



International Doctorate in Entrepreneurship and Management

Female Entrepreneurship In Catalonia: An Institutional Approach Doctoral Thesis

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PREFACE

project in which I have been fortunate to have the honour of participating and to which I believe each contributor brings his or her best. To all of them I offer my thanks for making this research possible!

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Maria Noguera

Bellaterra, June 2012

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Survey (APS) and the National Expert Survey (NES) with information from the National Statistics Institute (INE).

The main findings of the research reveal that, while both formal and informal factors affect entrepreneurship, the effect of informal institutions (social networks, role models, fear of failure, perceived capabilities, entrepreneurial career and family context) is more significant than the effect of formal institutions (financing, non-economic policies and assistance, gender-based pay gap, family size or education) in the case of female entrepreneurs in Catalonia and Spain.

This investigation suggests a series of implications at the academic level, as it positions institutional economics as an appropriate conceptual framework for the analysis of the environmental factors that contribute to the promotion of female entrepreneurial activity in Catalonia and Spain. From the practical perspective, this study may help to generate policies that improve the perception of entrepreneurial capabilities, increase the visibility of female role models and favour the integration of the female entrepreneurs' family context.

Keywords: female entrepreneurship, entrepreneurial activity, institutional economics, Global Entrepreneurship Monitor (GEM), Catalonia (Spain).

JEL: B52, J16, L26, M13



1. Introduction

1.1. Female entrepreneurship: problem statement

In the last decades, business creation has had an important impact on economic development and innovation in many countries and their respective regions (Acs & Audretsch, 1988, 2012; Hisrich, 1989; Mohedano & Solé, 2011; Reynolds et al., 2000, 2001, 2002; Sexton, 1986; Storey, 1994) as well as on the creation of jobs (Birley, 1987; Terrell & Troilo, 2010; White & Reynolds, 1996).

The need for economic growth and the creation of jobs are two important elements that affect today's society and, by extension, our public organizations. Within this context, women have played an important part in economic growth and job generation since before the beginning of the crisis (Ahl, 2002; Carrie & Thurik, 2003). Also, female entrepreneurs have contributed to avoiding the 'androcentrism' they have been subjected to at the highest levels within the companies in which they have worked (Holmquist & Sundin, 1989).

Female entrepreneurship has been considered as a fundamental driver for creating, running and growing businesses, and consequently for economic growth (Acs et al., 2011); therefore, this topic has been addressed socially, politically and academically.

Public administrations – European (the European Commission for Enterprise and Industry), Spanish (the Directorate General of SME Policy in Spain), Catalana (Department of Employment of the Government of Catalonia and the City Councils), among others – have developed actions to promote entrepreneurial activity and, specifically, female entrepreneurial activity. For example, in 1996, the European Commission expressed the need to promote actions that would encourage female entrepreneurship, and in 2002, a study was conducted on best practices for the promotion of female entrepreneurship, so that women in European and other OECD

countries could successfully face the specific gender difficulties that exist when creating a business. In 2009, Spanish Ministry for Equality and the Spanish Confederation of Savings Banks (CECA) provided microcredits for women entrepreneurs. Also, in 2012, the OECD-MENA Women's Business Forum worked with governments to improve policies and legislation impacting women's economic integration in the MENA regions. In recent years, governmental agencies have continued to develop actions to promote female entrepreneurship, mainly motivated by the high growth potential observed in female entrepreneurial activity.

However, the incorporation of European women into the job market did not proceed in a normalized way or in representative quantities until the mid-twentieth century and, above all, from the 1960s onwards, when a significant increase in the rates of female activity in the business world could be seen. Nonetheless, this increase did not translate into an equal proportion of women managing businesses or creating new companies. Therefore, it decreased the visibility of women in the business world, thus generating a reduced amount of research on female entrepreneurship.

At the social and political level, while in many developed European countries gender equality was established following the end of the Second World War, the case of Spain was slightly different. The Spanish dictatorial regime (1939–1975) for decades represented a great difficulty for the evolution of gender equality and for Spanish female entrepreneurship, because 'the Franco administration officially authorized women to fill only traditional female roles in the economic and political spheres' (Gálvez & Fernández, 2007:497). Thus, while in many European countries the research on gender and entrepreneurship was strengthened in the 1980s, in Spain this field of research did not grow appreciably until the turn of the twenty-first century.

Catalonia, one of Spain's main regions for entrepreneurship, has experienced a similar situation. However, unlike the other regions of Spain, Catalonia has some of its own social and political agencies. These organizations may influence the Catalan people's propensity for entrepreneurial activity differently from organizations in the rest of Spain (Costa-i-Font & Tremosa-i-Balcells, 2003).

Academically, the study of entrepreneurship has not considered the gender perspective into account until relatively recently, though in the Anglo-Saxon countries a number of studies based on the psychological and sociological characteristics of female entrepreneurship began to appear in the mid-1970s (Schreier, 1973; Schwartz, 1976). This was a much reduced area of study until the late 1980s and early 1990s, due, in part, to the reduced female presence worldwide in the field of entrepreneurship and

management (Ahl, 2006; Carter, 2000; Greene et al., 2003; Sexton & Bowman-Upton, 1988). As the number of female entrepreneurs has increased within the developed economies, there has been a parallel increase in the number of investigations into female entrepreneurship. As Parker (2004:129) points out: 'Despite its intrinsic interest and importance, the subject of female entrepreneurship has arguably not commanded the degree of research effort that it deserves.' However, most of the studies on female entrepreneurship that have been conducted turn out to be limited when compared with the studies dealing with other collectives; furthermore, they tend to focus mostly on Anglo-Saxon countries such as the United States, the United Kingdom, Canada, Australia or countries such as the Netherlands. This last point draws attention to the difficulty in extrapolating, for non-Anglo-Saxon countries, the results obtained by these studies regarding knowledge of the characteristics that promote female entrepreneurship and the existence of gender differences when starting a business.

In spite of the efforts made by academia and the public administration, the number of businesses created by women continues to lag far behind the number of business initiatives promoted by men. Nonetheless, the belief is that work must continue towards the promotion of strategies to stimulate entrepreneurial activity, above all during the current economic crisis, and it is expected that entrepreneurship and, by extension, female entrepreneurship are key elements in countries' economic development.

This investigation, as discussed below, suggests the importance of the environment (both legal and socio-cultural) on business creation and, specifically, on female entrepreneurship. Within this context, we observe that considerably fewer studies have analysed the environmental factors that affect female entrepreneurial activity from the institutional approach, above all at the Spanish level, and they are almost non-existent at the regional level. To fill the existing gap, we develop this research.

1.2. Research objectives and main contributions

The main objective of this thesis is to analyse the influence of environmental factors (institutional factors) on female entrepreneurial activity in Catalonia (Spain). This thesis adopts institutional economics (North, 1990, 2005) as its theoretical framework.

Institutional economics, which will be discussed in greater detail further on in this thesis, is based upon the concept of institutions, defined as those limitations created by people in order to facilitate interaction, reduce uncertainty and provide a structure for

regular activity. North (1990), in turn, makes a distinction between formal institutions (laws, regulations and government procedures) and informal institutions (beliefs, values and attitudes).

The specific objectives of this research are the following:

- a) To explore and identify qualitatively the environmental factors (formal and informal institutions) that influence female entrepreneurship in Catalonia.
- b) To examine the socio-cultural factors (informal institutions) that influence female entrepreneurship in Catalonia, using qualitative methodology.
- c) To analyse quantitatively the socio-cultural factors (informal institutions) that influenced female entrepreneurship in Catalonia for the period 2009–2010.
- d) To analyse quantitatively the environmental factors (formal and informal institutions) that influenced female entrepreneurship in Spain in 2010.
- e) To analyse the environmental factors (formal and informal institutions) that influenced female entrepreneurship in Spain at the regional level for the period 2003–2010, using quantitative methodology.

The main contributions of this investigation are the advances, both theoretical and empirical, in the existing literature on the environmental factors (institutional factors) that influence business creation by women in Catalonia (Spain). Thus, various research gaps are addressed: first, the limited amount of academic research on female entrepreneurship in Spain and, specifically, in Catalonia; second, the limited amount of research analysing the effect of environmental factors on female entrepreneurship; third, the insufficient use of institutional economic theory as an appropriate framework for entrepreneurship research and, more specifically, for female entrepreneurship research (Brush et al., 2009; Bruton et al., 2010); fourth, the reduced application of both qualitative and quantitative methodology in research, and; finally, the limited periods for the analysis of research on female entrepreneurship.

The methodologies used are both qualitative and quantitative, combining data from sources such as the Global Entrepreneurship Monitor (GEM) for Spain – from both the Adult Population Survey (APS) and the National Expert Survey (NES) – with data from the Spanish National Statistics Institute (INE). From the social and economic points of view, this research could offer arguments for the design of governmental policies that

promote and support female entrepreneurship (by improving the perception of entrepreneurial capabilities, increasing the visibility of female role models and favouring the integration of female entrepreneurs' family context) in Catalonia (Spain).

1.3. Women entrepreneurial activity in Spain and in Catalonia

This study was conducted in Spain and Catalonia. Spain is a member state of the European Union and is located in southwestern Europe. Its territory is composed of 17 autonomous communities (Andalusia, Aragon, Asturias, Balearic Islands, Canary Islands, Cantabria, Castile-La Mancha, Castile and León, Catalonia, Valencian Community, Extremadura, Galicia, Community of Madrid, Region of Murcia, Navarre, Basque Country, and La Rioja) and two autonomous cities (Ceuta and Melilla, situated on the coast of North Africa). The Spanish population in 2011 was officially 47 million people (51% female) (INE, 2011), with almost half of that number living in only three autonomous communities (Andalusia, Catalonia and the Community of Madrid – which includes the capital of Spain, Madrid). The Spanish economy was regarded, until fairly recently, as being one of the most dynamic within the EU; for example, in 2005, Spain was responsible for creating more than half of all new jobs in the European Union. Furthermore, Spain's GDP growth rate was at one point five times higher than that of Germany's GDP growth rate; this situation, however, quickly reversed itself with the end of the property bubble in 2008. In 2005, the unemployment rate was at 10.2% for the total active population (21.8% for youths). By the end of 2009, that percentage grew to 18.8%, and in the first semester of 2012, the unemployment rate reached 24.6% (53.3% for youths) (INE, 2012).

In this singular and worrying economic scenario, the entrepreneurial activity is a key factor (De Pablo, 2012). The growth of female entrepreneurial activity in Spain has made significant progress in the last decade, although differences exist between male and female entrepreneurship in Spain. For their analysis, we use the evolution in the total entrepreneurial activity (TEA) indicator, one of the most highly recognized GEM project indicators. The TEA indicator defines entrepreneurs as those individuals who are in the process of starting up a business, or who figure as owners of a business established not more than three and a half years ago. In Figure 1.1, the evolution of male and female participation in the TEA over the last decade is determined, and within a period of only five years there is a substantial increase in female entrepreneurship: from 30% female entrepreneurs in 2003 to 42.3% in 2008. However, over the last two

years (2008 to 2010), the economic crisis has caused that percentage to drop to 36.4%, a figure that is quite close to the one obtained one decade ago (36% in 2000). While at the start of the economic crisis, female entrepreneurship numbers were higher than those of by their male counterparts, in 2010 the numbers for male entrepreneurship began to recover (10%), and female entrepreneurship numbers suffered a significant drop (14%), reaching the same total reduction percentage as the male initiatives since the start of the crisis.

In 2000, the ratio of female TEA to male TEA in Spain was 0.56, with female entrepreneurial initiatives at only 56% of the male initiatives.

This ratio reached its highest level in 2008 (0.74), at which time, as we stated earlier, male initiatives were already descending due to the crisis and female initiatives had not yet begun to do so. By 2010, the female-to-male TEA ratio was returning to the levels it had maintained in 2000 (0.59).

The link between business cycle and rates of female and male entrepreneurship is a very complex point for discussion. In fact, only in the last ten years has the role of entrepreneur begun to be incorporated as a rule into growth models (Acs et al., 2004, 2005; Minniti & Levesque, 2010; Minniti, 2012). Nonetheless, we observe that there is no unanimity in the results obtained. For instance, several studies show a negative effect between economic development and entrepreneurship and indicate that economic development tends to be accompanied by rises in real wages, which increase the opportunity cost of entrepreneurship (Bregger, 1996; Kuznets, 1966; Lucas, 1978; Schultz, 1990). Other, more recent, studies report a positive relationship between per capita income and entrepreneurship (Acs et al, 2005; Storey, 1999; Carree et al., 2002): new technologies appear and there are more individuals with the resources to create a business within an economic environment which allows for opportunities to be exploited, and who enjoy economic advantages thanks to low costs and accelerated technological development (Acs et al, 2005). Wennekers & Thurik (1999) suggest a U-shaped relationship between economic development and entrepreneurship. In turn, Carree et al (2002) and Wennekers et al (2005) provide empirical evidence that both female and male entrepreneurial activities are expected to show a U-shaped relationship with economic development.

It should be noted that, while a U-shaped relationship may represent the association between entrepreneurship and economic development, the relationships involving macroeconomic activity are more complex and do not demonstrate a specific causality

but, rather, revolve around the situation of the labour market or the part that innovation plays in the economy.

Related to this last aspect, we find several authors who have studied the relationship between unemployment and entrepreneurship and who have also ascertained both positive and negative relationships (Audretsch et al., 2005). Unemployment is likely to have a positive effect on the level of entrepreneurship; it is reasonable to argue that increasing levels of unemployment are likely to lead to higher levels of necessity entrepreneurship (referring to those persons who start their own businesses because no other employment options are available) as compared to the levels of opportunity entrepreneurship (referring to those persons who start businesses because they perceive opportunities), as shown in Reynolds et al. (2002).

Audretsch et al. (2005), using panel data from 23 OECD countries during the period 1974-2002, confirm the existence of two distinct relationships between unemployment and entrepreneurship, and they find that the negative effects are considerably stronger than the positive effects.

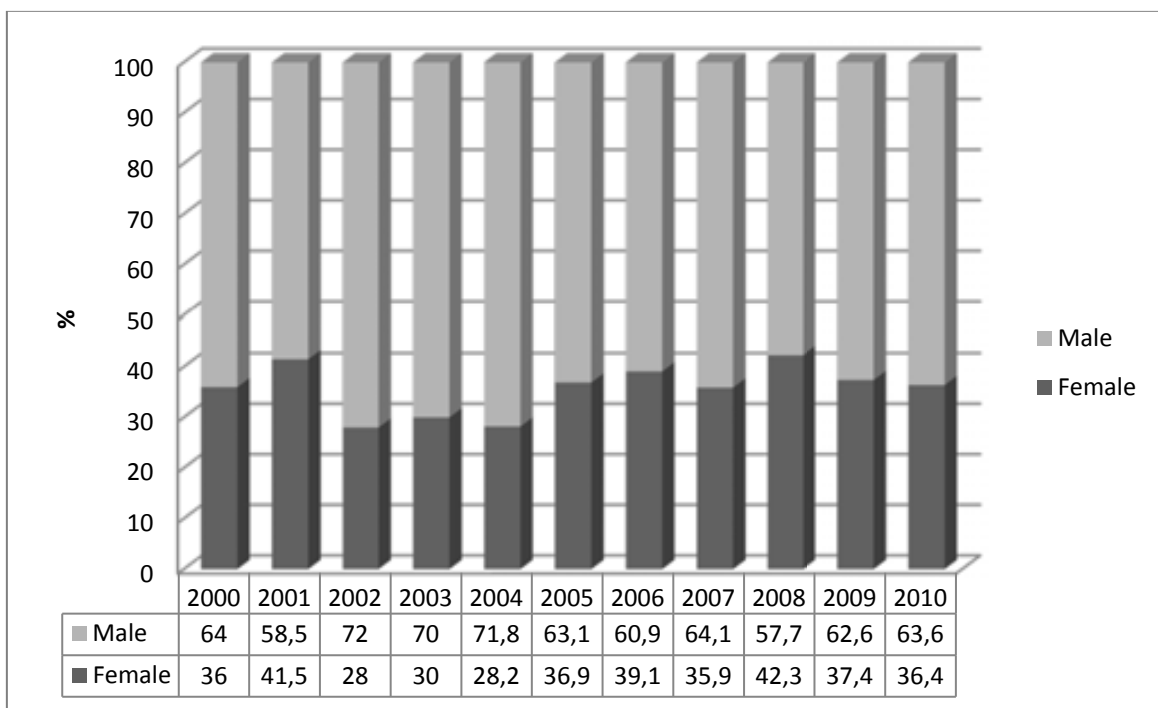
Other authors, such as Verheul et al. (2006:13), point out that "at the macro level a high rate of unemployment can be associated with a lower level of entrepreneurship as it may be an indication of a decrease in the number of business opportunities induced by a depressed economy", a situation which could occur in the Spanish economy.

As of 2011, the ratio of female TEA to male TEA in Spain was beginning to recover, at 0.63 (GEM, 2011). Verheul et al. (2006) find, in their study, that the negative effect of unemployment on entrepreneurial activity is (significantly) smaller for women than for men, because women are more likely to start a business out of necessity in a situation of economic recession than are men. Along the same lines, Reynolds et al. (2002) observed that, although men are more likely to be involved in entrepreneurial activity, the difference in the entrepreneurial activity rates for men and women is smaller for 'necessity' entrepreneurship as opposed to 'opportunity' entrepreneurship.

In turn, Catalonia has been selected as the geographical and cultural area of interest for the purpose of this study mainly because it has the highest total GDP of the country's regions and the fourth-highest GDP per capita in Spain. The Catalan unemployment rate is a little lower than the Spanish unemployment rate, going up from 7.6% in the first quarter of 2008 to 21.9% in the second quarter of 2012 (INE, 2012).

Catalonia is one of the Spanish regions with the greatest number of businesses (DIRCE, 2011) and is the autonomous community with the highest TEA in the peninsula over the last ten years (6.82 in Catalonia as opposed to 5.31 for Spain). The only countries that exceeded Catalonia's numbers in 2009 were Finland, the Netherlands and Greece. However, in 2012, Spain is aligned with Germany, Belgium, France and Sweden, countries with TEA rates historically lower than those for Spain, due to a different makeup of their labour markets.

