

WHO BECOMES AN AUDITING ENTREPRENEUR? THE EFFECTS
OF HUMAN CAPITAL, AGE, AND JOB STABILITY

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Abstract

Although many individuals spend years and considerable effort to earn their auditing certificates, only a small proportion actually apply for the auditing license that would enable them to sign audit reports. Instead, they break from certification functions or engage in support activities in auditing firms, a situation that has generated concern within their professional associations. In spite of the importance of this phenomenon for research and practice, the issue is widely neglected in auditing research. In this investigation, we focus on the individual characteristics of newly certified auditors who apply for their auditing licenses in anticipation of entering solo practice or a partnership in an auditing firm, comparing them to their counterparts who do not apply for such a license. Our analysis draws on an integration of the human capital and entrepreneurship literatures, leading us to a number of hypotheses that are tested through logistic regression models. Our findings suggest that newly certified auditors who (i) belong to the youngest and oldest age group or (ii) possess high general or specific human capital or (iii) have stable jobs are less likely to apply for an auditing license than are their middle-aged counterparts, individuals with low human capital or those employed in unstable jobs.

Keywords

Human Capital Theory, Auditing, Spain.

INTRODUCTION

There is ample evidence to suggest that many people who invest the time and effort to earn an auditing certificate do not go on to apply for the auditing license that would allow them to sign audit reports. As the Chair of the American Institute of Certified Public Accountants (AICPA), Robert K. Elliott, claims, “90% of Certified Public Accountants (CPAs) do not perform certification functions, focusing instead on measuring and advising businesses” (Alles, Kogan, & Vasarhelyi, 2000, p. 16). The AICPA also reported that 51% of its members were in public practice in 1985, but that only 39.6% engaged in such activities by 1998¹. This downtrend in the proportion of certified accountants in public practice is a general phenomenon, as suggested by Anderson-Gough, Grey, & Robson’s (2002) similar findings in the UK. Within the public accounting profession, the case of auditing services provides some compelling data. In Spain, for example, the proportion of certified auditors holding an auditing license that would allow them sign audit reports decreased from 36.66% in 1991 to 28.62% in 2001 (BOICAC, 1991; BOICAC, 2001). These results appealed to professional associations like AICPA, which conducted debates on the distinction between CPA accreditation and actual practice of the profession (Howard, Kotaro, & Gleim, 2001).

It is important to differentiate between the auditing certificate and the license to practice. Earning an auditing certificate involves a long process of training and socialisation, and requires one to pass qualification exams (Robson, Wholey, & Barefield, 1996). This process varies somewhat from country to country and does not necessarily enable the successful candidate to sign audit reports. In order to legitimately place their signatures on audit reports, certified auditors in most countries must acquire an auditing license, which requires them to enrol in the corresponding tax register and to demonstrate that they are covered by professional indemnity insurance.

Our review of research on the auditing market highlighted some of its salient characteristics: the profile of students entering the profession (Larkin, 1997; Wright, 1988; Zikmund, Catalanello, & Wegener, 1977); the diffusion of novel governance structures among firms offering accounting services (Lee & Pennings, 2002); the determinants of high employee turnover in auditing firms (Bullen & Flamholtz, 1985; Dillard & Ferris, 1979; Lane & Parkin, 1998; Reed, Kratchman, & Strawser, 1994; Rhode, Sorensen, & Lawler III, 1977); and the effects of employee turnover on extra training, increasing costs, loss of expertise, and the additional efforts that auditing firms must deploy in order to support their reputations (Hill, Metzger, & Wermert, 1994). In spite of such comprehensive understanding of the auditing market, little is known about the small proportion of certified auditors who take the extra step of earning the auditing license that would allow them to sign audit reports. Our understanding of this important characteristic of the auditing market could be further enhanced by a study comparing the profiles of newly certified auditors who apply for their auditing license with newly certified auditors who do not apply.

The certified auditor who acquires an auditing license and engages in auditing practice is “first and foremost an entrepreneur trying to make a successful living by providing a service” (Higson, 1997, p. 203). In the case of auditing organisations, management owns the firm (Dillard & Ferris, 1989, p. 224) and the partners put their personal wealth and human capital at stake (DeAngelo, 1981, p. 25). This entrepreneurial perspective spreads throughout a market populated by small practice units, including self-employed auditors (Huefner, 1998). In the USA, for example, the AICPA reported that 131,627 firms performed public accounting services in 1998 (see Footnote #1). Importantly, 23.50% (30,932) of such firms had only one employee and 35.8% (47,188) had between 2 and 9 employees. In the case of Spain, 68.30% of total auditing firms in 2001 were sole proprietorships (BOICAC, 2001).

These data support predictions in the literature on the entrepreneurial profile of auditors and indicate that certified auditors who apply for their auditing license may be regarded as “potential entrepreneurs” (Erikson, 2001). In this respect, we suggest the notion of an auditing entrepreneur, which would encompass those certified auditors who apply for a license in anticipation of engaging in a solo practice or in a partnership in an auditing firm. At the same time, the theory of human capital proves useful in illuminating at least two characteristics of the auditing market: auditors who move to another firm or leave professional practice (Dalton, Hill, & Ramsay, 1997a; Glover, Mynatt, & Schoroeder, 2000; Hunton & Wier, 1996) and the relationship between human capital in auditing firms on the one hand and organisational performance and survival on the other (Pennings, Lee, & Witteloostuijn, 1998). Therefore, an integration of the literatures on entrepreneurship and human capital may help to ascertain the role of individual attributes in the decision of newly certified auditors to apply for an auditing license.

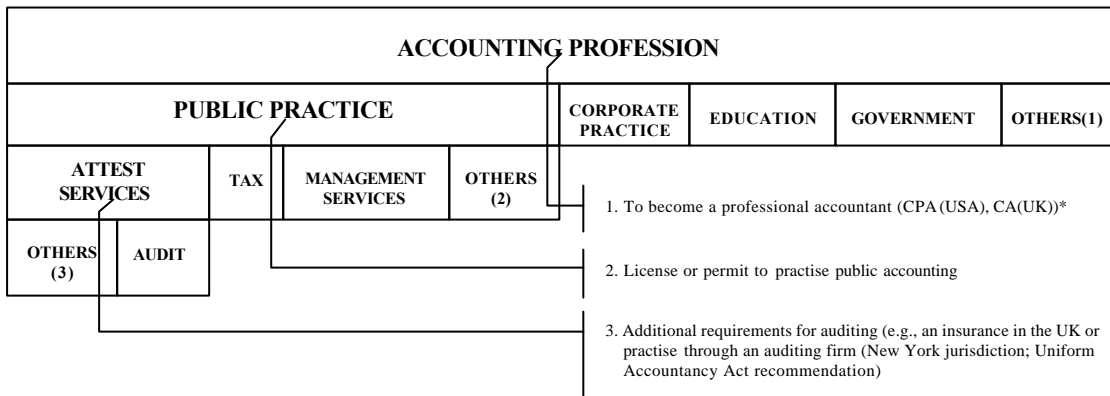
Empirical support for this investigation is gathered from membership to the *Instituto de Censores Jurados de Cuentas de España* (Institute of Sworn Auditors of Spain, ICJCE), the earliest professional association of auditors in Spain (Carrera, Gutiérrez, & Carmona, 2001). The ICJCE was founded in 1942 and is still in operation. In Spain, the auditing profession is regulated by the state and has some characteristics that differ from the widely studied Anglo-Saxon settings (Bougen, 1997; Bougen & Vázquez, 1997; García Benau, Ruiz Barbadillo, Humphrey, & Al Husaini, 1999). As shown in Figure 1, the practice of the accounting profession in many Anglo-Saxon countries requires an individual to hold a professional certificate: that of a Certified Public Accountant (CPA) in the USA and as a Chartered Accountant (CA) in the UK. Certified accountants may either enter public practice or engage in services like corporate or governmental practice. For those who engage in public practice, performance of attest services is of special interest for our purposes, because it presents auditing as one possibility. In Spain, the route into the practice of auditing differs from the Anglo-Saxon example in several respects. As a distinct feature, the Spanish setting is characterised by the absence of an accounting profession, inasmuch as only the auditing profession exists (see Figure 1). To gain the right to sign audit reports, one must obtain an auditing certificate, which requires a demanding three-step examination (Pont Mestres, 1991). Individuals who earn the auditing certificate can then either apply for an auditing

¹ Data from <http://www.aicpa.org/about/annrpt/1996%2D1997/sources.htm> and <http://www.aicpa.org/about/annrpt/1997%2D1998/sources.htm>

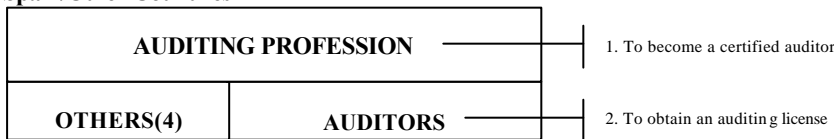
license that would enable them to sign audit reports or become an auditor on leave (see Figure 2). The former route requires individuals to purchase professional liability insurance and to enter themselves into the tax register of the Ministry of Finance as freelance auditing professionals. Holders of auditing licenses offer their professional services either as self-employed auditors or as partners in auditing firms – that is, as auditing entrepreneurs. Alternatively, newly certified auditors may either break from the profession or perform support activities in auditing firms, neither of which requires them to hold an auditing certificate (see Figure 2).

