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The entrepreneur's mode of entry: Business takeover or new venture start?

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ABSTRACT

We extend the well-known occupational choice model of entrepreneurship by analyzing the *mode* of entry. Individuals can become entrepreneurs by taking over established businesses or starting up new ventures from scratch. We argue that the new venture creation mode is associated with higher levels of schooling whereas managerial experience, new venture start-up capital requirements and industry level risk promote the takeover mode. A sample of data on entrepreneurs from The Netherlands provides broad support for these hypotheses, and also bears out a prediction that entrepreneurs whose parents run a family firm tend to invest the least in schooling. We go on to discuss the implications for researchers, entrepreneurs and public policy makers.

1. Executive summary

It is common for researchers to analyze entrepreneurship in terms of new venture creation. Despite this emphasis, starting a new firm from scratch is not the only way individuals can become entrepreneurs. They can also take over an existing firm, including a family business if they come from a business owning family. One can therefore distinguish the *mode of entry* from the entry decision itself. Yet we currently know very little about the factors which determine the mode of entry which individuals choose, despite its importance for entrepreneurship researchers and public policy makers.

The present article aims to fill this lacuna. It does so by analyzing the entrepreneurial entry decision from the perspective of individual choice. The mode of entry choice is generally influenced by both a prospective business owner's personal characteristics and the intrinsic nature of a new business opportunity (Shane, 2003). This article analyzes individual-level determinants of the mode of entry, in particular individual-specific human capital, and so focuses on just this aspect of the mode of entry decision rather than on business aspects of new venture opportunities.

To this end, we develop a framework based on human capital theory and estimate it using a sample of data on Dutch entrepreneurs. The results reveal that important differences exist between the characteristics of entrepreneurs who opt for different modes of entry. We believe this carries several important implications for scholarship and practice. Most entrepreneurship researchers have not yet realized that the determinants of entrepreneurship entry might be distinct for different modes of entry. For example, many researchers define entrepreneurs as business owners and analyze the determinants of choice or success for this combination of self-starters and entrepreneurs who have taken over an existing firm. However, our study demonstrates that these entry modes are distinct. In particular, we find that individuals who come from business owning families and thus have the option of taking over a family firm will make different investments in human capital than their counterparts from non-business owning families. Taking over and running a family firm requires different kinds of skills and knowledge than

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starting up and running a new venture. The required skills and knowledge for family firm takeover are more likely to be associated with informal human capital conveyed through familiarity with a (parent's) business whereas the skills and knowledge required for new venture start-up are more likely to be obtained through formal education. Thus, we propose that individuals from business owning families with an option to take over a family firm invest less in formal human capital obtained through education than individuals from non-business owning families for whom this family firm takeover mode of entry is unavailable. This, our first proposition, is supported by the data.

We further argue that formal human capital will be especially useful for starting brand new firms relative to taking over firms (inside or outside the family). Formal education improves a person's ability to search and process large amounts of information leading to a greater ability to identify potential business opportunities. This ability is more valuable for starting up a firm than for a takeover, given the abundance of possibilities in new venture start-up compared to the takeover mode. Moreover, formal education, which is of general usefulness in the labor market, may be more valuable as a hedge for the greater risk borne by entrepreneurs who start-up a new business than for those who take over an existing firm. Thus we propose that more educated entrepreneurs are more likely to start-up a new venture than to take over a firm from outside of the family. The data show strong support for this second proposition.

Our third proposition combines the logic of the first two with the insight that informal human capital obtained in a family firm will be more applicable to another existing firm (obtained through outside takeover) than to a new venture start-up. Thus individuals from business owning families who do not take over the family firm will be more likely than individuals from non-business owning families to take over an outside firm than to start-up a new venture. The data support this proposition as well.

Another important dimension of formal human capital, managerial experience, is likely to be most productive in existing firms where it is especially likely that established personnel have to be managed. Our fourth proposition states that greater managerial experience enhances the probability of becoming an entrepreneur by takeover relative to new venture start-up. This proposition is borne out by the data too. In contrast, other types of experience, such as general labor market experience, industry experience, and previous business experience might be more critical in new venture start-ups than in firms acquired through takeover where other personnel are already engaged and can substitute for any shortfalls in these types of an entrepreneur's generic experience. In line with this, our fifth proposition states that entrepreneurs with greater labor market experience, industry experience, and previous business experience are more likely to enter via a new venture start-up than an (outside) takeover, compared with otherwise identical entrepreneurs with less of these types of experience. This proposition is not supported empirically in our study.

A further consideration relevant to our final proposition is that established firms are less risky than brand new firms. Indeed, evidence shows that on average brand new ventures have more variable growth and profit rates and lower survival rates than established firms do. In addition, problems of asymmetric information are more acute in new ventures compared with established firms, owing to the lack of a track record. As a result, access to finance and hence entry via a new venture start-up relative to takeover is likely to be more difficult the greater are capital requirements in a specific industry. Thus entrepreneurs operating in industries with higher start-up capital requirements and risks are more likely to enter via an outside firm takeover than via a new venture start-up. This sixth proposition is empirically supported.

Thus, we identify several salient determinants of entry modes. The paper concludes with a discussion of implications of the findings, and suggestions about possible directions for future research.

2. Introduction

An extensive literature now treats the decision to become an entrepreneur as an occupational choice. Recent research emphasizes the importance of several variables that may affect this decision, including borrowing constraints (Hurst and Lusardi, 2004; Parker and van Praag, 2006); human capital (Lazear, 2005; Hartog et al., 2010); geographical location (Acs and Armington, 2006); cognitive biases (Puri and Robinson, 2007; Lowe and Ziedonis, 2006; Hayward et al., 2006); and ethnicity (Fairlie, 2004). Much of this literature defines entrepreneurship as a transition into independent business ownership, and usually frames entrepreneurship in terms of new venture creation. Despite this emphasis, starting a new firm from scratch is not the only way individuals can become entrepreneurs. They can also take over an existing firm, including a family business if they come from a business owning family. One can therefore distinguish the *mode of entry* from the entry decision itself.

The present article analyzes the individual-level determinants of the mode of entry. Like many previous scholars, we define entrepreneurship as the junction where venturesome individuals and valuable business opportunities meet (Shane, 2003). But the focus of this article will be less on particular aspects of business opportunities and more on individual characteristics. Hence we take entrepreneurs to be people who engage in business venturing at their own risk, regardless of whether their mode of entry is to start a brand new firm or to take over an existing one. However, although our primary focus is not on aspects of business ventures such as organizational structure or past trading history, we also try to say something about the industry-specific nature of the opportunities embodied in different types of businesses.

There are at least two reasons why policy makers may be concerned with the mode of entry. First, the population is aging, especially in Europe, thereby increasing the potential for business transfers. According to the European Commission, 'one third of EU entrepreneurs, mainly those running family enterprises, will withdraw within the next ten years. According to estimates this could affect up to 690,000 small and medium sized enterprises and 2.8 million jobs every year' (Commission of the European Communities, 2006, p.3). The importance of business takeovers is also underlined by national data. For example, based on the age distribution of business owners, 20,000 firms per year are expected to seek takeover candidates in the next five years in The Netherlands. In comparison, 70,000 firms are started every year in The Netherlands (data source: The Dutch Ministry of Economic

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Affairs). At the same time, the proportion of firms being taken over by family members is decreasing sharply in several countries. One reason is that parents are having fewer children, which decreases the probability of finding suitable takeover candidates among one's own offspring. Another is that wider access to education has broadened the career options of younger people, many of whom now have more attractive alternatives to continuing a family firm. Thus research conducted by ING bank reveals that in the period 1994–1999, 35% of Dutch firm owners sold their firm to a family member, whereas the corresponding percentage in 2003 was only 22%. In Canada, four out of ten small business owners are expected to retire within the next five years, and seven out of ten will retire within the next decade, according to evidence given by the Canadian Federation of Independent Business (CFIB) to the Canadian Standing Senate Committee on Banking, Trade and Commerce in June 2006. The CFIB estimates that almost 58% of heads of SMEs anticipate retiring in two years without having identified a successor, with two-thirds failing to start any planning for their future succession. Likewise, the UK Small Business Service identified one third of British SME owners as vulnerable to age-related transfer failure (Commission of the European Communities, 2006).

