are significantly correlated, standard regression techniques applied to the outcome equation alone can yield biased results, and therefore it is necessary to correct it (Gronau, 1974; Heckman, 1974; Lewis, 1974). Based on this model, we assume the existence of an underlying regression relationship:

Equation 1: Heckman Selection Model
ABOUT HERE
Source: Heckman (1979)

In practical terms, the first step of the model estimates each firm's awareness of a public support measure for internationalization, and then this estimated probability of awareness is used in the second step, as one of the regressors, to test the likelihood of a firm having actually made use of the type of public incentive in question. The econometric logic behind this model perfectly fits our theoretical problem. It captures the firm's awareness of availability in the first stage – and also incorporates that the probability of absence of awareness itself has an influence on the likelihood of the firm using a specific public incentive in the second stage. This information is essential to our ability to make inferences about the link between awareness and use. However, since the dependent variables in the first and second steps are binary, a standard model would be inconsistent and biased. To solve this problem, we employ a modified model (Flinn and Heckman, 1982). As in the original approach, the modified model consists of two steps but, while in the original model we would use a probit estimator in the initial selection (Awareness) equation and an ordinary least squares estimator in the second equation (the "equation of interest", in this case for incentive Use), the modified model runs a probit estimator in both steps. Thus, in the first step, all firms are analyzed, and in the second step the model only considers those firms that are aware of public support. Before running the model for each of the 11 HCSMIs, we experimented with a principal components analysis in order to allocate HCSMIs into a reduced number of sets. However, this technique did not satisfy the requirement that "the

number of principal components should be less than, or equal to, the number of original variables" (Dunteman, 1989: p. 8).

3.2.2. Independent Variables

For ease of interpretation, in the model proposed above, we group the independent variables into (1) characteristics of the firm, which maps to resources and capabilities; and (2) specificities of the internationalization process, which maps to the conditions of firms' internationalization. We include in the first, characteristics, set the following proxies: the firm's international experience – either export, or foreign direct investment (FDI), or both – size, age, human capital and indebtedness. The number of export markets and FDI locations comprises the second set, which aims to capture the specificities of the internationalization process. The experimental variables in this investigation are supplemented by a set of control variables, for which their effects have been established in the literature. The variables of family and foreign ownership, and location, are included as control variables. The same set of variables as in the Awareness equation, but excluding the innovation intensity variable, are included in the Outcome equation. The exclusion of innovation intensity during the second step is a condition of the model (See: Heckman, 1978). Table 3 provides full details on the description of the variables, measurement and summary statistics.

Table 3: Variables description, measurement and summary statistics
ABOUT HERE
Source: authors

A typical firm in our sample has on average 12 years' export experience, 2 years' experience as a foreign direct investor, 529 employees – 23 per cent of which have a bachelor's degree – and 24 years' existence. The indebtedness ratio – defined as the ratio of liabilities to assets – is, on average, 43 per cent. The number of export destinations is approximately 10, and the number of FDI destinations is at least one. Regarding the control variables, innovation intensity is given as the ratio of research and development expenditures to annual sales, and averages out at around 4 per cent, 28 per cent of the firms are family-owned,[7] 10 per cent are foreign-owned,[8] and 76 per cent of the firms are located in peripheral regions.

The cross-correlation matrix is presented in Table 4, from which it can be established that the degree of association between the independent variables is acceptable according to White (1980) and is unlikely to cause any problems of multicollinearity. An

[7] Being a family-owned affiliate has three requirements: (1) two (or more) of the board directors are family related; (2) family members hold a substantial block of voting stock (Gómez-Mejía, et al, 2010 has proposed a ownership threshold of at least 10%; (3) there is evidence of reciprocal influence between corporation strategy and family objectives. We avoid the "threshold technique", verifying all the criteria above firm by firm.

[8] A foreign owned subsidiary (FOS) is a firm controlled by a multinational enterprise (MNE), which organizes, through employment contracts, interdependencies between individuals located in at least two different countries. In practice, the managerial control exerted by a MNE over a FOS is verified when: (1) the subsidiary is wholly owned; (2.1) the subsidiary is partly owned, but the MNE has ownership of sufficient equity stake in the subsidiary to set standards, measure actual performance and take corrective actions; (2.2) the subsidiary is partly owned, but the MNE has the ability to strategically manage remotely the subsidiary to set standards, measure actual performance and take corrective actions. Hymer (1960) has proposed a threshold of 25%. We avoid the "threshold technique", verifying all the criteria above firm by firm.

industry dummy was initially included as a customary control variable, but was dropped from the model owing to lack of statistical significance. We can note that this variable was highly collinear with one other variable, that for human capital. The lack of significance of this dummy suggests that our model has the merit of industry generality. This dovetails with our research focus on the use of public support, placing to one side any desire to capture all manner of specificities, and is further justification for our decision to keep this variable in reserve for future studies.

Table 4: Cross-correlation matrix
ABOUT HERE
Source: authors

4. Results

4.1. Statistical Evidence

Tables 5 and 6 illustrate the results for non-financial and financial HCSMIs, respectively. In detail, the Export experience variable exhibits positive relationships with awareness of public support for participation in trade fairs and state missions (HCSMI1), and informational services (HCSMI3) while FDI experience also promotes awareness of HCSMI1 (both non-financial support measures). These results agree with the argument that experience as an exporter increases the flow and processing of information (proficiency) through mitigating search and screening costs, and that experience is therefore a predictor of awareness of public support (Hypothesis 1.1). Also as expected, there is a negative effect exerted by Export experience on the use of the majority of HCSMIs, supporting our contention that more experienced firms, once aware of the opportunity to benefit from external assistance choose to use this assistance less (H2.1). The results for FDI experience are not as strong. Nevertheless, previous FDI experience generates a negative effect, as expected, on the use of public support for acquiring and developing brands, marketing or sales (HCSMI11) with contrary results.