Fig. 1. How to become a licensed auditor

Anglo-Saxon Context

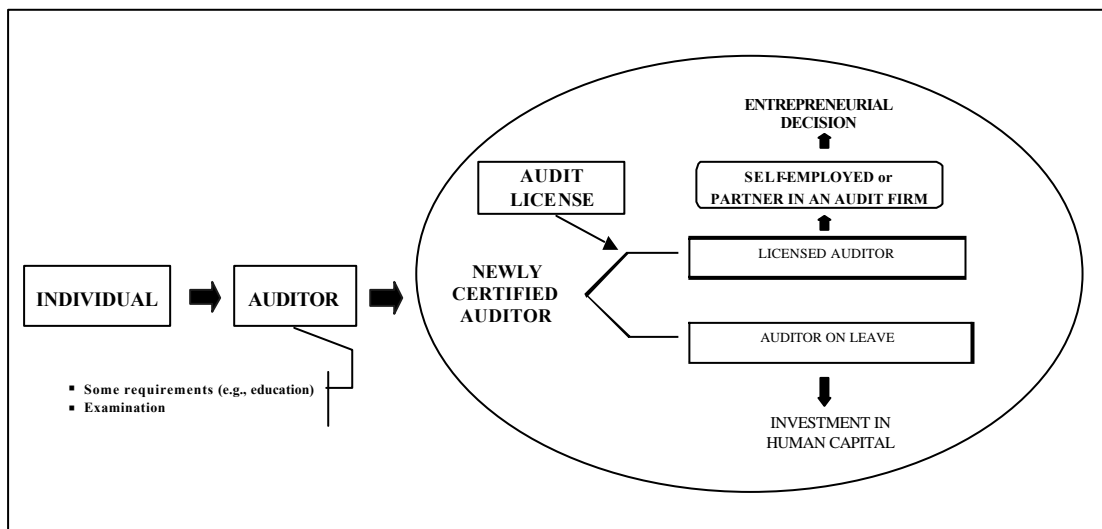


Spain/Other Countries



OTHERS (1): E.g., retired individuals, people on career breaks, and people in professional bodies
 OTHERS (2): E.g., specialised services such as business valuation
 OTHERS (3): E.g., compilation of financial statements
 OTHERS(4): Auditors on leave

Fig. 2. The process to engage in audit practice.



The decision of a newly certified auditor to obtain an auditing license and to become an entrepreneur may be influenced by institutional factors (e.g., changes in regulation), the market (e.g., comparative salaries in different jobs), or individual factors (e.g., education, age, job stability). In this paper, we focus on the individual factors of those who obtain an auditing certificate after a long process of examinations and proceed with the application of an auditing license vis-à-vis their counterparts who do otherwise.

Our observation period extends from 1976 to 1988 – from the time the incipient democracy brought about the liberalisation of the Spanish economy and the demand for auditing services, to the adaptation of the Spanish auditing regulation to the provisions of the 8th Directive of the European Economic Community (EEC). Spain enacted its Audit Law in 1988, enforcing significant changes in the organisation of the auditing profession (Bougen, 1997). Regrettably for our purposes, the accompanying regulation of the Spanish Audit Law relieved professional associations of the responsibility of keeping records of such crucial characteristics as the educational background of certified auditors at the time of accreditation. We therefore have a break in our series of data that required us to end our observation period in 1988. We built our database from the completed entries of all 2,633 newly certified auditors from the Official Register of the ICJCE during our observation period.

This investigation may be of interest to accounting researchers for several reasons. It goes beyond the usual study of large, Anglo-Saxon firms to enhance our knowledge of career decisions among newly certified auditors and to highlight the qualification potential and the role of the auditing certificate in a model that combines the literature on entrepreneurship with the literature on human capital.

Auditing research has been dominated by studies that focus on *large firms*. In a market populated by small firms and sole practitioners (Dillard & Ferris, 1989), investigation of the relationship between the individual characteristics of newly certified auditors and their decisions about becoming entrepreneurs may shed some light on a neglected perspective of the auditing market.

Most of the auditing research reported in international academic journals has focused not only on large firms, but also on *Anglo-Saxon settings* in North America and the United Kingdom (see Bougen & Vázquez, 1997). In this study we have gone beyond these restricted populations by investigating Spanish auditors, thereby offering further insights into what appears to be a universal problem in the auditing profession.

Some commentators believe that the relationship between the auditing profession and auditing work has been “broken” (Abbott, 1988, p. 144), insofar as individuals do not tend to engage in the profession for which they are certified. Therefore, an investigation of the attributes of newly certified auditors as they are in the process of deciding if they should apply for an auditing license that would enable them to sign audit reports may highlight the *qualification potential* of the auditing certificate and its *role* in the breach that has occurred between the certification function and the profession at large.

Finally, our study draws on an integration of the entrepreneurship and human capital literatures that we deem relevant to explaining some specifics of the auditing profession and that may be helpful in laying the groundwork for future research in this area.

Theory and hypotheses

The early contributions of Knight (1921) and Schumpeter (1934) to the entrepreneurship literature lead to two opposing conclusions. Knight (1921) reasoned that skilled individuals who understand their own abilities would be likely to turn to entrepreneurship in order to capitalise on their expertise. And in fact, modern defenders of this career theory, like Borjas and Bronars (1989), have found that education, age, and work experience all have positive effects on the self-employment decision. Schumpeter (1934), on the other hand, conceptualised the entrepreneurial decision as a second-best option for individuals who are unable to remove some “structural constraint” such as ethnic minority status, immigration status, or residence in a region of high unemployment (e.g., Carr, 1996). Supporting this contention, Carroll and Mosakowski (1987) have found a positive relationship between self-employment on the one hand and entrepreneurial family background and Protestantism on the other. Furthermore, Evans and Leighton (1989) report that individuals with work experience and spells of unemployment, low-paid wage work, and many job shifts have higher self-employment probabilities than do their counterparts who do not have these experiences. Other variables affecting the choice for or against entrepreneurship include financial capital (Evans & Jovanovic, 1989; Blanchflower & Oswald, 1998), psychological factors (e.g., perception of risk; Khilstrom & Laffont, 1979; Knight, 1921), and the comparative, expected yields from entrepreneurship versus salaried occupations (Evans & Leighton, 1989).

Our study focuses on a particular time in the auditor’s life (Carroll & Mosakowski, 1987) – the point at which newly certified auditors decide whether or not to apply for an auditing license. For those who apply for an auditing license, the auditing certificate constitutes a prerequisite to the long process of establishing their own business or becoming partner in an auditing firm. In contrast, for those not interested in public practice, the auditing certificate arguably represents a professional qualification that may expand their labour market opportunities (Anderson-Gough *et al.*, 1998; 2002; Bullen & Flamholtz, 1985). In short, individuals who expect to capitalise on such expertise, either by becoming auditing entrepreneurs or by enhancing their labour market opportunities, may approach the auditing certification process as an investment in human capital.

The theory of human capital has highlighted some of the individual determinants of entrepreneurship (e.g., Carr, 1996; Hundley, 2000; Tucker, 1990), such as the effects of the founder’s human capital on organisational performance (e.g., Bates, 1985; Gimeno, Folta, Cooper, & Woo, 1997; Pennings *et al.*, 1998; Preisdörfer & Voss, 1990). A basic tenet of human capital theory is that individuals spend time and money on themselves for the sake of future pecuniary and non-pecuniary returns (Becker, 1975; Blaug, 1976; Schultz, 1963), thereby increasing their specific or general human capital.

General human capital refers to the acquisition of a comprehensive formal education and training like college education that is relatively transferable across firms and industries. Conversely, specific human capital strengthens an individual's knowledge about the idiosyncratic routines and procedures utilised in a particular firm that are less easily transferred. As noted by Becker (1975), increases in human capital, either general or specific, lead to productivity improvements, but such advancements can only be achieved at a cost. If that were not the case, there would be an unlimited demand for training.