There are several reasons for the strong belief among policy makers that economic value can be lost when small family-owned firms close and seek external successors. First, unlike large firms, many small family firms lack tangible assets which can be easily redeployed to other uses. Instead, much of the value is embodied in the networks and idiosyncratic expertise of the small firm owner-manager him or herself. A second, related, point is that unlike large incorporated firms, where detailed accounting and operational information is usually available in a highly systemized form, small family firms are prone to less rigorous reporting requirements and tend to be more informationally opaque to outside investors. Outside investors therefore face a classic asymmetric information problem, which can make them more reluctant to invest in takeovers of small firms when they close. Third, it can be costly and time-consuming for entrepreneurs to find suitable successors from outside the family, implying that aggregate transaction and operation costs are likely to increase as the number of family firms taken over by 'outsiders' rises. For all these reasons, 'a small business owner will tend to sell at a discount to competitors,… with the associated risk of business closure'—putting as many as two million jobs at risk in Canada, according to CFIB. This is potentially a serious problem because a substantial amount of economic value is bound up in private (non-publicly traded) firms. Europe's 18 million SMEs employ 66% of the workforce and generate 55% of total turnover (Eurostat, 2000). These figures illustrate an important, but sometimes overlooked, consideration in the entrepreneurship debate: the importance of preserving the economic value of existing entrepreneurial firms as well as creating value via new starts.[1] This provides an important motivation for analyzing the choice of entrepreneurial entry between takeovers and brand new starts.

A second reason why the mode of entry is of policy interest relates to the growing trend in public policy towards promoting entrepreneurship. The European Commission Green Paper on Entrepreneurship (2003) is only one of a recent raft of policy initiatives of this kind. As noted there, 'The challenge for the European Union is to identify the key factors for building a climate in which entrepreneurial initiative and business activities can thrive. Policy measures should seek to boost the Union's levels of entrepreneurship, adopting the most appropriate approach for producing more entrepreneurs and for getting more firms to grow' (European Commission, 2003, p. 9). Yet it does not necessarily follow that a set of policies designed to promote new starts will also be suitable for individuals who are contemplating entry by taking over an existing firm that seeks a successor. If targeted policies are to provide the correct incentives, it is necessary to take into account the mode of entry into entrepreneurship as well as the gross entry flow. However, to our knowledge, the entry mode of entrepreneurs has been little studied to date. In particular, we still know little about which types of individual match with which types of firm (i.e., takeover or start-up) as the owner–manager.

This paper analyzes the entrepreneurial entry mode decision, in an effort to shed light on the following questions: What are the determinants of an individual's decision to start-up a business from scratch, or to take over instead an established firm looking for a successor? And, in the case of a takeover, when will individuals take over a family business, and when will they acquire a firm from a third party, given that a family business is available in the family? We develop a framework based on human capital theory and test the propositions resulting from this framework using a sample of Dutch entrepreneurs. The central argument advanced in this paper is based on a distinction between formal human capital and informal human capital. Whereas formal human capital is a set of skills and capabilities conveyed by formal education and work experience, we define informal human capital as comprising skills and knowledge transmitted from business owning parents to their offspring. Our conceptual discussion generates several propositions predicting how various dimensions of human capital affect the mode of entry. These propositions guide the empirical analysis which helps identify the salient determinants of entry mode. We believe our findings provide valuable evidence on a little researched issue, and carry interesting implications for researchers, entrepreneurs and public policy makers.

This article is related to several other strands of the entrepreneurship literature. Holmes and Schmitz (1995, 1996) analyze how attributes of businesses and managers (in particular business age and managerial tenure) affect the decisions of founders and non-founders to continue, close or sell their ventures. Unlike us, Holmes and Schmitz study the strategies of established managers rather than new entrants. Holmes and Schmitz (1990) explore re-entry by entrepreneurs who close their ventures and choose to either take over an existing one or create a new one from scratch. We do not analyze the continuation or closure decision in this paper, focusing only on entry while exploring the effects of different entrepreneurial family backgrounds—an issue which Holmes and Schmitz do not investigate.

[1] The European Commission again: 'In general, family businesses with their long-term orientation provide an important element of stability to our economies and are the source of a wealth of genuine corporate social responsibility-practices... More successful business transfers will have immediate beneficial effects for Europe's economy. Existing companies conserve on average five jobs whereas a start-up generates on average two jobs' (Commission of the European Communities, 2006, p. 3–4).

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This article also relates to research on family businesses. This often analyzes the family firm succession problem from the point of view of the founder. For instance, many family business studies ask why less than 30% of family businesses survive past the first generation while only 10% make it to the third generation (Handler, 1990, 1992; Davis and Harveston, 1998; Lansberg, 1999). Several reasons for poor matches between founders and successors have been proposed, including ineffective succession plans, incompetent or unprepared successors, and family rivalries (Handler, 1990, 1992; Morris et al., 1997). Another important success factor appears to be the transfer of tacit business knowledge from one generation to the next (Cabrera-Suárez et al., 2001; Steier, 2001). There are similarities here with the present paper, which recognizes that entrepreneurs with a family business background receive transfers of informal human capital which influence their choices over the mode of entry, including start-ups or external takeovers rather than joining a family firm. An important mission of the paper is to analyze empirically the matching between founders and successors, a central issue in family business research. In contrast to much theoretical family business research, we find more empirical structure in the mode of entry conditional on family firm offspring *not* joining a family firm than on joining one.

Other researchers have explored founders' strategic choices between appointing family or external CEOs (Burkart et al., 2003; Bennedsen et al., 2006). This perspective highlights the fact that many family businesses which lack successors do not fail outright, but instead are simply taken over by entrepreneurs from outside of the family (Lambrecht and Donckels, 2006). Family business researchers often question the effectiveness of non-family compared with family successors. Outsiders can face greater difficulties working harmoniously with family members, and may be less likely to access family finance to overcome borrowing constraints (Sharma, 2006). The present paper adds to the family business literature by exploring the attributes of non-family relative to family successors, and by shedding light on the role of borrowing constraints. Here as well our findings add to the evidence base in the family business literature, highlighting the importance of managerial experience in non-family succession and the role of borrowing constraints. Taken together, these suggest a more benign role for outside takeovers of family firms, though we should stress that we do not analyze firm performance by entry mode.

In contrast to the family literature, we analyze firm takeover issues not from the perspective of the founder, but instead from the perspective of a potential successor, who may or may not be a family member, and who has the option of setting up a brand new venture as well. One of the few previous papers to explore this issue is the descriptive study by Cooper and Dunkelberg (1986). Those authors analyzed entry via new starts, inheriting a business, and taking over an external business—as well as promotions within-family firms. Using survey responses from 1756 members of the US National Federation of Independent Business sampled in 1979, Cooper and Dunkelberg described each entry mode in terms of entrepreneurs' background characteristics, motivations and attitudes and previous careers. However, Cooper and Dunkelberg did not conduct a multivariate statistical analysis of the determinants of entry mode, which is the focus of enquiry here.[2]

In fact, choosing between starting a new venture, succeeding in a family business, and taking over an external firm are not the only modes of entry choices open to entrepreneurs. For instance, entrepreneurs might decide to exploit a new opportunity by either starting a brand new firm to develop it, or by folding it into ongoing lines of business within an already existing firm. Wiklund and Shepherd (2008) analyze various individual-specific characteristics, notably human capital and social capital, which bear on this aspect of the entry mode decision. This decision between novice and habitual entrepreneurship is not one which we will explore in this article (see Ucbasaran et al., 2006, 2009, for more on this topic).

The remainder of the paper is structured as follows. Section 3 presents a conceptual discussion of the entry mode decision of entrepreneurs. Section 4 describes our sample data, and outlines the modes of entrepreneurial entry observed in the sample. Section 5 presents the empirical results, and Section 6 concludes with a discussion of implications for policy makers, limitations of this study and suggestions about possible directions for future research.

3. Conceptual discussion

In the following, we focus on two types of entrepreneur and three types of entry mode. The two entrepreneur types are *bof*s and *n-bof*s: *bof* types are individuals from business owning families, and *n-bof* types are individuals from non-business owning families. The three entry modes are family firm takeovers (FFT), outside firm takeovers (OFT) and new venture start-ups (NVS).[3] The last two modes of entry are available to anyone, but by definition only *bof* type entrepreneurs can enter through the first mode. Hence after analyzing the attractiveness of family firm takeovers (FFT) for individuals from business owning families (*bof* types), we will focus on choices between new venture start-up (NVS) and outside firm takeover (OFT) for both *n-bof* types and those *bof* types who do not enter via a family firm takeover (FFT). We will only investigate the entry strategies of individuals who have chosen to be entrepreneurs; the decision to enter entrepreneurship in the first place will not be analyzed here.[4] Fig. 1 shows the available entry modes for each type of entrepreneur and visualizes the drivers of entry through each mode that are formulated in the propositions that are to be discussed next.

[2] See also Ucbasaran et al. (2006) who found no significant difference between the propensities of British novice, serial and portfolio entrepreneurs to purchase rather than take over an existing firm. Another study, by Chaganti and Schneer (1994), explored performance outcomes of firms as a function of different modes of entry. This topic is not explored in the present paper.

[3] We are aware that this does not exhaust the set of possible entry modes. Franchising and management buyouts are two other possibilities. We lack the data to explore the determinants of these choices in the present paper.

