

Publicly funded pre-start support for new firms: who demands it and how it affects their employment growth¹

Joan-Lluís Capelleras²
Dept. d'Economia de l'Empresa
Universitat Autònoma de Barcelona
08193, Bellaterra (Cerdanyola del Vallès), Spain
joanlluis.capelleras@uab.es
Tel.: +34 935 814 297
Fax: +34 935 812 555

Ignacio Contín-Pilart
Dept. de Gestión de Empresas
Universidad Pública de Navarra
Campus de Arrosadía,
31006, Pamplona (Navarra), Spain
contin@unavarra.es
Tel.: +34-948 169 379
Fax: +34-948 169 404

Martin Larraza-Kintana
Dept. de Gestión de Empresas
Universidad Pública de Navarra
Campus de Arrosadía,
31006, Pamplona (Navarra), Spain
martin.larraza@unavarra.es
Tel.: +34-948 168 931
Fax: +34-948 169 404

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² Corresponding author.

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Abstract. This paper examines pre-start determinants of the demand for publicly funded external support to new ventures. It also investigates the effects of different types of such support on subsequent firm growth. Adopting resource-based and information asymmetry approaches, the paper argues that the entrepreneurs who ask for publicly funded pre-start support are more likely to face information asymmetries with regard to resource providers, which in turn depend on their level of human and social capital. It also suggests that intangible support oriented towards knowledge generation would be the most beneficial. A series of two-stage treatment effects models applied to a representative sample of new firms in Navarra (Spain) offer considerable support to our predictions. Implications for research and policy are discussed.

1 Introduction

Publicly funded support is offered for new and small firms in virtually all developed countries (Bennett, 2008; Mole and Bramley, 2006). Such support often includes provision of information, training, advice, loans or grants to individuals in the venture creation process. Policy makers have justified public involvement in the market for external support using different forms of market failure arguments (Storey, 2003)³. While this makes the case for intervention from a macro perspective, it does not tell us how these interventions are likely to work at the entrepreneur's level.

Indeed, our understanding of why some individuals involved in the venture creation process ask for public support, while others do not, is still scant. Similarly, there is still a need for a better understanding of the effects of differing types of public support on subsequent

³ While not directly connected with the focus of this article, there is an interesting debate on the rational-choice terrain about the convenience of public provision of pre-start support. Advocates justify public involvement in the market for external support using different forms of market failure arguments. Information imperfections and the presence of externalities are the two most frequently cited reflections of market failure (Storey, 2003). Critics, on the other hand, argue that state support could not only be ineffective, but also a hindrance to the development of a private service market (Hjalmarsson & Johansson, 2003).

venture outcomes. In this context, the present paper examines antecedents and consequences of publicly funded pre-start support to entrepreneurs. Such support refers to assistance provided to new firm founders prior to the start of the business that is funded by governments and made available to entrepreneurs through a network of public or quasi-public institutions⁴. While much research has assessed support to existing businesses from public sources, the present study examines support before the business starts, which is when most support is taken (Bennett and Robson, 2003).

Once public authorities decide to provide support to new businesses, two closely interconnected key questions arise. First, “who requests support”, in other words, is there any particular profile of individuals more likely to ask for public support? Second, “what are the results obtained by those who were assisted”, that is, does public support have a positive impact on subsequent firm growth? A sound understanding of the latter cannot be achieved without considering the former. If the demand for public support is not random, that is, if it primarily attracts entrepreneurs with a particular profile, no assessment of the efficacy of public support can obviate it. If such selection exists and is ignored, potential differences between assisted and non-assisted firms may only reflect (other things being equal) profile differences. In spite of this evident connection, these two questions have tended to be analysed separately (though see Mole, Hart, Roper, and Saal, 2008; 2009 for recent exceptions).

In terms of the first question, research on the use of support has related the demand for support to certain characteristics of entrepreneurs, such as age and education, and of their firms, such as size and age (eg Boter and Lundstrom, 2005; Lambrecht and Pirnay, 2005).

⁴ For the sake of simplification, we will use interchangeably the terms “publicly funded pre-start support” and “pre-start public support”. As noted above, this support can be provided by public and quasi-public institutions. The former are agencies or organisations held by the Government, whereas the latter include institutions such as trade and professional associations.

This research suggests that public support is requested by individuals with a particular profile. Nevertheless, little progress has been made to date in developing a theoretical framework that guides the definition of that profile. The existing framework relies on a resource-based perspective to argue that pre-start public external support would be accessed by those entrepreneurs who, being aware of its existence, believe that such support will provide them with the resources they perceive they lack (Chrisman and McMullan, 2000, 2004). However, this view does not take into account that not all the entrepreneurs who are aware of their resource limitations have the same access to potential resource providers⁵.

In this context, the present paper contributes to the literature by providing a more fine-grained theoretical model that explains the likelihood of seeking publicly funded pre-start support. Using insights from the resource-based theory of the firm (eg Barney, 1991; Wernerfelt, 1984) and drawing on the concept of information asymmetry, we argue that firm founders face different levels of information asymmetry with regard to resource providers, which in turn depends chiefly on their access to human and social capital. Our suggestion is that these differences explain why some founders are more likely to ask for pre-start public support than others. Hence, while previous literature used information asymmetry arguments solely to justify the existence of public support at a macro level, we move information asymmetry considerations to the micro level for a better understanding of who asks for publicly funded support. In this context, the first contribution of the study is to provide a theoretical framework to explain how information asymmetries arising from different levels of entrepreneurs' prior work and family experiences, two key sources of human and social capital, affect their likelihood of requesting pre-start public support.

The paper is therefore primarily concerned with the demand side of public support to new firms. Our study is based on a broad view of public assistance to entrepreneurs, rather

⁵ There are multiple resource providers such as private investors, banks, suppliers, distributors or friends.

than focusing on specific schemes that include different stages of the assistance process (see Wren and Storey, 2002). Although some business assistance programmes may be targeted to serve the needs of specific groups (eg socially and/or economically disadvantaged people), this paper provides an explanation of the determinants of public support in situations where such support is open to all potential entrepreneurs. Therefore, our arguments are based on the assumption that anyone who wants to start a new business is eligible to receive publicly funded assistance offered by the network of public or quasi-public institutions. In other words, we develop reasons to explain the demand for pre-start public support in situations in which such support has a “universal service requirement” (Sidak and Spulber, 1998). This means that institutions involved in the publicly funded network carry an obligation to provide some type of assistance to all potential entrepreneurs who request it⁶.

With regard to the second key question, an increasing number of studies have investigated the performance implications of external support. However, empirical evidence on this topic is not conclusive. In fact, several studies suggest that the impact of external support to small and medium-sized firms is limited (eg Bennett and Robson, 1999, 2003; Robson and Bennett, 2000; Wren and Storey, 2002). For example, Bennett (2008: 375) looked at SME policy support in Britain and found little evidence to indicate any overwhelming success of government SME support policies over the period 1991–2004. However, Mole et al (2009) recently provided evidence in support of government assistance to small business in England. Hence, the debate on the relationship between publicly funded support and subsequent firm outcomes continues (Robson, Wijbenga and Parker, 2009).

The mixed evidence might be due to the use of different units of analysis, since some studies are mainly concerned with new ventures (eg Chrisman, McMullan and Hall, 2005), whereas others tend to analyse established SMEs (eg Robson and Bennett, 2000). While

⁶ This obligation shares common characteristics with the traditional requirement for universal access to some “services of general interest” (Lasheras, 1999) in Europe, like education and health care.

external support can be considered a means of extending the resource base of the new firm (Chrisman and McMullan, 2000, 2004), the inconclusiveness of the empirical evidence might also be explained by the fact that the different types of resource acquired through external pre-start public support have different implications for firm performance. Therefore, in a context where public support is provided to give entrepreneurs access to resources, a further question arises from this literature: are all the resources made available by public support equally relevant to venture outcomes? The answer to this question requires a study that accounts for various types of resources, which is absent from the current literature. Using resource-based reasoning, our suggestion is that different types of resource provided by public institutions would be related to different growth rates for the firm. In this context, the second contribution of the study is to investigate the relationship between differing forms of pre-start public support and the subsequent growth of the firm. We assess the employment growth implications of different elements in the provision of publicly funded support (such as specialised advice, access to finance, and provision of premises), since they are all usually part of a comprehensive assistance package (Storey and Greene, 2010).

Thus, overall, we focus on the antecedents and consequences of publicly funded pre-start support to firm founders. These aspects are important not only for the entrepreneurship research agenda but also from a policy perspective (eg Henry, 2010). A better understanding of factors associated with the demand for publicly funded support, and particularly a more fine-grained knowledge of the circumstances and reasons that lead entrepreneurs to request such support, may help policy makers to take decisions about the appropriate nature of provision. Moreover, a better understanding of the most effective types of public assistance is also important for policy makers, as it may allow them to make a better use of public funds (Bennett and Robson, 1999; Robson and Bennett, 2010).

The rest of the paper is organised as follows. In the next section we present the theoretical background to the study and derive testable hypotheses. The third section presents the data, variables and methodological approach. Univariate and multivariate results are given in section four. The last section discusses our findings.

2 Theoretical framework and hypotheses

In this section we argue that what determines the demand for pre-start public support is the degree of information asymmetry faced by firm founders in relation to resource providers. Secondly, we suggest that those with better access to human and social capital resources do not face as many information asymmetries as those without them. In this vein, we propose that entrepreneurs with prior industry and entrepreneurial experience as well as prior family business exposure have better access to human and social capital resources. As they do not face as many information asymmetries as those without business experience and exposure, they are less likely to seek pre-start public support. Finally, we suggest that there will be a positive relationship between support and growth, once the characteristics of the entrepreneur and the firm are controlled for. However, we argue that not all types of pre-start public support are equally important and those that provide access to knowledge resources can be particularly relevant in enhancing post-start firm growth. Figure 1 synthesises our approach.

[Figure 1 about here]

2.1 Information asymmetries as determinants of the demand for publicly funded pre-start support

Under the resource-based theory, firms are defined as “a collection of productive resources” (Penrose 1959: 24). The theory attempts to define fundamental factors that create sustainable competitive advantage. The basic premise is that heterogeneous resources that are difficult to

transfer or copy could be a source of sustainable competitive advantage (Amit and Schoemaker 1993; Barney 1991; Dierickx and Cool 1989; Wernerfelt 1984). Hence, higher performance results from idiosyncratic resource positions that typically are internally developed.

Although most research taking a resource-based perspective initially focused on large, established firms, such theory has started to be reflected in the entrepreneurship and small business literature in general and in the research on support to new firms in particular. Bennett and Robson (2003) argue that the resource-based theory is the main theoretical approach available at the level of the individual business and when focusing on decision-making and expertise within the firm itself. Similarly, Johnson, Webber and Thomas (2007) suggest that this approach provides a useful basis for examining the firm's decision to utilise external support.