General Human Capital

Individuals with high levels of general human capital receive more formal training than do those with lower levels of general human capital; furthermore, the high human capital auditors are expected to be more efficient in their jobs and to enjoy a considerable number of labour market opportunities (Becker, 1962; Blaug, 1970; Mincer, 1962). Conversely, individuals with low levels of general human capital are regarded as being less efficient in the workplace and are more likely to face spells of unemployment (Blaug, 1970; 1976) than are their counterparts with higher levels of general human capital. Accordingly, individuals who aim at increasing their general human capital are prone to sacrifice current returns because of their expectancies of high, future earnings (Blaug, 1970; Mincer, 1962). Furthermore, as shown by Carr's (1996) study of professional men, those with high levels of education are less likely to be self-employed than are their counterparts with low educational levels², a finding reinforced by Blanchflower, Oswald and Stutzer's (2001) research. In summary, then, it appears that individuals who invest in formal education and general training tend to be more efficient in their jobs, which in turn increases their chances of promotion and tenure (Groot & Van den Brinks, 2000; Hachen, 1990) as well as their external job-market opportunities. In view of such internal and external opportunities, these individuals are regarded as less likely than their counterparts with low general human capital to change their occupational status by becoming self-employed (Blanchflower & Oswald, 1998). Taken together, these studies clearly represent the entrepreneurial decision as a default career choice.

Auditors with a high level of educational attainment are likely to deliver consistent and high quality services inside their auditing firms (Pennings *et al.*, 1998). Hunton and Wier (1996) investigated the promotion of accountants working for private sector firms and found that attained education and professional certification – that is, general human capital – exerts a significant, positive influence on the time-to-promotion decision. For example, accountants with a post-baccalaureate education experienced faster promotions than did their counterparts with a bachelor's degree. Moreover, Hunton and Wier (1996) revealed that professionally certified accountants were promoted more quickly than were their non-certified counterparts. In summary, auditing research is consistent with predictions that individuals with a high general human capital are seen

² For occupational groups other than that of professional men, Carr (1996) found a positive relationship between high levels of education and self-employment. Evans and Leighton (1989) reported additional evidence of a positive relationship between general human capital and the probability of becoming self-employed.

to be more competent and reliable than are their counterparts with low general human capital, thereby increasing their chances of promotion and tenure. Further, inasmuch as general human capital is transferable across firms, auditors with high general human capital enjoy good market opportunities. Such internal and external opportunities suggest that an auditor with high general human capital would be reluctant to apply for an auditing license and become an auditing entrepreneur, leading us to hypothesise:

Hypothesis 1 (H1): General human capital will be negatively associated with the likelihood of newly certified auditors becoming auditing entrepreneurs.

Specific Human Capital

Mincer (1962) has conceptualised specific training as an investment that increases the marginal product of those who invest in it by improving an individual's knowledge of workplace routines and procedures. As noted by Becker (1975), the idiosyncratic nature of specific human capital makes it difficult to transfer across organisations. Individuals who acquire specific human capital engage in within-the-firm training programmes and have on-the-job experiences that increase their expectancies of promotion and tenure, providing them with little incentive to leave their firms (Mincer, 1993). The employee-employer relationship is further reinforced through programmes aimed at enhancing specific human capital (Cappelli & Cascio, 1991; Groot & Van den Brinks, 2000), which ultimately increases the internal mobility of employees but poses serious barriers to their external mobility.

Auditing firms face high levels of employee turnover, which affects their efficiency (Dalton *et al.*, 1997a; Rasch & Harrell, 1990; Rhode *et al.*, 1977). In order to curb this problem, auditing firms deploy internal, extensive, and compulsory training programmes that increase the expertise of their employees in a firm's routines and procedures, and their specific human capital (Pennings *et al.*, 1998). Such training programmes are regarded as part of a general programme of socialisation of individuals into the organisational culture and, therefore, "they are first and foremost a commitment to an individual firm" (Anderson-Gough *et al.*, 1998, p. 3). Specific human capital helps to produce high quality auditing services and decreases employee turnover. Thus, increases in specific human capital socialises employees, updates them in the particulars of a firm's internal procedures, increases their productivity and chances of promotion, and lowers the probability of their leaving the organisation (Pillsbury, Capozzoli, & Ciampa, 1989). Because internal procedures tend not to be transferable, auditors who engage in within-the-firm training programmes expect to capitalise on such knowledge by increasing their chances of promotion and tenure, and are less likely to become self-employed in the auditing market than are their counterparts who have not been trained in-house (Anderson-Gough *et al.* 1998; Robson *et al.*, 1996). Thus we hypothesise:

Hypothesis 2 (H2) : Specific human capital will be negatively associated with the likelihood of newly certified auditors being self-employed.

One beneficial effect of specific human capital is an increased likelihood of promotion into a partnership in an auditing firm, a position requiring comprehensive knowledge of internal procedures and commitment to the firm (Anderson-Gough *et al.*, 1998). If the accumulation of specific human capital were not largely dependent upon time and seniority (Becker, 1975), it would be difficult for auditing firms to provide intensive in-company training to employees, while simultaneously delivering professional services to clients. Therefore, employees with long seniority in auditing firms have arguably accumulated sufficient specific human capital to become eligible for promotion to partner positions. In accounting firms, for example, Robson *et al.* (1996) report that a regular career from a junior accountant to a partnership position takes between 10 and 12 years. Promotion to a partnership position in an auditing firm, in turn, constitutes an entrepreneurial decision that requires candidates to possess an auditing certification as a prerequisite for applying for an auditing license. Thus we hypothesise:

Hypothesis 2-1 (H2-1): Specific human capital will be positively associated with the likelihood that newly certified auditors are promoted to partnership positions in auditing firms.

Age

The entrepreneurship literature contends that self-employment decisions are contingent upon the age of the individual (Casson, 1982). Young people, it is argued, lack the experience, skills, and material resources to make a successful entry into the entrepreneurial market (Evans & Jovanovich, 1989). Such considerations, we contend, may particularly apply to such professional services as auditing, which rely upon professional reputation and social capital (see Anderson-Gough *et al.*, 1998; Pennings *et al.*, 1998) rather than, for instance, the manufacture of innovative products, which relies upon creativity. Therefore, it is expected that entrepreneurial behaviour is more likely to be found in older individuals than in their younger counterparts (Carr, 1996; Blanchflower *et al.*, 2001). Young individuals, we argue, use the auditing certificate as a formal endorsement of their professional qualifications, thereby enhancing their chances of internal and external mobility, and are much less likely to use it as a prerequisite in the process of applying for an auditing license and becoming an auditing entrepreneur.

Entrepreneurship involves risk and uncertainty, which individuals perceive differently as a function of their age. Older individuals – especially those close to retirement – tend to be risk averse (Bates, 1990), a characteristic that suggests they will be reluctant to leave salaried work for the uncertainties of self-employment (Hachen, 1990). Legal and financial risks inherent to the auditing profession (Dalton *et al.*, 1997a; 1997b; Simunic & Stein, 1996) add to the usual uncertainties of entrepreneurship. At the same time, the expectancies of financial return for older, newly certified auditors are lower than that of their younger counterparts because they are restricted to the remaining, short period prior to retirement. In summary, then, older, newly certified auditors take a high risk by entering entrepreneurship and have low return expectancies, suggesting that they would

be unlikely to apply for an auditing license. For older individuals, pursuing an auditing certificate serves the purpose of promotion and a signal of professional qualifications.

Middle-aged individuals have accumulated working experience, knowledge of the market, and professional reputation (Borjas, 1986; Brüderl, Preisendörfer, & Ziegler, 1992; Knight, 1921). Furthermore, they can expect returns from their entrepreneurial efforts over the long period before their retirement. In addition, the middle-aged auditor is likely to have enough material resources to establish a new business and to tackle its concomitant financial and legal risks. Arguably, such individuals strive for an auditing certificate in order to obtain a promotion to partner or to establish their own auditing firm. Taken together, this reasoning leads us to hypothesise:

Hypothesis 3 (H3): The decision of a newly certified auditor to become an auditing entrepreneur will have an inverted-U-shaped relationship with age.

Switching costs: Job stability

The chances of an entrepreneurial entry are negatively related to the costs of leaving an employment situation (Gimeno *et al.*, 1997) – tangible expenses as well as more intangible burdens. Such costs are largely determined by the relative stability and security between present and alternative occupations (Hundley, 2000). Public sector employees provide a particularly strong example of switching costs because they enjoy long-term stability, regular salary, predictability, and an internal system of promotion (Hinchliffe, 1987), as evidenced by low employee turnover in public sector jobs (Hachen, 1990).

Newly certified auditors assess their switching costs by comparing their occupational status with eventual entrepreneurship in the auditing market. The latter involves risks arising from client liability and third party liability (e.g., Dalton *et al.*, 1997b; Johnstone, 2000; Simunic & Stein, 1996) that people working in jobs characterised by a high degree of stability, security, and insulation from external competition may consider as being too high (Hachen, 1990). Therefore, such individuals with high switching costs that make them unlikely to apply for an auditing license and become entrepreneurs in such a market are more likely to use an auditing certificate to enhance their chances of promotion. Thus we hypothesise:

Hypothesis 4 (H4) : The entrepreneurial decision of newly certified auditors will be negatively affected by high switching costs from the present occupation of such individuals.