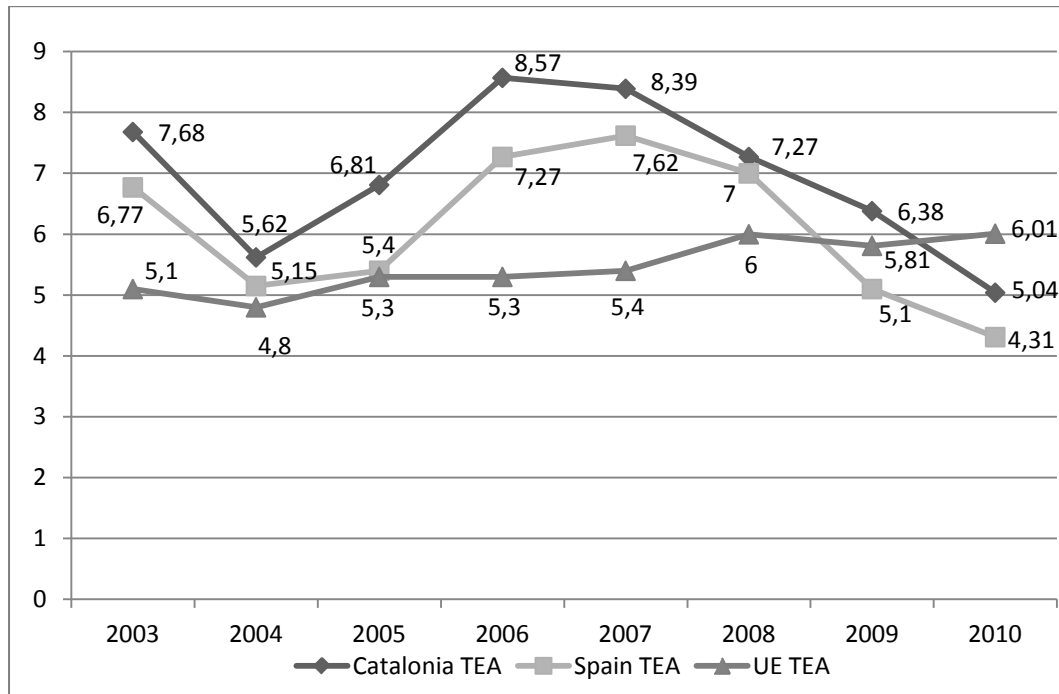
Figure 1.1. Evolution of male and female participation in the total entrepreneurial activity (2000–2010) for Spain



Source: GEM Spain (2005, 2010)

Furthermore, as confirmed by Urbano (2006), this is a zone with a strong entrepreneurial dynamic sustained by the substantial increases in the number of businesses, increases that were maintained until 2008, the point at which the current crisis situation began. However, Catalonia continues to be the region with the greatest number of new firms created (Spanish National Statistics Institute (INE), 2009) (see Figure 1.2).

Figure 1.2. Total entrepreneurial activity (2003–2010)

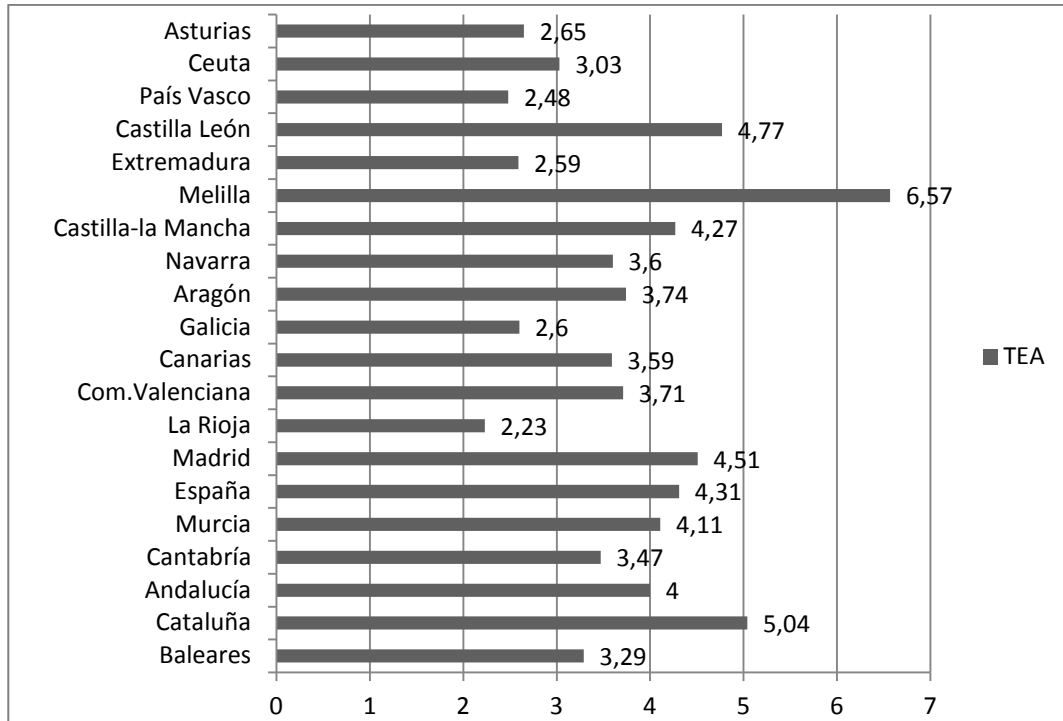


Source: GEM (2009, 2010)

From 2008 onwards, all of the autonomous communities saw a reduction in the number of businesses, and, in spite of this situation, Catalonia has continued to be the community with the highest percentages, surpassing by more than three percentage points the autonomous community with the second-highest number of businesses (the Community of Madrid) and the second autonomous community with the highest TEA of Spain in 2010 (see Figure 1.3).

Among the reasons for these results may be the fact that Catalonia maintains a highly diversified business structure, dominated by small firms (93.4%). The services sector constitutes 72% of the active Catalan population, followed by the secondary sector (26%). Catalonia employs 17% of the total active Spanish population and 8% of the total female active Spanish population. Likewise, Catalonia is one of the regions with the greatest number of female entrepreneurs in absolute terms (INE, 2011).

Figure 1.3. TEA of autonomous communities in Spain (2010)



Source: GEM (2010)

Furthermore, in the last two years, the total entrepreneurial activity (TEA) in Catalonia was 5.04 in 2010 and 6.82 in 2011. For the male population, the TEA rate was 6.35 and 8.18 respectively in 2010 and 2011, and 3.65 and 5.43 for the female population in 2010 and 2011: this is more than one point above the Spanish mean, highlighting greater increases in female entrepreneurial activity in 2010 as compared to male entrepreneurial activity, whereas the opposite was true in 2011 (GEM, 2010 and 2011). It is within this context that we shall delineate our research objectives, suggesting that Catalonia is one of the autonomous communities of Spain that will allow us to conduct a more exact analysis of the influence institutional factors have on female entrepreneurial activity.

1.4. Entrepreneurship and female entrepreneurial activity: An overview

As we mentioned previously, early work on entrepreneurship focused mainly on male entrepreneurs, above all because, as opposed to the female collective, males were more representative of entrepreneurs as a whole (Moore, 1990). As such, female entrepreneurship did not exist as a relevant area of study until the mid-1980s (Carter, 1993), and it is not until the last two decades that we observe an increase in interest in female entrepreneurship and more frequent inclusion within entrepreneurship studies. In order to contextualize this investigation, we present some major theoretical approaches to the study of entrepreneurship and, specifically, to female entrepreneurship.

1.4.1. Principal theoretical approaches to the study of entrepreneurship

In this section, we indicate the basic lines in the historical evolution of the principal theoretical approaches that we use as the basis for the study of entrepreneurship and examine why institutional economic theory is one of the most appropriate frameworks for the study of entrepreneurship and why it is specifically relevant in the case of female entrepreneurship.

The literature points out the idea that distinct definitions of the concept of entrepreneurship can be found. These definitions range from the classic theories, which have as their basis the consideration that the entrepreneur is a person who takes risks and finds himself in a situation of uncertainty, as proposed by Knight (1921), to those theories that emphasize the concept of the entrepreneur innovator (the theories of Schumpeter (1934) for example), and arrive, finally, at one of the most recent considerations, based on the idea that entrepreneurship is the study of discovery, evaluation and exploitation of new opportunities, whether these are new products, production processes, forms of organization or new strategies that may be associated with the creation of new businesses by entrepreneurs (Reynolds, 2005; Shane & Venkataraman, 2000).

However, if entrepreneurship is a multidimensional concept, the creation of a new venture is also a multidimensional phenomenon, and there is no single and accepted definition of this concept. The aim of new venture creation is to organize new

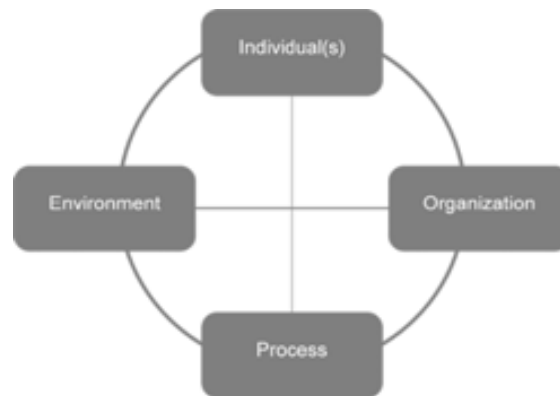
organizations, and to organize is 'to assemble ongoing interdependent actions into sensible sequences that generate sensible outcomes' (Weick, 1979:3).

The study and classification of theories on the phenomenon of new venture creation are highly fragmented. The first pieces of research were unidimensional, focusing on a single characteristic of the venture creation. There are theories based on the individual characteristics of entrepreneurs (Robinson et al., 1991; Van de Ven, 1993), motivations (Kuratko et al., 1997) and other theories; Kimberly (1979) and Van de Ven (1980) focus on the process of venture creation. Authors such as Gartner (1985:697) indicate that 'the creation of a new venture is a multidimensional phenomenon ... new venture creation is a complex phenomenon; entrepreneurs and their firms vary widely; the actions they take or do not take and the environments they operate in and respond to are equally diverse'. In a later study, Bhave (1994) introduces a model of venture creation that includes opportunity recognition, business concept identification, commitment to the venture creation, the set-up of production technology, organization creation, the product and the supply and demand. In addition, Reynolds et al. (1994) suggest that the entrepreneurial process consists of conception, gestation and birth, and infancy and growth.

The existence of a wide field of theories and approaches to the study of entrepreneurship and new venture creation (Blackburn & Kovalainen, 2009; Busenitz & Lau, 1996; Bygrave, 1993; Gartner, 1995; Gnyawali & Fogel, 1994; Verheul et al., 2003, among others) leads us to select one of the most widely used classifications related to the topic, the classification presented by Gartner (1985). This classification is used in studies such as those by Brush (1992) or Verheul (2005) when discussing gender differences and their relationship with the various subjects within the field of entrepreneurship.

Gartner (1985:698) presents a framework to describe the creation of a new venture across four dimensions: (a) the entrepreneur (individual), which refers to the personal characteristics of the entrepreneur; (b) the organization, which includes the analysis of the characteristics of the created organization itself (type of property, sector of activity, strategies, etc.); (c) the process, understood to mean the set of activities or dynamic functions related to business creation; and (d) the environment, with the understanding that business creation is affected by the economic, political, social and cultural environments in which it develops (see Figure 1.4).

Figure 1.4. A framework for describing new venture creation



Source: Gartner (1985:698)

Gartner (1985) contextualizes the use of institutional economics as a theoretical framework. Below, we expose the four key components of new venture creation:

a) The entrepreneur (individual)

The dimension of 'individual(s)' refers to the persons involved in starting a new organization and their personal characteristics. Entrepreneurship research has suggested that entrepreneurs are different from non-entrepreneurs (Brokhaus, 1980; McClelland, 1961; Schrier, 1975; Shapero, 1975), and that entrepreneurial firms are different from non-entrepreneurial firms (Collins & Moore, 1970; Cooper, 1979). In a recent study, Wennekers and Thurik (1999) propose a more pragmatic distinction between entrepreneurs and non-entrepreneurs, one based on distinguishing between self-employed and employed and between entrepreneurial behaviour and managerial behaviour. The initial research into this topic is focused on developing a socio-demographic profile and on identifying the personal and psychological characteristics of entrepreneurs (DeCarlo & Lyons, 1979; McClelland, 1961; Schwart, 1976). Among the psychological characteristics included in the initial studies are: (i) the need for achievement, referring to the individual's desire to complete tasks successfully and achieve difficult goals (McClelland, 1961). According to this author, entrepreneurs are people with an important need for achievement; they tend to be good leaders, and they like to work alone or with other high achievers; (ii) locus of control is a concept, developed by Rotter (1954), based on the belief that the outcomes of an individual's actions are related to his or her own decisions and efforts (internal locus of control), or are based on events or external circumstances beyond the individual's personal control

(external locus of control); and (iii) risk-taking propensity (Brokhaus, 1982; Brokhaus & Horwitz, 1986), which establishes that whether a person will become an entrepreneur or instead work for someone else depends on his or her degree of risk aversion. Khilstrom and Laffont (1979), Mill (1984) and Mitton (1989) propose that individuals with a greater propensity for uncertainty prefer to be entrepreneurs.

Additional individual characteristics that have been considered by other authors to be important characteristics for entrepreneurs are: previous work experience (Collins & Moore, 1970; Cooper, 1970); job satisfaction (Cooper, 1970); age (Liles, 1974); and education (Collins & Moore, 1964; Roberts, 1991).

b) The organization

In Gartner's model (1985), the 'organization' studies dimension emphasizes business profile characteristics, such as the type of firm (manufacturing, service, retail, wholesale ...), firm size, age, the presence of partners and strategic choice variables.

Initially, a number of authors, such as Cooper (1970) and Smith (1967), have studied the characteristics of manufacturing firms, and some, such as Braden (1977), have focused on the study of high-technology manufacturing firms. Among those authors, Timmons et al. (1977) suggest that the presence and number of partners represent other important factors in starting certain types of firms.

Furthermore, strategic choice variables are treated as characteristics of the organization. In this sense, Porter (1980) identifies three generic competitive strategies of firms: (i) overall cost leadership; (ii) differentiation; and (iii) focus. Along the same lines, Vesper (1980) identifies 14 competitive entry wedges (the new product or service, parallel competition, franchise entry, geographical transfer, joint venture ...).

c) The process

The third dimension is the 'process', and the studies tend to focus upon the process of new venture creation, including topics such as access to financing or the use of financial and non-financial assistance to entrepreneurship.

These processes are the actions that an entrepreneur performs in order to create a new venture. Danhoff (1949:21) suggests that 'entrepreneurship is an activity or function and not a specific individual occupation ... the specific personal entrepreneur is an unrealistic abstraction'. Others studies, such as those conducted by Baumol (1968)

and Cole (1965), pursue this idea of entrepreneurial function and demonstrate its differences using other more routine functions, such as managerial functions.

The research based on this dynamic aspect of the entrepreneur has established a set of actions that an entrepreneur performs in order to create a new venture. The entrepreneur locates a business opportunity, accumulates resources, markets products and services, produces the product, builds an organization and responds to the government and society.

Some authors have studied the search for business opportunities, financing, product production, product marketing (Cole, 1965; Kilby, 1971; Schumpeter, 1934; Vesper, 1980) or the way in which entrepreneurs respond to the government and society, among other topics.

d) The environment

The last dimension of Gartner's model (1985) is the 'environment'. Studies suggest that the creation of new firms is a phenomenon influenced by the economic, social and politic environments.

Gartner (1985) establishes that, according to the organization theory literature, there are two views of the environment: (i) environmental determinism, which considers the environment to be an outside set of conditions to which the organization must adapt (Aldrich, 1979); or (ii) strategic choice, which sees the environment as a factor created by one's own perception (Child, 1972).

Over the last two decades, entrepreneurial literature developing both perspectives on the environment has had a significant influence, generating the most theories and contributions, stemming from the observation that the ensemble of socio-cultural factors and the institutional framework has a greater influence on the development of the entrepreneurial spirit and, consequently, influences business creation.

Theories are based on the observation that people decide to create a business when a negative event occurs, triggering a break from a set way of life while, concurrently, a series of environmental factors arise favouring entrepreneurship and business creation. Among the most representative authors are Shapero and Sokol (1982) with their concept of the 'trigger event' and Kickul and Zaper (2000) with their 'contract breach'. Other authors base their studies on explaining how there are higher rates of business creation in certain geographical areas than in others, or on the idea that the relationships the entrepreneur maintains with other entrepreneurs, providers, public

organisms, financial entities or family members determine success in business creation; their principal precursors are Aldrich and Zimer (1986) and Aldrich et al. (1987), with some among them maintaining that informal relationships (family and friends) are more important than formal relationships (Birley, 1987).

Other studies have established that social as well as geographical mobility is a factor in the determination of the entrepreneurial spirit (Bruton, 1960) or the inverse, that what triggers entrepreneurship is finding oneself in a situation that limits advancement or social recognition in one's professional career (Marris & Somerset, 1971). Other theories, such as those presented by Carroll and Delacroix (1982) or Hannan (1997), are based on discovering the environmental factors to which a business is subject and that most affect its creation, growth and dissolution.

North (1990:3) examines 'the nature of the institutions and the consequences of institutions for economic (or societal) performance'. North is interested both in formal constraints (rules that human beings devise) and in informal constraints (conventions and codes of behaviour), named as formal and informal institutions.

Gnyawali and Fogel (1994:43) suggest that the role of environment conditions in entrepreneurship has been recognized, but that 'most of these studies have been fragmented, highly descriptive, and focused on only a few aspects of the environment'.

Gnyawali and Fogel (1994) group the environmental conditions into five dimensions: (i) government policies and procedures (restrictions on imports and exports, entry barriers, procedural requirements, rules and regulations governing entrepreneurial activities or laws to protect proprietary rights); (ii) socio-economic conditions (public attitude toward entrepreneurship, the presence of experienced entrepreneurs or role models, among others); (iii) entrepreneurial and business skills (technical and vocational education, business education, among others); (iv) financial support to businesses (venture capital, alternative sources of financing or credit guarantee); and (v) non-financial support to businesses (counselling and support services, entrepreneurial networks, incubator facilities, government procurement programmes for small businesses, among others).

In the next section, along the same lines, we point out the main theoretical approaches to the study of female entrepreneurship.

1.4.2. Main theoretical approaches to the study of female entrepreneurship

The evolution of the research on female entrepreneurship has not differed from that of the research on entrepreneurship in general. The first studies on female entrepreneurship were based on the study of the psychological and sociological characteristics of female entrepreneurs (Schreier, 1973; Schwartz, 1976). Most female entrepreneurship studies, such as that conducted by Brush (1992:13), identify gender differences with respect to individual characteristics and suggest that 'women business owners are more different from than similar to men in terms of individual level characteristics such as education, occupational experience, motivations, and circumstances of business start-up/acquisition'. However, more recent research, such as that carried out by Ahl (2002), indicates that female and male entrepreneurs are more similar and less different with respect to their individual characteristics (psychological, personal and attitudinal). In the last decade, there has been a significant change in the results relating to the differences between female and male entrepreneurs and their personal characteristics.

The first current interested in studying, understanding and explaining the existing relationship between gender and entrepreneurship was feminism, kindling the central debate with respect to the question of equality and/or differentiation between women and men.

Succinctly put, and in line with Valcárcel (1991), we observe that feminism, from the beginning, has stimulated studies on gender. The foundation of feminism is represented by an initial phase of activity directed at securing liberty, equality and political rights for the female gender, followed by a second phase aimed at obtaining universal suffrage and arriving at a third phase, which, from the hand of authors such as Betty Friedan (1974) and her work *The Feminine Mystique*, among many others,¹ gave rise to the approaches of two opposing currents that still exist today: liberal feminism and radical feminism.