[4] This choice has been extensively treated elsewhere: see e.g., Parker (2009) for a survey. Ignoring the decision to enter entrepreneurship makes no difference to the central results while avoiding the need to identify an occupational sample selection structure in the empirical work. It is also consistent with our data sample which relates only to entrepreneurs.

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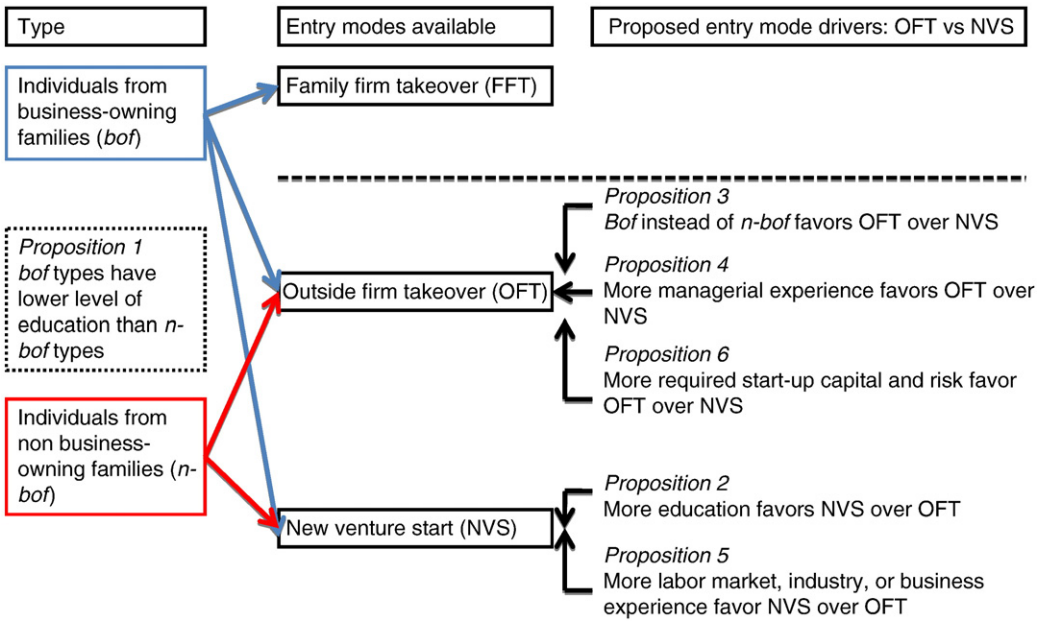

Fig. 1. A framework of available entry modes and proposed drivers of entry through each mode.

We start by distinguishing between 'formal' and 'informal' human capital. Following Becker (1964), human capital is defined as the stock of skills, knowledge, experience and capabilities which are useful in a multitude of productive uses. *Formal* human capital is transferred by formal institutions, such as schools providing education and firms providing work experience. *Informal* human capital on the other hand is the set of skills and knowledge transferred through informal institutions, such as a parent's business. Evidently, at least as we have defined it, *bof* types have access to more sources of informal human capital than *n-bof* types who do not have access to informal human capital obtained through being born in a business owning family (Fairlie and Robb, 2007).

A long tradition of research links formal human capital with the decision to participate in entrepreneurship (Van Der Sluis et al., 2008; Parker, 2009). For example, it has been argued that education can improve entrepreneurial judgment by providing people with analytical abilities, information about business opportunities, and an understanding of markets and the entrepreneurial process (Casson, 1995; Ucbasaran et al., 2009). Formal education is also associated with general search skills, foresight, imagination, and computational skills, as well as with specific skills and knowledge needed to run businesses in particular sectors. A considerable body of evidence supports the notion that formal education enhances the business performance of entrepreneurs (e.g., Parker and van Praag, 2006; Van Der Sluis et al., 2008). Work experience is also believed to promote entrepreneurship, by enabling individuals to understand business opportunities and how enterprises function in practice. Experience embodies knowhow needed to exploit opportunities, such as selling, negotiating, leading, planning, decision-making, problem solving, organizing and communicating (Shane, 2003, p. 75). Learning also generates information which reduces uncertainty about the value of exploiting entrepreneurial opportunities (Jovanovic, 1982; Parker, 2007; Alvarez and Parker, 2009; Ucbasaran et al., 2009). Thus, formal human capital is generally associated with successful, value-creating entrepreneurship.

Informal human capital conveyed through familiarity with a parent's business is likely to comprise knowledge about what is involved in owning and managing a business, and may transfer learning from favorable role models within the family (Cooper and Dunkelberg, 1986). Informal human capital might also provide access to valuable business networks and resource providers. Consistent with these arguments, Fairlie and Robb (2007) uncovered a significant positive linkage between business owners' experience obtained from previously working in a family member's business and their own subsequent success. In contrast, Fairlie and Robb observed that merely having a family member who owned a business had no significant effect. These findings suggest that experience of working in a parent's venture involves the transfer of performance-enhancing informal human capital. Furthermore, Robinson (2009) shows that the probabilities of adult entrepreneurship and subsequent wealth acquisition are significantly higher for individuals who obtained entrepreneurial experience as adolescents, especially among those born into business owning families.

One might wonder about the *relative* productivity of formal and informal human capital, in entrepreneurship in general and the three entry modes in particular. Human capital theory suggests that formal human capital is the most versatile, since it generates high returns in paid-employment as well as entrepreneurship (Card, 2001; Oreopoulos, 2006; Parker and van Praag, 2006; Van Praag et al., 2009). In contrast, there is mixed evidence about the value of prior experience of business ownership outside of business ownership, where its effects can even be negative (Bruce and Schuetze, 2004; Landier, 2004; Hyytinen and Rouvinen, 2008).

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The value of informal human capital obtained in family businesses for wage employment, has, as far as we know, not been put to a test. However, it is likely to be more valuable in entrepreneurship where it is more compatible.[5] Furthermore, informal human capital is likely to be most valuable when it is deployed within the same family business that conferred the informal human capital in the first place, since this leverages specific as well as general elements of the informal human capital. Because people for whom the probability of becoming an entrepreneur is high are likely to seek human capital which is most useful in entrepreneurship, we would expect them to acquire relatively cheap-to-obtain informal human capital which is readily accessible in the family business, if available. People for whom the probability of entrepreneurship is smaller on the other hand would be expected to seek out more formal types of human capital, despite its expense.

In short, we would therefore expect *bof* types, who may have an option to enter via FFT, and who are in general more likely to become entrepreneurs, to invest more in informal human capital and less in formal human capital than *n-bof* types. For example, they can spend fewer years in school and college, spending their time instead working in the family business. This will be a more attractive strategy the more easily accessible is informal human capital, the more productive it is in entrepreneurship, and the costlier is formal human capital acquisition. Thus anticipating the prospect of future market entry in general and the possibility of entry via FFT in particular, individuals from business owning families, i.e., *bof* types, are predicted to obtain less formal education on average than individuals from non-business owning families, i.e., *n-bof* types. Indeed, some French evidence is consistent with this prediction, indicating that people without self-employed parents obtain more formal human capital than those with self-employed parents (Colombier and Masclet, 2008). This gives rise to our first proposition:

Proposition 1. *Entrepreneurs born into business owning families (bof types) obtain less formal education than those born into non-business owning families (n-bof types) because the former specialize in informal human capital.*

It seems likely moreover that formal human capital will be especially useful for starting brand new firms relative to taking over firms (inside or outside of the family). As noted above, formal education improves a person's ability to search and process large amounts of information. For example, formal education has been shown to be associated with more intense and effective job search (Boheim and Taylor, 2001). And higher levels of education seem to be associated with a greater ability to identify potential business opportunities (Ucbasaran et al., 2009). The abundance of possibilities in NVS compared with OFT is therefore likely to make formal human capital more productive in NVS than in OFT. This expected effect is attributable to its greater productivity when used to search for new venture opportunities.

There are other reasons as well why higher levels of education might favor NVS over OFT. One might be the greater degree of difficulty in establishing a new start-up in which routines and organizational structures have to be created from scratch. Here again versatile formal human capital can confer an advantage. Another reason might be that formal human capital can serve as a hedge, making it possible for risk-averse entrepreneurs to undertake projects occupying a higher point on the risk-return trade-off (Polkovnichenko, 2003; Cocco et al., 2005; and Gomes and Michaelides, 2005). These risky projects are especially likely to be NVS type ones (Cooper and Dunkelberg, 1986; and see the evidence below). This predisposes highly educated individuals of both types to try risky NVS, since if they fail they still have other opportunities, reflecting the general usefulness of formal human capital. For all these reasons, we have the next proposition:

Proposition 2. *More educated entrepreneurs are more likely to enter via new venture start-up, NVS, than via an outside firm takeover, OFT.*

By taking over the family firm, *bof* types from business owning firms can economize on the costs of searching for new business opportunities NVS or suitable takeover targets OFT. And, having less formal education (by Proposition 1), *bof* types have lower capabilities anyway for identifying new venture opportunities of the OFT and NVS types. Hence we would expect many *bof* types to choose FFT should it be available. Of course, not every *bof* type is temperamentally suited to taking over their family firm—and even those who are may not be chosen by their parents to do so. In which case, like *n-bof* types who are born in non-business owning families, these 'remaining' *bof* types have to choose between the NVS and OFT entry modes.