THE SETTING, DATA SOURCE, VARIABLES, AND METHODS

The setting and data source

Our setting is the ICJCE, membership in which is regulated by its Bylaws. To become a member of ICJCE, one must: (i) be a Spanish citizen, (ii) be 18 years of age or older, (iii) hold a university degree or equivalent, (iv) and have professional experience in auditing, accounting, and business administration. In addition, one must (v) have received a pass on a series of qualification exams, and (vi) never have been convicted of a crime. Upon meeting these requirements, successful candidates are granted an auditing certificate and gain entry into the membership of the ICJCE. In order to sign audit reports, however, one requires an auditing license from the ICJCE. An applicant for an auditing license (i) must be on file as a freelance auditing professional in the official tax register, and (ii) must have obtained acceptable insurance coverage for professional indemnity. Therefore, the ICJCE is comprised of (i) auditing entrepreneurs, who hold an auditing license (*ejercientes* or licensed auditors) and are either self-employed or partners in auditing firms and (ii) auditors who hold only an auditing certificate (*no ejercientes* – non-licensed auditors or auditors on leave) and are unable to sign audit reports.

The ICJCE's directories and personal files of members contained information about the name, address, date of admission in the ICJCE, educational background, occupational status, previous jobs, and eventual application for an auditing license at the time of entry in the ICJCE. Our data are based on 2,633 individuals with completed entries who earned an auditing certificate between 1976 and 1988; 1,931 (73.34%) of whom filed an application for an auditing license at the time of joining the ICJCE and 702 (26.66%) of whom did not apply for such a license but became auditors on leave immediately after obtaining their auditing certificate.

Methods

We used a logistic regression in order to model the likelihood that newly certified auditors become licensed auditors rather than auditors on leave (Hosmer & Lemeshow, 1989), a decision similar to the eventual withdrawal of auditing partners from their firms in order to avoid litigation risks. The probability of applying for an auditing license is:

$$P(X) = \frac{e^{g(X)}}{1 + e^{g(X)}}$$

where:

$$g(X) = \mathbf{b}_0 + \mathbf{b}_1 x_1 + \mathbf{b}_2 x_2 + \dots + \mathbf{b}_p x_p$$

$$P(C) = \text{Prob (licensed auditor),}$$

b_0 is the estimated constant,

b_1 through b_p are the estimated coefficients,

χ_1 through χ_p are the independent variables.

Operationalisation of variables

Table 1 identifies the variables used in this analysis.

License. The dependent variable, *License*, depicts the decision of newly certified auditors to apply for an auditing license or to become auditors on leave. This dichotomous variable was coded 1 = licensed auditor; 0 = auditor on leave, a categorisation similar to those used in the studies in Amemiya's (1981) review of individual choices among labour market opportunities (Dalton *et al.*, 1997b).

Table 1

Name and definitions of variables

Variable	Definition
<i>License</i>	1 = individual is a licensed auditor; 0 individual is an auditor on leave
<i>Education</i>	1 = auditor has a three-year university degree; 2 = auditor has a five-year university degree; 3 = auditor has a superior degree (Master or Ph.D.)
<i>Big Firms</i>	1 = individual is working for a leading domestic or international auditing firm at time of entry; 0 = individual does not work for such a firm
<i>Age</i>	Individual's age in years at the time of entry into the profession
<i>AgeSQ</i>	Age x Age
<i>Public Sector</i>	1 = auditor was working in the public sector at the time of joining ICJCE; 0 = individual does not work in the public
<i>Gender</i>	1 = female; 0 = male
<i>Market Density</i>	1 = individual established in Madrid, Barcelona, Seville, Valencia, or Biscay; 0 = individual established elsewhere
<i>Year</i>	1 = joined ICJCE between 1976 and 1979; 2 = joined ICJCE between 1980 and 1983; 3 = joined ICJCE between 1984 and 1987; 4 = joined ICJCE in 1988

Education. The literature on human capital has utilised years of education and educational levels as proxy measures of general human capital (see, e.g., Carr, 1996; Carroll & Mosakowski, 1987; Hundley, 2000). Thus the *Education* variable, which depicted the educational background of the newly certified auditors, was coded with three levels of education: 1 = a three-year university degree; 2 = a five-year university degree; and 3 = a tertiary degree (e.g., M.Sc., Ph.D.).

Big Firms. In-company training is regarded as a measure of employee socialisation (Pennings *et al.*, 1998) as well as an enhancer of specific human capital. Large firms seek to acquaint their employees with their routines and procedures, providing them with vast, in-house training programmes (Alba-Ramírez, 1994), which ultimately increase the specific human capital of employees (Becker, 1962, pp. 17-18). The auditing market comprises large firms as well as small units and sole practitioners (Anderson-Gough *et al.*, 2002). Empirical evidence on the training programmes of big auditing firms reveals a complex web of formal and informal rules that must be learned by those working for such organisations (Anderson-Gough *et al.*, 1998; Grey, 1998;

Pennings *et al.*, 1998). In contrast, the routines of small accounting firms are not as formally established, and employees learn them through significant on-the-job exposure. Importantly, as noted by Robson *et al.* (1996), employees in such small firms spend considerable time in non-auditing activities, which provides them with a general knowledge of the profession. Therefore, auditors working for the leading domestic or international auditing firms are expected to gain more specific human capital than are their counterparts in small firms. The *Big Firms* variable was created to identify individuals working for large firms at the time of affiliation to the ICJCE. This variable was coded: 1 = individual worked for a leading domestic or international auditing firm at time of entry and 0 = individual did not work for such a firm.

Age. This variable is regularly employed in both the human capital literature and the entrepreneurship literature (Becker, 1975; Carr, 1996; Evans & Leighton, 1989; Rhode *et al.*, 1977). We used a continuous variable to measure the individual's age, in years, at the time of joining the ICJCE. We hypothesised a quadratic or U-shaped relationship between the individual's age and the likelihood of engaging in the practice of auditing. Both the variables *Age* and its square value (*AgeSQ*) were included in our analysis in order to capture such a non-linear relationship (Hosmer & Lemeshow, 1989: 95; see Evans & Leighton, 1989).

Public sector. Hachen (1990) contends that job stability and job security are associated with public sector jobs, and we draw on such insights to measure the switching costs related to the entrepreneurial decision of newly certified auditors. Our dichotomous variable, *Public Sector*, is coded 1 = individual was working in the public sector at the time of joining the ICJCE, and 0 = individual does not work in the public sector.

Control variables. Previous research shows gender differences in the Spanish auditing market (Carrera *et al.*, 2001). Women were barred from the auditing profession by the ICJCE until 1976. Although the number of women in the ICJCE have increased annually since 1976, the number of men joining the ICJCE has been significantly higher, making auditing a male-dominated profession (Carrera *et al.*, 2001). Research on self-employment decisions shows that women's decisions differ from those of men; women, for instance, place higher emphasis on their families when making the entrepreneurial decision (Blanchflower & Oswald, 1998; Carr, 1996; Hundley, 2000). Thus we have created the *Gender* variable, which is coded 1 = female and 0 = male.

The supply of auditing services depends on the number of auditors in the market (Pennings *et al.*, 1998). In the case of the Spanish auditing market, auditor density is largely contingent upon geographical distribution. The Spanish provinces of Madrid, Barcelona, Seville, Valencia, and Biscay reported the highest density of auditors during our observation period. Thus we create the variable, *Market Density*, to identify the province in which auditors established their offices and offered their professional services: 1 = individual established in Madrid, Barcelona, Seville, Valencia, or Biscay; 0 = individual established elsewhere.

We argue that the decision to become an auditing entrepreneur may be also influenced by contextual factors, such as expected changes and actual enforcement of auditing regulations. Therefore, the moment an individual is granted an auditing certificate may constitute a relevant variable for explaining the likelihood of applying for an auditing license. We created the variable *Year* as an indicator of the time the individual joined

the ICJCE, establishing four sub-periods in an attempt to capture significant changes in the Spanish auditing profession. First, we considered the period 1976-1979, which was characterised by a monopoly of ICJCE members in the provision of auditing services to firms established in Spain. Second, the period 1980-1983 witnessed the removal of this monopoly and the emergence of other professional associations in the country (i.e., *Registro de Economistas Auditores*, the Register of Economists-Auditors, REA). Third, the period 1984-1987 was characterised by the actual challenge of auditors from other professional associations to ICJCE's members. Finally, we considered 1988 – the year when the Spanish Audit Law was discussed and passed in the Spanish parliament.

Results

We conducted a preliminary analysis of the relationship between the dependent and independent variables. The univariate analysis revealed some degree of association between the variables included in our model and the probability of applying for an auditing license. Table 2 depicts the descriptive statistics and the correlation matrix for the variables included in our model. As shown in Table 2, arithmetic means indicate that licensed auditors have a lower education level and are older than auditors on leave, and that the latter are likely to work for the public sector. The correlation matrix indicates that there are many significant correlations, but of such low magnitude that we did not identify collinearity problems in our model.