Drawing upon the resource-based theory, Chrisman and McMullan (2000, 2004) developed a 'perceived knowledge gap' perspective, which postulates that in many cases there is a gap between the knowledge possessed by firm founders and the knowledge required for successful venturing (Chrisman et al, 2005). Hence, prospective new business founders take external support due to their perceived lack of knowledge. Their argument could easily be extended to other resources, on the basis that requests for external support are primarily based on the entrepreneurs' perceived lack of necessary resources. In other words, this view simply suggests that new firm founders would ask for support to obtain the tangible or intangible resources they do not possess.

However, while certainly useful, this perspective neglects the fact that not all entrepreneurs have the same capacity to access potential resource providers. For example, not all entrepreneurs have the same chance of obtaining a bank loan to finance the start of the business. If the bank is reluctant to lend the money, where does the entrepreneur go to obtain

that necessary resource? Ignoring this restriction would lead to an incomplete understanding of the question of who requests external support and why, and particularly publicly funded pre-start support.

Our suggestion is that the concept of information asymmetry can provide the key to the understanding of this restriction to access to resource providers and hence to comprehend why some entrepreneurs ask for publicly funded external support, while others select other alternatives. Overall, we propose that the combination of the resource-based view and information asymmetry gives a more complete picture of why entrepreneurs request pre-start public support. We argue that, as part of the process of new venture creation, new firm founders ask for such support mainly because of information asymmetry between them and resource providers.

Indeed, while entrepreneurs may need a wide range of resources to launch their new ventures and to maximise their growth potential (Venkataraman, 1997), they often do not possess all the resources in that optimal set and need to acquire them from external stakeholders (Zott and Huy, 2007). According to the resource-based argument, entrepreneurs will search for resource providers and will need to convince them to commit and invest their resources in the new venture. However, resource providers may be concerned about the extent of information asymmetry problems that surround new firms (Zhang, Soh and Wong, 2010). Information asymmetry occurs when entrepreneurs possess more information than external evaluators about the prospects of their own businesses and their ability to develop the new venture (Shane, 2000). These circumstances make it difficult for resource providers to verify and monitor whether the entrepreneurs have the capability to transform the resources into higher returns. In other words, uncertainties about the real potential of the project and about the ability of the founder to manage the new firm correctly create information asymmetry

situations between the entrepreneur and resource providers that constrain the resource acquisition capacity of the former (Zhang et al, 2010).

Hence, only some entrepreneurs may be able to approach resource providers and make uncertainty-reducing information accessible to them. When resource providers acquire a greater level of knowledge about the new venture project, the information asymmetry problem is minimised. Therefore, entrepreneurs able to make private information about themselves and their ventures accessible to potential resource providers would face lower information asymmetries (Spence, 1973, 1974; Zhang et al, 2010; Zott and Huy, 2007). Thus, entrepreneurs may increase the attractiveness of their ventures by convincing resource providers that their resources would be better employed in their businesses than in alternative settings (Zhang et al, 2010). Consequently, such entrepreneurs are more likely to obtain the resources they need to launch the new business. Overall, we would expect a heterogeneous landscape when it comes to resource acquisition capacity.

It is our contention that entrepreneurs facing higher information asymmetries are more likely to ask for publicly funded pre-start support. Such support seems to be the best alternative for obtaining the necessary resources for entrepreneurs facing high levels of information asymmetry, at least in regions or countries in which public support has a universal orientation, as defined in the Introduction. This support aims at allowing entrepreneurs direct or indirect access to the resources they lack. Publicly funded institutions may either provide the requested resources directly, or act as intermediaries giving indirect access to those resources. In the latter case, the entrepreneur will look for the signalling effect of public institutions (Macho-Stadler, Pérez-Castrillo, and Veugelers, 2007). In contrast, entrepreneurs with lower information asymmetries may select among a wider range of

resource providers⁷, thereby reducing the likelihood of using public support. Importantly, this does not mean that these entrepreneurs reject the resources provided by public institutions. It merely implies that their likelihood of using them is certainly lower than that of entrepreneurs facing a high level of information asymmetry, particularly when publicly funded support has a universal orientation.

2.2 The role of industry experience, entrepreneurial experience and prior family business exposure

So far, we have argued that demand for pre-start public support is affected by the information asymmetry faced by firm founders in relation to resource providers. However, what determines the degree of information asymmetry faced by entrepreneurs? Our suggestion is that their access to human and social capital resources is critical in determining information asymmetries relative to resource providers. Indeed, an important construct in the resource-oriented literature relates to the human capital of firm founders (Koeller and Lechler 2006; Wiklund, Patzelt, and Shepherd 2009). Human capital theorists argue that individuals with more, or higher-quality, human capital achieve higher performance in executing relevant tasks (Becker 1994). This differentiates human capital from other individual characteristics, such as personality traits, which to date have been found to have a less certain impact on entrepreneurial outcomes (Wright, Hmieleski, Siegel, and Ensley, 2007). Another construct associated with the resource perspective relates to network resources. Interpersonal networks of entrepreneurs form the basis of their social capital (Bosma, van Praag, Turik, and de Witt 2004; Brüderl and Preisendörfer 1998; Granovetter, 1985), which is particularly important for accessing, and reducing the costs of, resources (Bauernschuster, Falck and Heblich, 2010; Cromie, Birley, and Callaghan 1993).

⁷ This may depend on the availability of resource providers. However, it applies to the vast majority of developed countries and regions, as suggested by prior research across OECD countries (Mole and Bramley, 2006)

We argue that different levels of human and social capital contribute to explain different information asymmetries between the firm founder and resource providers, which in turn are likely to affect the demand for publicly funded pre-start support. The key point is that entrepreneurs with higher levels of human and social capital can more easily reach out to potential resource providers and give them relevant information that may alleviate their concerns about the entrepreneur's ability and the venture. In other words, high levels of social and human capital would help to overcome information asymmetries regarding the entrepreneur's abilities. This would facilitate the entrepreneur's access to some resources she needs, and does not possess, to launch the new firm without the need to ask for publicly funded pre-start support.

Indeed, individuals with greater human capital are more likely to send signals (Spence, 1973, 1974) to resource providers, in order to reduce the information gap, thereby increasing their ability to access the required resources (Zhang et al, 2010). Those signals reveal private information about the capacity of the entrepreneur to launch and manage the venture successfully. Network ties also provide an efficient means of reducing the problem of information asymmetry between entrepreneurs and resource providers (Venkataraman, 1997; Zhang et al, 2010). Entrepreneurs with a large and diverse social network may use their connections to reveal private information to resource providers in order to reduce the information gap (Bauernschuster et al, 2010). Friends, family members, business colleagues and so on may reveal information about the entrepreneurs' capabilities and the characteristics of their venture. Hence, as in the case of human capital, entrepreneurs with such network ties may face lower information asymmetry and thus have access to a wider set of resource providers.

What we are suggesting is that those individuals who are more likely to request publicly funded pre-start support face a double handicap. They have a shortage of human and social

capital that may negatively affect not only their ability to run the business but also their chances of obtaining other necessary resources from resource providers. Overall, we would therefore expect a negative relationship between access to human and social capital and the demand for publicly funded pre-start support⁸.

In order to assess the influence of entrepreneurs' human and social capital in explaining information asymmetry between them and resource providers, we focus on their prior work and family experiences. In particular, three sources of human and social capital would be influential: industry experience, entrepreneurial experience and prior family business exposure. These aspects can be considered more specific in terms of venture creation than other characteristics of firm founders, such as age and educational background (Carr and Sequeira, 2007; Colombo and Grilli 2005; Ucbasaran, Wright, and Westhead 2008). As we explain next, they are likely to improve entrepreneurs' human and social capital endowments, reduce information asymmetries with regard to resource providers, broaden the set of available resource providers, and consequently may well reduce the likelihood of having to ask for publicly funded pre-start support.

Industrial experience is related to knowledge of products and methods of production, industry regulations, or customer and supplier relations. Entrepreneurs' knowledge gained through prior industry-related experience, particularly in the sector in which they will launch a new firm, may lead to better decision-making by enabling them to gather and process information more efficiently (Capelleras and Greene, 2008; Forbes, 2005), as they know about market characteristics, or ways to create particular products or services. Entrepreneurs

⁸ Implicit in our view is the idea that individuals are aware of the existence of resource providers or resource facilitators. In particular, they know the existence of publicly funded support agencies. This assumption covers a large proportion of the population in developed countries. However, as has been recently proposed by Scott and Irwin (2009), individuals in disadvantaged positions in the social structure are subtly excluded from obtaining external public support. These authors developed a 'discouraged advisee' hypothesis, that is, those who are disadvantaged socially exclude themselves from the external assistance on offer; this relates especially to gender and ethnicity. Thus, it is not the institutions that exclude but the potential firm founders who exclude themselves. Here existing knowledge is seen as positive, indicating that those who possess it are more likely to find and exploit available assistance. We thank an anonymous reviewer for pointing out this exception.

with such distinctive human capital may be better able to reduce information asymmetries with regard to resource providers by limiting uncertainties about the real potential of the new venture and their ability to manage the new business correctly.

In addition, prior industrial experience enriches the social capital of entrepreneurs. Having developed work related activities in the sector where they create the new firm gives entrepreneurs the chance to meet people and accumulate contacts (Westhead, Ucbasaran, Wright and Binks, 2004), thus increasing social networks. Further, these individuals are directly involved in business activities, hold resources and interact with other resource providers.

Hence, we would expect that previous industrial experience would increase human and social capital and mitigate the information asymmetry problem with resource providers. It is therefore expected that publicly funded pre-start support would decrease with such prior industrial experience. Accordingly, we offer the following hypothesis:

***Hypothesis 1:** Firm founders having prior industrial experience will face lower information asymmetries with regard to resource providers than founders without such experience and, thus, will be less likely to demand pre-start public support.*

A similar prediction can be made for prior entrepreneurial experience. Previous involvement in setting up a venture (ie entrepreneurial experience) is usually viewed as an element of entrepreneurship-specific human capital (Chandler and Hanks 1998; Ucbasaran et al, 2008), since there are marked differences in the profiles of entrepreneurs with regard to whether or not they have prior business ownership experience (Westhead and Wright, 1998). According to Westhead et al (2004), previous experience in founding a business can be associated with abilities such as being able to exploit opportunities more easily, understanding the lending process better or developing expertise in running a business.

Moreover, prior entrepreneurial experiences help develop a network of relationships with banks, suppliers, clients and other potential resource providers, thereby increasing the entrepreneurs' stock of social capital (Davidsson and Honig, 2003). Experienced entrepreneurs may thus have access to a broad set of resource providers and also approach them more easily than other individuals in the process of venture creation.

Hence, firm founders will be less likely to use publicly funded pre-start assistance if they have developed useful knowledge, skills and contacts for venture creation from their prior entrepreneurial experiences. Our second hypothesis captures our expectation about the experienced entrepreneurs' lower likelihood of asking for publicly funded pre-start support.