Across the HCSMIs, the results in the Awareness Equation, where significant, collectively suggest that firms exhibiting awareness of public support measures enjoy greater resources and capabilities. Two proxies for the complement of resources and capabilities record all the significant impacts – firm size and qualifications of human capital (with none by the firm Age variable). This pattern of results is broadly as hypothesized (Hypothesis 1.2). There is evidence that better knowledge (embodied in the pattern of significance of the Human Capital variable) raises awareness of the public incentives available to firms, as do superior resources and capabilities that arise through the effect of firm size economies – an effect that is significant for a majority of HCMIs. But while firms with superior resources and capabilities stemming from firm size use non-financial support (Table 5) to a lesser extent according to the expected negative sign on this variable (Hypothesis 2.2), as hypothesized by depressing the expected benefit of external assistance to the firm, firms of larger size appear to use financial incentives more (Table 6). This last mentioned, and contrary, finding may reveal a disposition by better resourced firms to avoid using in-kind incentives, in favour of financial incentives which may be more amenable to virement between uses. This is an indication that the nature of an incentive may be relevant to the specific effect of the characteristics of the firm upon use, though the evidence is merely circumstantial at present. However, this relationship of firm size with HCSMI8 is of greater significance in profiling the type of firm that seeks fiscal benefits, and why, as discussed below for Internationalization constraints. One further contrary result is that use of the incentive for international staff exchanges (HCSMI4) is positively related to the Human Capital variable, which may owe its effect to the generation of especially high value through

human capital infusion in certain specific types of activities.

Our hypothesis set is particularly designed to capture internal and external exigencies upon the firm, and the first of these is financial in nature. The pattern of significance records one instance of significant effect, as expected, of financial constraint upon awareness, as hypothesized (Hypothesis 1.3) for Public support through fiscal benefits (HCSMI8) which, again, is a support measure which, by its nature may be more readily recognized by firms.However, the effect of firm Indebtedness on the use of fiscal benefits is found to be negative for HCSMI8, contrary to Hypothesis 2.3. This result follows the argument of Feldstein (1999), who argues that more indebted firms are prone to develop independent strategies to reduce their tax bill, and so rendering fiscal benefits less advantageous – implying that firms with lower indebtedness tend to employ independent tax reduction strategies less than more indebted firms. The one instance of support for Hypothesis 2.3 comes from Public support through international trade and investment agreements (HCSMI5) – a non-financial measure which may particularly help indebted firms in market access to improve revenue.

We therefore find some mixed corroboration for hypotheses 1.3 and 2.3, from which we infer that (the existence of) financial constraints can increase the firm's awareness and use of HCSMIs through increasing the relative cost of capital. This yields some evidence of an increase in awareness as hypothesized, though there is likely to be greater causal complexity at work, including a multiplicity of effects (Weigel, Hessing & Elffers, 1987), while the aspect of behavioural visibility demands further research (Demirbag, Frecknall-Hughes, Glaister, & Tatoglu, 2013).

With regard to external exigencies, the difficulties and hazards encountered in the international environment have theoretical relevance to increasing the firm's awareness and use of HCSMIs through the antecedents of raised opportunity cost of resources, and the relative benefit from securing external resources (hypotheses 1.4 and 2.4). The results show that a firm's commitment to a greater number of export and investment markets exerts a positive effect equally on awareness of financial incentives (HCSMI7 Public support through venture capital and HCSMI10 Public support through protocols of governmental agencies and banks). This result provides substantiation for the idea that, when firms are exposed to more demanding conditions, they have a greater want of resources. This stimulates them to search for support from external sources, and we find some evidence that, once aware of support, these firms then use this support more intensively. The most striking, and compelling, result in support of Hypothesis 2.4 – that the use of HCSMIs will be positively associated with the difficulty and hazards of internationalization encountered by the firm – comes from the significant positive coefficient for the FDI diversification variable in the equation for HCSMI8 Public support through fiscal benefits. As the highest commitment mode of internationalization, and the most hazardous on account of the firm experiencing risk on both the revenue and the cost functions, earnings are imperiled to the greatest extent. The greater this spread of investments, as hypothesized, the greater the likelihood of higher risk investments in the overseas real asset holdings of the firm. The fact that HCSMI8 is the support measure of fiscal benefits suggests strongly that it is financial risk that is being mitigated through the use of this incentive or, as we might term it, the "externalization" of risk – a finding that merits extensive discussion, on account of its implications for theory and practice. What is more, the relationship of firm size with HCSMI8 suggests that the type of firm that seeks fiscal benefits also enjoys greater resources and capabilities, which runs counter to intuition that better resourced firms should not need to avail themselves of external support. Therefore this pattern of significance implicates the possibility of shortcomings in public support policy.

Positive results also in support of Hypothesis 2.4 are also found in the use of HCSMIs

3 and 4 suggesting that, according to theory, use results from an increase in the opportunity cost of resources within the firm, and so increasing the value of the relative benefits of external resources rendered by public incentives. These outcomes are net of the firm's proficiency in handling application costs and reckoning benefits, as considered in our Hypothesis 2.1 (which works partly through the mechanism that application costs deter the use of public incentives).

Hypothesis 1.5 that Awareness of HCSMIs will have an increasing relationship with the firm's proficiency in identifying beneficial support programmes is served by the Innovation intensity variable which does record an instance of positive impact on Awareness, supporting the hypothesis, with no contrary significances. In terms of control variables, family-owned, and foreign-owned, firms appear to be less aware and to make less use of public support in general. This may result from their weaker links to relevant information sources, namely to business related organizations (BROs). Family firms are very selective in terms of information and support gathering which serves the objectives both of the corporation as a business and of the family as a kin group (Arregle, Hitt, Sirmon & Very, 2007; Gómez-Mejía, Makri, & Kintana, 2010; Sirmon & Hitt, 2003). The outcome of this is that family firms may exhibit a lower engagement with the purely corporate-oriented measures offered by public support policy. If the firm is a foreign affiliate, the very rationale of this foreign ownership tends to make the firm less inclined to seek and to form contact with local public agencies or business representative organizations (Buckley & Casson, 1976: pp. 32-65; Gatignon & Anderson, 1988). As a result, it is reasonable that the awareness and use of host-country incentives exhibited by foreign-owned affiliates is less than that of domestically owned firms. Lastly, being established in peripheral locations has a positive impact on the use of public support. This result might relate to a need to substitute for the lack of economies of agglomeration in more peripheral regions, and because firms based in these regions often benefit less from being networked through BROs (Audretsch & Dohse, 2007; Bigman & Fofack, 2000).