The first two propositions together imply that these *bof* types aspiring to entrepreneurship who do not take over their family firm so having to choose between NVS and OFT, and who have, ceteris paribus, lower levels of formal human capital than *n-bof* types, are relatively more inclined to become entrepreneurs through the entry mode OFT than NVS.

Moreover, a key feature of informal human capital – namely, that it is obtained in, and is directly applicable to, established ventures – helps predict what choices *bof* types will make relative to *n-bof* types. In general, one would expect that informal human capital will be more transferable to ventures acquired through an outside firm takeover (which are already established) than to new venture start-ups (which are not). The next proposition then follows immediately:

Proposition 3. *Individuals from business owning families (bof types) are more likely than individuals from non-business owning families (n-bof types) to enter via an outside firm takeover (OFT) than a new venture start-up (NVS), even after controlling for the entrepreneur's education level.*

[5] Informal human capital also has no signalling value in the labor market of paid employees because experience obtained in a family business is difficult to communicate credibly as is required for valuable signals in labor markets without complete information (Spence, 1973; Riley, 2002).

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Another important dimension of formal human capital, stressed by Cooper and Dunkelberg (1986), is managerial experience. As those authors point out, greater experience managing others is likely to be most productive in firms which use and reward such experience. Because ventures that are obtained through takeover typically employ others whereas ventures started up from scratch do not, at least in the beginning, managerial experience is therefore more likely to be most productive in the OFT than the NVS type of entry. In contrast, other types of experience, such as general labor market experience, industry experience, and previous business experience might be more critical in new ventures than in existing ones where other personnel are already engaged and can substitute for any shortfalls in these types of an entrepreneur's generic experience. In other words, and in line with outcomes from a recent area of research initiated by Lazear (2005), entrepreneurs who start-up new ventures need to be Jacks of all Trades (Astebro and Thompson, 2007; Douhan, 2009; Hartog et al., 2010; Silva, 2007; Wagner, 2003). As we have explained, this requirement will be less stringent for business takeovers. Hence individuals with abundant amounts of generic experience can exploit valuable new opportunities in NVS which other less experienced people will be unable to. We summarize these arguments in the next two propositions:

Proposition 4. *All else equal, entrepreneurs with greater managerial experience are more likely to enter via an outside firm takeover (OFT) than a new venture start-up (NVS), compared with otherwise identical entrepreneurs with less managerial experience.*

Proposition 5. *All else equal, entrepreneurs with greater labor market experience, industry experience, and previous business experience are more likely to enter via a new venture start-up (NVS) than an outside firm takeover (OFT), compared with otherwise identical entrepreneurs with less of these types of experience.*

A further consideration is that established firms are less risky than brand new firms (Cooper and Dunkelberg, 1986). Indeed, recent evidence shows that on average brand new ventures have more variable growth and profit rates and lower survival rates than established firms do (Astebro and Bernhardt, 2003; van Praag, 2003; Parker, 2009; and see below for evidence based on our data sample). Problems of asymmetric information are more acute in new venture start-ups compared with established firms acquired through OFT or FFT, owing to the lack of a track record. As a result, access to finance and hence entry through NVS is more difficult the greater are capital requirements in new ventures (Parker and van Praag, 2006). This gives rise to our final proposition:

Proposition 6. *Entrepreneurs facing higher start-up capital requirements and risk are more likely to enter via an outside firm takeover (OFT) than a new venture start-up (NVS).*

Fig. 1 provides an overview of all propositions within the framework of the conceptual model of entry mode choices for *bof* and *n-bof* type entrepreneurs.

4. Data

The dataset used to test the hypotheses derived above is a random cross-section sample of Dutch entrepreneurs. Entrepreneurs are defined as individuals who started their own business from scratch or who took over an existing firm.[6] The dataset contains a range of economic and demographic variables including ones related to family background, entry mode, and human and financial capital. The same dataset is used in Parker and van Praag (2006).

In fall 1994, a questionnaire was sent to 1069 entrepreneurs who had already indicated their willingness to participate in the research. Of these, 709 responded. Owing to non-response rates on some questions, most of the regression analyses below are based on between 600 and 640 observations.[7]

As documented in Brouwer et al. (1996), the sample is broadly representative of the Dutch population of entrepreneurs in terms of industry, company size, legal form, and age of companies and entrepreneurs. The sample contains a slightly higher proportion of highly educated respondents than is found in the general Dutch population, reflecting the fact that one of the commissioners of the research project (the General Advisory Council of the Dutch Government) was particularly interested in the business outcomes of this group.

The remainder of this section outlines the variables used in the empirical analysis. Table 1 presents descriptive statistics including entrepreneurs active in the agricultural sector.[8]

[6] The sample was generated as part of a private–public joint venture undertaken by the University of Amsterdam, The Erasmus University of Rotterdam, and the GfK market research company. The research for which the sample was gathered was commissioned by RABO, a large Dutch co-operative bank, and the General Advisory Council of the Dutch Government.

[7] When financial capital variables are included this number is reduced to 566. This is partly attributable to non-response for these items, and partly to the fact that we dropped observations whose (absolute) values exceeded the mean by more than ten times the standard deviation—in order to limit the influence of outliers on the estimates.

[8] Because agriculture is usually seen as a distinct sector in terms of its (individual) drivers of entry and performance, entrepreneurship researchers often exclude it from empirical analyses. One of the distinct features of agriculture is the higher likelihood of within-family takeovers of farm businesses (see Table 1). In fact, the descriptive statistics obtained when agriculture observations are omitted are qualitatively similar to the descriptive statistics shown in Table 1, and are suppressed for brevity.

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Table 1
Descriptive statistics.

	N	Mean	Types		t-val	Mean	t-val	Mean	t-val
			bof	*n-bof*		*bof* in {NVS, OFT}		*bof* in FFT	
Entry mode									
New start, NVS	705	0.83	0.70	0.93	8.12	0.88	2.16	0.00	14.06
Takeover	705	0.17	0.30	0.06	8.37	0.11	2.40	1.00	14.13
of family firm, FFT	705	0.09	0.21	0.00	9.38	0.00		1.00	18.00
of non-family firm, OFT	705	0.07	0.09	0.06	1.51	0.11	2.42	0.00	2.88
Family background									
bof type	709	0.46	1.00	0.00		1.00		1.00	
n-bof type	709	0.54	0.00	1.00		0.00		0.00	
Human capital									
Formal education (years)	703	14.68	14.08	15.18	4.63	14.68	2.04	11.81	6.58
Labor experience (years)	686	10.60	10.23	10.89	0.98	10.61	0.39	8.59	1.61
Industry exp. (years)	686	4.60	4.27	4.87	1.17	4.25	1.14	4.36	0.11
Previous business exp. [a]	686	0.14	0.17	0.12	2.01	0.17	1.72	0.19	0.51
People management exp. [a]	686	0.41	0.41	0.41	0.07	0.42	0.31	0.37	0.69
Age at entry (years)	686	33.87	33.24	34.40	1.74	33.68	1.02	31.54	1.79
Other variables									
Female [a]	709	0.18	0.18	0.17	0.28	0.18	0.29	0.18	0.07
No. of siblings	685	3.24	3.85	2.75	5.81	3.72	4.81	4.33	1.63
Prop. elder siblings	685	0.54	0.74	0.39	1.91	0.74	1.23	0.74	0.02
Father's education (years)	674	11.41	10.88	11.87	3.50	11.18	2.29	9.67	3.02
Entry year (19..)	698	87.15	83.95	89.79	8.04	87.55	3.47	70.35	12.77
Initial capital invested [b]	555	78.76	99.39	62.93	2.20	92.21	1.69	131.52	1.08
Initial capital required [b]	544	101.97	137.31	72.79	3.17	124.71	2.42	190.68	1.39
Extent of initial capital constraints	515	17.45	18.13	16.94	0.50	16.45	0.20	26.99	2.09
Initially capital constrained [a]	515	0.33	0.33	0.32	0.37	0.30	0.43	0.50	2.49
Industries [a]									
Capital intensive	709	0.12	0.13	0.11	0.62	0.13	0.54	0.13	0.13
Agriculture	709	0.06	0.11	0.02	5.36	0.06	3.19	0.30	5.48
Production/building	709	0.11	0.11	0.10	0.55	0.11	0.31	0.13	0.58
Trade	709	0.10	0.11	0.09	1.00	0.12	1.29	0.07	0.98
Retail-food	709	0.06	0.08	0.04	2.66	0.07	1.72	0.15	2.19
Retail-non food	709	0.05	0.06	0.04	0.69	0.04	0.57	0.13	3.16
Repair/transport	709	0.04	0.04	0.03	0.64	0.04	0.27	0.06	0.91
Finance and realtor	709	0.03	0.02	0.03	0.11	0.03	0.10	0.01	0.57
Professional services	709	0.40	0.30	0.48	5.06	0.37	2.94	0.03	5.36

Notes: The first column shows the available sample size, *N*, for each variable. The second column provides the mean for the available sample; the third and fourth columns distinguish entrepreneurs who come from families owning a business (*bof* types) and those who do not (*n-bof* types). The fifth column shows the t-statistic resulting from testing whether the differences between *bof* and *n-bof* types are statistically different. The remaining four right-hand-side columns distinguish between *bof* types who do and don't take over a family firm and presents the test statistics which compare their outcomes with those of *n-bof* types. For dummy and proportional variables, an equality of proportions test is used, resulting in a *Z* statistic.