Table 2
Means, standard deviations and correlations (p-value)

Variable	Licensed Auditors		Auditors on Leave		License	Education	Big Firms	Age	Public Sector	Gender	Market Density	Year
	Mean	S.D.	Mean	S.D.								
Education	1.70	0.52	1.92	0.42	-0.195 (0.000)	1.000 ---						
Big Firms	0.16	0.37	0.26	0.44	-0.111 (0.000)	0.138 (0.000)	1.000 ---					
Age	34.46	6.88	33.88	8.16	0.024 (0.226)	-0.230 (0.000)	-0.218 (0.000)	1.000 ---				
Public Sector	0.14	0.35	0.39	0.49	-0.273 (0.000)	0.180 (0.000)	-0.247 (0.000)	0.141 (0.000)	1.000 ---			
Gender	0.072	0.26	0.10	0.30	-0.048 (0.014)	0.094 (0.000)	0.040 (0.040)	- 0.164 (0.000)	0.074 (0.000)	1.000 ---		
Market Density	0.71	0.46	0.78	0.41	-0.074 (0.000)	0.091 (0.000)	0.183 (0.000)	- 0.050 (0.010)	-0.058 (0.003)	0.026 (0.182)	1.000 ---	
Year	2.18	1.20	2.44	1.14	-0.097 (0.000)	0.254 (0.000)	0.256 (0.000)	- 0.091 (0.000)	-0.026 (0.175)	0.174 (0.000)	-0.026 (0.183)	1.000 ---

Model 1 in Table 3 shows results of the multivariate logistic regression model for H1-H4. All variables but *Gender* and the constant are significant at $\alpha = 0.01$. The Hosmer-Lemeshow goodness of fit test indicates that the model is well fitted to the data.

Table 3

Logit analysis results to test for differences between Licensed Auditors and Auditors on Leave

Variable	Model 1	Model 2
	(main effects) Coefficient	(main effects and interaction) Coefficient
Constant	-1.631** (0.964)	-0.678 (1.013)
Education		
Education2	-0.724* (0.139)	-0.752* (0.139)
Education3	-0.758* (0.262)	-0.771* (0.300)
Big firms	-0.884* (0.135)	-3.522* (0.743)
Age	0.241* (0.050)	0.199* (0.052)
AgeSQ	-0.003* (0.001)	-0.003* (0.001)
Public Sector	-1.634* (0.118)	-1.601* (0.118)
Gender	0.010 (0.170)	0.099 (0.171)
Market Density	-0.338* (0.117)	-0.340* (0.117)
Year		
Year2	-0.768* (0.126)	-0.778* (0.126)
Year3	-0.498* (0.186)	-0.747* (0.200)
Year4	-0.386* (0.135)	-0.380* (0.136)
Age x Big Firms		0.087* (0.024)
Pseudo R²:	0.132	0.137
Log L	-1325.523	-1318.066
LR Chi² (10):	402.52	417.43
Prob > Chi²:	0.000	0.000

Standard errors are given in parentheses below the estimated coefficients.

* p = .01 (two-tail test)

** p = .10

Note:

Education2	Five-year university degree
Education3	Graduate degree (Master Degree or Doctorate)
Year2	Auditor's year of access: 1980 to 1983
Year3	Auditor's year of access: 1984 to 1987
Year4	Auditor's year of access: 1988

Hypothesis 1 states that the likelihood of newly certified auditors becoming entrepreneurs is negatively associated with their level of general human capital. We found support for this contention if the coefficients of *Education2* (individual holds a five-year university degree) and *Education3* (individual holds a tertiary degree) variables were negative and significant. Model 1 in Table 3 reveals that both *Education2* and *Education3* have negative (-0.724 and -0.758, respectively) and significant ($\alpha = 0.01$) coefficients. *Ceteris paribus*, this finding demonstrates that newly qualified auditors with high general human capital were less likely to apply for an auditing license and become auditing entrepreneurs than were their counterparts with low general human capital.

Hypothesis 2 contends that the likelihood of newly certified auditors becoming entrepreneurs through self-employment is negatively associated with their level of specific human capital. We would find support for H2 if the coefficient of the *Big Firms* variable (individuals working for a leading auditing firm) were negative and significant. Model 1 reveals that the coefficient for *Big Firms* is negative (-0.884) and significant ($\alpha = 0.01$). *Ceteris paribus*, this finding indicates that newly qualified auditors with high levels of specific human capital are less likely to apply for an auditing license and enter self-employment than are their counterparts with low specific human capital. Other things being equal, then, newly certified auditors who have been *exposed* to on-the-job training programmes in their present firms (e.g., large auditing firms) are less likely to apply for an auditing license, and become entrepreneurs through self-employment, than are their counterparts lacking such in-company training (e.g., those hired by small- to medium-sized auditing firms).

Hypothesis 3 predicts that the decision of a newly certified auditor to become an auditing entrepreneur exhibits an inverted-U-shaped relationship with age. Our results show that both *Age* and *AgeSQ* are significant ($\alpha = 0.01$) and suggest a concave relationship between age and the likelihood of becoming an auditing entrepreneur. This finding is reinforced by the results of the estimated odds ratios for *Age*, as derived from Model 1. Adjusted odds ratios approach the likelihood for the outcome that newly certified auditors apply for an auditing license at different ages. Figure 3 shows the adjusted odds ratios for *Age*³.

³ We calculate adjusted odds ratios instead of adjusted estimated probabilities to avoid the eventual, confounding effects of other variables included in our model (see Appendix).

Fig. 3. Propensity to become a Licensed Auditor by Age (adjusted odds ratios)

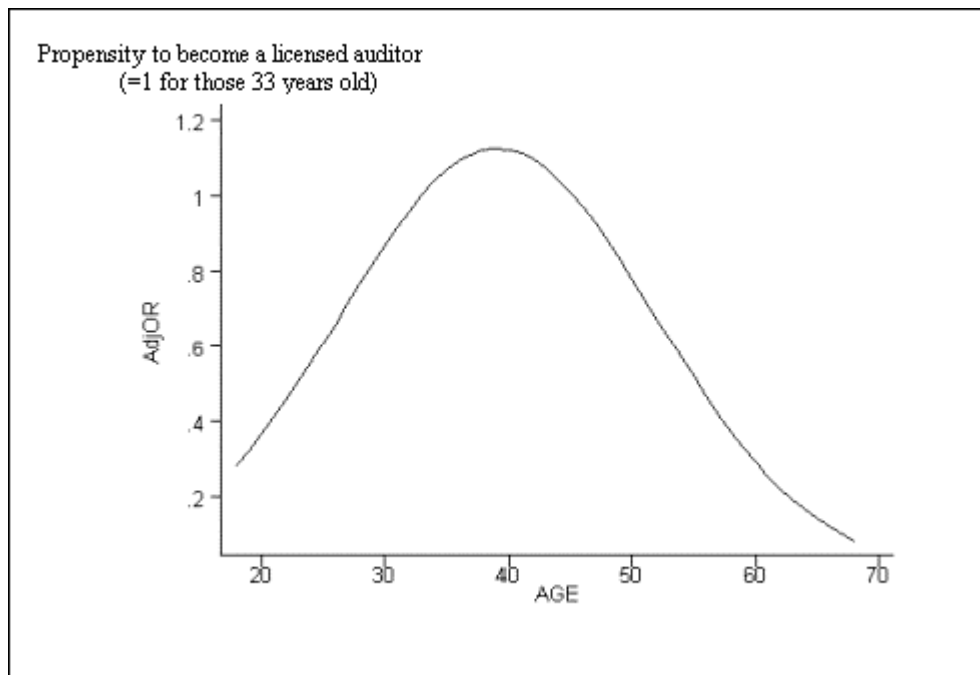


Figure 3 shows that middle-aged, newly certified auditors were more likely to engage in auditing entrepreneurship than were their younger or older counterparts. Our results showed that the likelihood of becoming a licensed auditor increased until newly certified auditors reached 38-39 years, at which point there was a negative relationship between auditing entrepreneurship and age. For example, we measured the propensity to become an auditing entrepreneur by comparing newly certified auditors 33 years of age, the mean of the distribution of the variable *Age*, with individuals that earned their auditing certificate at other ages. Our results revealed that such propensity to engage in auditing practice was i) 0.6 as frequent among individuals of 25 years; ii) 1.12 times more frequent for 39-years-olds; and iii) 0.52 as frequent for 55-year-olds. In support of H3, then, our results indicated that younger and older newly certified auditors were less likely to become auditing entrepreneurs than were their middle-aged counterparts.