***Hypothesis 2:** Firm founders having prior entrepreneurial experience will face lower information asymmetries with regard to resource providers than founders without such experience and, thus, will be less likely to demand pre-start public support.*

The likelihood of asking for publicly funded pre-start support would also decrease with the exposure of the entrepreneur to prior family business. This concept identifies whether the individual has a close family member who has previously founded a firm and can be particularly helpful in the context of venture creation (Carr and Sequeira, 2007). New and small ventures are usually influenced by family ties of firm founders, which are important to retain confidentiality and personal control (Bennett and Robson 1999).

Prior family business exposure may be important to overcome the problem of information asymmetry by providing entrepreneurs with better access to human and social capital. On the one hand, prior family business exposure may provide an environment to develop the human capital skills necessary to launch and manage a new venture. Hence, such exposure may be important for business start-ups by serving as a training ground for a future entrepreneur (Carr and Sequeira, 2007).

On the other hand, family relationships are a source of social capital. According to Arregle, Hitt, Sirmon, and Very (2007), social capital developed within the family is probably one of the most enduring and powerful forms of such capital. In the context of new ventures, the family is the most common source of support for entrepreneurs, and strong ties among family members play an important role in the activities of new firms (Birley, 1985).

Overall, prior family business exposure will result in higher human and social capital, which, as we have argued, will provide an efficient means of reducing the problem of information asymmetry between entrepreneurs and resource providers. Therefore, we suggest the following hypothesis:

***Hypothesis 3:** Firm founders with prior family business exposure will face lower information asymmetries with regard to resource providers than founders without such exposure and, thus, will be less likely to demand pre-start public support.*

2.3 The relationship between publicly funded pre-start support and subsequent firm growth

In addition to the determinants of support, we are also interested in its performance effects, specifically the relationship between different types of publicly funded pre-start support and the subsequent growth of the firm. Indeed, for all the advantages of exploring the antecedents of public support, such an endeavour is only valuable when it is clearly linked to performance outcomes. Existing studies have established that new firm growth is affected by entrepreneurs' human capital endowments (Colombo and Grilli 2005), their social capital (Shane and Stuart 2002) and the environmental conditions at the time of founding (Hannan and Carroll 1992). Researchers refer to the impact of such conditions on future venture outcomes as organisational imprinting (Kimberly 1979; Marquis 2003). Considering that external support may provide additional resources to firm founders, we would anticipate that

the imprint of support and particular resources devoted to venture creation would still be evident in the subsequent firm growth. The expectation here is that there will be some relationship between publicly funded pre-start support and subsequent firm growth.

According to Chrisman and McMullan (2000), new venture development can be thought of as a process requiring a special application of the resource-based theory of the firm, and external support can be considered a special resource that entrepreneurs might use to develop a sustainable competitive advantage. In the case of publicly funded pre-start support, it may provide tangible resources (eg financial resources) and intangible resources (eg knowledge) to potential entrepreneurs. For many entrepreneurs the chances are that they will simply rely upon their own resources to fund the start-up of their business (eg personal savings). Yet other entrepreneurs often make use of different types of resources. For instance, financial support may include both access to private finance, such as commercial loans at subsidised interest rates, and public finance.

The general logic is that those with particular resources are more able to realise and expand their venture. In addition, during the supporting process entrepreneurs may become aware of additional resources they lack, and learn about the more efficient way to use the ones they already have. Hence, publicly funded pre-start support may yield a more solid resource base for the new firm. For this reason, one would expect a positive relationship between pre-start public support and subsequent growth, once other potential determinants commonly associated with growth (Capelleras, Mole, Greene, and Storey, 2008; Gilbert, McDougall, and Audretsch, 2006) are controlled for.

Hypothesis 4: *The use of publicly funded pre-start support will be positively related to subsequent growth of the new firm.*

However, differing types of assistance would be related to differing growth rates of the firm. From a resource-based view it is clear that not all types of resources that can be obtained through publicly funded support exhibit characteristics that confer sustainable competitive advantage (Barney, 1991). This in turn may lead one to think that access to publicly funded support does not inevitably lead to improved firm performance (Atherton et al, 2010). The resource-based theory of the firm acknowledges the differences among firms regarding their resource endowment and seeks to identify the ones that are more relevant for their long-term success. According to proponents of the resource-based view, such success lies in those resources that are valuable and difficult to transfer or copy (eg Amit and Schoemaker, 1993; Barney, 1991; Wernerfelt, 1984). Publicly funded support to firm founders can be provided as both hard (tangible) and soft (intangible) support. Hard support includes financial assistance and other assistance which usually involves services such as incubators. Soft support includes formal training, specialised advice or the provision of some basic information. Amongst these forms of assistance, specialised and on-going advice that transfers relevant knowledge from the adviser to the firm founder can be described, using the language of the resource-based theory, as rare, inimitable, or non-tradable, and consequently exhibits the characteristics forming the basis of the firm's sustainable competitive advantage.

The idiosyncratic resource, difficult to copy, is the knowledge created through the interaction between the adviser and the potential entrepreneur⁹. This is because the trained adviser provides an opportunity for prospective firm founders to enhance their knowledge (Chrisman and McMullan, 2000), including tacit elements that are unique to the individual and the new venture (Chrisman et al, 2005). Knowledge resources are critical in new firms because they are the first type of resource that any successful new firm accumulates (Brush et

⁹ Although one could argue that entrepreneurs would need a previous stock of human capital to decode this intangible support, the key point here is that specialised advice is expected to provide them with additional and specific knowledge, regardless of their prior level of human capital.

al, 2001). So the acquisition and accumulation of such knowledge at inception would tend to lead to enhanced resource-based capabilities (Hjalmarsson and Johansson, 2003), which in turn would lead to stronger venture growth and sustainability (West and Noel, 2009). In sum, what we propose is that publicly funded pre-start support specifically oriented toward knowledge generation in terms of intensive assistance (Mole et al, 2008; 2009) will be crucial to the new venture. Our expectation is formulated in the following hypothesis:

Hypothesis 5: Among the different types of publicly funded pre-start support, knowledge-oriented assistance will have the largest effect on subsequent growth of the new firm.

3 Methods

3.1. Data collection and sample

In order to examine the determinants of the demand for pre-start public support and its effects on growth, we draw on a survey designed to provide information about wholly new independent firms (ie *de novo* ventures) that were still in operation. For this reason, the research involved strenuous attempts to discover and interview operational *de novo* entrepreneurs. We focus on operational ventures because the purpose of the study was to investigate not only pre-start factors influencing public support, but also post-start growth effects of support.

More specifically, the data come from a survey of founders of firms in the manufacturing and service sectors in Navarra¹⁰ (Spain) carried out in 2005. Hence, the study focused upon a specific geographical area, as in previous studies examining external assistance to new ventures (eg Belso, 2009; Chrisman et al, 2005; Greene, Mole and Storey,

¹⁰ Navarra is one of 17 Spanish autonomous communities, which are classified as NUTS-2 units according to Eurostat. The Nomenclature of Territorial Units for Statistics (NUTS, from the French *Nomenclature d'Unités Territoriales Statistiques*) is a standard geocode for referencing the administrative divisions of countries in the European Union for statistical purposes.

2004; Johnson et al, 2007). Navarra's economic development level (GDP, level of industrialisation and unemployment rates) is on a par with the European Union average. As in most countries and regions across the world, the vast majority of firms created in Navarra are microfirms (Sanz, Contin, and Larraza, 2009). In Navarra publicly funded support to new businesses has a "universal service requirement". This means that any entrepreneur who asks for public support for her venture must be attended by a counsellor from a Publicly Funded Business Development Centre (PFBDC). The counsellor can provide information about the administrative steps needed to create a new firm, including fiscal matters, and, in general, all the issues related to the creation of a new business. Depending on the stage of development and on the quality of the business idea, the entrepreneur may work together with the counsellor on the elaboration of a pre-start business plan. These PFBDCs can also offer several management training courses for entrepreneurs and access to financial funds, as well as to places in incubators. Importantly, the main characteristics of Navarra's system of external support to new firms closely resemble those of the Swedish ALMI model (Storey, 2003; Mole and Bramley, 2006), that is, external support to entrepreneurs comes chiefly from the public purse. Specifically, the support by the Government of Navarra is provided through a network of well-known public and quasi-public institutions. Unlike, for example, the former UK Enterprise Initiative model (Storey, 2003), the role of private sector advisors/consultants is almost negligible. All these characteristics made Navarra a suitable region for analysing the questions of who requests publicly funded pre-start support and its effect on growth.

The data collection process was organised in three main stages, as shown in figure 2. First, an initial list of the population of new ventures founded in 2000 and 2001 and still in business in 2005 was derived from official records of the Government of Navarra. In the absence of an official census specifically created to identify new firms created in Navarra, we had to combine official records created for different purposes to generate a comprehensive

dataset of firms which met the criterion mentioned above. We combined the information contained in the Census of New Establishments (CNE) and the Register for Tax on Economic Activities (RTEA).¹¹ As its name suggests, the former contains a list of all the establishments opened in Navarra in a given year. Firms have to specify whether the establishment is opened by an already existing firm or by a new one. Thus, this group of firms comprises the population of establishments created in a given year.

[Figure 2 about here]

The RTEA provides a list of the firms that have paid the required tax on economic activities in a certain year. Firms cannot be active if they do not pay this tax, which is payable for each type of activity they perform. Therefore, in order to identify new firms it was necessary to check whether or not each firm was already performing another activity; in other words, whether or not the firm was already active in business.

Combining the two data sources we were able to obtain an initial list of firms founded in Navarra in 2000 and 2001. We observed that all the new firms derived from the CNE were also present in the RTEA. As common contractual agreements in the construction and transportation sectors might lead to entries in both data sources that were not really new firms, we removed those two sectors from our study. In particular, it is common for construction firms to create a new firm to take part in a specific construction project. In the transportation sector, self-employment is an alternative to the regular employment contract, being common in the case of self-employed workers who work entirely for a single firm. Our list was further refined by eliminating the firms that did not pay the tax on economic activities in 2005 or before. Because of the specific nature of this tax, it is only paid by those firms that are or want

¹¹ Their official names are, respectively, *Censo de Apertura de Centros de Trabajo* and *Altas del Impuesto de Actividades Económicas*.

to be active in business; hence, our initial list comprised firms founded in Navarra in 2000 and 2001 that were still active in 2005.

In the second stage of the data collection, telephone interviews were conducted with the firm founders. The interviews involved establishing whether they really were new ventures started in 2000 and 2001, independent of outside control (not subsidiaries, franchises or part of larger enterprises), not established for tax purposes, and still in operation. A total of 485 firms were identified and constituted our target population for the third and final stage of our data collection process.