[a] Dummy variable.

[b] In thousands of 1994 Dutch guilders.

4.1. Variables

4.1.1. Entry mode

In terms of the survey questionnaire, we coded entrepreneurs' entry strategies based on responses to the following question: "Did you start-up the firm yourself or did you take over the firm?" There were three possible categorized answers: (i) "I have taken over a family firm", FFT; (ii) "I have taken over a firm from a non-family member", OFT; and (iii) "I have started the firm myself from scratch", NVS. Of the 705 entrepreneurs who answered this question, 9.5% took over a family firm, 7.4% took over another firm and 83.1% started a firm from scratch. Hence in total 16.9% of the firms were started through a takeover of some kind.[9]

4.1.2. Entrepreneurial family background

We can take as the set of *bof* types all individuals who had at least one parent mainly engaged in entrepreneurship during the respondent's youth. All other individuals were coded as *n-bof* types.[10] On this basis, Table 1 shows that 46% of the entrepreneurs in our sample come from entrepreneurial families. This compares with a figure of 51% identified in the US Characteristics of Business

[9] These figures compare with 15% in FFT, 28% in OFT and 49% in NVS in Cooper and Dunkelberg's (1986) US sample, and with 18% in FFT, 16% in OFT and 66% in NVS in Chaganti and Schneer's (1994) US sample.

[10] The precise question in the survey was: "Which professional status applied to your parents (or those who fulfilled this role for you) during the longest period in your youth?" Eight possible categories were given, including ones for self-employed (non-incorporated) and fully incorporated businesses—both of which are taken to be entrepreneurs. This might seem to risk defining erroneously as *n-bof* types instead of *bof* type respondents whose parents did not own a business while a member of the extended family (e.g., an uncle) did. In that case our empirical definition of *bof* types would be too narrow. In fact, the dataset contained no respondents claiming to have taken over a family firm neither of whose parents was classified an entrepreneur.

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Owners (CBO) Survey by Fairlie and Robb (2007); and with Lentz and Laband's (1990) figure of 52% based on US National Federation of Independent Businesses (NFIB) data. Also, in our sample 9.5% of businesses are inherited or taken over from the family. Lentz and Laband (1990) reported that 14.2% of the businesses in their NFIB sample were inherited or acquired from family members, while Fairlie and Robb (2007) reported a lower figure of at most 8.2% (= 1.6% inherited plus an upper bound of 6.6% gifted or transferred) from the CBO database. It is also noteworthy that *bof* types are significantly less likely to start a new firm from scratch (70%) than *n-bof* types are (93%). Although *bof* types are slightly more likely to take over a non-family firm (9%) than *n-bof* types are (6%), this difference is not statistically significant in a simple univariate comparison. However, when comparing *bof* types who do not take over a family firm (referred to hereafter as 'remaining *bof* types') with *n-bof* types, the difference (11% compared with 6%) *is* statistically significant (see the right-hand side of the table).

4.1.3. Human capital variables

Education is measured in terms of the number of years of schooling rather than the highest schooling level attained. On average, the entrepreneurs in the sample have 14.68 years of formal education (Table 1). In accordance with Proposition 1, *bof* types have significantly less education on average than *n-bof* types do (14.08 versus 15.18 years). Table 1 also shows that *bof* types who take over their family firms have significantly less formal education than 'remaining *bof* types'—who have in turn have significantly less formal education than *n-bof* types. Also, a higher proportion of *bof* types (17%) had business experience prior to operating the current venture than *n-bof* types (12%); this difference is also statistically significant (although when comparing 'remaining *bof* types' with *n-bof* types the difference is only marginally significant). Other characteristics, including years of previous experience in the labor market, industry, or management; and age when they began operating the current venture, are similar for the two entrepreneurial groups. These are only univariate comparisons, however: multivariate analysis will be performed in the next section.

4.1.4. Other variables

Proposition 6 states that entrepreneurs facing higher start-up capital requirements and risk are more likely to take over an existing firm than to start-up a new one. When it comes to comparing both average start-up capital requirements and risk between firm types, as is required to test Proposition 6, individual-level data face an important limitation. Start-up capital requirements and risk can only be measured at the individual level for entrepreneurs who started up a business from scratch. However, we need to measure these variables for *all* entrepreneurs in the sample. For this reason we define both variables at the industry level; nine industries are distinguished for this purpose. Capital entry requirements at the industry level are measured as the mean value of the capital that entrepreneurs who start-up from scratch initially invested in their business operating in the industry. This value is then attributed to all entrepreneurs in the sample who operate in the industry, i.e., including those who take over existing businesses. Likewise, the business risk of a new venture is defined as the within-industry standard deviation of profits (incomes) that are generated in the industry, based on new start-ups only. Again, this value is attributed to all entrepreneurs in the sample who operate in the same industry, whether through takeover or through a new start-up.[11]

Other variables used in the empirical work include gender, the number of siblings and the number of years of schooling of the entrepreneur's father. 18% of the entrepreneurs in the sample are female. This percentage is broadly consistent with other European studies (Parker, 2009, Chap. 6) and is similar for *bof* types and *n-bof* types. Previous researchers have found the number of siblings and father's education to be strongly correlated with determinants of entrepreneurs' schooling levels (see Parker and van Praag, 2006). Moreover, the number of siblings as well as the rank of the respondent in the group of siblings is likely to affect the probability that a *bof* type has a family firm available: the more (older) siblings a respondent has, the lower the respondent's likelihood of taking over the family business, all else equal. The modal number of siblings in the sample is 3. *bof* types have significantly more siblings than *n-bof* types. As the right-hand-side columns of Table 1 reveal, *bof* types who take over a family firm have more siblings on average than those who do not; but this difference is not statistically significant. The average age rank of the entrepreneurs within the group of sibling is 0.54; it is marginally significantly higher for *bof* types than for *n-bof* types, partly because the rank is 0 if an individual has no siblings; and more *n-bof* types lack siblings than *bof* types do. The average number of years of schooling of the entrepreneur's father is 11.41; it is significantly less for *bof* types than for *n-bof* types.

To control for time trends, we also include the year of entry into our analyses. The year in which the venture was started or taken over is significantly earlier for *bof* types than for *n-bof* types.

5. Empirical results

The results are presented in two stages. The first deals with the effects of family background on choices of formal education and entry through taking over a family firm, FFT. The second identifies the factors which predispose entrepreneurs to choose between

[11] For brevity, the values of these variables for each industry are not shown in Table 1. Note that the empirical specifications below will not control for industries at the *individual* level, since an individual's choice for a specific industry is an integral part of the decision to take over or start up a firm. Industry dummies could therefore be endogenous variables in the entry mode equation. We will make only two exceptions to this rule, both pertaining to the agricultural sector. First, in the choice equation specified for *bof* types as to whether the family firm is taken over or not (Table 3 below) we will include a dummy for the agricultural sector. Second, as a robustness check, we will estimate all choice equations with and without agricultural sector observations. These exceptions are motivated by the fact that agriculture is an unusual sector where the dynamics of (family) takeover may be different from those in other industries. The lower part of Table 1 presents the descriptive statistics of the industry variables. Agriculture is (indeed) a significantly more important sector of activity among *bof* types than among *n-bof* types. The same holds for the retail (food) sector and the opposite is true for the professional services sector.

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Table 2
Determinants of years of schooling.