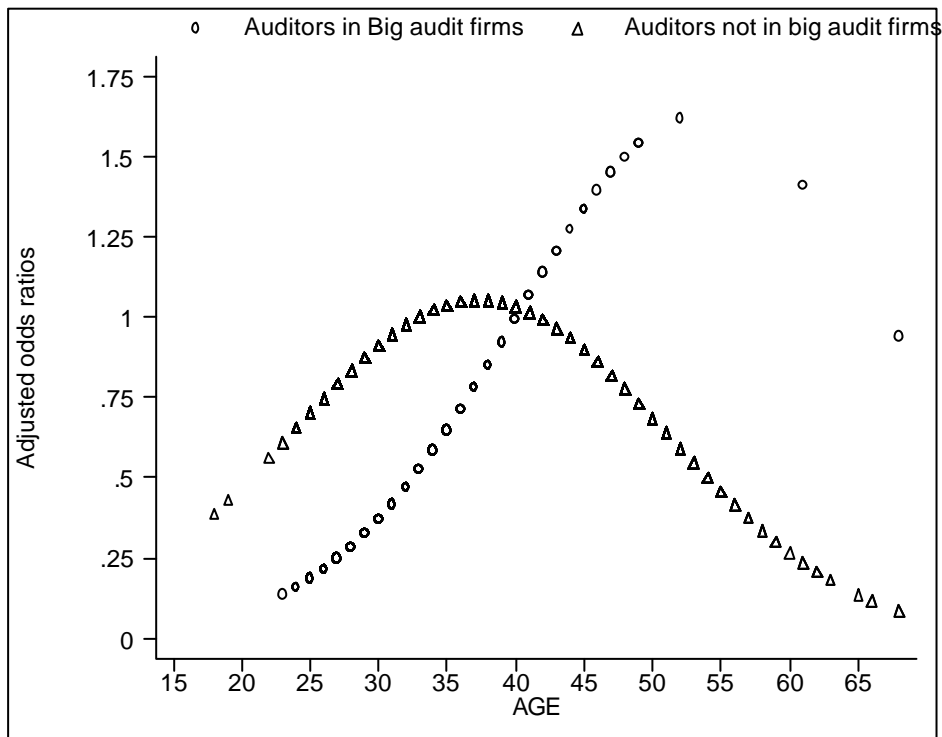
Hypothesis 4 states that the likelihood of newly qualified auditors becoming auditing entrepreneurs is negatively associated with the stability and security of their present job. Support for this contention would require the coefficient of *Public Sector* to be significant and negative. Model 1 in Table 3 shows that the coefficient of the variable is negative (-1.634) and significant ($\alpha = 0.01$). *Ceteris paribus*, this result indicates that newly certified auditors whose present job is secure and stable are less likely to apply for an auditing license than are their counterparts with less secure and stable occupations. In particular, qualified auditors who work in the public sector tend not to become auditing entrepreneurs, in spite of holding an auditing certificate.

Hypothesis 2-1 predicts that specific human capital will be positively associated with the likelihood that newly certified auditors become entrepreneurs through promotion to partnership positions in auditing firms. Support for this contention would require calculation of the joint effects of the newly certified auditor working for one of the big auditing firms and having greater seniority with their firm. As we do not have data

indicating the length of time individuals have worked for the same auditing firm, we have used the variable *Age* as a proxy for seniority. Therefore, such joint effects are measured through the interaction term *Age x Big Firms*, and support for our hypothesis would require a positive, significant coefficient. We also expect a significant and negative coefficient for *Big Firms*, as per Model 1. The logistic regression shown in Model 1 did not capture eventual interactions between variables and we therefore calculated Model 2 (see Table 3). We found that both *Big Firms* and *Age x Big Firms* are significant ($\alpha = 0.01$). Furthermore, we found the expected signs for both coefficients: negative (-3.522) for *Big Firms* and positive (0.087) for *Age x Big Firms*. In spite of the high correlation between this interaction term and *Large Firms* (0.982) that might generate multicollinearity and loss of significance for some variables (Capelli & Cascio, 1991), inclusion of this variable did not provoke loss of significance in the *Big Firms* coefficient, but the model remained well fitted to the data, as shown by the Hosmer-Lemeshow goodness of fit test. Therefore, our results indicated a positive relationship between auditing entrepreneurship and employment with a leading auditing firm when age at the time of entry considered. Finally, the remainder coefficients both for independent and control variables are similar to those displayed in the model without interactions.

We calculated the adjusted odds ratios to further explore the relationship between *Age* and *Big Firms*. The adjusted odds ratios measured the likelihood of a newly certified auditor working for a big auditing firm becoming an auditing entrepreneur (see Figure 4).

Fig. 4. Adjusted odds ratios for variables Age and Big Firms



As shown in Figure 4, the adjusted odds ratios depict different patterns for each group of individuals. Newly certified auditors who do not work for a leading auditing firm show a declining likelihood of becoming auditing entrepreneurs between the ages of 40 and 45 years. After the age of 45, however, auditors working for leading auditing firms are increasingly likely to obtain their auditing licenses. For such individuals, this result is consistent with the relationship between age and promotion to partnership positions.

With the exception of *Gender* and the intercept, the remaining control variables are all significant at $\alpha = 0.01$ in both models (see Table 3). The coefficients for the dummies of the variable *Year* are negative, meaning that the likelihood of becoming an entrepreneur in the Spanish auditing market is smaller for the sub-periods 1980-1983, 1984-1987, and 1988, in comparison to the first sub-period, 1976-1979. However, this negative impact is proportionally smaller over time, indicating that individuals are more likely to become auditing entrepreneurs at the end of the period under investigation than in previous years. The political stability of the 1980s, the economic growth experienced by the country, and the expectations generated by the new regulation for the Spanish auditing market (the Audit Law was enacted in 1988) could explain this tendency. Finally, the coefficient for *Market Density* was significant and negative (see Table 3). As expected, in those regions where the number of competitors is higher, individuals are less likely to become entrepreneurs in the auditing market.

General discussion

Many individuals spend years and considerable effort to earn the auditing certificate that would enable them to apply for an auditing license, which would ultimately allow them to sign audit reports. Yet, when the time comes, many either leave auditing or engage in support activities within auditing firms. In spite of the importance of this phenomenon for professional associations and for our understanding of the auditing profession at large, the issue has been widely neglected in auditing research. In this investigation, we focus on individual characteristics of newly qualified auditors who apply for the auditing license that would allow them to sign audit reports. Empirical evidence supporting this investigation is gathered from the archives of the oldest Spanish association of auditors. Our hypotheses draw on an integration of the human capital and entrepreneurship literatures and are tested through logistic regression models.

Our results provide support for the notion that newly qualified auditors with high general human capital are less likely to become auditing entrepreneurs than are their counterparts with low general human capital. This finding suggests two additional considerations. First, although individuals with high general human capital participate in the training and examination programmes that earn them an auditing certificate, professional practice does not appeal to them as much as it does to their counterparts with low general human capital. For the former, motivation to enrol in such a demanding process may be a response to a willingness to increase their general human capital, which in turn could enhance their prospects of job productivity, promotion, and income (Blaug, 1970; Bullen & Flamholtz, 1985). Our findings reveal that individuals with high general human capital who succeed in earning an auditing certificate do not usually apply for the auditing license that would enable them to sign audit reports. We

argue that, for such individuals, the auditing certificate may represent professional reputation as well as a widening of job opportunities (Hunton & Wier, 1996). Thus holders of auditing certificates may pose implicit threats to their present employers because of their increased job opportunities.

Second, the notion that individuals with high human capital are less likely to enter the auditing profession than are their counterparts with low human capital may signal a need for reflection on the part of professional associations of auditors. Our findings suggest that it may become difficult for the auditing profession to attract the most talented individuals. Career theory, which considers self-employment as a decision of those who wish to take advantage of their capabilities, predicts that high levels of human capital will increase the likelihood of self-employment (Borjas & Bronars, 1989). In contrast, our results suggest that the most talented people will prefer other occupations over auditing entrepreneurship. The entrepreneurial decision in the auditing market, therefore, supports the predictions of self-employment as a default option for those individuals facing constraints.

Our results indicate that newly certified auditors with high specific human capital are less likely to enter self-employment than are their counterparts with low specific human capital. This finding suggests two additional considerations: in-house training programmes and the auditing certificate as levers for promotion.

Auditing firms face a high and costly turnover of employees (Hill *et al.*, 1994; Lane & Parkin, 1998). Therefore, *training programmes* are designed to update employees with state-of-art techniques, to foster socialisation and contractual relationships, and to signal opportunities for promotion (Anderson-Gough *et al.*, 1998). Notwithstanding, the training programmes of auditing firms do not attempt to increase the general human capital of employees, as such knowledge may be easily transferred across firms and ultimately benefit competitors (Becker, 1975). To some extent, such on-the-job training programmes aim at exposing participants to a number of idiosyncratic procedures that can only be transferred to other organisations at a high cost, and ultimately decrease employee turnover.