In the third stage, face-to-face interviews were arranged with the firm founders. Respondents answered a structured interview questionnaire, administered at their normal place of work. A total of 224 entrepreneurs were successfully contacted and agreed to participate, representing a 46.2% response rate. Such a rate can be considered high for studies utilizing primary data collected through this method, and especially through upper-echelon organisational members (Cliff, Jennings, and Greenwood, 2006). As will be shown next, the rate of firm creation in the agricultural sector is much smaller than in other sectors. This was correctly captured in our sample, with only two firms belonging to the agricultural sector. Because of the low number, we decided to remove those firms from our analyses, resulting in a sample of 222 entrepreneurs and their firms operating in the manufacturing and service sectors. Their exclusion does not affect our results and conclusions. The sample size for the multivariate analyses is reduced to 192 new ventures (39.6% of our target population), as the information provided by a number of respondents did not allow us to measure at least one of the variables included in our multivariate models.

Our sample is representative of the target population of new firms created in 2000 and 2001 that were still in business in 2005. To check its representativeness, chi-square and t tests between the sample of surveyed firms and the rest of the population of eligible ventures were

performed. The results showed no statistically significant differences at the 5% level, in terms of industry sector and firm size, between those who participated in the study and those that did not. For instance, the percentage of microfirms in the sample of firms that participated in the face-to-face interviews was 95.5%, which is fully consistent with the percentages of microfirms reported in other statistical analyses (eg Sanz et al, 2009). Moreover, the distribution of firms across five major industries closely resembles that of the population: 0.4% of the firms in the sample belong to the agricultural sector, 22.3% to manufacturing, 23.1% to commerce, 17.6% to hospitality and the remaining 36.6% to other services. The respective percentages in our target population are 0.2%, 24%, 24.8%, 17.7% and 33.2%. Finally, there are no differences between the sample and the target population in the average number of workers at inception.

3.2. Variable measurement

Publicly funded pre-start support. Respondents were asked about their use of public support prior to start-up. Responses to this question are used to distinguish between those who received such support and the remainder. The variable takes the value 1 if the firm founder received publicly funded external support of any kind at inception and 0 otherwise. The universal nature of public support in Navarra guarantees that those who declare they have not received assistance at inception really did not ask for any support. In our sample 41% of the firms received some kind of publicly funded support. It is also interesting to note that respondents were also asked to indicate other institutions that helped them prior to start-up. Only two firms in the sample indicated they received support from private institutions; they had also received publicly funded pre-start support. This was expected since, as we noted above, external support for entrepreneurs in Navarra is essentially publicly funded.

We further divide the support variable and distinguish three types of assistance that result in three binary variables: (1) “hard” (tangible) support, in terms of financial support or workspace in an incubator (*hard support*); (2) “soft” (intangible) support, including specialised training and advice on the business idea and business plan development (*knowledge support*); and (3) information about support instruments and the steps necessary to register formally the new business (*information support*). Among the businesses that received external support, 32.2% obtained hard support, 54% received training and advice on the business idea, and 74.7% gathered information about legal issues.

Firm growth. Although a variety of growth measures have been used in the literature (Davidsson, Achtenhagen, and Naldi, 2006), we chose employment growth because it is an indicator of the likely resources available to the venture (Brüderl and Preisendörfer, 2000). Moreover, employment is generally recognised as being less commercially sensitive (Cooper, Gimeno-Gascon and Woo, 1994) and is the most robust indicator of growth to different operationalisations (Davidsson et al, 2006). Additionally, employment growth is important to regional economies (such as Navarra) in that they may contribute substantially to job creation. Moreover, founders of tightly managed firms are usually reluctant to provide information about sales and profits, and these can be manipulated in owner-managed ventures, through salaries and perquisites, in order to minimise taxable income (Nicholls-Nixon, Cooper, and Woo, 2000)¹².

In order to operationalise employment growth, we began by calculating the absolute change in employment and the percentage or relative change. However, our data are not normally distributed and thus the dependent variable was transformed. Following previous research (eg Brixy and Kohaut 1999), growth is defined as the logarithmic change in employment between the time the firm started and the time of the survey. Therefore, we

¹² Data about sales were provided by a small subset of ventures in our sample (76 firms).

computed the natural logarithm of the ratio of the number of employees in the current year (2005) to the number of employees at inception.¹³

Prior industrial experience. As noted in previous sections, prior experience in terms of founding a business or working in the same industry sector may affect the likelihood of accessing pre-start public support. In order to account for the level of industrial experience, we asked respondents to indicate their years of experience in the same industry sector of the new firm (Colombo and Grilli, 2005).

Prior entrepreneurial experience. To capture the level of previous business ownership experience (entrepreneurial experience)¹⁴, we asked the entrepreneurs the number of firms they had previously owned (Ucbasaran et al, 2008).

Prior family business exposure. As discussed earlier, having entrepreneurs in the family may facilitate access to resources, which in turn may reduce the probability of seeking public external support. Prior family business exposure is captured through a dummy variable that takes the value 1 if the founder has had an entrepreneur in the family, and 0 otherwise (Carr and Sequeira, 2007).

Control variables. Control variables in the study reflect at both individual and firm levels the determinants of new venture growth and/or the probability of needing public external support (Storey, 1994). As to the determinants at individual level, we first control for the founder's *age*. We also include a dummy variable (*gender*), which takes the value 1 if the founder was male and 0 female. *Education* is a dummy variable that takes the value 1 if the founder has a university degree or higher. Finally we identify whether or not the founder is a

¹³ Additionally, we computed the change in the number of employees during the period of study over the number of employees at inception. Results using this alternative variable are fully consistent with those obtained using the logarithmic variable.

¹⁴ Habitual entrepreneurs are entrepreneurs with prior business ownership experience. They are usually divided into serial founders, who are those that have founded more than one business sequentially, and portfolio founders, who have done it concurrently/simultaneously (see, for example, Westhead et al, 2004). In this paper we focus on the level of prior business ownership experience, that is, the number of businesses they had previously owned.

necessity entrepreneur through a dummy variable which takes the value 1 if the interviewee reports that being unemployed was one of the reasons for creating the firm.

In the case of determinants at firm level, we consider the following variables. *Foundation year* is a dummy variable that captures whether the firm was founded in 2000 (value 1) or in 2001 (value 0). *Firm size at inception* indicates the number of employees when the firm was created. For correlations, as well as in multivariate analyses, we used the log transformation of the values for this variable. *Manufacturing* is a dummy variable that takes the value 1 if the firm belongs to the manufacturing sector and 0 otherwise. We also measure the firm's *legal status* both at inception and currently. In particular, we distinguish, at inception and currently, between limited liability (value 1) and non-limited liability forms (value 0). *Financial structure* is a dummy variable that takes the value 1 if the main source of funds at inception was the entrepreneur's personal savings and 0 otherwise. *Family in the firm* measures the proportion of family members in the firm's workforce. We finally seek to capture the strategic activities of the firm. Following earlier research on the determinants of small business growth (Davidsson et al, 2006; Gilbert et al, 2006), we create another dummy variable to identify whether (value 1) or not (value 0) the firm has introduced new products (*introduction of new products*). Similarly, we introduce two further dummy variables that capture whether the firm currently has a business plan (*plans now*) and whether the firm prepared a *plan at inception*.

3.3. Methodological approach

A methodological contribution of this study is the effective control for selection bias in assessing the value of public support to entrepreneurs¹⁵. We use a treatment effects model

¹⁵ Storey (2003) suggests the 'six steps to heaven' analytical framework for evaluations in entrepreneurship and small business research. While the first three steps basically monitor the outputs of a programme and rely upon the views of the recipients of the policy, steps four to six seek measure the programme's outcomes and contrast

which produces statistically unbiased estimates of the impact of support on growth. This model considers the influence of an endogenously chosen binary treatment on another endogenous continuous variable, conditional on two sets of independent variables. In our case the binary endogenous treatment is the dummy variable that indicates whether or not the firm received pre-start public support. The continuous endogenous measure is firm growth. Hence, two equations are estimated to: (a) examine the impact of entrepreneurial and firm characteristics on the likelihood of requesting and receiving public support; and then (b) use this information to produce a statistically unbiased estimate of the impact of support on growth outcomes. Using this estimation procedure we investigate first whether prior experience and prior family business exposure influence the request for public support and second, after having controlled for the determinants of public support, whether public external support has an influence on firm growth.

In the first equation on the determinants of public support (selection equation), explanatory variables are related to pre-start factors reflecting particular human and social capital factors, that is, the entrepreneurs' prior industrial and entrepreneurial experience, and prior family business exposure. Moreover, we control for their age, gender, formal education and motivation for starting the business. Firm-related factors, such as size, legal status and industry sector, are also included as control variables. We also control for the year the firm was founded.

Our subsequent aim is to determine the impact of publicly funded pre-start support on subsequent firm growth. As noted above, the effect of support on growth (as well as the particular influence of the three specific types of support) is estimated in the second equation (growth equation). Besides external support, the model specification includes a series of

these actions with those of non-recipients (Greene, 2009). The final step can be considered best practice, since it suggests using sample selection procedures to control for the reasons why recipients may participate in a programme. The present study uses a two-stage treatment effects model in order to control effectively for selection bias.

control variables that, according to previous literature, may influence firm growth. These include a series of personal characteristics of the entrepreneur, such as gender, age, education, experience and the number of firms previously owned. We also account for firm characteristics including its current legal status, industry and the year the firm was founded. Finally, we also consider post-start or strategic variables such as new product introduction and business planning, given the available evidence on the determinants of small business growth. Thus, we are able to examine the impact of support on growth, once individual, firm and strategic factors are controlled for.¹⁶

4 Results

Table 1 shows mean and standard deviations of the variables described above, as well as their corresponding Pearson's correlations. We found that 41% of the firms in the sample received some kind of external support. The most common type was information (31% of the whole sample declared receiving information support), with 22.2% having received knowledge support and 13.2% hard support. The average entrepreneur in our sample was a non-graduate 41-year-old male, with nine years of experience in the sector when the new firm was started, and with family members who were also entrepreneurs. Interestingly, although dispersion was high, average firm size increased from 2.78 workers at inception to 5.11 currently. This gives an average positive rate of firm growth.

[Table 1 about here]

The correlation coefficient between the two measures of prior experience (years of experience and number of firms) is .189 ($p < .01$). While the coefficient is high, it is not high enough to collapse them into a single factor. They capture different dimensions of a common

¹⁶ To meet the exclusion restrictions necessary for identification, the set of independent exogenous variables in the selection and outcome equation must differ.

factor (Jarvis, MacKenzie, and Podsakoff, 2003). Individuals who have accumulated years of experience in the sector working as salaried employees possess enough experience to get involved in firm creation, even if they have not previously owned firms. Through their experience as salaried workers, individuals may have built up the human and social capital that gives them access to the type of resources discussed in the theory section.