Table 5: Estimation results of financial measures
ABOUT HERE
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Table 6: Estimation results of non-financial measures
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Source: authors

4.2. Marginal effects and validity of results

This subsection presents selected details of marginal effects, and an econometric validation of the models using the interpretation of the Mills Ratio (Baricz, 2008; Gordon, 1941; Greene, 2012). In the interests of simplicity, we confine our explanation of interpretation to the statistically significant results in the first two columns of Table 5. All the results obtained are included in the remaining columns of this table, as well as in the Table 6. The first column of Table 5 tells us that an increase of one year's export experience will decrease the probability of a firm being a user of public support for participation in trade fairs and state missions by 0.9 per cent. And the addition of one more employee to the payroll will decrease the probability of the firm being a user of this same incentive by 0.005 per cent. Being foreign-owned decreases the probability of a firm being a user of the same incentive by 16.4 per cent. At the conclusion of our regression model the output for the Heckman Correction, which examines the use made of HCSMIs, the estimates are the following: $\lambda = -0.564$; $\rho = -1.000$; $\sigma = 0.564$. In explanation of these estimates, we can note

that the adjusted standard error (σ) for the outcome equation regression is given by σ = 0.564, and the correlation coefficient (ρ) between the unobservable variables that determine selection into use with awareness and the unobservable variables that determine the use of this incentive is given by ρ = −1.000. The estimated selection coefficient (λ) is λ = σ *ρ = 0.564 − 1.000 = −0.564. To interpret the estimated selection effect, we must compute the average selection or truncation effect (Pesaran, 1973). The average truncation effect (ζ) is computed by the average Mills value (τ), thus ζ = λ *τ = −0.564 *0.354 = −0.200. The interpretation of this value is as follows: a firm with the average characteristics of the sample, which selects (or is selected) into awareness, exhibits ([exp(−0.200)−1]*100) −18.13 per cent lower probability of use of this support than a firm drawn at random from the population with the average set of characteristics.

The second column of Table 5 indicates that an increase of one year's export experience will decrease the probability of a firm being a user of public support for training and consulting services by 0.6 per cent. An increase of one employee lowers the probability of a firm being a user of this measure by 0.003 per cent, and being a foreign-owned firm will decrease the probability of a firm being a user of this measure by 27.5 per cent. The adjusted standard error for the outcome equation regression is σ = 0.471, and the correlation coefficient between the unobservable variables that determine selection into use with awareness and the unobservable variables that determine the use of this measure is ρ = 0.453. The estimated selection coefficient is λ = σ *ρ = 0.471 *0.453 = 0.213. The average Mills value is τ = 0.472 and the average truncation effect is ζ = λ *τ = 0.213 *0.472 = 0.101. Thus, a firm with the average characteristics of the sample which selects (or is selected) into awareness displays [exp(0.101) − 1] *100 = 10.63 per cent more use of this measure than a firm drawn at random from the population with the average set of characteristics. Thus, in the case of these both types of public support the numerical values suggest the existence of negative selection, or truncation, effects in these data. This shows that those firms that select into awareness make less use of these support measures than does a random drawing from the population of firms with a comparable set of characteristics.

4.3. Discussion

Support programmes ostensibly aim to tackle market failures associated with firms' lack of resources and capabilities, as defined in the law underpinning the offer of the different types of measure. From our findings, we can infer that, roughly speaking, these measures seem to be reaching the right targets, that is to say, firms lacking capabilities and those involved in more demanding and riskier strategies. However, we can identify some factors that create, right at the outset, barriers to participation. The costs of information gathering and screening and a lack of international experience, along with fewer capabilities, reduce awareness – a feature which may withdraw a set of eligible firms from the process of participation. This may generate negative effects on the efficiency of public programmes and produce as a consequence possible misalignments between policy goals and the allocation of support to firms. Additionally, the results suggest that firms apply for public support as a function of their needs and expected benefits. Influenced by opportunity costs and the relative benefits of public incentives, firms self-select in their use of public support, depending on their financial constraints, lack of capabilities and other difficulties related with the internationalization process. Firms also make use of public incentives as a vehicle to externalize the risk of more demanding conditions of internationalization, in which they face difficulties and hazards. In our results, the Mills ratio is always significantly different from zero, which provides a basis for believing that to ignore the awareness stage would not bias the estimation of the use stage. We may infer that those firms, which select into the

awareness sample have no higher use of HCSMIs than those with average characteristics drawn at random from the population, that is, the use of these types of incentives may be closely related to the attention that firms usually put to the activities of public institutions in general.

These findings have the capacity to inform public policy. First, the scientific identification of the main determinants of awareness and the all-important final link between awareness and use may help in the design of communication strategies to enhance the participation rate among target groups. Policy designers should consider the costs of information gathering and screening, and lack of experience in the international field, as main determinants of participation. In the light of what we now know from the findings of this study, further steps are required in the research agenda on our topic. First, research is needed to investigate whether or not internationalizing firms behave differently from firms operating only in domestic markets, and to establish how public incentives are allocated to access more demanding markets. And, we need to understand better how firms evaluate public support in the light of their own capabilities and the specificities of internationalization applying to their individual cases. Our enquiry demonstrates that meaningful scientific evaluation of these measures is feasible and that, accordingly, investment in doing so should be sanctioned by politicians, policy makers, legislators and public administrators, and by scholars. Those involved with the administration of pro-internationalization programmes should seek continuous improvement in them, and there is at all times a need to ensure adaptation to changing conditions.