The auditing certificate may also be used as a *lever for promotion*. Individuals who participate in their firms' training programmes may consider that returns from such a specific human capital investments can be achieved only if they continue to work for their present employer. Therefore, individuals with high specific working capital have less incentive to assume the inherent legal and financial risks of auditing entrepreneurship (Simunic & Stein, 1996). In this context, newly qualified auditors with highly specific human capital who engage in the training and examination process that leads to an auditing certificate may be signalling their intent to leave their present employer and may thereby enhance their reputation and chances of promotion.

One of our models included interaction effects between the variables *Age x Big Firms*, and there was a significant and negative impact of this interaction on the probability of becoming a licensed auditor. We expected an interaction between age and specific human capital (an individual's idiosyncratic experience in his/her organisation, such as

knowledge about clients). In organisations with internal labour markets, Hachen (1990) observed that the longer the contractual relationship, the greater the opportunity for upward mobility. In large firms, auditors with long seniority are likely to be promoted into partnership positions, and firms typically make such decisions after an individual has been employed for 10 to 12 years (Robson *et al.*, 1996). Auditing partnerships, in turn, involve an entrepreneurial decision in terms of ownership and management of the firm, which may explain why older employees in big auditing firms are more likely than their small-firm counterparts to engage in the examination process that leads to an auditing certificate as a pre-requisite to obtaining an auditing license. In short, these newly certified auditors apply for an auditing license to enhance their promotion opportunities for a partnership position within their present firms rather than establishing their own auditing business.

Our results indicate that newly qualified auditors apply for auditing licenses and become auditing entrepreneurs with a probability that exhibits an inverted-U relationship with age: the youngest and the oldest are less likely to undertake auditing practice than are their middle-aged counterparts. This finding suggests that the development of auditing practice involves exposure to liabilities, which are not easily assessed by young people who lack auditing experience (see Johnstone, 2000; Simunic & Stein, 1996). Furthermore, young people may lack the necessary expertise to curb their involvement in such liabilities and may lack the financial resources to afford professional liability premiums or the high fines that could result from losing a court case. In a similar vein, older people may perceive that the potential returns from an auditing practice would be diminished because of their impending retirement, a factor that may discourage them from applying for their auditing licenses and becoming auditing entrepreneurs. Whereas older individuals hired by the large firms may rightly assume that they can acquire future compensation packages from partnership positions, those who aim at solo practice face considerable income uncertainties.

Finally, we found that individuals in stable jobs are less likely to become auditing entrepreneurs than are their counterparts in less stable occupations. As noted above, the development of a solo practice or being a partner in an auditing firm involves risks and liabilities (Johnstone, 2000; Simunic & Stein, 1996). Arguably, individuals in stable jobs (e.g., civil servants) may tend to be risk adverse— to choose the advantages of a stable job over higher private sector salaries (Hinchliffe, 1987). Consequently, for individuals in stable jobs, the motivation for participating in the training and examination process that leads to an auditing certificate may stem from their interest in enhancing their reputation and increasing their promotional opportunities within the public sector, and from a desire to signal their willingness to undertake occasional collaboration with auditing firms. Such cooperation, in turn, may help these individuals increase their public sector income, which is often relatively low, without assuming the risks associated with auditing entrepreneurship. The auditing qualification certificate may also enhance the career prospects of civil servants in, for example, internal auditing agencies.

Limitations, extensions and concluding remarks

There are five limitations to this study that may encourage other researchers to further investigate the career decisions of auditors. For example, we employed a limited time frame and a limited number of proxy variables. Furthermore, our analyses did not include the comparative salaries associated with different career options, individual differences in financial worth and attitudes toward risk, or the various institutional factors that may have an impact on auditor's career decisions.

Because there was a break in the sequence of our data, we were only able to study the *limited time frame* of 1976 to 1988 and did not have the opportunity to capture the effects of more recent changes in the auditing market. Yet changes such as the increasing diversification of accounting firms to cope with the stagnation of revenues from auditing services (e.g., certification of the integrity and security of information systems of firms) could affect an individual's decision to obtain an auditing license and become an auditing entrepreneur.

In this study we used educational background and the contractual relationship with large auditing firms as our *limited proxy variables* for general and specific human capitals, respectively. Although such proxy variables have been used consistently in the human capital literature, we believe that other proxy variables, such as a firm's investment in training, may provide additional insights into the notion of human capital in auditing firms.

Little attention has been paid in this study to the financial remuneration of auditors in various sectors of the economy. The *comparative salaries* of employees in auditing firms, public sector agencies, and self-employment units may provide insights into the decision not to apply for an auditing license after one has received a qualifying certificate.

The self-employment decision involves set-up costs that are likely tied to an individual's financial capital (Blanchflower & Oswald 1998). Additionally, there may be large individual differences in the perception of the auditing industry as a highly risky business in which personal wealth, human capital, and reputation are at stake (DeAngelo, 1981). *Individual differences in financial worth and attitudes toward risk* could provide additional insights into the entrepreneurial decision of newly certified auditors.

Finally, our examination of the variables affecting the career decisions of newly certified auditors has focused primarily on individual factors. Investigation of the effects of *institutional factors* such as regulation changes, which affect the risk of becoming an auditing entrepreneur; as well as market factors, such as the opportunity costs of rejecting such possible career paths as that of a financial advisor, would enhance our understanding of a neglected area in auditing research.

Taken together, our results provide a depiction of individuals who either apply or do not apply for an auditing license when they earn their auditing certificate. We find that auditors (i) who are at the younger or older end of the age continuum or (ii) who have higher levels of general or specific high human capital or (iii) who have stable jobs are less likely to apply for the auditing licenses that would enable them to sign auditing reports than are their counterparts who (i) are middle-aged or (ii) have low human capital or (iii) have unstable jobs. These findings have implications for the practice of auditing. In particular, professional associations of auditors might wish to reflect about the extent to which the practice of auditing actually appeals to highly qualified individuals.

Appendix

The adjusted odds ratios were calculated taking as reference group the median of *Age* ($\text{med}(Age) = 33$) as follows:

$$adjOR = \frac{\frac{Pr \{ PR=1 / Age=Age_i, AgeSQ=Agesq_i, X^*=x^* \}}{Pr \{ PR=0 / Age=Age_i, AgeSQ=Agesq_i, X^*=x^* \}}}{\frac{Pr \{ PR=1 / Age=med(Age), AgeSQ=med(Agesq), X^*=x^* \}}{Pr \{ PR=0 / Age=med(Age), AgeSQ=med(Agesq), X^*=x^* \}}}$$

$$adjOR = e^{\left\{ \beta_4(Age_i - 33) + \beta_5(Agesq_i - 33^2) \right\}}$$

where Age_i is the individual's age at the time of joining the ICJCE and X^* is the set of variables included in the model that are different from *Age* and *AgeSQ*.

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References

Abbott, A. 1988. The systems of professions. An essay on the division of expert labour. Chicago: The University of Chicago Press.

Alba-Ramírez, A. 1994. Formal training, temporary contracts, productivity and wages in Spain. Oxford Bulletin of Economics and Statistics, 56(2), 151-170.

Alles, M., Kogan, A., & Vasarhelyi, M.A. 2000. Accounting in 2015. The CPA Journal, 70(11), 14-20; 70-72.

Amemiya, T. 1981. Qualitative response models: A survey. Journal of Economic Literature, 19(4), 1483-1536.

Anderson-Gough, F., Grey, C., & Robson, K. 1998. Making up accountants. The organizational and professional socialization of trainee Chartered Accountants. England: Ashgate Publishing Ltd.

Anderson-Gough, F., Grey, C., & Robson, K. 2002. Accounting professionals and the accounting profession: Linking the conduct and context. Accounting and Business Research, 32(1), 41-56.

Bates, T. 1985. Entrepreneur human capital endowments and minority business viability. The Journal of Human Resources, 20(4), 540-554.

Bates, T. 1990. Entrepreneur human capital inputs and small business longevity. The Review of Economics and Statistics, 72(4), 551-559.

Becker, G.S. 1962. Investment in human capital: a theoretical analysis. The Journal of Political Economy, 70(5), 9-49.

Becker, G.S. 1975. Human capital - A theoretical and empirical analysis, with special reference to education. Second edition. New York: Columbia University Press.

Blanchflower, D.G., & Oswald, A.J. 1998. What makes an entrepreneur?. Journal of Labor Economics, 16(1), 26-60.

Blanchflower, D.G., Oswald, A.J., & Stutzer, A. 2001. Latent entrepreneurship across nations. European Economic Review, 45(4/6), 680-691.

Blaug, M. 1970. An introduction to the economics of education. Great Britain: Allen Lane The Penguin Press.

Blaug, M. 1976. The empirical status of human capital theory: a slightly jaundiced survey. Journal of Economic Literature, 14(3), 827-855.

BOICAC. 1991. Boletín oficial del Instituto de Contabilidad y Auditoría de Cuentas. Mayo 1991. Madrid: ICAC.

BOICAC. 2001. Boletín oficial del Instituto de Contabilidad y Auditoría de Cuentas. Junio 2001. Madrid: ICAC.