Liberal feminism is characterized by the effort involved in achieving equality on the basis of defining the situation of women as one of inequality (not one of exploitation as it had been considered in the past), and by the postulation of the reforms necessary to achieve equality between the two sexes. Radical feminism, as opposed to liberal

¹ Noteworthy authors include, for example: Kate Millet, Sulamit Firestone, Nancy Chodorow, Carol Gilligan, Julia Kristeva and Judith Butler. For further information, see Valcárcel (1991).

feminism, holds that the root of social inequalities is the domination of man over woman, stating that this has been possible thanks to differentiation, based on the assumption that men and women would in essence be different. American radical feminism evolved towards cultural feminism and made a point of focusing on the differences, exalting feminine values and denigrating male values.

Meanwhile, at the end of the 1980s, a postmodern concept of feminism appeared, based on the idea of differentiation but not as a static element. Instead, it is understood that the differences in thinking, motivation, action and what men and women value are the product of the culture of a country and of an era and are, therefore, evolutionary. In this sense, Butler (1990) argues that gender is a societal construct, or on the same line, gender may be considered a socially constructed role.

With respect to this evolution, it can be observed that the bibliography related to the relationship between women and business management demonstrates that women possess the same characteristics and skills as men, and, in the event that they do not, they are quite capable of learning them (Hurley, 1999). Such an approach is in accordance with liberal feminism, based on the concept of equality. In general terms, most of the articles on female entrepreneurs follow, by contrast, the lines of cultural or postmodern feminism, based on the concept of differentiation, since the aim is to observe differences with respect to the characteristics, motivations and difficulties shared by female entrepreneurs and to be able to compare them with those experienced by men.

The research suggests that in terms of organizational characteristics, women's businesses are more different from and less similar to those of their male counterparts. Studies have analysed the type of company and the number and type of partners. No differences in the type of company have been found, but Brush (1992) and Aldrich et al. (2002) suggest differences with respect to the sales volumes, management styles, goals, number of partners and acquisition of start-up capital. Hisrich (1989) establishes that women create firms in less strategic sectors (services, retail ...), and Ahl (2002) finds that the management styles of female and male entrepreneurs are distinctive.

The businesses women create are, on average, smaller than those created by men (whether measured in terms of financial indicators or number of employees). Carter (2000) also observes that the businesses created by women experience a different set of problems from those experienced by the businesses founded by men, especially with respect to management style and means of financing. Along the same lines, Carter and Rosa (1998) find that the firms created by women need less financing

because they are smaller, resulting from the fact that it is easier to reconcile a smaller business with a family context.

Economic results are another organizational characteristic that has been studied (Fisher et al., 1993; Sexton & Robinson, 1989; Watson & Robinson, 2003); these studies find that the businesses created by women are, as mentioned earlier, smaller on average than the businesses created by men (whether measured in terms of financial indicators or number of employees).

Female entrepreneurship studies suggest that the process of new venture creation for women is different from that for men, and in the next chapter we discuss the various ways in which the respective processes differ (financing, entrepreneurial assistance, among others) (Alsos & Ljunggren, 1998; Hisrich, 1986; Hisrich & Brush, 1986; Peris-Ortiz et al., 2012).

The research presented here has been conducted based on the existence of a distinct consideration between the concepts of *gender* and *sex*, where sex refers to biological aspects and gender refers to the differences that exist between men and women and that are generated by culture. Sex (female or male) would therefore be based on physiological characteristics, and gender (femininity or masculinity) would be based on different environments and social and cultural experiences. As authors such as Korabik (1999) indicate, while sex and gender should be independent of one another, socialization and life experiences are often influenced by the sex of the person and, as a result, that supposed independence between sex and gender is never realized.

In our research, we shall make use of the concept of gender and not of sex, focusing our efforts on establishing all the existing differences between female and male entrepreneurs.

Thus, based on the ideas postulated by postmodern feminism and explained above, this research seeks to focus on the specific subject of the female entrepreneur. The use of an approach such as North's institutional theory will be essential in order to allow us to establish how formal and informal institutions influence the development of female entrepreneurship.

Within the current context, North's institutional approach (1990, 2005) may provide a suitable framework for the analysis of female entrepreneurship. In recent years, an important number of academics have used an institutional approach to explain various topics and problems related to entrepreneurship (Aidis et al., 2008; Smallbone et al., 2010; Stephen et al., 2009; Thornton et al., 2011; Welter, 2005, 2011; Welter &

Smallbone, 2011), with the express aim of analysing the environmental factors that condition entrepreneurial activity. Various authors have also considered the institutional approach in their research on female entrepreneurship (Amine & Staub, 2009; Baugh et al., 2006; Brush et al., 2009; Díaz-García & Jiménez-Moreno, 2010), but few authors have considered both formal and informal institutions in their investigations, and fewer still have focused their studies on Spain, and specifically the context of Catalonia.

1.4.3. Institutional approach and entrepreneurial activity

The study of institutions is one of the most durable topics in all the major social science disciplines (anthropology, sociology, psychology, economics, political science), and all the disciplines have placed particular attention and focus on institutions. Among the many definitions given to institutions, Veblen (1919:191) establishes that 'institutions are settled habits of thought common to the generality of individuals', while Ayres (1952:43) suggests that institutions are clusters of moral beliefs that configure power. Veblen (1923:101) goes on to write that an institution is 'a usage which has become axiomatic and indispensable by habituation and general acceptance', and Scott (1995:33) suggests that institutions consist of 'cognitive, normative and regulative structures and activities that provide stability and meaning in social behavior' and that 'institutions are transported by various carriers – cultures, structures, and routines – and they operate at multiple levels of jurisdiction'.

In turn, institutional economics, unlike neoclassical theory, proposes that individuals possess incomplete information and limited mental capacities with which to process the needed information. In this sense, North's institutional economics develops a wide concept of institution with the aim of structuring human interaction and reducing uncertainty and transaction costs. According to North (1990:3), institutions are 'a guide to human interaction' and 'are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction'. Needless to say, our focus in this thesis will be on the framework of institutional economics.

Institutional economics suggests specifically that institutional environments influence human behaviour (North, 1990, 2005); hence, the decision to start up a business is also determined by the institutions around which it occurs.

The development of institutional economics offers an approach to understanding the different types of human interaction, formal or informal. North (1990) distinguishes

between formal institutions (political rules, economic rules and contracts, economic and non-economic services, and education) and informal institutions (codes of conduct, attitudes, values, norms of behaviour and conventions, such as role models and social networks, among others). North (1990:4) also suggests that these institutions 'may be created, or they may simply evolve over time'.

The informal institutions may also be extensions or interpretations of the formal institutions themselves or socially sanctioned rules of conduct and accepted rules of conduct. Furthermore, North points out that the difference between informal and formal institutions is a question of degree: as society increases in complexity, so does the formalization of the limitations.

Therefore, formal institutions are created, communicated and enforced through channels of generally accepted official institutions (courts, legislatures), while informal institutions are 'socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels' (Helmke & Levitsky, 2004:727). In turn, institutions are also characterized by their evolution over time. However, when compared with formal institutions, informal institutions, due to their particular characteristics, change very slowly (Williamson, 2000).

The application of institutional theory is especially helpful to entrepreneurship research. As North points out, we find, united indissolubly with institutions and justifying their very existence, organizations, which may be political, economic (businesses), social or educational in nature. These organizations interact and evolve while bringing about the evolution of the institutional structure that sustains them, since the organizations are created in order to take advantage of the opportunities that the institutions (formal and informal) have generated, with important consequences for business activity and economic development (Bruton et al., 2010; Del Palacio et al. (2006); Hormiga et al., 2011; Thornton et al., 2011; Veciana & Urbano, 2008). However, and in the same way, institutions may either constrain or promote entrepreneurship and the creation and development of new firms (Aidis et al., 2008; Liñan et al., 2011; Ribeiro, 2010; Thornton et al., 2011; Welter, 2011; Welter & Smallbone, 2011).

As previously mentioned, many authors have considered the institutional approach in their research on entrepreneurship (Davidsson, 1995; Gartner, 1985; Gnyawali & Fogel, 1994; Stephen et al., 2009; Gómez-Haro et al., 2011; among others), but only a few studies have focused on institutional economics, among them those conducted by Aidis et al. (2008), Bruton et al. (2010), McMullen et al. (2008), Stephen et al. (2005),

Toledano et al. (2010), Urbano et al. (2011), Veciana and Urbano (2008), Welter (2011) and Welter and Smallbone (2011). Some of the empirical studies on institutional theory have considered only formal institutions in their research, but in the investigation of more recent topics, we can see an increasing amount of research dedicated to informal institutions (Thornton et al., 2011; Toledano et al., 2010; Urbano et al., 2010), although little of it has been applied to the specific field of female entrepreneurship (Amine & Staub, 2009; Baugh et al., 2006; Brush et al., 2009; Díaz-García & Jiménez-Moreno, 2010). Aidis et al. (2008) specifically study the influence of Russia's formal institutions and business networks on entrepreneurship. In their investigation, they make use of Global Entrepreneurship Monitor (GEM) data to study the effects of these formal and informal institutions in Russia, and then compare the findings for entrepreneurship in Russia with those for Brazil and Poland. Their results suggest that the negative environment for business and entrepreneurial activity in Russia has led to low levels of entrepreneurship; for example, the business networks in Russia contribute to the relative advantage that existing business owners have over new entrepreneurs. McMullen et al. (2008) employ institutional theory and regress opportunity-motivated entrepreneurial activity (OME) and necessity-motivated entrepreneurial activity (NME) based on 10 factors of economic freedom and gross domestic product (GDP), per capita, for 37 nations. Their findings suggest that OME and NME are negatively associated with GDP per capita and positively associated with labour freedom, fiscal freedom and monetary freedom. However, the effects that some factors have on entrepreneurial activity are different, depending on the particular freedom restricted by the government and the entrepreneur's motivation. Stephen et al. (2005) analyse the institutions that promote entrepreneurial activity across 34 countries (in transition, developing and developed). Their main findings suggest that the legal rules protecting creditors and investors influence the size of financial markets, which in turn influences economic development. Thornton et al. (2011) integrate, from a theoretical perspective, socio-cultural factors and entrepreneurial activity and suggest that the institutional approach could be an apt framework with which to analyse the socio-cultural factors that influence the decision to create a new business. Toledano et al. (2010) develop an in-depth analysis of collaboration as a process that emerges from interaction among individuals in order to develop entrepreneurial actions within established family firms. The main findings suggest that networks generated within businesses that have particular characteristics determine, in part, the type of collective entrepreneurship. Urbano et al. (2010) analyse how environmental factors affect both the emergence and the implementation of social entrepreneurship in Catalonia (Spain). The main findings suggest that both informal and formal institutions are important to the generation of

social entrepreneurship in Catalonia, but informal institutions have greater importance than formal institutions. Urbano et al. (2011) focus on the socio-cultural factors affecting transnational entrepreneurship in the Spanish context. Their findings suggest that there are important differences between socio-cultural factors that affect the emergence of transnational entrepreneurship (role models, entrepreneurial attitudes, networks and perceptions of the culture and opportunities of the host society, among others). And, Welter (2011) explores the contexts of entrepreneurship, illustrating how a contextualized view of entrepreneurship contributes to our understanding of the phenomenon. The study argues that context is important in order to understand when, how and why entrepreneurship happens, and who becomes involved. Finally, Welter and Smallbone (2011) contribute to the conceptual understanding of female entrepreneurship under 'early stage' transition conditions, in Uzbekistan. The main findings demonstrate that the informal institutions that dominate the society of Uzbekistan, such as codes of behaviour and cultural influences, contribute, along with economic necessity, to the promotion of female entrepreneurship.

In particular, there are authors who consider the institutional approach in their investigation of female entrepreneurship, such as Amine and Staub (2009), who examine the environmental factors under which female entrepreneurs operate in sub-Saharan Africa. The results of this study demonstrate that female entrepreneurs are influenced more by the socio-cultural, economic, legal, political and technological environments in which they live. Moreover, unfavourable conditions for women in the local regulatory, normative and cognitive systems tend to reduce their desire to become entrepreneurs. Also, Baugh et al. (2006) examine the impact of specific norms supporting female entrepreneurship on the relative rates of women and men engaged in entrepreneurship in different countries. The main findings suggest that countries with higher overall levels of entrepreneurial activity also tend to evidence higher relative proportions of female participation. Brush et al. (2009) offer a new gender-aware framework to provide a greater understanding of female entrepreneurship. Drawing on institutional theory, it is argued that this '3M' framework (markets, money and management) needs further development, and to that end, 'motherhood' and 'meso/macro environment' are added, resulting in the '5M' construct. And, Díaz-García and Jiménez-Moreno (2010) focus on the role of gender in entrepreneurial intention and suggest that men are more likely to think about creating a firm and less determined to accomplish it.

The operationalization of formal and informal institutions in the context of female entrepreneurship and in light of institutional economics is presented in Table 1.1.

Table 1.1. Operationalization of institutions in the female entrepreneurship context based on North (1990, 2005)

Formal Institutions	Informal Institutions
<ul style="list-style-type: none"> · Government measures: procedures and regulations · Financing · Education · Economic entrepreneurial policies and assistance · Non-economic entrepreneurial policies and assistance 	<ul style="list-style-type: none"> · Perceptions and entrepreneurial skills and opportunities · Entrepreneurial attitudes · Social networks · Entrepreneurial career (desirable career choice) · Role models · Family context

It should also be noted that the theory proposed by North (2005) not only aims to explain institutions and institutional change but also seeks to discover and learn more about the political, social and cultural factors that bring about the evolution of the institutions that influence human interaction. Therefore, it establishes the need to study belief systems and decision making. North's institutional theory is an appropriate conceptual framework for this investigation, as it has proven to be one of the theories with the greatest demonstrated implications for the investigations conducted in the last few years into business creation in general and, specifically, into female entrepreneurship, as we will confirm in the following chapters.

1.5. Structure and phases of the study of female entrepreneurship

In the previous section, we reviewed the main theoretical approaches to the study of entrepreneurship and female entrepreneurship, and we presented some gaps in the female entrepreneurship studies. This section presents a more detailed overview of the contents of the chapters of this thesis and offers an insight into how the studies analysed in the present thesis contribute to the advancement of knowledge relating to female entrepreneurship research. This thesis is divided into two phases and seven chapters.

In chapter 2, we explore the evolution of the research on female entrepreneurship within the context of institutional economics, and we identify the following: topics of study; units of analysis; statistical techniques used; number of authors per article; female participation; and countries in which the main research is conducted.

Our search is conducted in a rigorous manner, through the analysis of the published articles on female entrepreneurship in the Social Sciences Citation Index (SSCI).²

The chapter's main findings reveal that the journals of greater impact dealing with this subject only generate 2% of the total production, and this production is concentrated first and foremost in the USA, followed by the UK, Canada and the Netherlands. Furthermore, we find that only 24% of the investigations use qualitative techniques, and these are basically carried out at a micro level.

Based on the review and analysis of the earlier research, we can extract an initial model for the study of female entrepreneurship and so establish the principal formal and informal factors affecting female entrepreneurship. The formal factors determined to be of special and primary importance are non-financial policies and assistance, followed by access to financing and financial assistance, educational level and entrepreneurial skills. On the other hand, beliefs, perceptions and entrepreneurial attitudes are found to be the informal factors with the greatest influence on female entrepreneurship, followed by family context, social networks and role models.

Following the literature review, in the first and second phases, we apply mixed-methods research (integration of qualitative and quantitative methods). In Phase 1, we use a qualitative methodology, and in Phase 2, we conduct a quantitative analysis. With the development of both qualitative and quantitative methodologies, we can achieve two aims: triangulation and complementarity. Triangulation expands the understanding of the phenomenon and confirms findings from two different data sources (Creswell, 2003). The complementarity in the two methodologies (qualitative and quantitative) has the aim of clarifying, enhancing and illustrating one method by way of the results obtained with the other method. Along the same lines, we can achieve a greater understanding of the environmental factors that influence female entrepreneurship and ensure greater confidence in the validity of the findings (Jonhson & Onwuegbuzie, 2004; Creswell & Plano Clark, 2007).

² The Social Sciences Citation Index (SSCI) is part of the Thompson Reuters Web of Knowledge and is a platform for information in the sciences, social sciences, arts and humanities. More information can be found at <http://wokinfo.com/>.

Phase 1: Qualitative analysis

In the first phase, a qualitative investigation is conducted, via the study of cases of female entrepreneurs in Catalonia (Spain), allowing us to analyse the influence of the formal and informal institutions on female entrepreneurship.

In Chapter 3, we apply a multiple-case study approach in order to investigate the environmental factors influencing female activity in the service sector in Catalonia (Spain) and to establish differences with respect to male initiatives.

To this end, sixteen entrepreneurs (eight women and eight men) from the services sector, one of the predominant sectors in the Spanish economy, were interviewed during 2009 and 2010. These interviews were semi-structured. Meanwhile, various sources of evidence were interviewed in order to improve the study's validity and reliability (managers of entrepreneurship support programmes, managers of financial entities and immediate family, among others).

In general terms, the results of this chapter indicate that formal institutions affect female and male entrepreneurs equally, although in some cases the influence is distinct, depending on the collective. One important aspect revealed by this study is that informal institutions are of greater importance than formal institutions to female entrepreneurship. Examples include the perceptions the society and the female entrepreneur have regarding the abilities of female entrepreneurs, the social networks maintained by female entrepreneurs and the determining influence the family context has on female entrepreneurship.

Based on these findings, Chapter 4 focuses on the influence of socio-cultural factors (informal institutions) on female entrepreneurship, also making use of the institutional approach as a theoretical framework. This research utilizes a multiple-case study design following a theoretical replication: the interviews were based on three sources of evidence (three male and three female entrepreneurs, immediate family and friends of the entrepreneurs and entrepreneurship experts) and were mainly conducted between 2009 and 2011.

The main findings suggest that social networks, role models, entrepreneurial attitudes and family context are important determinants of female entrepreneurship. Family context, in particular, is a crucial factor that may have a greater impact on women than on men.

Phase 2: Quantitative analysis

In Phase 2, we focus on the quantitative analysis of the influence of formal and informal institutions on female entrepreneurial activity in Catalonia and Spain. Chapter 5 analyses the influence of socio-cultural factors (informal institutions) on the probability of women becoming entrepreneurs in Catalonia (Spain); a quantitative investigation is conducted, based on data from the APS (Adult Population Survey) micro-database from the Catalonia Global Entrepreneurship Monitor (GEM) project, for the years 2009 and 2010. In this chapter, we present a rare events logistic regression (RELOGIT) to link socio-cultural factors and female entrepreneurship in Catalonia. The RELOGIT estimates a logit model but uses an estimator that gives a lower mean square error in the presence of rare events data for coefficients and probabilities. The main findings indicate that socio-cultural factors such as fear of failure affect female entrepreneurship negatively, while the perception of knowledge, skills and experience have a positive effect on female entrepreneurship.

In Chapter 6, we focus on the influence of environmental factors on female entrepreneurship in Spain, also using an institutional approach as a theoretical framework. The empirical research uses regression logistic models and data from the APS (Adult Population Survey), a micro-database from the Spanish Global Entrepreneurship Monitor (GEM) for the year 2010 and complementary data from the NES (National Expert Survey) expert database at the regional level. The main findings indicate that informal factors, such as the perception of entrepreneurial skills, have a positive effect on the probability of being an entrepreneur, and indicate that the impact is superior in the case of female entrepreneurship. Social networks also have a positive effect upon the probability of being an entrepreneur, but the effect is greater in the case of male entrepreneurs. The results also indicate that when one dedicates time to housework, this decreases the probability of being an entrepreneur, especially in the case of women. Finally, the results also indicate that informal factors are more relevant to female entrepreneurship than formal factors such as financing, entrepreneurship support policies and education level.