Second, our research offers a tool for learning about how well policies and programmes are delivering their objectives, what problems may be emerging, what elements work well or less well, and what could be done better in the future. For example, policy makers may seek to target policies to different groups, for example, to direct more resources towards enterprises established by the socially disadvantaged, or by those likely to employ others, or to those in high technology activities. They may seek to deliver policies using different organizational forms, to stimulate the take-up of those policies or to deliver them in a more cost effective manner. All these changes of focus can emerge from undertaking appropriate evaluations. And, at all times, existing policies can be delivered more effectively as a result of accumulated evaluation experience.

Third, since FDI is considered as a more demanding activity form of internationalization (Barkema & Drogendijk, 2007), it can be inferred that firms with direct investments abroad may have a higher level of resources and capabilities, so measures applied to this type of firm, logically, should be differentiated from measures applied to firms that do not yet have FDI. Moreover, the salient and recurrent challenge of policy targeting (Takalo, Tanayama & Toivanen, 2013; Young, Hood & Wilson, 1994) is highlighted by the idiosyncratic behaviour of firms with different levels of capabilities, involved in distinct projects of internationalization (in terms of difficulty and resource requirements). Thus, we believe that policy measures of support based on clusters – but not in an indiscriminate way – could render higher levels of efficiency for both groups – exporters and foreign direct investors. These exchanges and actions will not only assist in obtaining information from stakeholders that can lead to a deeper understanding of the mechanisms by which policy impact is achieved – and how policy might be adjusted – but can also help to engage stakeholders in the policy learning process. This approach can also pick up on a wide range of further information of interest to policy makers, which goes beyond superficial policy impact. For example, to issues such as client satisfaction, policy appropriateness, sustainability of policies, and to conflicts with other policies – even considering that the tenuous ability to identify many models makes policy analysis, and the evaluation of welfare costs of programmes, a difficult task, leading to distrust of aggregate

models applied from top to down (Easterly, 2008; Hansen & Knudson, 1996). The idea of using micro data to enrich the information gained from macro time series dates back at least to the writings of Tobin (1958). We believe that this bottom-up study could stimulate new debate upon the validity of bottom-up policy making when there are limited means to see the "whole picture" in which to frame the implementation of traditional top-down policies. But micro data are no panacea. As advocated by Hansen & Heckman (1996), the trend in empirical microeconomics away from economic models to "simple descriptive" estimation schemes has reduced the supply of new structural parameters.

The potential generalizability of the findings and the research directions from our study is one of the benefits of the data used as the basis for our enquiry, from Portugal. It is a limitation in the sense that the parameters we obtain cannot be expected to apply universally, but the theoretical rationale and the original nature of the findings are relevant both to theoretical research in international business and to policy making and administration with respect to internationalization.

5. Conclusion

In answering our three research questions it has been necessary to decompose the rationale underlying the decision making process of firms, and to consider the intentions of the government in introducing and maintaining policy support for internationalization. Our first question on precisely how firms select public incentives and, in doing so, whether they compensate for deficiencies in resources or capabilities, provides both theoretical and empirical insight. Theoretically, our approach supplies a mechanism through which policy can exert impact, and by doing so goes beyond the recondite correlational research common in the domain of policy research, which customarily focuses on the influence of country level variables on internationalization, largely within a framework quite abstracted and remote from firm-level behaviour. Our empirical finding that the use of public support is driven by the internal resource and capability limitations of firms, and by more demanding conditions of internationalization, yields support for the conclusion that the point for strategic intervention by policy is indeed that of firms' resources and capabilities. Inevitably, further research questions are raised, of which one is the extent to which (in some way) hypothecated policy measures may effect greater traction on behaviour and on beneficial performance outcomes.

Our second research question – on whether firms are, in fact, reacting primarily to internal or external exigencies, for example, financial constraints or, rather, are they responding to unfolding circumstances, such as more demanding market conditions experienced on internationalization, using public incentives according to principles of opportunity cost – leads us to focus on what drives the relationship between awareness of the availability of support and its use. The first contribution here is to explore the theoretical behavioural process at work. We find support for the argument that awareness is stimulated by more demanding conditions of internationalization, but that it is unrelated to any lack of resources and capabilities. On the other hand, the use of public support is based on a rational and calculative relationship with the opportunity costs of public incentives, for example, with respect to search and screening costs, and with the increased inherent risk of internationalization. The results point to the existence of important sources of inefficiency within the process of application for policy measures, particularly with respect to the link between awareness and use. Furthermore, the mechanism of behaviour which we identify points to the feasibility of better crafting the application process for support, in particular, for improving its efficiency to reduce the search and screening costs borne by firms.

Our third question extends the rational basis of firm decision making to the

exploitation of opportunities that are unintended by the government. In investigating whether firms use public support to externalize the increased risk of internationalization, thereby protecting their external activities and investments from loss, we naturally introduce the question of how to constrain such opportunism. We raise the possibility that researchers may wish to explore empirically the theoretical possibility of negative externalities created by policy inefficiency, manifest in the form of social loss. This yields an intriguing hypothesis for further investigation. The discovery that better endowed firms predominate in the application for public incentives supports our reasoning that such firms engage in modes of entry, or select locations, with higher levels of risk, precisely because of the availability of public support. Thus, higher capability firms when faced with more challenging overseas environments, intensify their use of public support, from a low level (as compared with less capable firms). From this, we infer that higher capability firms are seeking risk premiums in the form of higher expected profits from more demanding conditions, and that home policy incentives assist them in doing this, that is, firms evolve to more demanding conditions of internationalization externalizing the risk through the opportunistic use of home country incentives. This policy inefficiency allows undeserved beneficiaries to cover their increased risk through the take up of home country policy measures. The implications of this for policy centre on the importance of better targeting and screening in selection of successful applicants.