Pearson's correlations also show a positive but insignificant correlation between publicly funded pre-start support and firm growth. The absence of a significant correlation may be due to a selection effect. In fact, mean difference tests indicate clear differences in the profile of entrepreneurs who asked for support and those who did not. Significant differences are found in age, gender, education, industry experience, number of previously owned firms, reasons for creating the firm and family entrepreneurs. This suggests that there may be some selection bias in the demand for external public support that may be affecting conclusions about the real effect of this support on firm growth. There is also a significant difference in the proportion of firms with current business plans between those supported and those that are not. This may be a direct consequence of external support. The absence of a significant difference in average growth rates between those firms that received support and those that did not may be due to a selection effect.

As stated above, selection effects may bias the analyses and the estimation of coefficients in multivariate analyses. We estimate a treatment effects model to account for that potential selection bias. Tables 2 and 3 present the estimated coefficients obtained from the model. Table 2 shows the effect on firm growth due to external public support of any kind. Table 3 displays the influence attributable to the different types of support (ie hard, knowledge and information).

[Tables 2 and 3 about here]

According to hypothesis 1, prior industry experience of the entrepreneur will be negatively related to the demand for pre-start public support. Hypothesis 2 predicted the same relationship but for prior entrepreneurial experience. These two hypotheses are largely confirmed, since the results in table 2 indicate that both entrepreneurial and industrial experiences are negatively related to the request of support.

Hypothesis 3 proposed that prior family business exposure would be negatively related to the demand for support. As shown in table 2, the results confirm this hypothesis, as individuals whose parents (or other family members) were business owners are significantly less likely to claim public support.

Several control variables also appear to have an influence on the demand for pre-start public support. In particular, gender and formal education of the firm founder are significantly related to requesting pre-start support. The relationship between support and firm size is found to be negative and significant. There is no significant relationship between foundation year, age, unemployment, manufacturing, and legal status at inception, and support.

As for the growth effects of publicly funded support, table 2 shows that there is a positive relationship between public support and subsequent growth, after the influence of other variables has been controlled for. This result provides evidence in favour of hypothesis 4. However, when we estimate the treatment effects model for each type of support, we find that growth is positively influenced only by the use of knowledge support, as presented in table 3. In contrast, the table also shows that hard support has no significant influence upon growth and that those individuals who only sought information from the advisory institution create firms that are less likely to grow. Together these results provide support for hypothesis 5.

It is important to highlight that the estimation results confirm the endogenous character of the publicly funded pre-start support variable in the growth equation. The significant values observed in the Wald test for rho equal to zero indicate that the selection and growth equations are not independent of each other. Therefore, in order to obtain unbiased estimates in the growth equation, we need to take into account the estimates in the selection equation and the dependence of the two equations.

Finally, other variables appear to have an influence upon growth. Younger and male entrepreneurs appear to create firms that grow faster than their counterparts. The results also point to the value of prior industrial experience in supporting venture growth. Moreover, growth is enhanced if the new business introduced new products after the start-up and uses business planning.

5 Discussion and implications

5.1 Discussion

In this paper we have examined the determinants of the request for public support prior to the start of the business and its link with subsequent growth, having controlled for selection bias in the use of such support. We have focused on the demand side of public assistance to entrepreneurs, offering a renewed theoretical framework for understanding who asks for such support and how it affects business growth. This more fine-grained framework combines the usual resource-based theory argument with the concept of information asymmetry. In this vein, it considers for the first time the differences among the entrepreneurs in their capacity to access resource providers. Our main thesis is that individuals with prior industrial and entrepreneurial experience and prior family business exposure do not face as many information asymmetries with regard to resource providers as those individuals without them. Hence, industry experience, entrepreneurial experience and family business exposure have

been theorised to be negatively related to the demand for pre-start public support. Moreover, we have argued that intangible support, in the form of intensive assistance oriented towards knowledge generation, is more likely to contribute to venture growth than other types of support.

Three main findings emerge from our study. First, our results indicate that prior industrial and entrepreneurial experiences significantly affect the demand for publicly funded pre-start support. Our interpretation is that individuals with such experiences are less likely to request pre-start public support, at least when such support has a universal orientation, because they face lower information asymmetries in relation to resource providers than other firm founders.

With regard to the role of industry experience, our judgement is that high levels of knowledge-relatedness appear to be beneficial in starting up and operating small firms (Wiklund and Shepherd, 2003). In a straightforward case, employees of existing businesses may decide to become entrepreneurs, striking out on their own to create businesses that build usefully upon the specific knowledge they have acquired by working in their industry. The relatedness of their new endeavour to their previous experience is then useful in managing uncertainties, such as those concerning a new product, market, customers and suppliers (West and Noel, 2009). These individuals, as well as those with previous start-up experience, can thus send signals to resource providers to reveal private information about their ability to launch and manage the new venture successfully, thereby increasing their capacity to access resources.

Previous start-up experience also enables entrepreneurs more easily to navigate resource acquisition, such as raising financial capital or acquiring materials or other components from suppliers (Westhead et al, 2004). The knowledge that accrues to an individual from having participated in previous entrepreneurial efforts can also establish a knowledge foundation that

is valuable in this context. The entrepreneur who has previous start-up experience would understand better than others what steps to take in order to build the new venture. She would also understand what pitfalls may lie ahead and, thus, what steps not to take (Brush, Greene, and Hart, 2001).

Second, our results suggest that the intensity of family relationships tends to reduce the need for publicly funded pre-start support. Hence, family ties provide another mechanism through which information asymmetry in venture creation is overcome. Compared to information obtained from formal sources of support, information coming from informal networks, such as family ties, is often more useful, reliable, exclusive, and less redundant (Johannisson, 1990). Entrepreneurs can thus call upon expertise to help them overcome start-up problems and may have easier access to finance and other resources they lack to establish the business. It is also possible that entrepreneurs mostly compensate for lack of industry-specific knowledge and/or entrepreneurial experience by going to their family network, and only to a lesser degree do they rely on support from public agencies.

Overall, we have found that the greater the founders' prior entrepreneurial and industrial experiences, as well as prior family business exposure, the less likely they are to ask for pre-start public support. These findings underline the relevance of information asymmetries to our understanding of the motivations behind an entrepreneur's request for pre-start public support. This support is primarily solicited by those who generate higher information asymmetries in their relationships with resource providers. These entrepreneurs not only face the challenge of running their businesses with shorter endowments of human and social capital, but find that this shortage also limits their access to other resources. For them, publicly funded support is almost their only alternative to marshal the resources they do not possess.

At this point it should be recalled that our model and hypotheses focused on the demand side of pre-start public support, that is, we consciously restricted our analyses to the study of

what determines the entrepreneur's decision to request publicly funded support. We have therefore left for future consideration the effect of internal processes followed by public agencies in defining the specific type of support provided to each individual. Who receives monetary support, the characteristics of those who are selected for mentoring programmes or the role of signals and symbolic actions in determining the type of resources provided by public institutions should be the subjects of a future study. Our current dataset allowed us to identify who accessed public support and the nature of the resources they received, but not which resources they had requested. Nonetheless, the selection equations in table 3 give us, albeit imperfectly, some hints about the profile of those who received the various types of support considered in this study. In this sense, entrepreneurial and industrial experiences are negatively related to the use of information support, while entrepreneurial experience also has a negative impact on the use of knowledge support, and industrial experience is negatively associated with hard support. In terms of family business exposure, results show that it tends to reduce the probability of using information and hard support. Taken together, these results suggest that supporting institutions try to make some sort of selection when it comes to assigning different types of assistance, which is reflected in small differences in the profiles of the entrepreneurs who receive different types of support. However, and because of the self-selection process described in this paper, those profiles still show a bias towards individuals who face higher information asymmetries.

Our dataset, however, provides useful information on the growth consequences of the three different types of support. In this regard, our third main finding is that venture growth is enhanced if the entrepreneur received soft (intangible) support before the start-up, whereas other types of pre-start support do not have a positive impact on growth. Although the acquisition of financial and other hard assets may be important to new firms, our findings show that it is knowledge resources that are essential to growth. More specifically, this

finding suggests that knowledge is created through the interaction between the adviser and the potential entrepreneur. Since this knowledge is not coded but based on experience, it is not easily acquired or available to others, and thus exhibits characteristics that confer sustainable advantage (Barney, 1991).

By receiving such assistance, firm founders may be able to investigate and refine a potential idea and ultimately reveal the scope in the marketplace for that idea. A better understanding of the nature of the business idea may then enable them to reduce information asymmetries with regard to resource providers and so attract potential customers, convince suppliers that it makes sense to collaborate, or attract financial investments from providers of capital. In other words, knowledge resources may lead to the development of other important resources, one of the greatest challenges confronted by new businesses (Gilbert et al, 2006).

This is also in line with recent findings of Mole et al (2008; 2009), who found that intensive assistance (ie on-going and specialised advice) tends to favour the growth of small firms. Similarly, it is consistent with the view that entrepreneurs who are able to access appropriate expertise are likely to address firm development constraints effectively (Atherton, Kim and Kim, 2010).

5.2. Policy implications

Our findings have a number of important policy implications. First, policy makers may try to help individuals with lower levels of prior experience and family business exposure to have better access to (private) resource providers, since these individuals are likely to face greater information asymmetries. In this context, policy makers may need to consider useful methods to build and sponsor networks of which these entrepreneurs can make use. For instance, it would be helpful to promote the establishment of entrepreneurial networks in order to facilitate the interaction between potential entrepreneurs and (private) resource providers.

These networks may also be a means of promoting contacts between nascent and actual entrepreneurs, which would allow them to share experiences, initiate business contacts or attract new resources.

At the same time, however, our findings can help to pinpoint entrepreneurs that may benefit from public support but are not receiving it at the moment, such as entrepreneurs with prior experience. This is important, since previous research has clearly shown that supporting these habitual entrepreneurs may yield greater returns than focusing on ‘pure’ nascent entrepreneurs (Westhead et al, 2004).

The content and delivery of services can also be improved through a better understanding of the most effective types of support. Neither hard nor legal support has been found to have a positive influence on firm growth. It would seem that pre-start financial or infrastructural public support may favour new firms’ entry (Storey, 1994), but it does not help entrepreneurs in enhancing post-start firm growth. The nature of legal support, that is, non-intensive assistance which is primarily aimed at providing only information about how to register a new business, may explain its limited impact on new venture growth.

These findings should prompt policy makers to revise public policies in order to redesign assistance programmes, because inadequately designed programmes may be generating negative externalities among existing firms. In other words, some inefficient firms may survive for a number of years thanks to the financial or infrastructural support they receive, but at the same time they may push other more efficient firms out of the market (Belso, 2009). Therefore, it is critical that resources are allocated to entrepreneurs (and businesses) with growth potential, rather than ensuring the survival of a number of uncompetitive businesses which will probably close after a period of subsidy (Westhead, Ucbasaran, Wright and Binks, 2005).