In Chapter 7, we analyse some of the environmental factors that influence female entrepreneurship in Spain with the aim of better understanding these factors and developing greater confidence in the validity of the findings. The empirical research makes use of panel data from Spain at the regional level (19 Spanish regions) and covering an eight-year period, from 2003 to 2010. The two primary sources for the panel data are the Global Entrepreneurship Monitor (GEM) and the National Statistics

Institute (INE) of Spain. The main findings indicate that informal factors, such as the recognition of the entrepreneurial career, are relevant to the decision to create a business. Female networks also have a positive influence on female entrepreneurship, but there is a negative correlation between male role models and female entrepreneurship. The results also indicate that informal factors are more relevant to female entrepreneurship than formal factors such as tertiary education, family size or income-level differences between genders.



CHAPTER 2

Female
entrepreneurship
research:
a literature review

study may aid in the design of government policies destined to promote entrepreneurship amongst this collective.

In order to achieve this objective, our search focuses on the articles on female entrepreneurship found in the *Social Sciences Citation Index* (SSCI),³ following researchers such as Ahl (2007), Brush et al. (2009), Carter et al. (2007) and Green et al. (2003), who help to promote and generate knowledge regarding female entrepreneurs by reviewing the literature in which female entrepreneurship is analysed.

In Chapter 1, we presented the principal theoretical approaches to the study of entrepreneurship, and the research established that institutional theory offers a suitable theoretical framework for examining a number of different areas, such as sociology (DiMaggio & Powell, 1983), political science (Shepsle & Bonchek, 1997) and economics (North, 1990, 2005), among others, institutional economics being particularly useful for the study of entrepreneurial research (Aidis et al., 2008; Baugh et al., 2006; Brush et al., 2009; Bruton et al., 2010; Welter, 2011; Welter & Smallbone, 2011). Along the same lines, we consider in this chapter the institutional focus proposed by North (1990, 2005).

The structure of this chapter is as follows. After this introduction, the conceptual framework is presented, which analyses the investigation into female entrepreneurship. In the third section, we describe the methodology used, and in the fourth section we present the results of the study. The chapter ends with conclusions and implications.

2.2. Methodology

The papers included in the literature review were selected because of their inclusion in the Social Sciences Citation Index (SSCI) Web of Knowledge. We performed a broad search via the electronic search engines ABI/Inform Complete Proquest and SCOPUS, employing the following search terms for article title and abstract: *female entrepreneurship*, *women entrepreneurs* and *gender entrepreneurship*. It should be pointed out that, because more than 90% of all the articles on female entrepreneurship published between 1960 and 2012 were published between 1990 and 2012, we concentrated our search on all the journals published during that period. We should add that our intent was not to conduct an exhaustive review of every article on female entrepreneurship ever published, but rather to approach the principal themes of the

³ The Social Sciences Citation Index (SSCI) is part of the Thompson Reuters Web of Knowledge and is a platform for information in the sciences, social sciences, arts and humanities. More information can be found at <http://wokinfo.com/>.

study, thereby rejecting those articles that merely cite the concept or those in which female entrepreneurs are not the principal object of study. The literature review was carried out in two stages: an initial stage in which a search was conducted for articles in the index of highest-impact journals (*Journal Citation Report – JCR*) in the business subject category, and then more specifically in entrepreneurship and small business management journals. The journals with the greatest impact factor according to the JCR 2010 are the following: *Academy of Management Review* (6.720); *Academy of Management Journal* (5.250); *Journal of International Business Studies* (4.184); *Journal of Business Economics and Management* (3.866); *Journal of Management Studies* (3.817); and *Strategic Management Journal* (3.583). Only two relevant articles were identified in the above-mentioned journals, and there were no articles in the *Academy of Management Journal*, *Journal of International Business Studies*, *Journal of Business Economics and Management* or *Strategic Management Journal* that included female entrepreneurship.

Next, we specifically searched for articles in the index of highest-impact journals on entrepreneurship and small business management and obtained the following results: *Entrepreneurship: Theory & Practice* (2.272); *Journal of Business Venturing* (2.149); *Small Business Economics* (1.555); *Entrepreneurship & Regional Development* (1.353); *Journal of Small Business Management* (1.189); and *International Small Business Journal* (0.927). Seventy-nine articles were identified.

Then, we extensively searched the SSCI, concentrating exclusively on economics, business and similar topics, and obtained 44 articles.

A total of 138 articles were analysed, most of which were of an empirical nature (123 articles), while the rest were of a theoretical nature. In a second phase, an exploratory analysis of a descriptive nature was carried out, in which the journals containing the articles were determined, along with the number of authors, the year of publication, the country with which the authors were affiliated according to the university referenced and the methodologies employed. In addition, a qualitative analysis was conducted in which each of the selected articles was given an in-depth review from the perspective of the thematic offerings within the scope of business creation and North's institutional economic theory (1990, 2005).

2.3. Female entrepreneurship research

2.3.1. Descriptive analysis of female entrepreneurship research

The journals with a greater JCR 2010 impact factor and which produced more literature on female entrepreneurship during the period 1990 to 2012 were the *Journal of Management Studies* and the *Academy of Management Review*, which together represent approximately 2% of the total number of journals analysed. It is interesting to note that in the case of the other journals no published articles on this subject were found.

It is evident from the results obtained from the analysis of the specific journals on entrepreneurship and small business management with a greater JCR 2010 impact factor, that they lead the research into female entrepreneurship, with a total of 138 articles obtained on the subject of female entrepreneurship or women's entrepreneurship, concentrated essentially in five journals: *Entrepreneurship: Theory & Practice* (19% of the total journals analysed), *Small Business Economics* (13%), *Journal of Small Business Management* (11%), *Entrepreneurship & Regional Development* (8%) and *Journal of Business Venturing* (8%). It should be noted that the articles published by *Small Business Economics* were produced between 2004 and 2012, and no article dealing with this topic was published in the previous decade (1990–99), as opposed to the *Journal of Small Business Management*, whose production is concentrated above all in the period 1990 to 2006, along with *Entrepreneurship: Theory & Practice* and the *Journal of Business Venturing*, both pioneers in this field.

In Table 2.1, we can see the evolution in the number of articles published and their respective years of publication. It is noteworthy to observe that more than 75% of all scientific production relating to female entrepreneurship was generated in the period 2000–12.

Table 2.1. Journals and published articles per year

<i>Journal</i>	Prev.	1995–99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total No.	(%)	
<i>Academy of Management Review</i>										1						1	1%	
<i>Academy of Management Journal</i>																0	0%	
<i>Journal International Business Studies</i>																0	0%	
<i>Journal of Business Economics and Management</i>																0	0%	
<i>Journal of Management Studies</i>			1													1	1%	
<i>Entrepreneurship Theory & Practice</i>	4	1				1	1	1	5	5		1		1	6	26	19%	
<i>Journal of Business Venturing</i>	2	5				1		1		1	1					11	8%	
<i>Small Business Economics</i>							1	1	2	2		4	1	4	3	18	13%	
<i>Entrepreneurship & Regional Development</i>	1	3							2			1	1	1	4	13	9%	
<i>Journal of Small Business Management</i>	4	1		2		3	1	1	3							15	11%	
<i>International Small Business Journal</i>	1	1	1		1				1			3		1		9	7%	
<i>Others</i>	3	2	1				2			2	1	3	5	15	10	44	32%	
<i>Total</i>	No.	15	13	3	2	1	5	5	4	13	11	2	12	7	22	23	138	100%
	%	11%	9.4%	2%	1%	1%	4%	4%	3%	9.4%	8%	1%	9%	5%	16%	17%		100%

The average number of authors per article is 2.2, these results reaffirming the importance of research teams. Most of the articles analysed have two authors (44%), whereas 23% have a single author, 22% have three authors and 11% have four or more authors (see Table 2.2).

Table 2.2. Number of authors

<i>Journal</i>	1	2	3	4	5	Total No. Articles	Total No. Authors	(%)	
<i>Academy of Management Review</i>		1				1	2	1%	
<i>Journal of Management Studies</i>	1					1	1	0,3%	
<i>Entrepreneurship: Theory & Practice</i>	3	10	8	3	1	26	66	22%	
<i>Journal of Business Venturing</i>	2	6	3			11	23	8%	
<i>Small Business Economics</i>	5	9	3		1	18	37	12%	
<i>Entrepreneurship & Regional Development</i>	2	5	3	3		13	33	11%	
<i>International Small Business Journal</i>		5	3	1		9	23	8%	
<i>Journal of Small Business Management</i>	4	6	3	2		15	33	11%	
<i>Others</i>	15	18	7	4		44	88	29%	
<i>Total</i>	<i>No. Articles</i>	32	61	30	13	2	138	306	100%
	<i>%</i>	23%	44%	22%	10%	1%			100%

We also wished to consider how many of the authors who conduct research in the field of female entrepreneurship are women, and we found that the total number of female authors who deal with this subject, contrary to what one might think, was less than half (41%) of the total number of authors who deal with the subject: some 18% of the articles analysed had no woman as the author or co-author, 38% of the articles had one, 30% of them had two and only 13% had three or more (see Table 2.3).

Table 2.3. Number of female authors

Journal	0	1	2	3	4	5	Total No. Articles	Total No. Women	(%)	
<i>Academy of Management Review</i>			1				1	2	2%	
<i>Journal of Management Studies</i>	1						1	0	0%	
<i>Entrepreneurship: Theory & Practice</i>	3	9	11	2		1	26	42	33%	
<i>Journal of Business Venturing</i>	0	7	3	1			11	16	13%	
<i>Small Business Economics</i>	7	6	3	1		1	18	20	16%	
<i>Entrepreneurship & Regional Development</i>	1	7	2	1	2		13	22	17%	
<i>International Small Business</i>	1	1	4	3			9	9	7%	
<i>Journal of Small Business Management</i>	4	7	4				15	15	12%	
<i>Others</i>	8	16	13	6	1		44	64	51%	
Total	No. Articles	25	53	41	14	3	2	138	126	100%
	%	18%	38%	30%	10%	2%	1%			100%

To locate the principal research teams, we classified the authors according to the country where they were conducting their research at the moment the article was published (see Table 2.4). The five countries in which the main research activity was carried out are the United States (42%), the United Kingdom (19%), Canada (10%), the Netherlands (4%) and Spain (4%), with the remaining twenty-three countries together only representing 20% of the total.

Table 2.4. Countries and published articles

Country	Authors		Country	Authors	
	No.	%		No.	%
AUSTRALIA	4	1%	NETHERLANDS	13	4%
BELGIUM	4	1%	NEW ZEALAND	3	1%
BULGARIA	4	1%	NIGERIA	2	1%
CANADA	32	10%	NORWAY	8	3%
CHINA	2	1%	SOUTH AFRICA	1	0,3%
COLOMBIA	1	0,3%	SPAIN	11	4%
DENMARK	2	1%	SWEDEN	4	1%
FINLAND	1	0,3%	SWITZERLAND	1	0,3%
GERMANY	6	2%	TURKEY	1	0,3%
IRELAND	3	1%	UK	58	19%
ISRAEL	2	1%	UKRAINE	1	0,3%
IRAN	2	1%	UNITED ARAB EMIRATES	4	1%
ITALY	2	1%	USA	130	42%
LUXEMBURG	1	0,3%	Total	306	100%
MALAYSIA	3	1%			

We established the level of analysis for the research, classifying it on three levels: micro (referring to individuals), meso (relating to regions) and macro (referring to countries). Table 2.5 shows the results obtained. We found that half of the investigations conducted were at the micro level (55%), 39% at the macro level and only 6% at the regional level.

With respect to the techniques of analysis applied, Table 2.6 shows that multiple and logistic regressions were employed by half of the practical articles on female entrepreneurship. Multiple linear regression analysis is associated with the macro level, and logistics regressions are associated with the micro level.

On the other hand, descriptive analyses (means, correlations, t-test, etc.) were present in 25% of the investigations. It is worth noting that only two papers made use of panel data, and, contrary to what one might expect, 28% of the research made use of a qualitative approach based on case studies.

Table 2.5. Level of analysis

Level of analysis	Articles	Articles	
		No.	%
Micro (individual)	Ahl (2007), Aldrich et al (1989), Aldrich and Cliff (2003), Arasti et al (2012), Arenius and Kovalainen (2006), Birley et al (1987), Brush (1992), Buttner and Rosen(1992), Carter (2000), Carter and Rosa (1998), Centidamar et al (2012), Clark and Drinkwater (2010), Davis and Shaver (2012), DeMartino et al (2006), De Tienne and Chandler (2007), Dolinsky et al (1993), Eddleston and Powell (2008), Eddleston and Powell (2012), Ettl and Welter (2010), Ezzedeem and Zikic (2012), Fielden and Hunt (2011), Fischer et al (1993), Hampton et al (2009), Hampton et al (2011), Hovorka and Dietrich (2011), Humbert and Drew (2010), Kim (2006), Kourilsky and Walstad (1998), Lerner et al (1997), Lockyer and George 2012), Minniti and Nardone (2007), Manolova et al (2007), Marlow (1997), Marlow and McAdam (2012), McGowan et al (2012), Morris et al (2006), Narayanasamy et al (2011), Naser et al (2012), Nelson et al (2009), Nilsson (1997), Olson and Currie (1992), Orser et al (2006), Orser et al (2011), Orser et al (2012), Özkan (2011), Pardo-del-Val and Ribeiro-Soriano (2007), Patterson and Mavin (2009), Petrova (2012), Pettersson (2012), Rodriguez and Santos (2009), Riebe (2012), Roomi and Parrot (2008), Rosa and Dawson (2006), Sánchez-Escobedo et al (2011), Scherer et al (1990), Schwartz (1976), Shabbir and Di Gregorio (1996), Shinnar et al (2012), Sorenson et al (2008), Spilling and Berg (2000), Verheul et al (2002), Verheul et al (2005), Verheul et al (2009), Wagner (2007), Yordanova (2011), Yordanova and Alexandrova-Boshnakova (2011), Yusuf and Saffu (2005), Zapaiska (1997)	68	55%
Meso (region)	Alvarez et al (2011), Cliff (1998), Dautzenberg (2012), Fairlie and Marion (2012), Ogunrinola (2011), Singh et al (2011), Wilson et al (2007)	7	6%
Macro (country)	Achtenhagen and Welter (2011), Aidis et al (2007), Alsos and Ljunggren (1998), Alsos et al (2006), Amine and Staub (2009), Aterido and Hallward-Driemeier (2011), Bardasi et al (2011), Baugh et al (2006), Becker-Blease and Sohl (2011), Catley et al (1998), Coleman and Robb (2012), Collins and Low (2010), Collins-Dodd et al (2004), Cromie and Birley (1992), Dolinsky and Caputo (2003), Estrin and Mickiewicz (2011), Fabowale et al (1995), Greve and Salaff (2003), Grilo and Irigoyen (2006), Gupta et al (2009), Harada(2004), Hisrich and Brush (1987), Kariv (2011), Kobeissi (2010), Langowitz and Minniti (2007), Lofstrom and Bates (2009), Manimoy and Smith-Hunter (2011), Manolova et al (2012), Minniti (2010), Mueller (2004), Neergaard and Thrane (2011), Orhan (2001), Riding and Swift (1990), Roper and Scott (2009), Rosa and Hamilton (1994), Rosa et al (1994), Rosti and Chelli (2005), Schindehutte et al (2003), Sena et al (2012), Terrell and Troilo (2010), Van Auken et al (1994), Verheul et al (2006), Waring and Brierton (2011), Watson (2003), Williams (2004), Wu and Chua (2012), Yu (2011)	48	39%
Total empirical articles analysed		123	100%

Table 2.6. Main statistical techniques used in the empirically analysed articles

Technique	Articles	Articles	
		No	%
Multiple linear regression	Aldrich et al. (1989), Alsos and Ljunggren (1998), Bardasi et al (2011), Becker-Blease and Sohl (2011), Birley (1987), Carter (2000), Carter and Rosa (1998), Catley et al (1998), De Tienne and Chandler (2007), Eddleston and Powell (2008), Eddleston and Powell (2012), Fischer et al (1993), Greve and Salaff (2003), Gupta et al (2009), Hisrich and Brush (1987), Kariv (2011), Kobeissi (2010), Lerner et al (1997), Marlow (1997), Mueller (2004), Neergaard and Thrane (2011), Nilsson (1997), Ogunrinola (2011), Scherer et al (1990), Schwartz (1976), Shinnar et al (2012), Sorenson et al (2008), Van Auken et al (1994), Verheul et al (2006), Verheul et al (2009), Waring and Brierton (2011), Yordanova and Alexandrova-Boshnakova (2011), Wu and Chua (2012), Yu (2011), Yusuf and Saffu (2005)	35	28%
Logit, probit, tobit model	Arenius and Kovalainen (2006), Baugh et al (2006), Clark and Drinkwater (2010), Davis and Shaver (2012), Estrin and Mickiewicz (2011), Grilo and Irigoyen (2006), Humbert and Drew (2010), Kim (2006), Kourilsky and Walstad (1998), Langowitz and Minniti (2007), Manimoy and Smith-Hunter (2011), Özkan (2011), Roper and Scott (2009), Sánchez-Escobedo et al (2011), Singh et al (2011), Terrell and Troilo (2010), Wagner (2007), Yordanova (2011)	18	15%
Descriptive analysis	Achtenhagen and Welter (2011), Alsos et al (2006), Amine and Staub (2009), Aterido and Hallward-driemeier (2011), Brush (1992), Buttner and Rosen (1992), Cliff (1998), Coleman and Robb (2012), Collins-Dodd et al. (2004), Cromie and Birley (1992), Dautzenberg (2012), DeMartino et al (2006), Dolinsky and Caputo (2003), Harada (2004), Lofstrom and Bates (2009), Manolova et al (2007), Minniti (2010), Minniti and Nardone (2007), Morris et al (2006), Naser et al (2012), Orhan (2001), Orsen et al (2006), Riding and Swift (1990), Rosa et al (1994), Rosti and Chelli (2005), Sena et al (2012), Spilling and Berg (2000), Verheul et al (2005), Watson (2003), Wilson et al (2007), Williams (2004)	31	25%
Panel data	Alvarez et al (2011), Dolinsky et al (1993), Manolova et al (2012), Petrova (2012), Fairlie and Marion (2012)	5	4%
Qualitative analysis	Ahl (2007), Aidis et al (2007), Aldrich and Cliff (2003), Arasti et al (2012), Centidamar et al (2012), Collins and Low (2010), Ettl and Welter (2010), Ezzedeen and Zikic (2012) Fabowale et al (1995), Fielden and Hunt (2011), Hampton et al (2009), Hampton et al (2011), Hovorka and Dietrich (2011), Lockyer and George (2012), McGowan et al (2012), Marlow and McAdam (2012), Narayanasamy et al (2011), Nelson et al (2009), Olson and Currie (1992), Orser et al (2011), Orser et al (2012), Pardo-del-Val and Ribeiro-Soriano (2007), Patterson and Mavin (2009), Pettersson (2012), Riebe (2012), Rodriguez and Santos (2009), Roomi and Parrot (2008), Rosa and Hamilton (1994), Rosa and Dawson (2006), Schindehutte et al (2003), Shabbir and Di Gregorio (1996), Shelton (2006), Verheul et al (2002), Zapalska (1997)	34	28%
Total empirical articles analysed		123	100%

2.3.2. Analysis of the topics in female entrepreneurship research

As mentioned earlier, in this thesis we apply North's institutional economic theory (1990, 2005) as a theoretical framework for the analysis of female entrepreneurship. In this sense, and as reflected in Table 2.7 (refer to Annex 1 for details of the analysed articles), the reviewed articles have been successfully classified according to seven distinct themes related to female entrepreneurship: (i) access to finance and financial assistance, (ii) non-financial policies and assistance, (iii) education and entrepreneurial skills, as formal factors, and (iv) perceptions and entrepreneurial attitudes, (v) social networks, (vi) role models and (vii) family context, as informal factors.