We can conceive of two insights for how policy makers could increase the efficiency of public policies. First, assuming that firms self-select, as we believe they do, to use public support, depending on their constraints in financial terms, lack of resources and capabilities and other difficulties related with the internationalization processes, policy makers, with an eye on potential facilitators, should increase managers' ability to identify and overcome potential barriers to participation. Second, considering that public support aiming at promoting internationalization may create "good failures" – and that it may also give rise to an externalization of risk – policy makers should promote a better understanding of the counterbalancing forces acting on the environment bearing upon participation behaviour. In so doing, policy needs to distinguish the "wheat from the chaff" – firms that really need support should be separated from firms exhibiting sufficient resources and capabilities seeking to benefit opportunistically from public support.

With respect to future research, this study could link with an emergent stream of literature that considers economic transaction costs alongside the value chain of incentives. In essence, this is to open up a channel in our model that recognizes the lobbying and business-political process. From the firm's perspective, managers' ability to economize in both economic and political governance could be an important source of advantage over competition (Boddewyn, 1988; Williamson, 1999). Although our research operates at a different level, we open a potential line of research that could support future empirical corroboration of the arguments proposed by Henisz & Zelner (2004), arguing that managers who can better identify pivotal actors in the policy-making process, that is, the value chain of incentives, deliver to those actors the messages most likely to generate favourable policy outcomes, leading to super-normal returns for their firms. The results presented in this study provide an example of how aggregate relationships can be deduced from those underlying the micro behaviour of the individual agents, within a bottom-up approach. However, our approach is not commensurate to the task of constructing an aggregate relationship with which to evaluate fully the welfare costs and benefits of policies as embodied in the challenge proposed by Hall & Van Reenen (2000).

In summary, we have presented four main contributions that go beneath the surface of public incentives promoting internationalization. First, this paper presents a framework, and an investigation employing it, to study the use of public incentives for internationalization

activities from the outset of firms' awareness of public support. It describes not only a particular link, but also the mechanisms through which firms will become more likely to internationalize. Hence, besides being an understudied topic that has considerable impact on the public interest, it also has pertinence to public efficiency and to economic growth. Second, studies of government support have typically focused on policy areas where positive economic benefits to society are expected, for example, on research and development decisions at the firm level. We believe there is the opportunity to transfer some focus to equally risky investments, such as in internationalization. Bridging gaps between research in industrial economics, labour economics and international business is potentially enriching for all research streams. Third, practical recommendations can be derived for firms and policy makers for how to use and set up support systems for internationalization. This is a topic which is very high on many firm and government agendas. The results obtained through the model presented here – a variant of that advanced by Heckman & Robb (1985) and Heckman & Smith (1999) – point to the main reasons behind the use of home country measures as being a lack of capabilities. This finding, to a certain extent, aligns with the market power perspective on internationalization, whereby, in this instance, the beneficiary firms are not in possession of market power. This approach, which has a long pedigree in international business research, predicts that firms with superior capabilities employ them to overcome the progressively greater liabilities of foreignness and country risk that firms encounter with internationalization into markets beyond their current portfolio (Hymer, 1960; Berry & Hymer, 1969). Fourth, to our best knowledge there are no previous studies identifying objectively the types of measures discussed in this research, nor any evaluating the awareness, use or the effects of public support programmes in this manner. Hence, our study is innovative in this regard.

Despite the contributions highlighted above, this research has limitations in terms of the breadth of the data – more home countries would add to our ability to indicate generalizability. However, our primary purpose is to demonstrate the validity of our approach, and the need for further research along these lines. To this end, it is a reasonable assumption that firms self-select in picking governmental initiatives. However, selection may also be instigated from the government side. For instance, governments often single out "national champions" to receive substantial support in order to become successful global players (Ades & Tella, 1997; Beath, Katsoulacos & Ulph, 1989; Ramamurti, 2004). Therefore, to provide a truly complete picture of how public support incentives bring traction to bear on firms' objectives and behaviour, a model should be developed to include the reality that governments play an active role in deliberately targeting particular firms.

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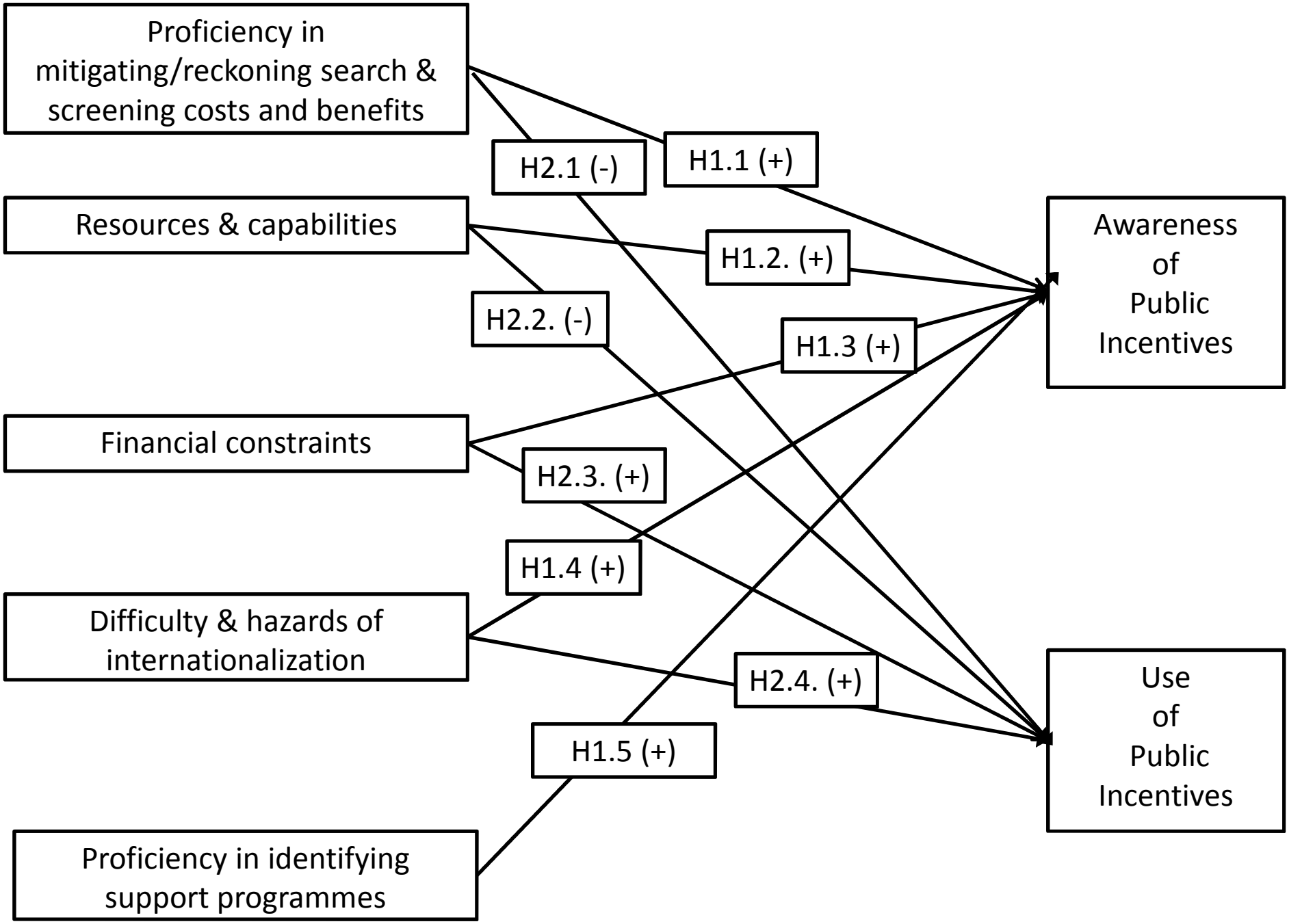
Highlights