Variable	All		*bof* type		*n-bof* type	
bof type (d)	−0.533**(2.46)	−0.382*(1.77)				
Female (d)	−0.389(1.50)	−0.400(1.57)	−0.747*(1.88)	−0.921**(2.41)	−0.104(0.30)	0.006(0.02)
Age	−0.135***(13.25)	−0.088***(7.64)	−0.153***(10.90)	−0.096***(5.93)	−0.118***(7.88)	−0.081**(5.22)
Father's ed. (years)		0.251***(8.60)		0.286***(5.81)		0.233***(6.47)
No. siblings		−0.158***(2.94)		0.169***(2.09)		−0.123*(1.68)
Prop. older siblings		−0.025***(5.12)		−0.022***(3.89)		−0.312(0.89)
Constant	20.56***(49.69)	16.28***(25.88)	20.85***(34.33)	15.99***(15.57)	19.84***(33.77)	16.18***(20.47)
R^2	0.24	0.33	0.26	0.34	0.17	0.27
F	66.21***	87.10***	61.13***	127.02***	31.08***	22.21***
N	691	638	318	286	371	352

Notes: Absolute t statistics in parentheses, based on the Huber–White sandwich variance estimator. d denotes a dummy variable. * denotes a 10% significance level; ** denotes a 5% significance level; and *** denotes a 1% significance level.

the NVS and OFT modes of entry. The following subsections present evidence for each of these questions in turn. We close with some robustness checks.

5.1. The effects of family background on schooling and FFT entry

Proposition 1 asserted that *bof* types optimally choose lower levels of formal education than *n-bof* types. The logic was that *bof* types can substitute informal for formal human capital. Table 1 has already shown that *bof* types have significantly fewer years of schooling than *n-bof* types, 14.08 years compared with 15.18 years. However, these are simple averages, which might be explained by different characteristics of the *bof* and *n-bof* sub-samples. Previous researchers have identified several variables that affect schooling choices, including age (negatively: capturing cohort effects), female gender (negatively: possibly reflecting different historic expectations about labor force participation rates), parental education (positively: reflecting both nature and nurture), and the number and rank of siblings (negatively: suggesting a trade-off between the quality and quantity of children, and greater investment by parents in older children).[12] For example, according to Table 1, *bof* types are significantly older than *n-bof* types, as they have an earlier entry year and a similar age at entry compared with *n-bof* types. Also, the fathers of *bof* types have lower levels of education, and *bof* types have more siblings, on average, than *n-bof* types do. These differences alone might explain the difference in mean number of years of schooling between the entrepreneur types. Offsetting this, *bof* types rank higher in the sibling rank than *n-bof* types do on average, which might partly compensate for the differences just described. We run OLS regressions to control for all of these variables together. We continue to include entrepreneurs in all industry sectors (including agriculture) to avoid possible sample selection biases entailed by studying the schooling decisions of only those who subsequently chose to enter particular sectors.

Table 2 reports the empirical results. The dependent variable is the number of years of education.[13] The results are shown for *bof* and *n-bof* types together and separately, to highlight the potentially different mechanisms underlying the education investment decision of the different entrepreneurial types. For all three cases, two sets of results are presented. The first set excludes the variables that differ largely across *bof* types and *n-bof* types (i.e. father's education, the number of siblings and the individual's rank in the row of siblings), whereas the second set includes these variables.

The first entries in Table 2 show that *bof* types do indeed have significantly lower levels of formal education than *n-bof* types. This difference is large compared with other effects even after controlling for other covariates of schooling. Age, father's education, and the number and rank of siblings all significantly affect entrepreneurs' years of education, and carry the expected signs. That is, younger people with highly educated fathers and fewer siblings have significantly more years of schooling. Together these variables account for a large part of the cross-sectional variation in the number of years of schooling, as demonstrated by the R^2 value of 33%.

The other columns of Table 2 reveal that the education choices of *bof* and *n-bof* type entrepreneurs are structured in somewhat different ways. In particular, female entrepreneurs and entrepreneurs with older siblings obtain significantly and substantially less formal education on average if they come from business owning families compared with non-business owning families. It might therefore seem that later-born and female offspring are more likely than others to anticipate the prospect of family business succession. This conjecture however does not receive support from a probit analysis, *among bof type entrepreneurs only*, asking whether these entrepreneurs took over a family firm (dependent variable = 1 if so), or became an entrepreneur via a non-family takeover or a new start (dependent variable = 0 for either).

The results are presented in Table 3. They reveal that the only significant determinants of *bof* types taking over a family firm are: the number of siblings, with a negative effect which possibly reflects greater competition among offspring to be the successor; the year the entrepreneur entered (with a negative sign, indicating a decline in the phenomenon of offspring taking over family businesses); and whether the entrepreneur operates an agricultural business (with a positive sign). We performed this analysis for

[12] See, e.g., Black et al. (2005) and Parker and van Praag (2006).
[13] A log-transformation of this variable generated similar results.

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Table 3
Determinants of the takeover decision of a family firm FFT by *bof* types.

Variable	Marginal effects	
	1. Including agriculture	2. Excluding agriculture
Education (years)	−0.001(0.15)	−0.002(0.30)
Entry year (19..)	−0.016***(6.85)	−0.013***(6.56)
Female	0.096(1.33)	0.072(1.23)
Father's ed. (years)	0.002(0.22)	0.000(0.01)
No. siblings	−0.026***(2.73)	−0.023***(2.94)
Prop. older siblings	0.014(0.23)	0.006(0.11)
Age at entry	0.003(0.87)	0.003(1.20)
Agriculture dummy	0.296***(3.22)	
Pseudo R^2	0.36	0.32
Wald χ^2	79.46***	59.19***
N	277	245

Notes: Dependent variable: binary, = 1 of entry mode is the takeover of the family firm (FFT), and = 0 if entry mode is a takeover of a non-family firm (OFT) or the start-up of a new firm (NVS). Absolute *t* statistics in parentheses, based onthe Huber–White sandwich variance estimator.
Marginal effects are computed for discrete changes of dummy variables from 0 to 1. For continuous explanatory variables the effects are given in terms of quasi-elasticities. Asterisks are as in Table 2.

Table 4
Risk and mean returns by entry mode.

Income	All	New start-ups, NVS	Takeovers, OFT and FFT
Mean	70.97	67.68	87.25
Median	52.16	48.00	72.00
St. Dev	79.98	81.10	74.62
C. V.	1.14	1.20	0.86
N	541	450	91

Notes: All values are in thousands of 1994 Dutch guilders. The first column provides values for the entire sample; the second and third columns distinguish start-ups from takeovers. The smaller sample size than in Table 1 reflects missing income data. St. Dev is standard deviation and C. V. is the coefficient of variation. The results are qualitatively unchanged if cases in the agricultural sector are excluded.

entrepreneurs in all industry sectors (column 1) as well as excluding the agricultural sector (column 2), for the reasons mentioned in the preceding section. The results remained qualitatively unchanged when agriculture is excluded.[14]

The next section asks what happens to *bof* and *n-bof* types who both choose between a non-family takeover or a new venture start. We will also address here the issue of possible sample selectivity of the 'remaining *bof* types', i.e. the *bof* types who did not take over a family firm.

5.2. Determinants of the mode of entry: NVS versus OFT

The *bof* type entrepreneurs who have not taken over a family business ('remaining *bof* types') as well as all *n-bof* type entrepreneurs choose between external takeover (OFT) and new start-up (NVS). As noted in Section 3, one advantage of taking over an existing firm rather than starting a new one is that it is less risky. We first verify this assertion. Defining payoffs as the income entrepreneurs earned from their businesses in 1994 (where income is measured comprehensively, including wages paid to entrepreneurs as well as returns to capital for unincorporated entrepreneurs), and measuring risk as the coefficient of variation of payoffs,[15] Table 4 displays the mean and median incomes, as well as their standard deviations and coefficient of variation for the entire sample, and for start-ups and takeovers separately. The coefficient of variation of payoffs among NVS ventures clearly exceeds that among OFT ventures. Very similar results are observed if family takeovers are excluded from the final column of the table.

To test the hypothesis that risk affects the mode of entry, we estimated a probit model in which the dependent variable equals one if a new start-up is chosen, and takes the value zero if a takeover is chosen. Note that a multinomial probit or logit model defined over the three entry modes NVS, OFT *and* FFT is not appropriate here, as it cannot be used to investigate the effects of family background (Proposition 3) since *n-bof* types cannot by definition enter FFT. However, we will need to check for sample selection bias owing to the 'remaining *bof* types' possibly being different in their choices between NVS and OFT compared with the complete set of *bof* types. Our empirical strategy is executed in two steps. First, we will estimate the probit model without controlling for possible sample selectivity. Second, we will test for sample selectivity to see if it is important.

[14] Excluding other industry sectors generates similar results too.
[15] Unlike other measures of risk, such as the standard deviation, the coefficient of variation is independent of the mean value of the variable whose risk is measured. This is relevant because of the different mean net payoffs shown below in Table 4.