As can be observed in this table, the papers tend to analyse more than one theme at a time, but almost more than half of them analyse perceptions and entrepreneurial attitudes (37%) or non-financial policies and assistance (21%), followed closely by studies on access to finance and financial assistance (17%), education and entrepreneurial skills (17%), and social networks and family context (16% and 17%, respectively). Finally, a study of role models was conducted in 12% of the articles.

Formal factors for female entrepreneurship

Though we noted above that many of the articles analysed deal with more than one theme, we attempted to establish the main contributions these articles bring to each theme.

With respect to formal factors, (i) **access to finance and financial assistance** was one of the most popular themes with many authors, who attempt to establish the existence of a discriminatory relationship between the gender of the entrepreneur and the level of finance obtained. Authors such as Alsos et al. (2006), Godwin et al. (2006), Marlow and Patton (2005) and Orser et al. (2006) find in their investigations that female entrepreneurs face more constraints in accessing financial resources and that they obtain less financial capital with which to develop their business activity than men do. These authors associate the reduced funding with two factors: (1) the fact that businesses created by women are based on socio-economic activities related to lower early business growth as compared with their male counterparts and (2) female entrepreneurs have not created adequate social networks to facilitate their access to

capital, unlike men, who have more contact sources and a greater concentration of non-family contacts in their business's social networks.

Table 2.7. Approach and topics of the analysed articles

Approach	Topics	Articles	Articles incorporate topics / Total articles	
			No	%
Formal factors	Access to finance and financial assistance	Ahl (2006), Alsos et al (2006), Bardasi et al (2011), Buttner and Rosen (1992), Carter and Rosa (1998), Centindamar et al. (2012), Coleman and Robb (2012), Fabowale et al (1995), Godwin et al. (2006), Hugues et al. (2012), Kim (2006), Marlow and Patton (2005), McKechnie et al (1998), Orhan (2001), Orser et al (2006), Pardo-del-Val and Ribeiro-Soriano (2007), Petrova (2012), Riding and Swift (1990), Roper and Scott (2009), Rosa et al (1994), Schwartz (1976), Sena et al. (2012), Shabbir and Di Gregorio (1996), Sullivan et al. (2012), Wu and Chua (2012), Yordanova (2011), Zapalska (1997)	27/138	20%
	Non-financial policies and assistance	Ahl (2006), Aidis et al (2007), Alsos and Ljunggren (1998), Amine and Staub (2009), Baugh et al (2006), Bliss and Garratt (2001), Brush et al (2009), Dolinsky and Caputo (2003), Fairlie and Marion (2012), Gatewood et al (2009), Hovorka and Dietrich (2011), Lockyer and George (2012), Marlow and Patton (2005), Manolova et al. (2007), Minniti and Nardone (2007), Narayanasamy et al (2011), Neergaard and Thrane (2011), Nilsson (1997), Ogunrinola (2011), Petterson (2012), Rodriguez and Santos (2009), Roomi and Parrot (2008), Verheul et al (2006), Wagner (2007), Waring and Brierton (2011), Williams (2004), Yusuf and Saffu (2005)	27/138	21%
	Education and entrepreneurial skills	Arenius and Kovalainen (2006), Aterido and Hallward-Driemeier (2011), Birley (1987), Bliss and Garratt (2001), Carter (2000), Centindamar et al. (2012), Dolinsky et al (1993), Estrin and Mickiewicz (2011), Ettl and Welter (2004), Fischer et al (1993), Grilo and Irigoyen (2006), Kobeissi (2010), Kourilsky and Walstad (1998), Lofstrom and Bates (2009), Manolova et al. (2012), Minniti and Nardone (2007), Narayanasamy et al (2011), Nixdorff and Rosen (2010), Pardo-del-Val and Ribeiro-Soriano (2007), Riebe (2012), Shabbir and Di Gregorio (1996), Treanor (2012), Wilson et al (2007), Yordanova (2011)	23/138	17%

Informal factors	Perceptions and entrepreneurial attitudes	Achtenhagen and Welter (2011), Ahl (2007), Aidis et al (2007), Alsos et al. (2006), Amine and Staub (2009), Arenius and Kovalainen (2006), Cliff (1998), Dautzenberg (2012), Davis and Shaver (2012), DeMartino et al (2006), De Tienne and Chandler (2007), Fagenson and Marcus (1991), Gupta et al (2009), Humbert and Drew (2010), Kariv (2011), Kourilsky and Walstad (1998), Langowitz and Minniti (2007), Mackechnie et al (1998), Manimoy and Smith-Hunter (2011), Manolova et al (2012), Marlow (1997), Marlow and Patton (2005), Marlow and McAdam (2012), McGowan et al (2012), Minniti (2010), Minniti and Nardone (2007), Mueller (2004), Nelson et al (2009), Nilsson (1997), Ogbor (2000), Olson and Currie (1992), Orhan (2001), Orser et al (2011), Orser et al (2012), Patterson and Mavin (2009), Roomi and Parrot (2008), Roper and Scott (2009), Rosa et al (1994), Sánchez-Escobedo et al (2011), Scherer (1990), Shinnar et al (2012), Terrell and Troilo (2010), Verheul et al (2002), Verheul et al (2005), Wagner (2007), Wilson et al (2007), Yordanova and Alexandrova-Boshnakova (2011), Yu (2011), Yusuf and Saffu (2005), Zapalska (1997)	50/138	36%
	Social networks	Ahl (2006), Aldrich et al (1989), Brush (1992), Cromie and Birley (1996), Eddleston and Powell (2008), Fielden and Hunt (2011), Gatewood et al (2009), Godwin et al (2006), Greve and Salaff (2003), Hampton et al (2009), Hampton et al (2011), Hughes et al (2012), Lerner et al (1997), Mackechnie et al (1998), Manolova et al (2012), Narayanasamy et al (2011), Ogunrinola (2011), Rodriguez and Santos (2009), Rosa and Hamilton (1994), Sorenson et al (2008), Sullivan et al (2012)	21/138	15%
	Role models	Arasti et al (2012), Baugh et al (2006), Bliss and Garratt (2001), Clark and Drinkwater (2010), Eddleston and Powell (2008), Estrin and Mickiewicz (2011), Ezzedeem and Souha (2012), Hovorka and Dietrich (2011), Lerner et al (1997), Manolova et al (2012), Marlow and McAdam (2012), Nixdorff and Rosen (2010), Ogunrinola (2011), Rosa and Hamilton (1994), Rosti and Chelli (2005), Schindehutte et al (2003), Spilling and Berg (2000), Verheul et al (2009)	18/138	13%
	Family context	Arasti et al (2012), Baughn et al (2006), Brush et al (2009), Centindamar et al (2012), Eddleston and Powell (2012), Ettl and Welter (2004), Ezzedeem and Souha (2012), Greve and Salaff (2003), Hughes et al (2012), Humbert and Drew (2010), Jennings and McDougald (2007), Kobeissi (2010), Langowitz and Minniti (2007), Manolova et al (2012), Morris et al (2006), Narayanasamy et al (2011), Naser et al (2012), Özkan (2011), Patterson and Mavin (2009), Rosa and Dawson (2006), Rosti and Chelli (2005), Schindehutte et al (2003), Singh et al (2011), Sullivan et al (2012), Verheul et al (2006), Williams (2004), Yordanova (2011)	27/138	20%
Total articles analysed		138		

Along the same lines, Bardasi et al. (2011) analyse the existence of significant gaps between male-owned companies and female-owned companies in terms of firm efficiency and growth, and suggest that this is what creates differences in access to finance for female entrepreneurs, rather than gender-based discrimination.

On the other hand, Fabowale et al. (1995), Riding and Swift (1990) and Rosa et al. (1994) establish that the differences in the conditions for accessing finance are more important for small businesses, and they find that the financing conditions for women are less favourable than those for male business owners.

Authors such as Carter and Rosa (1998), Kim (2006) and Roper and Scott (2009) also demonstrate that men and women do not have equal access to finance and that, even if the criteria for access to finance were the same for both collectives, discrimination occurs from the moment the criteria are applied as well as during the negotiations prior to the award of the finance. Orhan (2001) widens the breadth of this concept in her research into the financing of female-owned businesses in France and concludes that discrimination exists and is based on two main problems: one related to intercultural tendencies among bankers, above all among men, which lead them to consider female entrepreneurs according to their gender rather than their entrepreneurial skills; the other one is female entrepreneurs' apparent lack of financial competencies.

Also, Wu and Chua (2012) suggest in their study that differential treatment continues to exist based on the gender of the business borrowers. This situation has been illegal for decades, but the study detected second-order gender effects on US small business borrowing costs. They demonstrate that when the gender of the borrower is unambiguously female, as ascertained by the firm being a sole proprietorship (SP), the borrowing cost is significantly higher, both statistically and economically.

In spite of the differences regarding the 'causes', all the authors reach the same conclusion regarding the 'effect': a different application of the criteria for the awarding of finance (rather than different criteria for men and women).

With respect to the subject of (ii) ***non-financial policies and assistance***, the papers published by Alsos and Ljunggren (1998), Marlow and Patton (2005) and Ogunrinola (2011) investigate the effect entrepreneurship promotion policies have on business creation in general and on female entrepreneurship in particular. Ogunrinola (2011) analyses the positive effect of non-economic support programmes, such as the promotion of self-help organizations among women by the government in rural Nigeria. Alsos and Ljunggren (1998) investigate the positive effects of non-economic support policies for female entrepreneurship in Scandinavia, and Fairlie and Marion (2012)

study the effect the elimination of affirmative action programs in California and Washington States has on business ownership.

Along the same lines, studies such as those carried out by Baugh et al. (2006) or Petterson (2012) have sought to analyse the relationship between normative support for women's entrepreneurship and the female/male ratio of entrepreneurs in different countries, thus making it possible to observe that in the places where specific normative support for women's entrepreneurship has been in development for some time, it appears to be embedded in the overall attitudes towards entrepreneurship and gender equality, lending this context to the entrepreneurial activity.

Other researchers, such as Manolova et al. (2007), have established that public policy should be more attuned to female entrepreneurs' unique needs, and pointed out that public policy initiatives such as the encouragement of professional and alumni networks and professional training targeted at female business owners may help promote women's entrepreneurship. Bliss and Garratt (2001), in their study of entrepreneurship in Poland, and Aidis et al. (2007), in their study of Lithuania and Ukraine, suggest the need to establish entrepreneurial policies adapted to female entrepreneurs, and, along these same lines, authors such as Nilsson (1997) establish the effect of public policies supporting female entrepreneurship in rural areas in Sweden, from feminist and neo-institutionalist perspectives, and observe that in many cases dilemmas have arisen between support programmes and existing beliefs, reflecting the need for specific policies of support for female entrepreneurs.

On the other hand, the relationship between (iii) **education and entrepreneurial skills** has been investigated by authors such as Fischer et al. (1993) and Wilson et al. (2007), who find that the effects of MBA programme entrepreneurship education focusing on entrepreneurial self-efficacy proved stronger for women than for men. Along the same lines, authors such as Dolinsky et al. (1993) establish the relationship between the level of education and the probability of starting up a business, and they find a positive relationship between the two factors: as the educational level rises, so does the probability of creating a business. Centindamar et al. (2012) also suggest that the likelihood of women becoming entrepreneurs will be especially improved if they have increased access to education. Furthermore, they establish a relationship with another of the factors previously studied, access to finance: they find that less educated women may face financial constraints that limit their business pursuits. Therefore, a positive relationship between education and entrepreneurship has been established, directly and indirectly.

Other investigations, such as that conducted by Lofstrom and Bates (2009), analyse the relationship between education and Hispanic female entrepreneurship, whereas authors such as Kourilsky and Walstad (1998) explore the entrepreneurship knowledge and entrepreneurial attitudes of male and female secondary school students across the USA, and find that it is necessary to improve entrepreneurship education among young people. Furthermore, this educational effort, with a focus above all on entrepreneurial skills, is especially important for females, because the study results suggest that females may be less interested in starting a business and more negatively predisposed toward the market. Riebe (2012) also describes the various advantages of meeting the distinctive entrepreneurship education needs of women. Along these same lines, the findings of Aterido and Hallward-Driemeier (2011), Bliss and Garratt (2001) and Carter (2000) reveal some gender gaps in the prevalence of entrepreneurial characteristics such as educational and management skills. Although women benefit as much as men from education and management skills, there are non-linear impacts of gender on venture creation.

Studies exist in which authors have obtained results contrary to those we have noted above, although they are in the minority. In one such noteworthy study, the authors, Grilo and Irigoyen (2006), study the effect that educational level has on the entrepreneurial spirit, latent and real, and they find that entrepreneurship is affected neither by the entrepreneur's educational level nor by his/her gender, contradicting most of the current studies dealing with this subject.

Informal factors for female entrepreneurship

Regarding the informal factors, the literature highlights the importance of (iv) **perceptions** and **entrepreneurial attitudes**, from the point of view of the female entrepreneur (how she perceives herself) as well as from the perspective of society (how society perceives the entrepreneurial skills of the woman).

Authors such as Manimoy and Smith-Hunter (2011) and Shinnar et al. (2012) investigate whether there is a relationship between pre-entrepreneurial perceptions and the impact this, in turn, will have on the probability of becoming an entrepreneur. Arenius and Kovalainen (2006) suggest that the perception of entrepreneurial skills significantly increases women's entrepreneurial activity in all Nordic countries. They point out the need to treat entrepreneurial women as a differentiated group, in agreement with the idea presented by Ahl (2007), Marlow and Patton (2005), Ogbor (2000) and Scherer et al. (1990) that the concept of entrepreneurship is discriminatory

and gender-biased, and so it is necessary to adapt its study to the gender of the entrepreneur.

On the other hand, Fagenson and Marcus (1991), Gupta et al. (2009) and Marlow (1997) examine the role of socially constructed gender stereotypes in entrepreneurship in three countries. The results reveal that women perceive entrepreneurs to have masculine characteristics, implying that the perception of entrepreneurial attitudes is based on a masculine gender-role stereotype. Marlow and McAdam (2012), in their analysis, suggest that stereotypical gendered expectations surrounding incubated high-technology ventures reproduce masculine norms of entrepreneurial behaviour. In the same vein, Achtenhagen and Welter (2011) observe how German newspapers generally continue to create an old-fashioned picture of female entrepreneurship and build on traditional gender stereotypes and role models. This representation might affect the inclination of women to consider entrepreneurship seriously as a career option. We can also find papers with a contrary focus, such as the papers published by Alsos et al. (2006), DeMartino et al. (2006) and Zapaiska (1997), whose research establishes few gender differences with respect to the perceptions of entrepreneurial attitudes between males and females.

Authors such as Cliff (1998), Kourilsky and Walstad (1998), Langowitz and Minniti (2007), Minniti and Nardone (2007) and Verheul et al. (2005) study the variables that have an influence on the entrepreneurial propensity of women and the differences that exist between the male and the female gender. The results suggest that women perceive themselves and the entrepreneurial environment as less favourable, which consequently impacts negatively on their final inclination to create a business.

While working from different angles, the literature establishes the importance of the perception of entrepreneurial skills in promoting female entrepreneurial activity.

(v) **Social networks** are also an important factor for entrepreneurship in general, but especially for female entrepreneurship. Authors such as Aldrich et al. (1989), Brush (1992), Gatewood et al. (2009), Greve and Salaff (2003) and Hampton et al. (2011) establish the importance of the entrepreneur's network activities when creating a business. These authors determine that entrepreneurs systematically vary their social networks according to the phase of entrepreneurship, although a member of their family is involved in every phase of business creation, and that women tend to make use of family members to a greater extent than men do. Sullivan et al. (2012) suggest in their study that women may engage in networking activities focused on family and friends in order to obtain financial resources. Societal attributions and socialization

processes relative to the sexes may create barriers for women due to the uneven distribution of assets, educational foci, and daily life activity expectations between the sexes. Investigations have also been conducted to verify the effect that social networks have on the probability of business success or failure. An example of this can be found in the studies by Ogunrinola (2011) and Sorenson et al. (2008), whose empirical tests reveal that female owners show stronger preferences for the collaborative network orientation, and it is significantly more positively associated with success for male business owners than for female business owners.

On the other hand, Godwin et al. (2006) determine that establishing a mixed-sex entrepreneurial team may benefit female entrepreneurs in male-dominated cultures, arguing that female entrepreneurs who partner males have greater access to key resources, as well as a higher concentration of non-family contacts in their business's social networks and more contact sources.

Research conducted in the United States, Italy and Northern Ireland indicates that although the importance of social networks is evident for both male and female entrepreneurs, the composition of their respective networks is different, and some of these studies suggest that this is because social networks are the product of personal drive and historical experiences. In the case of female entrepreneurs, their subordinate organizational roles may cause them to have social networks that are not as developed as those of men and may be why the strategic level of their social networks is not as high as that of their male counterparts (Brush, 1992; Cromie & Birley, 1992; Lerner et al., 1997; MacKenzie et al., 1998).

Research on (vi) **role models** has established the existence of a positive relationship between role models and entrepreneurship. Authors such as Baugh et al. (2006) and Rosa and Hamilton (1994) establish that when entrepreneurs are generally respected and admired, they become the model to follow, and the proportion of female entrepreneurship is higher.

Studies such as those conducted by Eddleston and Powell (2008) and Verheul et al. (2009) seek to explain the lower numbers of female entrepreneurs by considering how gender identity explains sex differences in business owners' preferences. They establish that when society considers mostly male role models, female entrepreneurship is limited. Along the same lines, Bliss and Garratt (2001), in their study of the elements that facilitate and provide support for female entrepreneurs in transitioning economies, identify role models and 'best practices' as an effective approach to female entrepreneurship.

In their paper, Ezzedeen and Souha (2012) explore how women entrepreneurs in Canada experience entrepreneurship in the technology sector and the types of obstacles posed by the field's male-dominated character. Their research indicates that the women entrepreneurs encountered persistent gender stereotypes, a paucity of female role models, and resistance from associates from within and from outside of their organizations.