In contrast, publicly funded institutions might need to consider promoting assistance where the public sector adviser acts mainly in the capacity of a mentor, which appears to be more oriented to knowledge generation than other types of support. While there may not be public resources available to assist all potential firm founders in this way, existing resources might be better used to deepen the advice provided, rather than trying to reach more potential founders (Mole et al, 2011). Additionally, it would be interesting to facilitate links between potential entrepreneurs and other support mentors such as retired executives or volunteers from large firms. Overall, an important goal for public agencies is to clearly recognise the strengths and weaknesses of support programmes and redesign them accordingly. In any case, the provision of publicly funded support should not be considered an end in itself, rather a means of fostering better new businesses (Storey and Greene, 2010).

5.3. Limitations and future research directions

Although previous research has examined some aspects of the topics that we have discussed here, methodological weaknesses such as sample selection biases may have limited the acceptance of their findings. Our study provides a methodological advance, since we have surveyed a representative sample of entrepreneurs, including those who requested and received pre-start support and those who did not, and have employed a two-stage treatment effects model. However, our study is not free of limitations. First, we examined firms founded in a specific setting. Therefore, results may not be easily generalised to other geographical areas. For example, in our case nascent entrepreneurs seem to be well aware of the existence of a network of start-up supporting agencies and that may not be the case in other regions or for some individuals (Scott and Irwin, 2009).

Moreover, most pre-start support in Navarra is publicly funded and with a universal orientation. In this regard it may not reflect situations where those who apply for support have

to meet certain requirements in terms of the nature of the business (eg science-based ventures). Future studies should therefore consider the extent to which our explanation is universal or is limited to our research context. Nevertheless, our theoretical model can be useful to explain the demand for publicly funded assistance to new firms in contexts where support has a universal orientation. In this regard it may be worth noting that our results concerning the performance effects of different forms of support are consistent with those obtained by researchers in different settings (Chrisman et al, 2005).

While we have used a representative sample of new firms, another limitation of this study is that it relies upon a relatively reduced sample size. While a larger sample size would be desirable, it should be recalled that the sample employed in the research was representative of the target population.

Additionally, in this study we have focused on firms that had already passed the critical three-year hurdle. This period of time may confer a survival bias to our sample. In this sense it would be desirable for a future study to test our predictions by using information from new firms with, for example, less than one year of trading. A straightforward extension of our analysis, which would also provide additional evidence on the robustness of our predictions, would be to explore the impact of different kinds of support on the survival rates of new firms.

Another interesting route for future research would be to investigate the match between demand for and supply of public support. Since we have found that experienced entrepreneurs are less likely to seek pre-start public assistance, one could speculate that existing public support is not suitable for such individuals. This deserves further research.

In addition, though there is much value in concentrating upon publicly funded support to new firms, there is still a need to consider the utilisation of private sector sources of external

support (suppliers, customers, accountants, consultants, etc.). For instance, it would be interesting to examine whether there is any potential interaction between the use of public and private support. The test of this potential interaction effect would require a sample from a geographical context in which the presence of private sector advisors in the provision of external support is greater than that observed in Navarra.

Our results provide some explanation for previous inconsistent findings about the effect of external public support initiatives, as they highlight that the type of support provided matters. While we have proven the important effect of intangible support to entrepreneurs on subsequent venture growth, future research would benefit from the use of more fine-grained measures of types of support. It would also be interesting to include in the analysis variables measuring whether entrepreneurs have founded more than one business sequentially or have done it concurrently (eg Westhead et al, 2004) and to take into account not only the level but also the type of education they received.

In conclusion, the present paper contributes to a better understanding of the role played by information asymmetry faced by the entrepreneur, with respect to resource providers, in explaining the demand for pre-start public support. It shows that industry and entrepreneurial experience as well as prior family business exposure can reduce such asymmetries, thereby reducing the need to request publicly funded pre-start support, at least when it has a universal orientation. In addition, the paper shows the importance of knowledge support to subsequent venture outcomes. Overall, it strengthens the theoretical basis of work in this area by explaining the demonstrated effects with reference to the concept of information asymmetry, the resource-based theory and important constructs in the resource-oriented literature (human and social capital). These different frameworks have not previously been integrated within this literature.

References

- Amit R, Schoemaker P J H, 1993, "Strategic assets and organizational rent" *Strategic Management Journal* **14** 33 – 46
- Atherton A, Kim J Y, Kim H, 2010, "Who's driving take-up? An examination of patterns of small business engagement with Business Link" *Environment and Planning C: Government and Policy* **28** 257 – 275
- Arregle J-L, Hitt M A, Sirmon D G, Very P, 2007, "The development of organizational social capital: attributes of family firms" *Journal of Management Studies* **44** 73 – 95
- Barney J B, 1991, "Firm resources and sustained competitive advantage" *Journal of Management* **17** 99 – 120
- Bauernschuster, S, Falck, O, Heblich, S, 2010, "Social capital access and entrepreneurship" *Journal of Economic Behavior & Organization* **76** 821 – 833
- Becker G, 1994 *Human Capital* (University of Chicago Press, Chicago)
- Bennett R J, 2008, "SME policy support in Britain since the 1990s: what have we learnt?" *Environment and Planning C: Government and Policy* **26** 375 – 397
- Bennett R J, Robson P J A, 1999, "The use of external business advice by SMEs in Britain" *Entrepreneurship & Regional Development* **11** 155 – 180
- Bennett R J, Robson P J A, 2003, "Changing use of external business advice and government support during the 1990s" *Regional Studies* **37** 795 – 811
- Belso Martínez J A, 2009, "Entrepreneurship policies and new business performance and growth: an empirical analysis based on manufacturing industries" *Environment and Planning C: Government and Policy* **27** 195 – 215
- Birley S, 1985, "The role of networks in the entrepreneurial process" *Journal of Business Venturing* **1** 107 – 117
- Bosma N, van Praag M, Turik R, de Witt G, 2004, "The value of human and social capital investments for the business performance of startups" *Small Business Economics* **23** 227 – 236
- Boter H, Lundström A, 2005, "SME perspectives on business support services: the role of company size, industry and location" *Journal of Small Business and Enterprise Development* **12** 244 – 258
- Brüderl J, Preisendörfer P, 1998, "Network support and the success of newly founded business" *Small Business Economics* **10** 213 – 225

- Brüderl J, Preisendörfer P, 2000, "Fast-growing businesses, empirical evidence from a German study" *International Journal of Sociology* **30** 45 – 70
- Brush C G, Greene P G, Hart M M, 2001 "From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base" *Academy of Management Executive* **15** 64 – 78
- Capelleras J-L, Mole K M, Greene F J, Storey D J, 2008, "Do more heavily regulated economies have poorer performing new ventures? Evidence from Britain and Spain" *Journal of International Business Studies* **39** 688 – 704
- Capelleras J-L, Greene F J, 2008, "The determinants and growth implications of venture creation speed" *Entrepreneurship & Regional Development* **20** 311 – 337
- Carr J C, Sequeira J M, 2007, "Prior family business exposure as intergenerational influence and entrepreneurial intent: a theory of planned behavior approach" *Journal of Business Research* **60** 1090 – 1098
- Chandler G N, Hanks S H, 1998, "An examination of the substitutability of founders' human and financial capital in emerging business ventures" *Journal of Business Venturing* **13** 353 – 369
- Chrisman J J, McMullan W E, 2000, "A preliminary assessment of outsider assistance as a knowledge resource: The longer term impact of new venture counseling" *Entrepreneurship Theory and Practice* **24** 37 – 53
- Chrisman J J, McMullan W E, 2004, "Outsider assistance as a knowledge resource for new venture survival" *Journal of Small Business Management* **42** 229 – 244
- Chrisman J J, McMullan W E, Hall J, 2005, "The influence of guided preparation on the long term performance of new ventures" *Journal of Business Venturing* **20** 769 – 791
- Cliff, J E, Jennings P D, and Greenwood R, 2006, "New to the game and questioning the rules: the experiences and beliefs of founders who start imitative versus innovative firms" *Journal of Business Venturing* **21** 633 – 663
- Colombo M, Grilli L, 2005, "Founders' human capital and the growth of new technology-based firms: A competence-based view" *Research Policy* **34** 795 – 816
- Cooper A, Gimeno-Gascon F, Woo C, 1994, "Initial human and financial capital as predictors of new venture performance" *Journal of Business Venturing* **9** 371 – 395
- Cromie S, Birley S, Callaghan I, 1993, "Community Brokers: Their Role in the Formation and Development of Business Ventures" *Entrepreneurship and Regional Development* **5** 247 – 264

- Davidsson P, Honig B, 2003, "The role of social and human capital among nascent entrepreneurs" *Journal of Business Venturing* **8** 301 – 331
- Davidsson P, Achtenhagen L, Naldi L, 2006, "What do we know about small firm growth?", in *The Life Cycle of Entrepreneurial Ventures* Ed S Parker (Springer, New York) pp 361 – 398
- Forbes D P, 2005, "Managerial determinants of decision speed in new ventures" *Strategic Management Journal* **26** 355 – 366
- Gilbert B A, McDougall P P, Audretsch D B, 2006, "New venture growth: A review and extension" *Journal of Management* **32** 926 – 950
- Granovetter M, 1985, "Economic action and social structure: The problem of embeddedness" *American Journal of Sociology* **91** 481 – 510
- Greene F J, 2009, "Assessing the impact of policy interventions: the influence of evaluation methodology" *Environment and Planning C: Government and Policy* **27** 216 – 229
- Greene F J, Mole K F, Storey D J, 2004, "Does more mean worse? Three decades of enterprise policy in the Tees Valley" *Urban Studies* **41** 1207 – 1228
- Greene F J, Mole K F, Storey D J, 2008, *Three Decades of Enterprise Culture. Entrepreneurship, Economic Regeneration and Public Policy* (London, Palgrave Macmillan)
- Hannan M, Carroll G, 1992 *The Dynamics of Organizational Populations* (Oxford University Press, New York)
- Henry C, 2010, "SME policy and the role of government" *Environment and Planning C: Government and Policy* **28** 191 – 194
- Hjalmarsson D, Johansson A W, 2003, "Public advisory services – theory and practice" *Entrepreneurship & Regional Development* **15** 83 – 98
- Jarvis C B, MacKenzie S B, Podsakoff P M, 2003, "A critical review of construct indicators and measurement misspecification in marketing and consumer research" *Journal of Consumer Research* **30** 199 – 218
- Johannisson B, 1990, "Economies of overview - guiding the external growth of small firms" *International Small Business Journal* **9** 32 – 44
- Johnson S, Webber D J, Thomas W 2007, "Which SMEs use external business advice? A multivariate subregional study" *Environment and Planning A* **39** 1981 – 1997.
- Kimberly J R, 1979, "Issues in the creation of organizations: initiation, innovation, and institutionalization" *Academy of Management Journal* **22** 437 – 457