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Table 5
Determinants of new start-up versus takeover.

Variable	Marginal effects			
	I	II	III	IV
bof type (d)	−0.040*(1.83)	−0.038*(1.82)	−0.039*(1.87)	−0.038*(1.85)
Education (years)	0.014***(4.29)	0.011***(2.92)	0.011***(2.88)	0.008**(2.16)
Entry year (19..)		0.001(0.94)	0.001(1.02)	0.001(0.42)
Female (d)		0.040(1.57)	0.034(1.26)	0.028(1.05)
Age at entry		−0.003***(2.68)	−0.002(1.13)	−0.002(1.21)
Gen labor exp (years)			−0.001(0.50)	−0.001(0.42)
Industry exp (years)			0.001(0.86)	0.001(0.91)
SE experience (years)			0.001(0.02)	0.002(0.06)
Management exp (years)			−0.036*(1.67)	−0.039*(1.82)
Entry cost in industry				−0.0004**(2.02)
Income risk in industry				−0.0004*(1.71)
Pseudo R^2	0.06	0.09	0.10	0.11
Wald χ^2	23.91***	27.77***	29.72***	34.16***
N	636	616	605	605

Notes: Dependent variable: binary, =1 if entry mode is a new venture start (NVS), and =0 if entry mode is a takeover of an existing firm (OFT). Absolute *t* statistics are in parentheses, based on the Huber–White sandwich variance estimator. d denotes a dummy variable: marginal effects are computed for discrete changes of the dummy variable from 0 to 1. For continuous explanatory variables the effects are given in terms of quasi-elasticities. Asterisks are as in Table 2.

For the first stage of the empirical analysis, Table 5 presents a sequence of results in order to check robustness with respect to the inclusion of additional variables. Results are again reported for all industries; industry dummies are excluded for the reasons given earlier. All results remain qualitatively similar when omitting observations from the agricultural sector. Column I estimates a basic specification containing variables representing entrepreneur type and education achievement. There are two key findings. First, highly educated entrepreneurs are more likely to start-up a new firm instead of entering entrepreneurship through takeover. This supports Proposition 2, and suggests that education is especially productive in new venture starts by reducing search costs and enhancing success in managing high risk projects. Second, *bof* type entrepreneurs turn out to be significantly more likely to choose OFT relative to NVS, compared with *n-bof* type entrepreneurs. This supports Proposition 3. The other columns of Table 5 indicate that these results are broadly robust to the inclusion of other relevant covariates, although the size of the education effect is slightly attenuated as more explanatory variables are added and the sample size drops (owing to incomplete responses for some of the added variables).

To test the robustness of these results to the inclusion of control variables, column II adds the control variables 'entry year', 'female' and 'age at entry'. Family background and formal education remain statistically significant; the 'entry year' variable is insignificant and so is gender. Column II also shows that younger entrepreneurs are more inclined to start-up a business than to take one over. The effect is quite small and turns out not to be robust to the inclusion of additional covariates (see the other columns of the table). We therefore conclude that there is no robust effect of gender or age on entrepreneurial entry mode.

Column III adds to the specification other dimensions of formal human capital, in the form of various kinds of experience. This enables Propositions 4 and 5 to be tested. The only variable in this category that is marginally significant in all equations is years of previous experience of managing people, which is associated with a higher probability of becoming an entrepreneur through takeover instead of start-up. This is consistent with Proposition 4, although the size and significance of this effect are modest. In contrast, there is no significant effect of other types of experience on the mode of entry. Hence (consistent with Ucbasaran et al., 2006) Proposition 5 is not supported.

Column IV includes controls for (industry-specific) entry capital requirements and risk. These are added in order to test Proposition 6, which stated that greater risk and start-up capital requirements decrease the probability entrepreneurs will start a new firm rather than take over an existing one. The results show that takeover becomes relatively more attractive when industry entry is more risky and/or more expensive. These findings are consistent with Proposition 6, though the entry risk variable is only marginally significant.

Table 6 presents the results of estimating a bivariate Heckman probit model allowing for sample selection among 'remaining *bof* types'. Because the option of taking over a family firm is not available for *n-bof* types, this analysis pertains solely to *bof* types. The Heckman probit model with sample selection is identified by imposing exclusion restrictions, i.e., including variables in the first stage selection equation (i.e., choice of 'not FFT' rather than FFT) that are excluded from the second-stage selection equation (i.e., choice of NVS rather than OFT conditional on 'not FFT'). The variables that are selected to play this role are background variables such as the number of siblings; the respondent's rank in the parental family; the father's education level; the entry year of the respondent; and a dummy variable indicating whether the firm is in the agricultural sector. This set of variables has sufficient identifying power, as noted in Table 6.[16] In addition to this set of identifying variables, each first stage equation also includes all the variables included in the second-stage equation.

[16] Importantly, these five identifying variables have jointly no significant explanatory power in the second selection equation. This was verified by a Chi-squared test performed on the equation estimated in Table 5. The *p*-value was 0.58, indicating that they qualify as identifying instruments.

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Table 6
Heckman bivariate sample selection model of 'remaining *bof* types'.

Variable	Coefficients			
	I	II	III	IV
First stage: 'not FFT' rather than FFT				
Education (years)	0.008(0.21)	0.005(0.11)	−0.010(0.24)	−0.009(0.21)
Entry year (19..)	0.076***(6.28)	0.077***(6.46)	0.083***(6.10)	0.074***(5.95)
Female	−0.489*(1.74)	−0.392(1.40)	−0.460(1.52)	−0.311(1.05)
Father's ed. (years)	−0.010(0.30)	−0.008(0.22)	−0.028(0.76)	−0.017(0.48)
No. siblings	0.149***(2.85)	0.135***(2.56)	0.150***(2.61)	0.150***(2.83)
Prop. older siblings	−0.055(0.19)	−0.061(0.21)	−0.014(0.16)	−0.028(0.10)
Agriculture dummy	−1.047***(3.62)	−1.018***(3.45)	−1.070***(3.34)	−0.693*(1.87)
Age at entry		−0.012(0.98)	−0.016(0.68)	−0.017(1.27)
Gen labor exp (years)			−0.013(0.69)	O
Industry exp (years)			−0.008(0.45)	O
Management exp (years)			0.156(0.63)	0.092(0.39)
Entry cost in industry				−0.005*(1.68)
Income risk in industry				−0.000(0.02)
Second stage: NVS rather than OFT conditional on 'not FFT'				
Education (years)	0.137***(3.67)	0.146***(3.59)	0.162***(3.72)	0.096**(2.27)
Female		1.050**(1.97)	1.049*(1.75)	0.676(1.27)
Age at entry		−0.023(1.53)	−0.031(0.05)	−0.019(1.13)
Gen labor exp (years)			0.012(1.14)	O
Industry exp (years)			0.020(1.03)	O
Management exp (years)			−0.088(0.32)	−0.193(0.71)
Entry cost in industry				−0.008**(2.46)
Income risk in industry				−0.005**(2.01)
Wald χ^2	13.45***	16.69***	19.31***	28.03***
rho	0.519	0.310	0.414	0.662
p-value of test H: rho=0	0.203	0.507	0.451	0.252
N (No. censored obs.)	276 (56)	276 (56)	276 (56)	276 (56)

Notes: Dependent variable in the first stage: binary; =1 if entry mode is *not* a takeover of a family firm FFT, and =0 if entry mode is a takeover of a non-family firm (OFT) or start-up of a new firm (NVS).
Dependent variable in the second stage: binary; =1 if entry mode is the start-up of a new firm (NVS), and =0 if entry mode is a takeover of a non-family firm (OFT).
Absolute *t* statistics in parentheses, based on the Huber–White sandwich variance estimator. Asterisks are as in Table 2.
O indicates that the variable is omitted from the estimation equation in order to enforce convergence.

If sample selection exists, the error terms in the two equations estimated in Table 6 will be correlated, with a correlation coefficient 'rho' being significantly different from zero. In fact, the lower part of Table 6 shows that the Likelihood Ratio test statistic cannot reject the independence of the two equations' error terms. This provides some assurance that the results in Table 5 are not vitiated by selection bias. Further reassurance is obtained by observing that the sign and significance of the effects in the second and the first stage are qualitatively the same as in Tables 5 and 3, respectively.[17]

5.3. Robustness checks

One robustness check dropped all observations relating to agriculture from the specifications estimated in Tables 5 and 6. The results remained qualitatively unchanged, with two exceptions. One is that the effect of *bof* type on entry mode choice became more significant in the first two columns of Table 5 when agricultural entrepreneurs were dropped; the other is that the effects from years of education became marginally less significant (though they remained significant).