Another author, Ogunrinola (2011), in his study of rural communities in Nigeria, establishes the need to promote associations of female entrepreneurs so that, based on the aforementioned role models, female entrepreneurship will increase within the rural areas of the country.

With respect to the influence of family role models, authors such as Clark and Drinkwater (2010) investigate the impact these role models have on certain ethnic minority and immigrant groups in the UK and especially on the second generations of these collectives, in which, although the impact of the role model is still important, it is no longer a key factor, once other factors such as education and local economic conditions are factored into the analysis. The results of studies such as that conducted by Schindehutte et al. (2003) suggest that mothers who are entrepreneurs clearly have an impact on the childhood experiences of their offspring, and that the overall experience is positive, and this may imply a greater inclination towards entrepreneurship in the future.

One of the topics most expanded upon in the latest investigations is the relationship between the family, or (vii) **family context**, and female entrepreneurship, suggesting the need to include this factor in the study of female entrepreneurship. Authors such as Greve and Salaff (2003), Jennings and McDougald (2007), Narayanasamy et al. (2011) and Singh et al. (2011) determine the importance of family support to the probability of starting up a business, with respect to orientation and recognition, above all in developing countries. Along the same lines, Rosa and Dawson (2006) and Williams (2004) deduce that the time and energy spent on raising children reduces the duration of the venture, especially among women in southern European nations, with results suggesting that policy-makers need to consider childcare policies in conjunction with entrepreneurial policies in areas where conflict exists between work and home life.

Eddleston and Powell (2012) suggest that female entrepreneurs tend to nurture satisfaction with a work-family balance by creating work-family synergies, whereas

male entrepreneurs tend to nurture satisfaction with work-family balance by obtaining family support at home.

Authors such as Özkan (2011) study the influence the female entrepreneur's family size has on the probability that she will create her own business, and the results suggest that being married is a relevant factor in the decision to start up a business, although the positive effect of marriage on women's entrepreneurial migration disappears, contributing, conversely, to her non-incorporation into self-employment. In general, a family situation of cohabitation is a less supportive arrangement for entrepreneurship for both genders.

Similarly, Brush et al.'s (2009) purpose is to offer a new gender-aware framework to promote female entrepreneurship, which includes 'motherhood'. Motherhood represents the family context of female entrepreneurs, which has a greater impact on women than on men.

Likewise, Baughn et al. (2006) and Langowitz and Minniti (2007) observe in their studies that in societies in which the woman plays a traditional role within the family, the probability of female entrepreneurship is lower.

2.4. Conclusions

The aim of this chapter was to analyse the main papers on female entrepreneurship published in journals indexed by the SSCI. We found that the production generated by the journals of greater impact dealing with this subject represents only 2% of the total, this being concentrated in the journals that deal specifically with entrepreneurship and small business management. The greater part of the scientific production is concentrated in the USA, followed by the UK, Canada and the Netherlands, and we found that the studies for the rest of the countries represent only 25% of the total.

With respect to the level of analysis carried out and the statistical techniques employed, it is evident that regression analyses (linear regressions or multiple regressions) were the most popular techniques with researchers. We found that qualitative techniques (case studies) accounted for 28% of the whole and that there was a reduced quantity of other statistical analysis techniques.

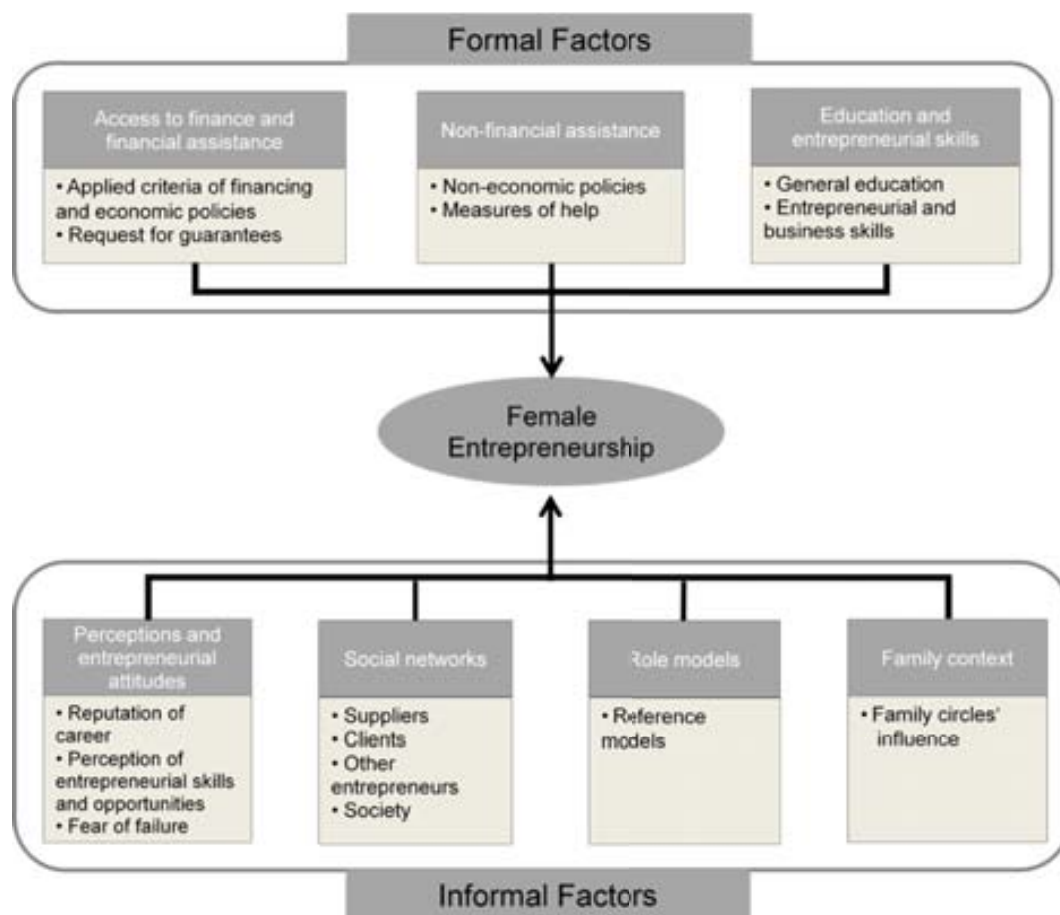
An analysis of the literature on female entrepreneurship and the application of North's institutional economics theory (1990, 2005) made it possible to group the environmental factors affecting female entrepreneurship into seven factors of study,

although, as noted above, the papers tend to analyse more than one factor at a time. Three make reference to the formal factors that influence female entrepreneurship: access to finance and financial assistance, non-financial assistance, and education and entrepreneurial skills; and four to informal factors: perceptions and entrepreneurial attitudes, social networks, role models and family context.

The most studied subjects in the first years that we analysed make reference to formal factors, whereas informal factors were largely studied from 2000 to 2012.

Various lessons have been extracted from the current research. One of them is that not only do environmental factors have a direct impact on female entrepreneurship, but the same factor may directly affect entrepreneurship and indirectly affect other factors. In order to reflect the importance of the formal and informal factors in female entrepreneurship, and referring to the literature review and the propositions shaped by that review, we present a framework for female entrepreneurship based on North's institutional theory (see Figure 2.1).

Figure 2.1. A framework for female entrepreneurship



The literature review shows that although finance may be a factor that affects entrepreneurship favourably, the application of the criteria governing its award does not favour female entrepreneurship, possibly because of female entrepreneurs' level of education or entrepreneurial skills or, more importantly, society's perception of those skills. Consequently, female entrepreneurship is not only influenced directly by access to finance but also indirectly by the female entrepreneur's level of education or entrepreneurial skills (Dolinsky et al., 1993; Fisher et al., 1993; Wilson et al., 2007).

In the same way, entrepreneurship support policies, financial and non-financial assistance and better education in the entrepreneurial spirit should have a positive, direct impact on female entrepreneurship, as well as an indirect impact on entrepreneurial attitudes, social networks or role models for female entrepreneurs, which would also help to promote female entrepreneurship.

Lately, the family context has been suggested to be one of the most relevant factors to the process of business creation by women. The family context directly affects female entrepreneurship and also has an indirect impact on the rest of the factors (access to finance, entrepreneurial attitudes and role models, education and entrepreneurial skills, among others).

The literature review suggests some gaps in the female entrepreneurship research. There is a limited amount of research that develops both qualitative and quantitative methodologies and fewer investigations in which logistic regressions and longitudinal analysis are applied to female entrepreneurship.

The results of this study also suggest that few articles explicitly use institutional economics; furthermore, most are focused on Anglo-Saxon countries. The lack of studies conducted at the regional level (meso level) and their application to Catalonia and Spain would be interesting to address in terms of improving knowledge and creating policies that would help to promote female entrepreneurship. Thus, this investigation attempts to fill an existing gap.

though the numbers Catalonia maintains are still superior to those for the rest of Spain and close to those for the main cities of Europe (GEM, 2009, 2010).

In Spain, the entrepreneurial activity ratio between women and men fell from 74 to 57 female entrepreneurs for every 100 male entrepreneurs for the period 2008–2010, underlining the differences between enterprises created by women and business initiatives promoted by men. Nonetheless, although the Spanish data show a reduction in entrepreneurial equality, the values are still higher than the average for EU countries (0.52) (GEM, 2008, 2009, 2010).

The most recent figures indicate how environmental factors have a greater impact on female entrepreneurship than on male entrepreneurship, and it cannot be presupposed that Europe, Spain and Catalonia are uninterested in the promotion of female entrepreneurship, because this interest is clearly reflected in the development since the late 1990s of specific public support programmes for female entrepreneurs by public administrations at various levels.

Within this context, we believe that the effect that environmental factors have on female entrepreneurs is understudied, in spite of the significant contributions these women have made to all economies.

In order to meet the stated objectives, the methodology used in this chapter will be based on the case method (Eisenhardt, 1989, 2007; Yin, 1989, 2003), and a multiple case study will be applied to our approach to the service sector in Catalonia.

The main findings suggest the importance of environmental factors to female entrepreneurship. The findings also indicate that both formal institutions (non-financial assistance and entrepreneurial education), and especially informal institutions as perceptions of entrepreneurial skills, role models and the family context have a greater impact on female entrepreneurial activity in Catalonia (Spain).

In the following section, the conceptual framework of the investigation is presented and six propositions are indicated. Next, the methodology employed is explained, and the most relevant results of the study are presented and discussed. Finally, the chapter ends with the main conclusions and implications for future research.

3.2. Conceptual framework

This chapter has also adopted an institutional perspective (North, 1990, 2005), which, having been established as one of the most suitable frameworks for the study of general business creation (Aidis et al., 2008; Bruton et al., 2010; Thornton et al., 2011; Welter, 2011), will allow us to demonstrate the importance of institutions to the growth of female entrepreneurial activity. Drawing on institutional theory, we explain what is known regarding policies intended to stimulate entrepreneurship, and we examine those social and cultural environmental factors that may be more appropriate when considering ways to increase the number of female entrepreneurs.

Establishing a link between the literature on female entrepreneurship and that on institutional economics, we focus our research on three formal factors and make use of North's perspective (1990, 2005): (1) access to finance and financial assistance, (2) non-financial assistance and (3) education and entrepreneurial skills. In turn, the informal factors are: (4) the perception of female entrepreneurs' skills, (5) social networks and (6) family context.

3.2.1. Formal factors of female entrepreneurship

Financing, as we stated earlier, is one of the most important issues for entrepreneurs, and it has been investigated in numerous papers. In the course of their investigations, authors such as Coleman and Robb (2009) and Fairlie and Robb (2009) find that women start their business with less capital than men, although the differences at the highest start-up capital level are relatively small. They also suggest that lower levels of start-up capital and difficulties in acquiring capital faced by female and male entrepreneurs are associated with less successful businesses or, as in the case of the firms owned by women, tend to be in the retail and services sectors. Furthermore, they argue that these enterprises are often smaller and less growth-oriented, in which case they are less likely to require as much capital input (Carter, 2002; Cliff, 1998; Orser & Hogarth-Scott, 2003). Along the same lines, Orser et al. (2006), in their study of Canadian SMEs, observe that financing is similar for women and men. They find, however, that compared with men a greater proportion of women believe that their request for funding will be turned down; furthermore, women express an aversion to entering into debt.

Given that the gender-based differential treatment of business borrowers is illegal, more recent studies, such as that conducted by Wu and Chua (2012), demonstrate the

existence of a second-order gender effect that is detectable only when the gender of the business borrowing is unambiguously female, when the firm is of sole proprietorship (SP), resulting in a significantly higher borrowing cost.

Although a number of other studies also suggest that it cannot be demonstrated that women receive discriminatory treatment in terms of their access to funding, it has been observed that differences in the negotiation process may affect their access to it (Alsos et al., 2006; Carter et al., 2007; Gatewood et al., 2009; Kim, 2006; Marlow & Patton, 2005). In the same vein, the study carried out by Coleman and Robb (2012) examines how new technology based firms have different financing patterns than firms which are not technology based. On the basis of these arguments, the following proposition is suggested:

Proposition 1: With respect to access to financial resources, differences in the negotiation process negatively affect female entrepreneurship to a greater degree than male entrepreneurship.

Another formal factor considered in this chapter is non-economic entrepreneurship support programmes: in most of the studies analysed, a very positive influence on female entrepreneurship is attributed to the said programmes (Alsos & Ljunggren, 1998; Carter, 2000; Nilsson, 1997), though one would expect that general support of entrepreneurship would increase the level of participation of both types of entrepreneurs (female and male). A number of authors have argued, from distinct positions, the need for support programmes for female entrepreneurs: there are those who consider that the difficulties and needs of women are no different from those of men (Birley et al., 1987; Chrisman et al., 1990), whereas others observe that specific support for female entrepreneurship is a need shared by society and must be satisfied (Carter, 2000). Examples of the contributions of non-economic support of female entrepreneurship have been studied in Ireland as well as within the context of former Soviet bloc countries (Henry & Kennedy, 2003; Welter et al., 2003), and the results obtained indicate that the differential treatment of men and women in a society may also affect female entrepreneurship, whereas specific support positively affects female entrepreneurship. A study by Baugh et al. (2006) also examines the impact of specific norms supporting female entrepreneurship in different countries and suggests that specific support for female entrepreneurship contributes to a higher predicted proportion of female entrepreneurs in a given society beyond that which would be predicted for the situation in which there is overall support for entrepreneurship in general. Furthermore, the study indicates that this is so because normative support for

female entrepreneurship is embedded in a society's valuation of entrepreneurship itself. Therefore, we suggest the following proposition:

Proposition 2: Non-economic support programmes for female entrepreneurship affect female entrepreneurship more positively than generalized entrepreneurship support programmes.

On the other hand, the relationship between education and entrepreneurship is one of the factors considered relevant to female entrepreneurship, and it has been investigated by various authors and from diverse positions. For example, authors such as Bates (1995), Le Anh (2000), Rees and Shah (1986) and Robinson and Sexton (1994) suggest that education emphasizes management skills, allowing female entrepreneurs to be better informed and to evaluate entrepreneurial opportunities more efficiently and effectively. Along the same lines, Davidsson and Honig (2003) conclude that the education level of women is an important factor that may explain female participation in the labour market, and they suggest that those with a higher level of education may be more inclined to use the skills acquired in the entrepreneurial process. Other studies, such as those carried out by Castagnetti and Rosti (2011), Grilo and Irigoyen (2006) and Timmons (1994), suggest the opposite: that higher levels of education may also offer better-paid employment opportunities, making it less probable that entrepreneurship will be the most desirable option. The most recent investigations are directed at establishing the importance of entrepreneurship education in making it possible to acquire the necessary skills and abilities in a rapidly globalizing marketplace (Millman et al., 2010; Nabi & Holden, 2008). In the same vein, and using the longitudinal Kauffman Firm Survey data for new firms, Robb and Fairlie (2008) find that firms owned by women boast lower sales, profits, employment numbers and survival rates than those owned by men. Fairlie and Robb (2009) find, as do previous studies such as those conducted by Astebro and Bernhardt (2003) and Headd (2003), that small business outcomes are positively associated with the business education level of the business owner.

Additionally, authors such as Wilson et al. (2007:402) find that the inclusion of entrepreneurship education in MBA programmes proves to have a stronger, more positive effect on entrepreneurial self-efficacy for women than for men. Furthermore, their investigations suggest that 'entrepreneurship education can be positioned as an equalizer, possibly reducing the limiting effects of low self-efficacy and ultimately increasing the chances for successful venture creation by women'. Given the various positions and justifications found in the literature review, this investigation considers

entrepreneurial education to be an important factor in all entrepreneurial ventures. As noted earlier, however, women perceive their skills to be inferior to those of men, and so, given that the aforementioned entrepreneurship education may help women to improve those skills, we propose the following proposition:

Proposition 3: Female entrepreneurship places more value on education (and entrepreneurial education) than male entrepreneurship does.

3.2.2. Informal factors of female entrepreneurship

With respect to informal institutions, more recent studies have focused their attention on perceptions of female entrepreneurs and their skills, from the general perspective of society (how society perceives the entrepreneurial skills possessed by women), and from the point of view of female entrepreneurs. On the one hand, Langowitz and Minniti (2007), using a large sample of individuals from 17 countries, find that women tend to perceive themselves and the entrepreneurial environment less favourably than men perceive themselves and their entrepreneurial environment; the authors suggest that these perceptions on the part of women have negative repercussions for their entrepreneurial activity. Along the same lines, positive perceptions and confidence in one's own skills increase entrepreneurial alertness and lead to the creation of new businesses (Verheul et al., 2005). In the same vein, the study conducted by Arenius and Kovalainen (2006) suggests that the perception of entrepreneurial skills significantly increases entrepreneurial activity by women in Nordic countries.

Other studies take account of considerations that lie beyond female entrepreneurship, including factors such as the expectations of society and the cultural norms, which are reflected in the fact that female-owned businesses are more likely than male-owned businesses to be found in the retail trade, personal services and professional services, or in the existence of gender segregation in academic fields, all of which can be attributed to differences in cultural preparation, parental influences and, more generally, prior socialization (Jacobs, 1996; Leoni & Falk, 2010). In this study, we consider the argument shared by previous authors that the perception of skills has 'a crucial influence on the entrepreneurial propensity of women and account for much of the difference in entrepreneurial activity between the sexes' (Langowitz & Minniti, 2007:341). Therefore, our fourth proposition is as follows:

Proposition 4: The perception than women entrepreneurs have of their skills has a more positive effect on female entrepreneurship than on male entrepreneurship.

Social networks are also a very important informal factor, and it is recognized that women make great use of social networks. Previous studies have suggested that social networks normally facilitate a predisposition towards entrepreneurship, though not in the same way for the two genders (Aldrich et al., 1989; Greve & Salaff, 2003; Kim & Aldrich, 2005). Shaw et al. (2006) find that women maintain a different kind of network from that of their male counterparts, and Aldrich et al. (1989) similarly demonstrate that women are more likely to have both men and women in their networks, whereas men are more likely to maintain homogeneous networks comprised mostly of men and including a greater number of entrepreneurs than the social networks maintained by women. Other studies also note that the strategic level at which women's social networks operate is lower than that at which men's networks operate (Brush, 1992; Greve & Salaff, 2003), and this may be explained by the fact that women may enter and leave the workforce later, consequently losing their business networks (Brush et al., 2009).