Borjas, G.J. 1986. Self-employment experience of immigrants. The Journal of Human Resources, 21(4), 485-507.

Borjas, G.J., & Bronars, S.F. 1989. Consumer discrimination and self-employment. Journal of Political Economy, 97(3), 581-605.

Bougen, P. 1997. Spain, July 1988. Some observations on becoming professional. Accounting, Organizations and Society, 22(8), 757-777.

Bougen, P. & Vázquez, D. 1997. Debating Spanish Audit Legislation: The Audit Law of 1988. The European Accounting Review, 6(1): 1-17.

Brüderl, J., Preisendörfer, P., & Ziegler, R. 1992. Survival chances of newly founded business organizations. American Sociological Review, 57(2), 227-242.

Bullen, M.L., & Flamholtz, E.G. 1985. A theoretical and empirical investigation of job satisfaction and intended turnover in the large CPA firms. Accounting, Organizations and Society, 10(3), 287-302.

Capelli, P., & Cascio, W.F. 1991. Why some jobs command wage premiums: a test of career tournament and internal labor market hypotheses. Academy of Management Journal, 34(4), 848-868.

Carr, D. 1996. Two paths to self-employment? Women's and men's self-employment in the United States, 1980. Work and Occupations, 23(1), 26-53.

Carrera, N., Gutiérrez, I., & Carmona, S. 2001. Gender, the state and the audit profession: Evidence from Spain (1942-1988). The European Accounting Review, 10(4), 803-815.

Carroll, G.R. & Mosakowski, E. 1987. The career dynamics of self-employment. Administrative Science Quarterly, 32(4), 570-589.

Casson, M. 1982. The entrepreneur. Oxford: Martin Robertson & Company Ltd.

Dalton, D.R., Hill, J.W., & Ramsay, R.J. 1997a. Women as managers and partners: context specific predictors of turnover in international public accounting firms. Auditing: A Journal of Practice & Theory, 16(1), 29-50.

Dalton, D.R., Hill, J.W., & Ramsay, R.J. 1997b. The threat of litigation and voluntary partner/manager turnover in Big Six Firms. Journal of Accounting and Public Policy, 16(4), 379-413.

DeAngelo, L.E. 1981. The auditor-client contractual relationship. An economic analysis, Michigan: UMI Research Press.

Dillard, J.F., & Ferris, K.R. 1979. Sources of professional staff turnover in public accounting firms: some further evidence. Accounting, Organizations and Society, 4(3), 179-186.

Dillard, J.F., & Ferris, K.R. 1989. Individual behaviour in professional accounting firms: a review and synthesis. Journal of Accounting Literature, 8, 208-234.

Evans, D.S., & Leighton, L. 1989. Some empirical aspects of entrepreneurship. American Economic Review, 79(3), 519-535.

Evans, D.S. & Jovanovic, B. 1989. An estimated model of entrepreneurial choice under liquidity constraints. Journal of Political Economy, 97(4), 808-827.

Erikson, T. 2001. The promise of entrepreneurship as a field of research: a few comments and some suggested extensions. The Academy of Management Review, 26(1), 12-13.

García Benau, M.A., Ruiz Barbadillo, E., Humphrey, C., & Al Husaini, W. 1999. Success in failure? Reflections on the changing audit environment. The European Accounting Review, 8(4), 701-730.

Gimeno, J., Folta, T.B., Cooper, A.C., & Woo, C.Y. 1997. Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. Administrative Science Quarterly, 42(4), 750-783.

Glover, H.D., Mynatt, P.D., & Schoroeder, R.G. 2000. The personality, job satisfaction and turnover intentions of African-American male and female accountants: an examination of the human capital and structural/class theories. Critical Perspectives on Accounting, 11(2), 173-192.

Grey, C. 1998. On being a professional in a Big Six Firm. Accounting, Organizations and Society, 23(5/6), 569-587.

Groot, W., & Van Den Brinks, H.M. 2000. Education, training and employability. Applied Economics, 32(5), 573-581.

Hachen, D.S. 1990. Three models of job mobility in labor markets. Work and Occupations, 17(3), 320-354.

Higson, A. 1997. Developments in audit approaches: from audit efficiency to audit effectiveness? In M. Sherer, & S. Turley (Eds.), Current issues in accounting, Third edition. London: Paul Chapman.

Hill, J.W., Metzger, M.B., & Wermert, J. 1994. The spectre of disproportionate auditor liability in the S & L crisis. Critical Perspectives on Accounting, 5(2), 133-177.

Hinchliffe, J.K. 1987. Public sector employment and education. In G. Psacharopoulos (Ed.), Economics of education. Research and studies. Oxford: Pergamon Press.

Hosmer, D.W., & Lemeshow, S. 1989. Applied logistic regression. Canada: John Wiley & Sons, Inc.

Howard, R., Kotaro, A., & Gleim, I.N. 2001. Global demand for the CPA exam. The CPA Journal 71(12), 28-32.

Huefner, R.J. 1998. The future of non-CPA ownership: the natural consolidation of small firms into large is a major factor. The CPA Journal 68(2), 14-19.

Hundley, G. 2000. Male/Female earnings differences in self-employment. The effects of marriage, children, and the household division of labor. Industrial and Labor Relations Review, 54(1), 95-114.

Hunton, J.E., & Wier, B. 1996. Performance of accountants in private industry: a survival analysis. Accounting Horizons, 10(3), 54-77.

Johnstone, K.M. 2000. Client-acceptance decisions: simultaneous effects of client business risk, audit risk, auditor business risk, and risk adaptation. Auditing: A Journal of Practice & Theory, 19(1), 1-25.

Khilstrom, R., & Laffont, J.J. 1979. A general equilibrium theory of firm formation based on risk-aversion, Journal of Political Economy, 87(4), 719-748.

Knight, F.H. 1921. Risk, uncertainty and profit. New York: Sentry Press.

Lane, J. & Parkin, M. 1998. Turnover in an accounting firm. Journal of Labor Economics, 16(4), 702-717.

Larkin, J.M. 1997. Upward mobility in public accounting: A gender-specific student perspective. Journal of Applied Business Research, 13(2), 109-119.

Lee, K. & Pennings, J. (2002). Mimicry and the market: adoption of a new organizational form. Academy of Management Journal, 45(1), 144-163.

Mincer, J. 1962. On-the-job training: costs, returns, and some implications. The Journal of Political Economy, 70(5), 50-79.

Mincer, J. 1993. Human capital responses to technological change in the labor market. In Collected essays of Jacob Mincer, Vol. 1, Studies in Human Capital Economists of the Twentieth Century Series: 345-365. U.K.: Elgar.

Pennings, J.M., Lee, K., & Witteloostuijn, A.V. 1998. Human capital, social capital, and firm dissolution. Academy of Management Journal 41(4), 425-440.

Preisendörfer, P., & Voss, T. 1990. Organizational mortality of small firms: the effects of entrepreneurial age and human capital. Organization Studies, 11(1), 107-129.

Pillsbury, C.M., Capozzoli, L., & Ciampa, A. 1989. A synthesis of research studies regarding the upward mobility of women in public accounting. Accounting Horizons, 3(1), 63-70.

Pont Mestres, M. 1991. Al servicio de la profesión auditora. Madrid: Instituto de Censores Jurados de Cuentas de España.

Rasch, R.H. & Harrell, A. 1990. The impact of personal characteristics on the turnover behavior of accounting professionals. Auditing: A Journal of Practice & Theory, 9(2), 90-102.

Reed, S., Kratchman, S., & Strawser, R. 1994. Job satisfaction, organisational commitment, and turnover intentions of United States accountants: the impact of locus of control and gender. Accounting, Auditing, & Accountability Journal 7(1), 31-58.

Rhode, J.G., Sorensen, J.E., & Lawler III, E.E. 1977. Sources of professional staff turnover in public accounting firms revealed by the exit interview. Accounting, Organizations and Society, 2(2), 165-175.

Robson, G.S., Wholey, D.R., & Barefield, R.M. 1996. Institutional determinants of individual mobility: bringing the professions back in. Academy of Management Journal 39(2), 397-420.

Schultz, T.W. 1963. The economic value of education. New York: Columbia University Press.

Schumpeter, J. 1934. The theory of economic development: an inquiry into profits, capital and credit. Cambridge: Harvard University Press.

Simunic, D.A., & Stein, M.T. 1996. The impact of litigation risk on audit pricing: a review of the economics and the evidence. Auditing: A Journal of Practice & Theory, 15(2), 119-134.

Tucker, I.B. 1990. Employer seniority discrimination: evidence from entrepreneurial occupational choice. Economic Letters, 32(2), 85-89.

Wright, A. 1988. The comparative performance of MBAs vs. undergraduate accounting majors in public accounting. The Accounting Review, 63(1), 123-136.

Zikmund, W.G., Catalanello, R.F., & Wegener, S.M. 1977. The accounting student's job-rating criteria: an experiment. The Accounting Review, 52(3), 729

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