- Models the mechanism by which firms become aware of and use public incentives to promote internationalization.
- Yields a missing link between internationalization theory and how policy intervention has effect.
- Evidence of opportunism on the part of better endowed firms to dominate incentive seeking.
- Signs that firms select incentives not to compensate for deficiencies, but rather to cover excess risk as internationalization proceeds.
- Provides a social rationale for better targeting of internationalization promotion policy.


Proficiency in mitigating/reckoning search & screening costs and benefits
Resources & capabilities
Financial constraints
Difficulty & hazards of internationalization
Proficiency in identifying support programmes
H2.1 (-)
H2.2. (-)
H2.3. (+)
H2.4. (+)
H1.1 (+)
H1.2. (+)
H1.3 (+)
H1.4 (+)
H1.5 (+)
Awareness of Public Incentives
Use of Public Incentives

$$U_i = X_j\beta + u_{1j} \qquad \text{outcome equation} \tag{1}$$

$$A_j\gamma + u_{2j} > 0, \qquad \text{selection equation} \tag{2}$$

where U_i represents the use of one HCSMIs by firm i; A_i represents the awareness of one HCSMIs by firm i; $u_1 \sim N(0;\sigma)$; $u_2 \sim N(0;1)$ and; $corr(u_1;u_2) = \rho$.

Type	Legal Instruments
Public support for trade fairs and state missions (HCSMI1)	Decree-Law 70-B/2000; Decree-Law 287/2007
Public support through training and consulting services (HCSMI2)	Decree-Law 70-B/2000
Public support through informational services (HCSMI3)	Decree-Law 70-B/2000; Decree-Law 245/2007
Public support for the international placement of human resources (HCSMI4)	Decree-Law 245/2007; Decree-Law 249/2009
Public support through international trade and investment agreements (HCSMI5)	Decree-Law 245/2007; Decree-Law 249/2009
Public support through investment and credit insurance or mutual funds (HCSMI6)	Decree-Law 245/2007
Public support through venture capital (HCSMI7)	Decree-Law 401/1999; Decree-Law 290/1994; Decree-Law 249/2009
Public support through fiscal benefits (HCSMI8)	Decree-Law 401/1999; Decree-Law 289/92; Decree-Law 290/1994; Decree-Law 249/2009
Public support through other public financial support (HCSMI9)	Decree-Law 290/1994; Decree-Law 70-B/2000; Decree-Law 287/2007; Decree-Law 65/2009
Public support through protocols of governmental agencies and banks (HCSMI10)	Decree-Law 245/2007; Decree-Law 290/1994
Public support for acquiring or developing brands, marketing or sales (HCSMI11)	Decree-Law 290/1994; Decree-Law 70-B/2000, Decree-Law 287/2007

HCSMIs	Use %	Awareness %
Public support for trade fairs and state missions	32.2	85.2
Public support through training and consulting services	34.2	84.1
Public support through informational services	61.2	87.9
Public support for the international placement of human resources	21.7	72.5
Public support through international trade and investment agreements	37.4	81.6
Public support through investment and credit insurance or mutual funds	14.0	80.0
Public support through venture capital	42.4	85.0
Public support through fiscal benefits	43.5	90.2
Public support through other public financial incentives	14.0	54.6
Public support through protocols of governmental agencies and banks	12.4	56.0
Public support for acquiring or developing brands, marketing or sales	17.4	59.8