Recent studies demonstrate that female entrepreneurs prefer to use collaborative networks. Furthermore, these studies find that the proportion of family members included in their networks tends to be high (Brush et al., 2009; Greve & Salaff, 2003; Sorenson et al., 2008). We offer the following propositions:

Proposition 5: The social networks created by women are based on the immediate environment, and they are less strategic than those of men.

Finally, we consider family context. The literature has established the strong interdependence of this informal factor and the entrepreneurial progress of female entrepreneurs. Previous authors, as we mentioned earlier, have found the need for a family embeddedness perspective on entrepreneurship and the researchers' need to include family dimensions in their '... conceptualizing and modelling, their sampling and analyzing, and their interpretations and implications' (Aldrich & Cliff, 2003:574).

Brush et al. (2009) and Williams (2004) suggest that gender power relations and inequalities within the household are essential to understanding women's entrepreneurship, and, along the same lines, Jennings and McDougald (2007) find that family or household contexts may have a greater impact on women than on men. We also observe that in societies in which the role of the woman is closely tied to family responsibilities, entrepreneurial activity is perceived as less desirable (Baughn et al., 2006; Langowitz & Minniti, 2007). Recent research explicitly examines the family context or household as a foundation for resources and social support for new ventures

created by women (Brush & Manolova, 2004; Brush et al., 2009). Thus, the following proposition is presented:

Proposition 6: The family context is much more decisive for female entrepreneurship than for male entrepreneurship.

3.3. Methodology

This chapter employs a qualitative methodology, and specifically applies a multiple-case study approach. Such a methodology is recommended for the study of complex areas, such as social environments, for example, within a real-life context (Creswell, 2003; Eisenhardt, 1989; Yin, 1989, 1994). The advantage of analysing these questions through a case study approach is that the multiple contextual variables that may influence this contemporary phenomenon can be addressed to a degree not offered by other methods (Eisenhardt, 1989; Yin, 2003). Yin (2003:13) defines case study as an empirical inquiry that 'investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used'. Case study research can be based on single- or multiple-case studies (Yin, 1989, 1994); to guarantee reliability and validity in the analysis of cases, multiple sources of evidence should be used to analyse the same factor.

We emphasize the relevance of this methodology in the study of female entrepreneurship, along with the emerging policy implications geared towards learning how female entrepreneurship might be fostered.

In order to identify and analyse the environmental factors that influence female entrepreneurial activity in Catalonia (Spain), and to establish the differences with regard to male initiatives, we set several criteria: (1) female and male entrepreneurs had to belong to a predominant sector in the Spanish economy; (2) they had to belong to a sector in which the two genders were comparable and the female presence was not a minority; (3) they had to come from a representative region in Spain with regard to the two previous points and from a region where public institutions had developed support programmes for female entrepreneurship; and (4) the companies had to have been created recently, and been in the market for forty-two months at most (GEM, 2009). The case studies that met these criteria comprised female and male entrepreneurs who had created their own businesses in the last three years in

Catalonia, one of the regions in Spain with the largest number of businesses (18.5%),⁴ and one of the four regions that accounted for almost 70% of the business volume in the services sector, with one of the highest entrepreneurship indices compared with the average for the EU countries (GEM, 2009), and a region (Catalonia) where the public administration had made significant progress in creating support programmes for female entrepreneurship.

With respect to the collection of data, multiple sources of evidence were gathered over a period of time in order to improve the study's validity and reliability (Yin, 1994, 2003). In order to ensure internal validity, we tried to minimize errors by establishing behaviour patterns through a literature review and explanation building while achieving external validity through the use of more than one case study, so as to enable both literal and theoretical replication of the results. Consequently, we conducted a pilot phase prior to obtaining the final data, analysing four companies (two created by women and two by men) in order to validate the protocol designed for the semi-structured interviews. The last requirement, reliability, was achieved using the same protocol for all the cases in order to provide stable and consistent results; furthermore, a database was developed, including both the literature review and the interviews, as well as notes and information obtained from the analysed cases.

The interviews were based on five sources of evidence. First, male and female entrepreneurs whose profiles met the basic guidelines were contacted: half of each group had used public sector support for entrepreneurship. Then, interviews were carried out with those in charge of entrepreneurship support programmes and access to financial resources, with the aim of gaining knowledge regarding the influence these elements have on the level of entrepreneurship and in order to establish the types of financial resources and the characteristics of access to finance, *inter alia*.

Additionally, members of the entrepreneurs' immediate family were interviewed (parents, partners and children), in order to ascertain more fully the influence and interdependence of family and entrepreneur.

Finally, three entrepreneurship experts were consulted regarding the configuration of skills for business creation, entrepreneurship and innovation, an aspect that was analysed by means of interviews asking open questions. The experts offered views on the influence of formal and informal factors and the institutions that determine male and female entrepreneurship.

⁴ INE (2010).

The process for this qualitative analysis was as follows: as the interviews were recorded, they were transcribed and coded supported by a qualitative data analysis software package: ATLAS.ti.⁵

3.4. Results and discussion

The data collection was conducted during an eight-month period (November 2009 to July 2010). We interviewed sixteen entrepreneurs (eight women and eight men), six people in charge of support entrepreneurship programmes and financial resources, twenty members of the entrepreneurs' families and three entrepreneurship experts. Our goal, by achieving the greatest diversity of sources of evidence, was to acquire the same information relating to a topic with the aim of being able to provide validity and reliability (Eisenhardt, 1989; Yin, 2003) for the results obtained in order to determine the effects of formal and informal factors on female entrepreneurship. The general characteristics of those interviewed are reflected in Table 3.1, and Table 3.2 provides a summary description of the cases studied.

Table 3.1. Descriptive data on the interviews and the interviewees

Unit of analysis	Characteristics	Location ^a
Female and male entrepreneurs	Age: between 28 and 45 (women) and 24 and 47 (men) Employees < 10 Legal form: 50% sole trader; 37.5% limited company; and 12.5% civil society Founded: 2007: 31.25%; 2008: 25%; 2009: 31.25%; 2010: 12.5% Interviews: November 2009 to June 2010 Lasting: 60 to 120 min on average	62.5% Barcelona 12.5% Girona 12.5% Tarragona 12.5% Lleida
People responsible for support programmes and financial institutions	Three people in charge of support programmes and three in charge of access to financial resources Interviews: April 2010 to September 2010 Lasting: 45 to 75 min on average	67% Barcelona 33% Other provinces
Family entrepreneurs	Minimum of one interview for each entrepreneur Interviews: June 2010 to September 2010 Lasting: 45 to 90 min on average	70% Barcelona 30% Other provinces
Experts	Interviews: June 2010 to July 2010 Lasting: 45 to 60 min on average	67% Barcelona 33% Other provinces

a. Provinces of Catalonia (Spain)

The data based on interviews,⁶ observations and secondary information, applying the concept of triangulation proposed by Yin (1994), along with the knowledge provided by

⁵ ATLAS.ti is a qualitative analysis software package for data management, coding and retrieval. The software is based on the technique of thematic analysis. In this study, we processed and coded all the data and notes collected during the interviews (ATLAS.ti v.6).

the literature on the subject, suggest from the institutional perspective (North, 1990, 2005) that formal and informal institutions play an important role in female entrepreneurship in Catalonia and establish the existence of differences between female and male entrepreneurs.

Table 3.2. Characteristics and basic profiles of the cases of study

Case studies	CASE 1	CASE 2	CASE 3	CASE 4
Entrepreneur profile	Female, 28 years old, single, Barcelona (Spain).	Female, 31 years old, married, two children, Barcelona (Spain).	Female, 38 years old, unmarried couple, one son, Girona (Spain).	Female, 45 years old, single, El Vendrell (Spain).
Business activity, year of constitution and location	Publicity and brand communication strategies, 2009, Barcelona.	Fashion design and cosmetic products, 2009, Barcelona.	Restaurant, 2009, Girona.	Publicity and communication strategies, 2010, Tarragona.
Entrepreneurship support programmes	Makes use of non-economic entrepreneurship support programmes (specifically).	Makes use of economic and non-economic entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes.	Makes use of non-economic entrepreneurship support programmes (specifically).
Education level, previous experience	University studies and a Master's. Previous experience in the sector.	Non-university professional studies. Previous experience in the sector.	University studies and specialized courses in tourism sector.	University studies. Previous experience in the sector.
Reasons for entrepreneurship	Self-fulfilment and personal improvement, desire to create a business.	The impossibility of finding a financially satisfactory job and the desire for self-fulfilment.	Personal evolution based on the experience afforded by the family business.	A bad professional experience and finding herself unemployed.
Antecedents and key characteristics	She worked for an important advertising agency, but she wished to apply her knowledge to small and medium-sized companies and to have more direct contact with people and their needs.	For some time she had already considered the idea of creating something that was her own, but it was not until she was without work and having trouble finding another job that she decided to start her own business.	She began in the family business (also a restaurant) working weekends. Later she dedicated herself to public relations in other businesses, and when her child was born she decided, along with her husband, to create the restaurant.	She began working in communications for different media companies and businesses. When her participation in some of the businesses began shrinking, she decided to create the business in order to offer a comprehensive communications service.

⁶ See the interview protocol in Annex 2.

Case studies	CASE 5	CASE 6	CASE 7	CASE 8
Entrepreneur profile	Female, 36 years old, married, two children, Barcelona (Spain).	Female, 34 years old, married, two children, Barcelona (Spain).	Female, 37 years old, married, two children, Lleida (Spain).	Female, 32 years old, married, three children, Barcelona (Spain).
Business activity, year of constitution and location	Retail businesses, 2007, Barcelona.	Retail businesses, 2007, Barcelona.	Fashion design, 2007, Lleida.	Revenue management, 2008, Barcelona.
Entrepreneurship support programmes	Makes use of non-economic entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.	Makes use of non-economic entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes (specifically).
Education level, previous experience	University studies. Previous experience in the sector.	Primary studies.	Primary studies. Studies in styling. Previous experience in the sector.	University studies and a Master's. Previous experience in the sector.
Reasons for entrepreneurship	Differences in criteria regarding the family business led her to start a new project.	The business for which she worked closed and she could not find an adequate activity.	The motivation to grow personally and professionally.	Personal evolution and the need to combine work and family.
Antecedents and key characteristics	She began in the family business with the same type of product. Differences with the other owners led her to sell the business and dedicate some time to herself, and afterwards she decided to found the new company.	She did not have direct experience in the sector, but she was working at a textiles company, so she knew many of the possible suppliers.	She gained experience in the sector working in the family business and other companies. With her husband's support, after their first child was born she decided to study image consulting and create the business.	She worked in the tourism sector. Her interests, the difficulty of combining work and family and the opportunity presented by finding two partners involved in starting a business led her to make her decision.

Case studies	CASE 9	CASE 10	CASE 11	CASE 12
Entrepreneur profile	Male, 45 years old, married, one daughter, Salamanca (Spain).	Male, 24 years old, single, Barcelona (Spain).	Male, 47 years old, married, two children, Barcelona (Spain).	Male, 45 years old, married, two children, Barcelona (Spain).
Business activity, year of constitution and location	Sales of computers and computer components, 2010, Barcelona.	Travel agency, 2010, Barcelona.	Copy shop, design and graphic arts, 2007, Barcelona.	Bicycle sales and repair, 2008, Barcelona.
Entrepreneurship support programmes	Makes use of non-economic entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.
Education level, previous experience	Professional studies and incomplete university studies. Without previous experience in the sector.	Currently studying at university. Possesses some understanding of the sector, thanks to the work–study programmes he participated in at various companies.	University studies. He had no experience in the sector, though his partner did.	Secondary studies. He had no experience in the sector, but he did have extensive knowledge of the product.
Reasons for entrepreneurship	Self-fulfilment and personal improvement and the desire to reconcile family and work.	Started his business when the opportunity presented itself.	Need for personal evolution along with the fact that the opportunity presented itself.	He was unemployed, and since the situation showed no signs of improving, he decided to become an entrepreneur.
Antecedents and key characteristics	Worked as a salesman in multinationals. A year and half ago, he had a daughter and wished to spend more time with his family while doing something he enjoyed.	During his participation in the university work–study programme, he met a colleague and they made plans to start up a business once they had finished their studies. When he had the opportunity, he started up a business.	He was working in the family business and had for some time wished to make a change, when the opportunity presented itself to start up a business with a family member who was moving.	He was working at a company related to the construction sector and when he was left without a job he decided to consider converting his hobby into a job.

Case studies	CASE 13	CASE 14	CASE 15	CASE 16
Entrepreneur profile	Male, 40 years old, married, one son, Barcelona (Spain).	Male, 29 years old, single, Girona (Spain).	Male, 32 years old, single, Tarragona (Spain).	Male, 35 years old, married, two children, Lleida (Spain).
Business activity, year of constitution and location	Transport, rental and sale lifting platforms, 2009, Barcelona.	Restaurant, 2009, Girona.	Tourism consultancy, 2010, Tarragona.	Retail businesses, 2007, Lleida.
Entrepreneurship support programmes	Does not make use of entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes.	Makes use of non-economic entrepreneurship support programmes.
Education level, previous experience	Primary studies. He had experience in the sector, since he was working in a company in the same sector.	University studies. He had experience in the sector by way of the family business.	University studies. Previous experience in the sector.	Secondary studies. Previous experience in the sector.
Reasons for entrepreneurship	A bad professional experience made him decide to leave his previous job.	It was clear to him that he wanted to create his own business, and family support helped him decide.	The need for personal improvement.	The need for personal improvement independent of the family business.
Antecedents and key characteristics	He was working at a company in the sector, and when he decided to leave the job it was clear to him that what he ought to do was create his own business, founded upon the contacts and relationships he had secured in his previous job.	He was working in the family business while completing his studies in the tourism sector. When he finished his studies, he worked abroad in order to gain experience and upon returning created his business.	He was working at a tourism consultancy, and he left to work at the headquarters in London for six months. When he returned, he and two friends decided to create the business.	He was working in the family business after having completed his studies and he became aware that he was interested in doing more than winding up with the family business himself.

In the following section, we discuss each of the environmental factors. Table 3.3 summarizes the effect of formal and informal institutions on female and male entrepreneurs.

FORMAL FACTORS

Access to financial resources and economic support programmes

The case study interviews suggest similarities to those in earlier literature (Coleman & Robb, 2009; Fairlie & Robb, 2009) in that a significant part of the finance needed for the initial development of a project comes from external sources. The percentages for companies created by women and men do not differ, and they tend to range from 50% to 80% of the total financing.

As observed in previous studies, such as those conducted by Orser et al. (2006), in all the cases analysed (except in Case 8), the female participants observe that being in debt is a situation not to their liking, and so they seek to make use of family resources whenever possible. The men, on the other hand, see the process of external financing as something more natural and necessary to the creation of their businesses. This does not imply that female entrepreneurs do not actively involve themselves in the search for finance, though they do follow distinct negotiation processes. Below are the issues mentioned by some of those we interviewed.

I do not at all like to owe money, and it actually leaves me feeling anxious, and although we determine our investments together, he (her husband) is the one who leads the negotiations with the banks, and I believe he knows how to get better treatment. (Case 3)

The financing I needed I negotiated directly with my bank (...) I did consider other options, but only in order to be able to obtain better conditions than those with which to negotiate. (Case 11)

Women are accustomed to being accompanied when they come to us; depending on their age their fathers or people they trust accompany them, and if they are married then it is their husband, but I do not believe it is out of fear, but rather the opposite, out of a sense of security. Furthermore, whenever they can, they look to advance the payment in order to reduce the debt, something which men do less often. (Director of a financial institution)

There is almost no evidence of systematic gender discrimination by banks, but what is apparent is a difference in the level of credit available to women and men, and the perception in some cases that the treatment is different, as noted by Fabowale et al. (1995) and apparent in Cases 2 and 6. In their study, Wu and Chua (2012) suggest that the debt market penalizes female-owned small firms in terms of borrowing costs in the case of sole proprietorships (SP) as compared with other legal forms in which gender is undetectable. The managers of the financial institutions consider that the criteria for access to financial resources are the same for both genders, but they recognize that there are differences in the application, caused in part by the differences in the type of business or guarantees presented, but also by the belief that female entrepreneurs faced with difficulties in accessing financial resources negotiate less actively than men and use family resources more than men, thereby increasing their dependence on their family. This problem has already been highlighted by authors such as Carter et al. (2007), Gatewood et al. (2009) and Marlow and Patton (2005).

In summary, the findings from our case study reveal that the application of criteria related to access to financial resources is not discriminatory, although the findings also reveal that the entrepreneurs do perceive their application differently depending on their sex. Therefore, the differences in the negotiation process, and the perception that both the bank loan officers and female entrepreneurs have with respect to their negotiating skills, are more negatively related to female entrepreneurship than male entrepreneurship. Thus, our first proposition (P1) is supported.

Non-economic entrepreneurship support programmes

We identified the existence of important knowledge related to non-economic entrepreneurship support programmes. It was observed that male and female entrepreneurs who have benefited from one of the services found the information and non-economic entrepreneurship support programmes as useful as the economic programmes (loans, subsidies, etc.). They state that their preparation of a business plan, their reflections and their approach, taking into account the initial situation they faced and the forecasts made, helped them to have a more concrete idea of how their project might evolve. Some of the entrepreneurs who did not make use of support programmes with a specific focus on entrepreneurship (Cases 2, 6 and 7) believe that more training would be necessary to access some of the existing entrepreneurship assistance schemes, as they had been forced, in many cases, to approach external managers. These difficulties were not expressed by those entrepreneurs who made

use of programmes with a specific focus on entrepreneurship (Cases 1, 4 and 8), nor by most of the entrepreneurs analysed (except Case 10). For example:

If we did take a course, there would be a very diverse group of people, each one with their own problems (...) such as family, work (...) I think definitively that the information they gave us did not suit anyone. (Case 6)

What I discovered to be better was that the person in front of me understood me and helped me to find solutions for my business problems as well as how to combine work and family. (Case 8)

The women perceived that female entrepreneurship support programmes are more useful than generic entrepreneurship support programmes. (Support Services for Women Entrepreneurs)

These opinions confirm the importance of public policies aimed at supporting female entrepreneurship, which goes hand in hand with previous observations (Alsos & Ljunggren, 1998; Baugh et al., 2006; Carter, 2000).

The entrepreneurs also stress the need for economic support programmes and less complicated access. They consider the importance of non-economic support programmes, as well, however.

One aspect that should be emphasized is the male entrepreneurs' idea that female entrepreneurship support programmes, or programmes designed specifically for any other group, are not necessary and that a programme should consider the project and its viability rather than focusing on the person developing it (Cases 9, 11, 12 and 13). They believe that it is more necessary to give greater support to projects that are interesting and innovative, an idea also reflected in the papers by Birley et al. (1987) and Chrisman et al. (1990).

The importance of non-economic support programmes is reaffirmed by the earlier literature and by the cases analysed, suggesting that female entrepreneurs who made use of support programmes designed specifically for female entrepreneurship had an easier time and were better guided when it was time to create their businesses, differing from those women who had made use of non-specific support programmes. Therefore, our second proposition (P2) is supported.