- Koeller C T, Lechler T G, 2006, “Economic and managerial perspectives on new venture growth: an integrated analysis” *Small Business Economics* **26** 427 – 437
- Lambrecht J, Pirnay F, 2005, “An evaluation of public support measures for private external consultancies to SMEs in the Walloon Region of Belgium” *Entrepreneurship & Regional Development* **17** 89 – 108
- Lasheras M G, 1999 *La Regulación Económica de los Servicios Públicos* (Ariel Economía, Barcelona)
- Macho-Stadler I, Pérez-Castrillo D, Veugelers R, 2007, “Licensing of university inventions: the role of a technology transfer office” *International Journal of Industrial Organization* **25** 483 – 510
- Marquis C, 2003 “The pressure of the past: network imprinting in intercorporate communities” *Administrative Science Quarterly* **48** 655 – 689
- Mole K F, Bramley G, 2006, “Making policy choices in nonfinancial business support: an international comparison” *Environment and Planning C: Government and Policy* **24** 885 – 908
- Mole K F, Hart M, Roper S, Saal D, 2008, “Differential gains from Business Link support and advice: a treatment effects approach” *Environment and Planning C: Government and Policy* **26** 315 – 334
- Mole K F, Hart M, Roper S, Saal D, 2009, “Assessing the effectiveness of business support services in England. Evidence from a theory-based evaluation” *International Small Business Journal* **27** 557 – 582
- Mole K F, Hart M, Roper S, Saal D S, 2011, “Broader or deeper? Exploring the most effective intervention profile for public small business support” *Environment and Planning A* **43** 87 – 105
- Nicholls-Nixon C L, Cooper A C, Woo C Y, 2000, “Strategic experimentation: understanding change and performance in new ventures” *Journal of Business Venturing* **15** 493 – 521
- Penrose E T, 1959 *The Theory of the Growth of the Firm* (John Wiley & Sons, New York)
- Robson P J A, Bennett R J, 2000, “SME growth: the relationship with business advice and external collaboration” *Small Business Economics* **15** 193 – 208
- Robson P J A, Bennett R J, 2010, “Paying fees for government business advice: an assessment of Business Link experience” *Applied Economics* **42** 37 – 48
- Robson P J A, Wijbenga F, Parker S C, 2009, “Entrepreneurship and policy: challenges and directions for future research” *International Small Business Journal* **27** 531 – 535

- Sanz M, Contin I, Larraza M, 2009 *Global Entrepreneurship Monitor: Informe Ejecutivo 2008-Navarra* (Servicio Navarro de Empleo-Gobierno de Navarra)
- Scott J M, Irwin D, 2009, “Discouraged advisees? The influence of gender, ethnicity, and education in the use of advice and finance by UK SMEs” *Environment and Planning C: Government and Policy* **27** 230 – 245
- Shane S., 2000, “Prior knowledge and the discovery of entrepreneurial opportunities” *Organization Science* **46** 448 – 469
- Shane S, Stuart T, 2002, “Organizational endowments and the performance of university start-ups” *Management Science* **48** 154 – 170
- Sidak J G, Spulber D F, 1998 *Deregulation Taking and the Regulatory Contract* (Cambridge University Press, Cambridge)
- Spence A M, 1973, “Job market signaling” *Quarterly Journal of Economics* **87** 355 – 374
- Spence A M, 1974 *Market Signaling: Informational Transfer in Hiring and Related Screening Processes* (Harvard University Press, Cambridge)
- Storey D J, 1994 *Understanding the Small Business Sector* (Routledge, London)
- Storey D J, 2003, “Entrepreneurship, small and medium sized enterprises and public policies”, in *Handbook of Entrepreneurship Research* Eds Z J Acs, D B Audretsch (Boston, Kluwer Academic Publishers) pp 473 – 514
- Storey D J, Greene F J, 2010 *Small Business and Entrepreneurship* (Pearson, London)
- Ucbasaran D, Wright M, Westhead P, 2008, “Opportunity identification and pursuit: Does an entrepreneur’s human capital matter?” *Small Business Economics* **30** 153 – 173
- Venkataraman S, 1997, “The distinctive domain of entrepreneurship research” *Advances in Entrepreneurship Research, Firm Emergence and Growth* **3** 119 – 138
- Wernerfelt B, 1984, “A resource-based view of the firm” *Strategic Management Journal* **5** 171 – 180
- West G P III, Noel T W, 2009, “The impact of knowledge resources on new venture performance” *Journal of Small Business Management* **47** 1 – 22
- Westhead P, Wright M, 1998, “Novice, serial and portfolio founders: Are they different?” *Journal of Business Venturing* **13** 173 – 204
- Westhead P, Ucbasaran D, Wright M, Binks M, 2004, “Policy toward novice, serial, and portfolio entrepreneurs” *Environment and Planning C: Government and Policy* **22** 779 – 798
- Westhead P, Ucbasaran D, Wright M, Binks M, 2005, “Novice, serial and portfolio entrepreneur behaviour and contributions” *Small Business Economics* **25** 109 – 132

- Wiklund J, Shepherd D A, 2003, "Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses" *Strategic Management Journal* **24** 1307 – 1314
- Wiklund J, Patzelt H, Shepherd DA, 2009, "Building an integrative model of small business" *Small Business Economics* **32** 351 – 374
- Wren C, Storey D J, 2002, "Evaluating the effect of soft business support upon small firm performance" *Oxford Economic Papers* **54** 334 – 365
- Wright M, Hmieleski K H, Siegel D S, Ensley M D, 2007, "The role of human capital in technological entrepreneurship" *Entrepreneurship Theory and Practice* **31** 791 – 806
- Zhang J, Soh P-H, Wong P-K, 2010, "Entrepreneurial resource acquisition through indirect ties: compensatory effects of prior knowledge" *Journal of Management* **36** 511 – 536
- Zott C, Huy Q-N, 2007, "How entrepreneurs use symbolic management to acquire resources" *Administrative Science Quarterly* **52** 70 – 105

Figure 1. The conceptual model for the determinants and growth implications of publicly funded pre-start support