Phenomenon under study (Hypothesis)	Variable	Description	Measurement	Descriptive statistic
Proficiency in mitigating/reckoning search & screening costs [H1.1; H2.1]	Export experience	Number of years since the first order to a foreign market [difference between 2009 (t_1) and the year of the first export (t_0)]	$EXPX = t_1 - t_0$	12 years each firm
	FDI experience	Number of years since the establishment of the first foreign subsidiary [criterion of Dunning & Lundan (2008)] [difference between 2009 (t_1) and the establishment's year of the first foreign subsidiary (t_0)]	$FDIX = t_1 - t_0$	2 years each firm
Resources & capabilities [H1.2; H2.2]	Size	Number of employees (natural logarithm) in 2009 (t_1)	N.A.	529 employees each firm
	Age	Years [difference between 2009 (t_1) and the year of the firm's foundation (t_0)]	$AGE = t_1 - t_0$	24 years each firm
	Human capital	Ratio of number of employees with a bachelor's degree (BA) to total of employees (SIZE) in 2009 (t_1)	$HRQ = \frac{BA_{t_1}}{SIZE_{t_1}}$	23% of employees with BA each firm
Financial constraints [H1.3; H2.3]	Indebtedness	Ratio of liabilities to assets in 2009 (t_1)	$FCS = \frac{LIABILITIES_{t_1}}{ASSETS_{t_1}}$	43% of indebtedness each firm
Difficulty & hazards of internationalization [H1.4; H2.4]	Export diversification	Number of export markets in 2009	N.A.	10 exporting markets each firm
Proficiency in identifying support programmes [H1.5]	Innovation intensity	Ratio of research and development (R&D) expenditures (RDE) to annual sales (S) in 2009 (t_1)	$RDI = \frac{RDE_{t_1}}{S_{t_1}}$	4% expenditures in R&D each firm
	FDI diversification	Number of foreign markets in 2009	N.A.	1 host country with FDI each firm
Control variables	Family ownership	Binary variable (0 if not family-owned and 1 if family-owned)	N.A.	28% of firms are family-owned
	Foreign ownership	Binary variable (0 if not foreign-owned and 1 if foreign-owned)	N.A.	10% of firms are foreign-owned
	Peripheral location	Binary variable [0 if located at a core region (Lisbon or Porto) and 1 if located at a peripheral region]	N.A.	76% of firms are located in a peripheral region

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Export experience	1.00											
(2) FDI experience	0.01	1.00										
(3) Size	0.24	0.60	1.00									
(4) Age	0.08	0.42	0.28	1.00								
(5) Human capital	0.20	-0.01	-0.05	-0.14	1.00							
(6) Indebtedness	0.00	-0.08	-0.07	-0.09	-0.05	1.00						
(7) Export markets	-0.05	0.15	0.06	0.17	-0.05	0.01	1.00					
(8) FDI markets	0.03	0.71	0.43	0.31	-0.06	0.01	0.23	1.00				
(9) Innovation intensity	0.12	0.02	0.07	-0.02	0.07	0.00	0.00	0.01	1.00			
(10) Family ownership	-0.01	0.02	-0.02	0.05	-0.20	0.02	-0.09	0.00	-0.09	1.00		
(11) Foreign ownership	0.00	-0.09	-0.02	0.12	-0.03	0.08	0.20	-0.10	0.00	-0.29	1.00	
(12) Peripheral location	0.05	-0.11	-0.13	-0.23	0.00	-0.03	0.02	0.14	-0.01	0.12	-0.27	1.00

Table 5: Estimation Results of Non-Financial Measures

Variable	HCSMI1	HCSMI2	HCSMI3	HCSMI4	HCSMI5
			Outcome equation (Use)		
Export experience	-0.009***	-0.006***	-0.010***	-0.005***	-0.004**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
FDI experience	0.007	0.005	0.000	0.001	-0.004
	(0.006)	(0.005)	(0.004)	(0.005)	(0.005)
Size	-0.005†***	-0.005†***	-0.005***	-0.005†***	-0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	-0.002	-0.002	-0.001	-0.002	0.002
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Human capital	0.142	0.016	0.079	0.269***	0.009
	(0.101)	(0.090)	(0.079)	(0.102)	(0.095)
Indebtedness	0.212	-0.003	0.001	0.032	0.285***
	(0.145)	(0.129)	(0.113)	(0.137)	(0.134)
Export diversification	-0.002	-0.001	-0.001	0.000	0.002
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
FDI diversification	0.001	0.015	0.035***	0.033*	-0.009
	(0.020)	(0.017)	(0.014)	(0.018)	(0.017)
Family ownership	0.007	-0.043	-0.065	0.009	-0.090
	(0.072)	(0.062)	(0.056)	(0.066)	(0.071)
Foreign ownership	-0.164***	-0.275***	-0.123**	-0.137*	-0.039
	(0.077)	(0.067)	(0.066)	(0.081)	(0.072)
Peripheral location	-0.068	0.080	0.033	0.151**	0.128*
	(0.166)	(0.064)	(0.057)	(0.071)	(0.068)
Intercept	0.689***	0.452***	0.800***	0.071	0.283**
	(0.125)	(0.127)	(0.097)	(0.148)	(0.130)
			Selection equation (Awareness)		
Export experience	0.021***	-0.003	0.018**	-0.004	0.008
	(0.007)	(0.005)	(0.008)	(0.005)	(0.006)
FDI experience	0.137*	0.042	5.098	0.039	0.026
	(0.082)	(0.047)	(0.000)	(0.034)	(0.045)
Size	0.000	0.003***	0.003†***	0.003***	0.002†***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Age	0.006	0.003	0.000	-0.002	0.000
	(0.005)	(0.005)	(0.006)	(0.004)	(0.001)
Human capital	0.022	0.448*	0.210	0.686***	0.701**
	(0.264)	(0.266)	(0.296)	(0.247)	(0.277)
Indebtedness	-0.342	-0.488	-0.398	-0.411	-0.177
	(0.402)	(0.393)	(0.443)	()0.350	(0.389)
Export diversification	-0.001	-0.014	-0.006	0.005	0.001
	(0.004)	(0.005)	(0.006)	(0.005)	(0.005)
FDI diversification	0.141	0.078	0.025	0.133	1.105
	(0.118)	(0.098)	(0.129)	(0.088)	(0.113)
Innovation intensity	0.168	0.096	0.045	0.180	-1.231
	(0.068)	(0.125)	(0.114)	(0.075)	(0.106)
Family ownership	-0.183	0.256	-0.220	0.195	-0.233
	(0.193)	(0.190)	(0.217)	(0.170)	(0.180)
Foreign ownership	0.009	-0.081	-0.520**	-0.258	-0.297
	(0.209)	(0.209)	(0.259)	(0.181)	(0.222)
Peripheral location	0.303	0.194	0.221	0.267	0.182
	(0.191)	(0.196)	(0.225)	(0.173)	(0.199)
Intercept	0.511	0.566*	0.713**	0.194	0.334
	(0.315)	(0.309)	(0.364)	(0.276)	(0.321)
			The inverse Mills ratio		
Estimated selection coefficient (λ)	-0.564	0.213	0.158	0.281	-0.141
	(0.171)	(0.213)	(0.147)	(0.188)	(0.175)
Correlation coefficient (ρ)	-1.000	0.453	0.369	0.591	-0.287
Adjusted standard error (σ)	0.564	0.471	0.429	0.476	0.490
Average Mills ratio (τ)	0.354	0.472	0.222	0.659	0.291
Average truncation effect (ζ)	- 0.200	0.101	0.035	0.185	-0.041
N	419	419	419	419	419
$\chi^2_{(11)}$	37.79	46.15	65.16	24.28	16.9