We also checked whether there is a potential problem of survivorship bias. Our cross-section of data includes only entrepreneurs who are still in business. The danger is that NVS entrepreneurs are more prone to failure than OFT and FFT entrepreneurs. Hence we might over-sample abler (better educated) entrepreneurs who are disproportionately found in the NVS mode. This could impart an upward bias to the estimates on the role of education in Table 5. Put another way, interacting education with the duration of time spent in the current business should enter with a positive coefficient if survival bias is a salient issue. Consequently we re-ran each probit in Table 5, including this interaction term together with years of education and duration entered separately. In all cases the interaction term was insignificant.

Another consideration is that some self-employed parents run businesses which cannot be passed on or sold—for example, window cleaners, lawyers and doctors. Despite their children being unable to inherit a business in the conventional sense, they are nevertheless classified as *bof* types. We could not control for parental occupation in sufficient detail to test the robustness of our

[17] The coefficient sizes are not directly comparable across these models because Tables 3 and 5 show marginal effects whereas the coefficient values are tabulated in Table 6 (owing to the absence of the option of calculating marginal effects in a Heckman selection probit model in Stata).

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results to the omission of these cases; but we doubt this consideration affects the results in a material way. If anything, it is likely to increase the degree of imprecision of our results, making the significant relationships which are uncovered even more striking.

Finally, we tested whether the mode of entry might be affected by the existence of capital constraints. For example, if entrepreneurs are obliged to select an inexpensive mode of entry because capital required in their preferred entry mode is not forthcoming, biased results might ensue. To test this possibility, we constructed two measures of initial constraints. First, following Parker and van Praag (2006), the extent of borrowing constraints is measured directly as $BC := 100 \times (1 - r) \geq 0$, where r is the ratio of initial capital invested and initial capital required (see Table 1 for descriptive statistics). Also, a dummy variable for having experienced capital constraints is defined as equal to one if $BC > 0$ and equal to zero if $BC = 0$. This second constraint measure reflects whether entrepreneurs face *any* constraint or not. It turns out that less than 33% of the entrepreneurs experienced any capital constraint at the time of entry, while only 12% claimed to be constrained by 60% or more of their required capital. Across the sample, the average extent of capital constraints *BC* is only 17.8%. This suggests that capital constraints are not an issue for the majority of respondents. Furthermore, Table 1 reveals no significant difference in *BC* by family background. The extent of capital constraints is higher, though, among *bof* types who take over their family firm than among 'remaining *bof* types'. To err on the side of caution, we re-ran all of the specifications reported above for all respondents apart from those claiming to be constrained by 60% or more of their required capital. The results, which are available from the authors on request, remained qualitatively unchanged. Also, we re-ran the specifications in Table 5 using the variable measuring the extent of borrowing constraints. Its coefficient was insignificant in all equations, indicating that borrowing constraints are not related to the mode of entry.[18]

6. Conclusion

This paper has explored the determinants of entrepreneurs' mode of entry using a Dutch cross-section dataset from the mid-1990s. Overall, our empirical tests support most of the propositions advanced in this article. Individuals who come from business owning families and have the option of taking over a family firm will make different investments in human capital than their counterparts from non-business owning families. They invest less in formal human capital (education) and possess more informal human capital obtained through their parents' businesses. Our first proposition that entrepreneurs from business owning families have lower levels of education than other entrepreneurs was supported by the data.

The second proposition was based on the idea that formal human capital will be especially useful for starting brand new firms relative to taking over firms (inside or outside of the family). Indeed, we found evidence of a positive relationship between an entrepreneur's level of education and the likelihood that their entry mode is a new venture start rather than an (outside) takeover—consistent with our second proposition.

The third proposition combined the first two propositions with the insight that informal human capital obtained in a family firm will be more applicable to existing firms in general than to a new venture start-up. Thus individuals from business owning families who do not take over the family firm will be more likely than individuals from non-business owning families to take over an outside firm than to start-up a new venture. The data supported this proposition as well.

The fourth proposition relates to another important dimension of formal human capital, managerial experience, which is likely to be most productive in existing firms where personnel have to be managed with a greater likelihood than in start-ups. Consistent with this proposition, greater managerial experience was found to enhance the probability of becoming an entrepreneur by takeover relative to new venture start-up.

The fifth proposition was, in contrast, not supported empirically. Other types of experience, such as general labor market experience, industry experience, and previous business experience were expected though not found to be more critical in new venture start-ups than in takeovers where other personnel are already engaged and can substitute for any shortfalls in an entrepreneur's generic experience.

Our final proposition stated that entrepreneurs operating in industries with higher start-up capital requirements and risk are more likely to enter via an outside firm takeover than via a brand new start-up. This proposition was based on the idea that established firms are less risky than brand new firms and have better access to finance. This proposition was supported by the data.

What are the implications of our results for practitioners, policy makers and researchers in entrepreneurship and family business? To the extent that one can generalize from one set of results, we would argue that practitioners and policy makers should start to recognize that entrepreneurs can and do choose between multiple modes of entry, and should incorporate this insight in the design of public policy programs. For example, entrepreneurship education programs often focus on new start-ups, neglecting the entry route of takeovers. As we have seen, takeovers seem to attract individuals with different skill sets to new starts, combining less formal education with more managerial experience. In view of the current scarcity of takeover candidates in Europe and parts of North America it may be advisable to extend these programs to educate aspiring entrepreneurs about takeovers as well.

We believe that this paper makes several important contributions to the conceptual literature on entrepreneurial entry. First, an analysis of different entry modes paints a more precise picture of the entry process. It also avoids an aggregation problem caused by combining different entry processes. For instance, inappropriate combination of different entry modes could lead researchers to detect lower estimated effects of education on new venture creation if takeovers are included in the sample of venture starts. It might also overstate the limiting effects of financial (and other) constraints on entrepreneurship, since

[18] It was not included in the basic specifications reported in Table 5 because it is potentially endogenous. That is, the extent of borrowing constraints partly results from investment and savings decisions that may be related, directly or indirectly, to the selected mode of entry.

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information-based barriers might restrict entry via new venture creation but not via takeover, where company information is more readily available. This opportunity to substitute entry into a different mode can be overlooked by traditional research methods which focus purely on new venture creation, causing them to over-emphasize constraints. More generally, greater consistency about the treatment of different entry modes might enable researchers to clarify research findings across studies and reduce the incidence of inconsistent or contradictory results.

Second, we believe our analysis has implications for research undertaken in the area of family business. As noted at the outset, family business research has highlighted the role of transfers of tacit business knowledge from one generation to the next (Cabrera-Suárez et al., 2001; Steier, 2001). We have analyzed this issue in a generalized context where parental transfers of informal human capital can substitute for formal human capital and be productive in takeovers of non-family firms as well as succession within-family firms. We believe that analyzing business succession from the perspective of the successor entrepreneur – the focus of this article – rather than from the perspective of the founder (the focus of much of the family business literature) highlights a valuable future direction for family business researchers. It is noteworthy too that many family businesses which lack successors do not fail outright, but instead are simply taken over by entrepreneurs who come from outside of the family. That being the case, it becomes desirable to know more about who those external takeover candidates are. We have made a start on filling the gaps in this part of our knowledge base as well.

A third contribution of our study to theories of entry relates to the components of human capital. By emphasizing how different types of human capital (here, formal and informal) might be substitutable with each other, our study adds to the growing conceptual and empirical discussion about how heterogeneous human capital promotes entrepreneurial entry (see, e.g. Lazear, 2005). We think that the distinction between formal and informal human capital is especially important, because it connects with a crucial dimension of entry which is still imperfectly understood, namely the intergenerational transmission of (non-family) business ownership propensities (Fairlie and Robb, 2007).

Clearly, more research is needed to broaden the findings and extend the analysis in several novel and important directions. The most obvious empirical question is whether our results also hold in countries other than The Netherlands, and whether there are important differences between and within EU states vis-à-vis the US. At a conceptual level, the analysis could be usefully extended as well. As noted at the start of the paper, entrepreneurship can be regarded as the conjunction of individual enterprise and valuable business opportunities. We focused on the former rather than the latter, reflecting the nature of our dataset. But a more complete analysis of the mode of entry would also utilize data on the different types of business opportunity associated with each mode of entry. For example, potential entrepreneurs can sometimes look at the past history of a venture's earnings when evaluating whether to take over a venture; but they cannot do that when they are deciding whether to start a new venture from scratch. There are doubtless other aspects of the business opportunity (e.g. existence of networks) which are more abundant in the takeover compared with the new venture creation mode, and which also influence individual decisions. These topics are all worthy of further research.

Finally, the horizons of the present enquiry could be broadened by analyzing the family firm succession issue in greater detail. That might recognize the potential for conflicts within families at the same time as taking account of entrepreneur–financier frictions. More generally, we believe that there are substantial potential gains to be made by building on the approach of this paper, and analyzing succession from the viewpoint of successors, rather than just that of existing founders—which is where most research has focused to date.

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