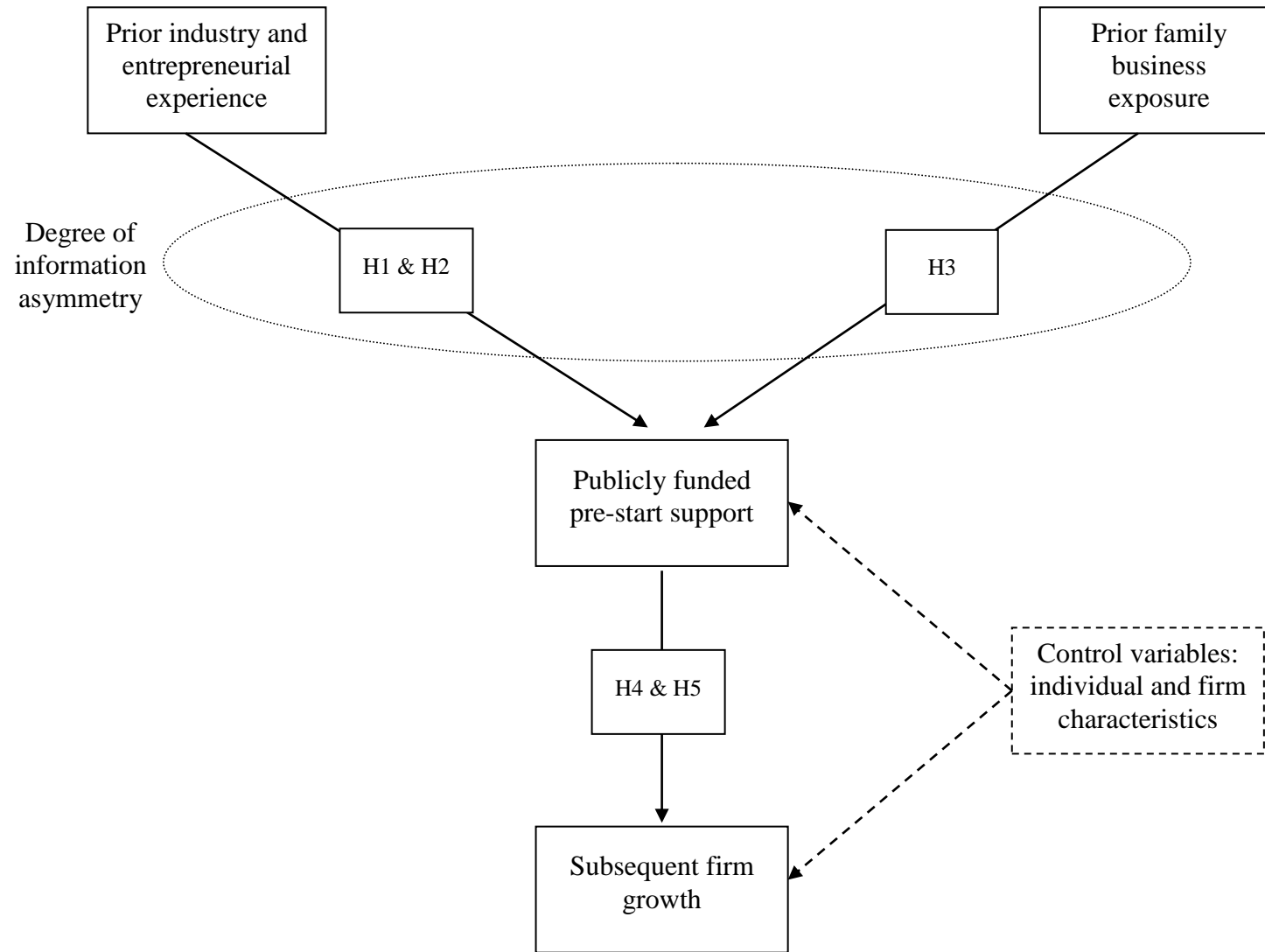


Figure 2. Stages of the data collection process

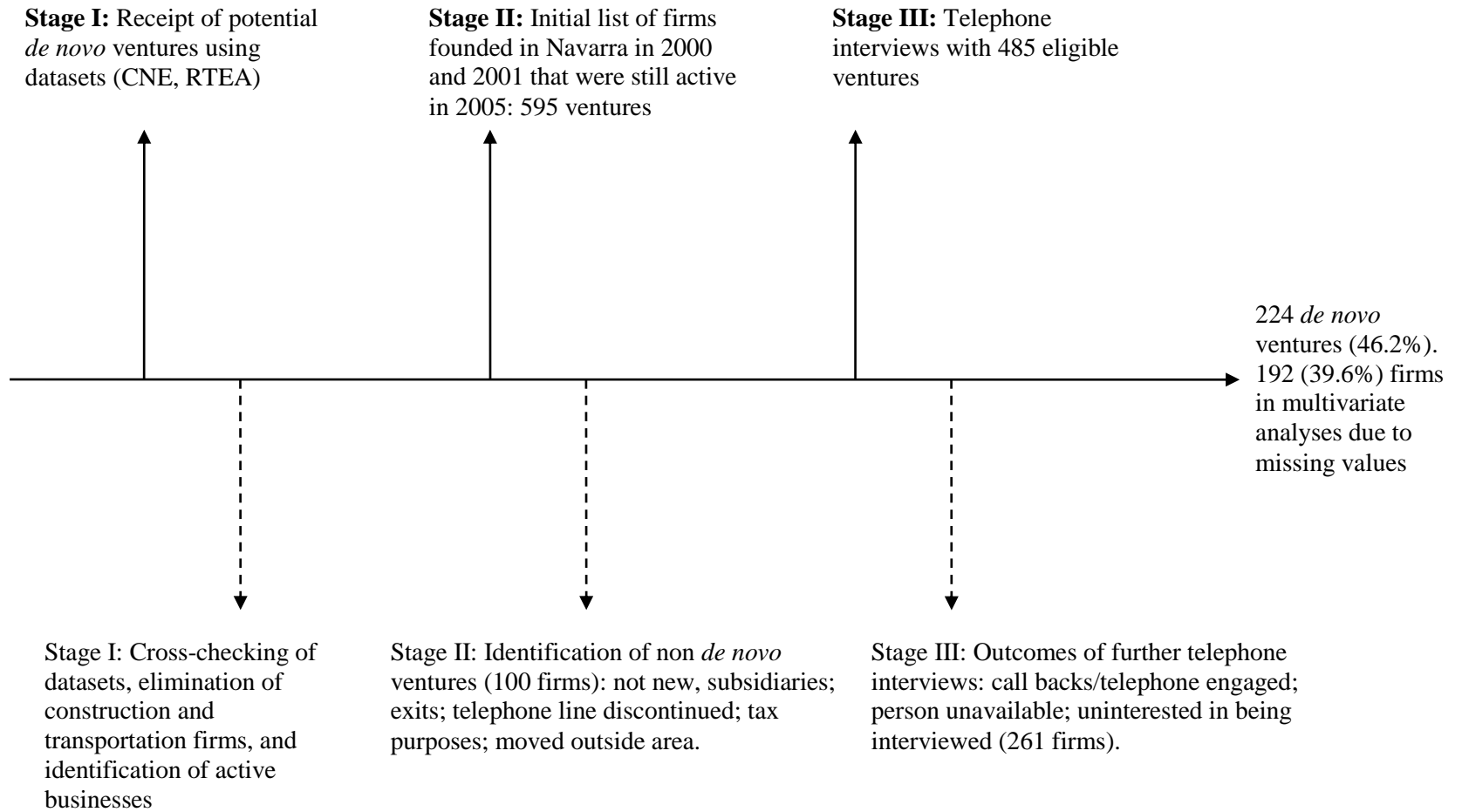


Table 1. Mean, standard deviation and Pearson's correlation matrix ^a

	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1- Employment growth	.432	.613	1.000																		
2- Pre-start public support	.410	.493	.067	1.000																	
3- Hard support	.132	.339	.079	.467	1.000																
4- Knowledge support	.222	.416	-.030	.639	.194	1.000															
5- Information support	.307	.462	.032	.797	.193	.482	1.000														
6- Foundation year	.651	.478	.045	-.053	-.039	-.042	-.054	1.000													
7- Gender	.698	.460	.079	-.203	-.111	-.248	-.170	-.029	1.000												
8- Age	40.797	8.880	-.083	-.202	-.026	-.183	-.224	.131	.140	1.000											
9- Education	.338	.474	.171	.135	.104	.122	.064	-.063	.036	-.053	1.000										
10- Industrial experience	8.892	9.130	-.007	-.250	-.169	-.222	-.174	.133	.240	.431	-.088	1.000									
11- Entrepreneurial experience	.585	1.179	-.028	-.162	-.051	-.139	-.147	-.057	.161	.313	-.028	.189	1.000								
12- Prior family business exposure	.566	.497	-.012	-.160	-.135	-.012	-.138	.038	-.058	-.024	.144	.016	-.034	1.000							
13- Manufacturing	.203	.403	.216	.056	.184	-.101	-.006	.050	.076	.098	-.005	.033	-.061	-.008	1.000						
14- Legal status now	.395	.490	-.264	.020	.000	.131	.040	-.044	-.300	-.055	-.228	-.009	-.140	.011	-.217	1.000					
15- Legal status at inception	.414	.494	-.230	-.012	-.015	.109	.014	-.015	-.272	-.068	-.234	.001	-.134	-.034	-.235	.942	1.000				
16- Introduction of new products	.604	.490	.207	-.050	-.085	.058	-.051	-.047	.098	-.087	.207	-.029	-.040	.089	-.023	-.192	-.179	1.000			
17- Plans at inception	.324	.469	.107	.210	.027	.189	.203	.148	.016	.148	.250	-.012	.249	.010	-.092	-.226	-.230	.087	1.000		
18- Plans now	.307	.462	.265	.007	.132	.062	-.045	.036	.192	.112	.314	.037	.191	.149	.072	-.373	-.354	.204	.373	1.000	
19- Financial structure	.362	.482	.012	-.002	-.113	.028	.060	-.029	.115	.112	.131	.123	.033	.158	.066	-.096	-.083	.089	.013	.005	1.000
20- Family in the firm	.081	.191	-.028	.006	-.017	.073	.065	-.056	-.029	-.080	-.020	.034	-.006	-.048	-.081	-.151	-.096	.029	-.078	-.031	-.169
21- Necessity entrepreneur	.076	.265	-.064	.160	.151	.147	.157	.061	-.123	-.006	-.017	-.110	-.052	-.112	.033	-.050	-.061	-.096	.044	-.075	.046
22- Firm size at inception	2.778	1.866	-.054	-.044	.033	-.116	-.026	.140	.113	.075	.008	.109	.161	-.025	.137	-.351	-.329	-.004	.161	.254	-.059
	20	21																			
20- Family in the firm	1.000																				
21- Necessity entrepreneur	.087	1.000																			
22- Firm size at inception	-.015	.060																			

^a Significance levels are based on a two-tailed test. For correlations equal or above .140 in absolute value, $p < .05$. For correlations equal or above .175 in absolute value, $p < .01$

Table 2. Two-stage treatment effects model of publicly funded pre-start support on firm growth ^a

	External Support		
Growth equation			
Foundation year	.089	(.107)	
Gender	.191	(.110)	†
Age	-.012	(.007)	†
Education	-.074	(.116)	
Industrial experience	.013	(.006)	*
Entrepreneurial experience	.029	(.059)	
Prior family business exposure	.074	(.102)	
Manufacturing	.131	(.122)	
Legal status now	-.199	(.105)	†
Introduction of new products	.147	(.081)	†
Plans at inception	-.014	(.110)	
Plans now	.239	(.115)	*
Financial structure	-.036	(.086)	
Family in the firm	-.240	(.242)	
Pre-start public support	.915	(.210)	***
Selection equation			
Foundation year	-.099	(.195)	
Gender	-.466	(.218)	*
Age	.005	(.012)	
Education	.394	(.202)	*
Industrial experience	-.029	(.012)	*
Entrepreneurial experience	-.289	(.113)	*
Prior family business exposure	-.401	(.196)	*
Necessity entrepreneur	.238	(.244)	
Manufacturing	.304	(.241)	
Firm size at inception (log)	-.302	(.130)	*
Legal status at inception	-.092	(.202)	
Log pseudolikelihood	-268.295		***
Wald test Chi-square (rho=0)	15.780		***
N	192		

^a Table reports non-standardised β coefficients. Robust standard errors are in parentheses. Significance levels are based on a two-tailed test for all tests and coefficients. † $p < .10$, * $p < .05$, *** $p < .001$

Table 3. Two-stage treatment effects model of type of publicly funded pre-start support on firm growth ^a

	Hard support		Knowledge support		Information support	
Growth equation						
Foundation year	.046	(.090)	.056	(.101)	.014	(.114)
Gender	-.020	(.088)	.115	(.105)	-.134	(.132)
Age	-.012	(.005) *	-.01°	(.006) *	-.019	(.007) **
Education	.115	(.100)	-.003	(.112)	.135	(.122)
Industrial experience	.002	(.005)	.009	(.005) †	.001	(.006)
Entrepreneurial experience	-.010	(.057)	.010	(.057)	-.048	(.066)
Prior family business exposure	-.129	(.097)	-.063	(.095)	-.228	(.122) †
Manufacturing	.292	(.121) *	.282	(.131) *	.266	(.150) †
Legal status now	-.173	(.087) *	-.211	(.104) *	-.216	(.113) †
Introduction of new products	.148	(.085) †	.142	(.079) †	.133	(.078) †
Plans at inception	.006	(.099)	.000	(.112)	.064	(.111)
Plans now	.211	(.113) †	.251	(.120) *	.210	(.107) *
Financial structure	-.020	(.085)	-.022	(.083)	-.015	(.087)
Family in the firm	-.202	(.237)	-.194	(.239)	-.219	(.214)
Pre-start public support	-.345	(.384)	.680	(.224) **	-.941	(.327) **

^a Table reports non-standardised β coefficients. Robust standard errors are in parentheses. Significance levels are based on a two-tailed test for all tests and coefficients. † $p < .10$, * $p < .05$, ** $p < .01$

Table 3. Two-stage treatment effects model of type of publicly funded pre-start support on firm growth ^a (*cont.*)

	Hard support		Knowledge support		Information support	
Selection equation						
Foundation year	-.120	(.257)	.050	(.204)	-.056	(.201)
Gender	-.341	(.267)	-.499	(.226) *	-.371	(.226)
Age	.020	(.015)	.002	(.013)	-.021	(.012) †
Education	.504	(.258) *	.373	(.230)	.067	(.226)
Industrial experience	-.035	(.017) *	-.022	(.014)	-.025	(.014) †
Entrepreneurial experience	-.033	(.087)	-.303	(.147) *	-.182	(.080) *
Prior family business exposure	-.403	(.237) †	-.095	(.219)	-.446	(.202) *
Necessity entrepreneur	.650	(.342) †	.205	(.314)	.506	(.202) *
Manufacturing	.613	(.315) *	-.323	(.307)	-.289	(.349)
Firm size at inception ^o (log)	.221	(.304)	-.323	(.151) *	.350	(.166) *
Legal status at inception	.281	(.274)	.154	(.237)	.068	(.208)
Log pseudolikelihood	-223.656	***	-247.157	***	-263.354	***
Wald test Chi-square (rho=0)	1.640		13.630	***	7.470	**
N	192		192		192	

^a Table reports non-standardised β coefficients. Robust standard errors are in parentheses. Significance levels are based on a two-tailed test for all tests and coefficients. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$