Variable	HCSMI6	HCSMI7	HCSMI8	HCSMI9	HCSMI10	HCSMI11
			Outcome equation (Use)			
Export experience	-0.001	-0.007***	-0.007***	-0.007***	-0.004	-0.003
	(0.003)	(0.002)	(0.001)	(0.003)	(0.003)	(0.002)
FDI experience	-0.004	-0.004	0.004	0.007	0.007	-0.009*
	(0.006)	(0.005)	(0.005)	(0.006)	(0.007)	(0.006)
Size	0.005	0.005	0.005**	0.005	0.005†*	0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.000	0.002	0.000	0.000	0.002	0.002
	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.002)
Human capital	-0.106	-0.087	-0.077	-0.145	-0.099	-0.074
	(0.118)	(0.114)	(0.090)	(0.125)	(0.129)	(0.101)
Indebtedness	0.086	0.300	-0.195**	0.256	-0.022	0.103
	(0.153)	(0.137)	(0.132)	(0.161)	(0.195)	(0.139)
Export diversification	0.000	-0.001	0.000	0.001	-0.002	0.000
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
FDI diversification	0.014	0.003	0.054***	0.008	-0.010	0.014
	(0.022)	(0.016)	(0.017)	(0.027)	(0.028)	(0.090)
Family ownership	-0.256**	-0.030	0.013	-0.266***	0.106	-0.092
	(0.140)	(0.110)	(0.070)	(0.104)	(0.110)	(0.084)
Foreign ownership	-0.219**	0.108	-0.085	-0.180	0.140	-0.116
	(0.130)	(0.067)	(0.071)	(0.112)	(0.096)	(0.124)
Peripheral location	0.045	0.127**	-0.004	0.124	0.005	0.010
	(0.073)	(0.064)	(0.067)	(0.084)	(0.090)	(0.075)
Intercept	0.040	0.869***	0.594***	-0.068	0.639**	0.285
	(0.261)	(0.207)	(0.108)	(0.438)	(0.666)	(0.210)
			Selection equation (Awareness)			
Export experience	0.007	-0.005	0.011	0.003	-0.002	-0.004
	(0.006)	(0.005)	(0.008)	(0.004)	(0.005)	(0.004)
FDI experience	0.013	0.000	0.000	0.006	-0.023	-0.007
	(0.029)	(0.289)	(0.000)	(0.019)	(0.020)	(0.019)
Size	0.000	0.005	0.003***	0.000	0.000	0.003†*
	(0.000)	(0.000)	(0.001)	(0.000)	(0.0000)	(0.000)
Age	0.004	0.000	0.003	-0.001	-0.006	-0.001
	(0.004)	(0.004)	(0.006)	(0.004)	(0.003)	(0.004)
Human capital	0.311	0.480	0.086	0.184	0.166	0.100
	(0.261)	(0.296)	(0.321)	(0.217)	(0.223)	(0.220)
Indebtedness	-0.215	0.160	0.846*	0.184	0.367	-0.099
	(0.365)	(0.400)	(0.492)	(0.217)	(0.320)	(0.321)
Export diversification	0.006	0.022**	0.008	0.005	0.005	0.006
	(0.005)	(0.010)	(0.008)	(0.004)	(0.003)	(0.004)
FDI diversification	0.081	0.002	0.067	0.069	0.214***	0.049
	(0.080)	(0.065)	(0.145)	(0.049)	(0.070)	(0.050)
Innovation intensity	0.256	0.473	-1.467	0.979	2.763**	1.515
	(0.947)	(1.027)	(0.993)	(0.797)	(1.112)	(0.930)
Family ownership	-0.443***	-0.401*	-0.608***	-0.179	-0.306**	-0.205
	(0.171)	(0.178)	(0.228)	(0.151)	(0.154)	(0.155)
Foreign ownership	-0.381**	0.008	-0.742**	-0.190	0.149	-0.532***
	(0.190)	(0.231)	(0.290)	(0.168)	(0.172)	(0.173)
Peripheral location	0.030	0.002	0.343	0.053	-0.099	-0.110
	(0.184)	(0.208)	(0.246)	(0.158)	(0.162)	(0.163)
Intercept	0.756**	0.869***	1.141***	0.133	0.032	0.318
	(0.299)	(0.322)	(0.419)	(0.251)	(0.259)	(0.258)
			The inverse Mills ratio			
Estimated selection coefficient (λ)	0.566	-0.092	-0.509	0.451	-0.636	0.027
	(0.640)	(0.553)	(0.186)	(0.554)	(0.290)	(0.320)
Correlation coefficient (ρ)	1.000	-0.193	-0.995	0.847	-1.000	0.059
Adjusted standard error (σ)	0.566	0.482	0.512	0.532	0.636	0.447
Average Mills ratio (τ)	0.690	0.389	0.181	0.882	0.695	
Average truncation effect (ζ)	0.391	-0.036	-0.092	0.398	-0.442	0.639
N	419	419	419	419	419	419
$\chi^2_{(11)}$	12.05	29.16	48.16	30.23	11.22	7.89