Education level

The entrepreneurs state that the necessary education in the service sector can be obtained not only at school but also from experience, and this allows us to perceive the relationship between the previous experience and the activity that the entrepreneur embarks upon, particularly in the case of women.

Unlike some studies, such as those conducted by Bates (1995) and Rees and Shah (1986), in the cases analysed the entrepreneurs did not believe that a general education accentuated management skills, as in many cases general training is available to them, whereas training in management skills is not. This is an aspect mentioned by some of those we interviewed:

I have been able to confirm that when creating a business it is not enough to be good at your job, rather, you must also know about regulations, managing personnel, fiscal aspects (...). (Case 1)

I believe in myself strongly, but I am clearly aware of my weak points, and for that reason I handle the more creative part and Robert (her husband) handles the management. (Case 3)

I do not have qualifications specifically in business management, but I have always been good at it. I am a self-taught person, and for years I have handled my wife's accounting, so adding mine on has not been a problem. (Case 11)

All of the entrepreneurs analysed, both women and men, concur with the importance of having more specific training available within their sphere of activity. They state that more general training would not be necessary for the positive development of their business, but what would be of greater help to them would be more entrepreneurial education. In Cases 1, 5, 7 and 8, the female entrepreneurs say that having greater entrepreneurial knowledge makes them feel more secure when taking certain decisions. This is in line with previous studies, such as that conducted by Wilson et al. (2007).

Another noteworthy aspect is that although entrepreneurs may say how necessary and important an entrepreneurial education is, female entrepreneurs have less knowledge in the field, according to the statements made by all the female entrepreneurs (except in Case 8), whereas male entrepreneurs increase their training in this field and state

that their prior knowledge has been very useful in the creation and management of their business.

The case studies reveal that entrepreneurial education is important for both genders, but the women in the cases analysed have less experience in the area of management, and entrepreneurial education may be of help. Therefore, our third proposition (P3) is partially sustained: entrepreneurial education is necessary for female entrepreneurship as well as male entrepreneurship, but given the initial conditions observed in the analysis conducted one could suggest that entrepreneurial education is always necessary, though to a greater extent in the case of the female entrepreneur.

Table 3.3. Summary of influence of formal and informal factors in case studies

Formal factors	FEMALE ENTREPRENEURS	MALE ENTREPRENEURS	MANAGERS (support programmes, banks, others)	FAMILY ENTREPRENEURS	FINDINGS
Access to finance resources and economic support programmes	High level of dependence on financial resources. Family support in the finance negotiation processes. Hesitate to enter into debt. Less knowledge regarding economic support programmes. Perception that access to financial resources is more difficult than for men.	High level of dependence on financial resources. Individual negotiation. Questions concerning finance addressed mostly to people outside the family core. Knowledge of and access to economic support programmes.	Usually female entrepreneurs are supported by another person in negotiations with financial institutions (father, husband, etc.). Female entrepreneurs make use of family guarantees. Loans are paid back before the due date. Female entrepreneurs state that there is too much red tape when it comes to accessing support for entrepreneurship.	They express difficulties in accessing finance for small entrepreneurial projects. Contribution of family resources to the creation of the business.	The same basic criteria for accessing finance depending on gender. Restrictions in access to finance for small projects, for both genders. Female entrepreneurs have a greater need for reaffirmation and support in the decisions they take. Greater use of family resources in the case of female entrepreneurs. Bank loan officers perceive female entrepreneurs as being less skilled at negotiating. Female entrepreneurs perceive greater difficulties in accessing finance. The same knowledge regarding economic support programmes.

Non-economic entrepreneurship support programmes	High level of knowledge of non-economic support programmes. Considerable importance given to information and advice at a similar level to economic support methods, only in those cases in which they have been used. High consideration of support programmes specifically for female entrepreneurship.	Relative knowledge of non-economic support programmes. Most considered that non-economic help measures are less important than economic support. Support programmes must not favour specific groups but rather good entrepreneurial projects.	Programmes specifically aimed at female entrepreneurship suit the needs of female entrepreneurs better. A large proportion of men consider consulting programmes to be an element that is complementary to other sources of information (managers, friends, etc.).	No information	Female entrepreneurs possess greater knowledge regarding support programmes. Recognition programmes aimed specifically at female entrepreneurs are of greater use. Male entrepreneurs perceive the need for programmes geared towards the potential value of a project as opposed to being aimed at a particular collective. Recognition of their importance after having used them. In some cases, they are seen as less important than economic support programmes.
Education level	General level of education (majority university). Majority trained in non-business areas. They state that they have the necessary technical education, but say they need more business education	General level of education (majority secondary education). They see the importance of specific education in the field of business management. They state they have the necessary education to carry out their activity (general and specific).	The need for business training is observed by all the entrepreneurs working in the services sector. Female entrepreneurs state that they have more need of business training.	No information	General education does not affect entrepreneurship according to gender. The perception female entrepreneurs have is that they need more business training. Greater levels of business knowledge may improve the level of female entrepreneurship.

Informal factors	FEMALE ENTREPRENEURS	MALE ENTREPRENEURS	MANAGERS (support programmes, banks, others)	FAMILY ENTREPRENEURS	FINDINGS
Perception of female entrepreneurs' skills	A less optimistic perception of the evolution of the business. Fear of failure. Low perception of business skills.	Recognition of entrepreneurial self-image. Elevated entrepreneurial image for male entrepreneurship.	Men are perceived as having greater levels of business skills than women. Male entrepreneurs have greater confidence in their business skills.	They consider that female entrepreneurs lack self-confidence.	Perception that female entrepreneurs possess a lower level of business skills and this perception is shared by themselves and by society alike. The family is highly confident in the skills of female and male entrepreneurs alike.
Social networks	Based mostly on most immediate environment (family, friends ...). Greater use of the informal relationships network. Made up of persons of both genders, although mostly by males from their immediate environment.	Not exclusively based on their immediate environment (also include other businesspersons, ex-bosses, associations ...). Make the same use of the formal and informal relationship networks. Social networks are made up basically of men.	Women make greater use of informal networks than formal ones, above all for day-to-day management questions.	No information	High use of the social network regardless of gender. Differences in the type of social network: those used by women are from their most immediate environment and are more informal, whereas those used by men tend to be a more even mix of formal and informal. It cannot be determined whether or not the strategic level of the networks in the case of female entrepreneurs is lower than that of men.

Family context	Family as a fundamental core for the correct development of their entrepreneurship. High interdependence between professional and household contexts. Importance of family role assumed by the woman within the family. Organizing childcare is reported to be a relevant element in the development of the business.	The family is important in the decision to create a business, but is not declared to be fundamental. Normal interdependence between professional and family roles. Organizing childcare is not reported to be a problem for the proper functioning of the business.	Women on the whole express their concerns over how to reconcile caring for their children with creating a business in the services sector. Men do not express this aspect as one of their principal concerns.	The family is considered to be an important element in entrepreneurship, whether it is for economic, motivational or organizational support. In the case of female entrepreneurs, it is declared to be crucial to the development of the new business project.	High interdependence between entrepreneurship and family roles, above all in the promotion of female entrepreneurship. Modification, though small, of the family role in male entrepreneurs. Family context is important for all entrepreneurship, but it is crucial for female entrepreneurship.
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INFORMAL FACTORS

Perception of female entrepreneurs' skills

On the one hand, we find that the female entrepreneurs' perception of their own level of skills is lower than men's (except in Cases 4 and 8), whereas the male entrepreneurs, even when they did not possess greater demonstrable business training than their female counterparts, in every case expressed a higher perceived level of their own skills. For example:

I recognize that I was not knowledgeable about many things related to managing a business, and that made it more difficult for me to decide to start up a business (...) but I have learned quickly. (Case 1)

My previous job afforded me an experience in management which I would not have been able to have no matter how many years I studied (...) and besides, if I do not know something I do my best to find someone who can help me. (Case 9)

You have to know something about everything when you start a business, and what you do not know, you learn quickly. (Case 13)

In all of the cases analysed (with the exception of Cases 4 and 8), the female entrepreneurs noted that the lack of entrepreneurial skills (or the perception of having such skills), along with the possibility of failure, was one of the factors they evaluated most carefully when creating a business.

These findings are supported by previous studies, such as those carried out by Arenius and Kovalainen (2006), Langowitz and Minnitti (2007) and Verheuel et al. (2005), which suggest that their perception of entrepreneurial skills increases women's entrepreneurial activity.

On the other hand, we find in the cases analysed that with regard to the perception that society has regarding their skills, more women than men say that in some circumstances they have had to work harder to demonstrate their worth (Cases 1, 3, 4 and 8), whereas out of the men only one of the entrepreneurs states that his knowledge had once been doubted because of his youth.

Some of the women analysed (Cases 1, 3, 5 and 7) declare that both their training and their family influences have been key factors in the perception of their skills and therefore in the decision to create their business; this coincides with prior studies, such as those carried out by Jacobs (1996) and Leoni and Falk (2010).

As Langowitz and Minnitti (2007) suggest, the female entrepreneurs in our study demonstrate the same self-confidence in their capacities as the men, except with regard to their perception of management skills. The images society has of male entrepreneurs and female entrepreneurs, however, are somewhat different from one another: characteristics such as empathy or communication skills are attributed to female entrepreneurs, and these characteristics tend to be associated more with the services sector, in which the analysed cases are situated.

The evidence obtained from this case study and from previous studies suggests that the perception of entrepreneurs' skills is more important in the case of female entrepreneurship than in the case of male entrepreneurship, in which the perception the entrepreneur has of his own skills and the perception society has of his skills are less important. Therefore, our fourth proposition (P4) is supported.

Social networks

In relation to social networks, we observed that the social networks created by women tend to replace those capacities or skills they lack, which are normally more closely related to certain fields of business management (such as finance). Apart from the family networks, these social networks essentially include people with whom they have a working relationship, albeit a personal one, whether it be with managers or customers and providers, and to a lesser degree this may include other business people, whereas men include other business people to a greater degree, consulting their ex-bosses and colleagues or other business people who have more experience and can advise them and offer management tips.

This seems to show that networks created by women boast more operative and strategic levels than those suggested by Brush (1992), though in Catalonia there are more than thirty women's associations in the economic and business fields that are available to entrepreneurs.

The consideration that the networks created by women are at a lower strategic level than those created by men is related to the fact that women tend to rely more on the networks in which family members predominate, an aspect which also translates over to their personal social networks (more than half of the women who use social networks do so in order to communicate with family, as opposed to men, for whom the percentages are smaller). This aspect is not exclusive to the sample which was studied; other studies, such as the one conducted by Ruiz et al. (2012) already indicate that the possession of certain professional networks or knowledge of other entrepreneurs is more patent in the male collective than in the female collective, demonstrating that the crisis has more sharply defined the already existing differences between them. The Spanish GEM report for 2005-2009 reflects how in 2007 the entrepreneurs who stated they had a professional network were 55.6% in the case of men and 50.1% in the case of women, while these percentages for 2009 dropped to 44.9% in the case of women and stayed the same for men.

An aspect which appears to have evolved over time is that previous studies demonstrated that women entrepreneurs tended to rely to a large degree only on family relations (Renzulli, 1998), though now we observe that, while female entrepreneurs state that they continue to seek out their family networks when they need financing more than their male counterparts do, that is not the case with respect to consulting others regarding business matters; in these cases, women make use of their

professional contacts, just as men do, though for women, as we have already mentioned, these contacts are fewer in number.

Another aspect which has led to the consideration that women's social networks reflect a lower strategic level is the diversity of networks available to them, since women appear to make use of contacts which are more homogenous in nature, in terms of professional profiles, than do men. This aspect may be related to the preferences women have for the collaborative network (Ogunrinola, 2011; Sorenson et al., 2008), and this, along with fewer contacts, may imply a disadvantage.

Female entrepreneurs prefer (or need) to use social networks, but these networks are essentially composed of family (every case except Cases 4 and 14 confirms their influence), and the evidence taken from the case studies indicates points of view similar to those in the earlier literature, e.g. Brush et al. (2009), Greve and Salaff (2003) and Sorenson et al. (2008). This is an aspect mentioned by some of the people we interviewed:

Whenever I have to consult with someone besides my wife on an important decision, I always talk with my old boss; even when he cannot help me, he always gives me useful ideas. (Case 9)

Any doubts I have regarding managing the business I mention to my father. (Case 1)

Decisions on monetary investment are made with my husband. (Case 7)

The analysis does not show that the social networks created by women are essentially made up of women or that those created by men are made up of men, as several authors have previously stated (Aldrich et al., 1989). In fact, in the case of women it is quite the opposite: their networks are mainly composed of men and these men tend to be family members.

Therefore, taking into account the evidence from the case study summarized above, we suggest that the social networks created by women are based on the immediate environment, except in the cases of two entrepreneurs (Cases 4 and 8) who also include suppliers and other entrepreneurs in their social networks, and so our fifth proposition (P5) is partially accepted, since the results are not decisive with respect to the strategic level of the social networks created by women.

Family context

In our analysis, we observed that reconciling dedication to work and family is a need that all female entrepreneurs share, unlike male entrepreneurs who, though they consider the family context to be very important, do not declare it to be a key element when creating their business. Some of their answers are:

It is not an obligation, but, rather, a necessity; as at the weekend I cannot dedicate as much time to my children as I would like, I arrange my schedule so that I have two afternoons a week free, dedicated to them. (Case 3)

With the schedules that we have, I need to depend on the entire family so that they help me with the logistics involving the kids (...) sometimes I feel a bit guilty not being able to be with them more, but what job allows you to dedicate your time completely to your kids? (Case 6)

One of the reasons I left my previous job and started my own business was to be able to watch my daughter grow up (...) I have to recognize that my daughter spends more time with Ana (wife) and her grandparents. (Case 9)

We help with the day-to-day organization and principally with the children. (Family member)

All of the female entrepreneurs analysed (except Case 4) described the importance of the family context to the creation of their businesses, as opposed to only three of the male entrepreneurs (Cases 9, 11 and 16). This aspect is confirmed in the previous literature, which suggests that working women still bear the main responsibility for household chores, even when they work full-time outside the home, and this is seen as a factor that acts to discourage female entrepreneurship (Aldrich & Cliff, 2003; Williams, 2004). It may be suggested that the family context has a greater impact on female entrepreneurship than on male entrepreneurship, as already indicated by Jennings and McDougald (2007), and that the need for the family embeddedness perspective on entrepreneurship is essential (Aldrich & Cliff, 2003; Brush et al., 2009). Therefore, our sixth proposition (P6) is supported.

3.5. Conclusions

This chapter explores the main characteristics of female entrepreneurship in Catalonia (Spain), with the aims of obtaining knowledge regarding the influence of environmental factors, in accordance with North's institutional economics theory (1990, 2005), and of highlighting some factors that may be more important than others.

Moreover, various points have been extrapolated from the current chapter. As regards formal factors, the research suggests the need to maintain the existing support programmes and both economic and non-economic policies, by making the first more flexible and promoting the visibility of the latter, and maintaining specific programmes for female entrepreneurs that are better adapted to the specific needs of the collective. In terms of general education, there is also a need to promote the skills and capacities related to entrepreneurship and innovation. In the long term, this should help transform the perception that female entrepreneurs have of their own skills as well as the perception society has of those same skills. An improvement in entrepreneurship education could also reduce the differences in access to finance produced by the differences in the negotiation processes. The development of more social networks (through the creation and use of more associations in which new entrepreneurs find support in the early stages of entrepreneurial project) are very important for promoting female entrepreneurship.

The research suggests that informal factors have greater importance in female entrepreneurship, and this justifies the need to analyse these factors, specifically, by distinguishing the entrepreneurs' gender (Langowitz & Minniti, 2007; Minniti & Nardone, 2007; Verheul et al., 2005). In this context, Wilson et al. (2007) suggest that entrepreneurial education can reduce the potential differences between female and male entrepreneurs.

Therefore, in the following chapter, we analyse specifically the relationship between socio-cultural factors and female entrepreneurship.

findings suggest that entrepreneurship is embedded in a socio-cultural context, revealing that it is a societal phenomenon rather than a purely economic activity (Steyaert, 2007).

Therefore, the purpose of this chapter is to analyse the main socio-cultural factors and their impact on female entrepreneurship in Catalonia (Spain), and to establish differences between female and male initiatives, using the institutional approach (North, 1990, 2005) as a theoretical framework.

The main findings of the study reaffirm the relevance of socio-cultural factors to entrepreneurship. The social networks and the family context are the two most important factors in female entrepreneurship.

After this introduction, the structure of this chapter is as follows. First, the conceptual background is presented along with the main characteristics of institutional economics. Second, the research design and data method are described. In the next section, the main findings of the study are discussed. Finally, the implications, both theoretical and practical, are drawn in the conclusions.

4.2. Conceptual framework: Informal factors

The study of female entrepreneurship, as we have observed in Chapter 1, has focused on a wide variety of themes among which a number predominate: (i) the principal characteristics of female entrepreneurs or their differences or similarities regarding intentions, motivations and self-efficacy as compared with those of their male counterparts (Brush, 1992, Brush et al., 2006; Gatewood et al., 2003; Sexton & Bowman-Upton, 1990; Welter et al., 2006); (ii) access to financial resources, for which it is observed that, although the criteria for evaluation used by financial institutions may be the same for women and men, differences do exist in the negotiation process or in the presentation of guarantees of return (Alsos et al., 2006; Brush, 1992; Carter & Rosa, 1998; Carter et al., 2007; Gatewood et al., 2009; Kim, 2006; Marlow & Patton, 2005); (iii) management practices, growth and strategies for success (Carter & Cannon, 1991); (iii) economic and non-economic entrepreneurship support programmes that, it may be observed, have had positive effects on female entrepreneurship (Alsos & Ljunggren, 1998; Carter, 2000; Nilsson, 1997); and (iv) social and cultural factors, given that in recent times there has been a marked increase in the study of gender differences in network structures, networking behaviour and the effect of social and

cultural factors (Gatewood et al., 2009; Greve & Salaff, 2003; Sorenson et al., 2008; Thornton et al., 2011).

The first researchers had a tendency to underestimate the influence of social and cultural factors and overestimate the influence of personal and economic factors (Gartner, 1995). However, there were authors who demonstrated feminization in management qualities, establishing that 'gender is not peripheral to a researcher's understanding of management; gender is part of the very conceptualization of management' (Fondas, 1997:275). These researchers recognized feminine qualities, even though the authors did not define them as such.

In this chapter, we also consider institutional theory, according to North (1990, 2005), as the theoretical framework. In Chapter 1, we offered a broad definition of North's concept of institutional theory, in which a wide concept of institution is developed, distinguishing between formal and informal institutions.

Informal institutions are transmitted socially, shaping part of that which is called culture (North, 1990), and, as we have observed previously, within the context of female entrepreneurship, the importance of informal institutions is presented as a key factor to explain the differences between women and men with respect to the creation of businesses.

The premise of our research is that all entrepreneurship is embedded within a social context (Aldrich & Zimmer, 1986; Davidsson, 2003; Steyaert & Katz, 2004) and that, in order to understand female entrepreneurship, it is essential to study the societal values, norms, culture and expectations of the capacities of female entrepreneurs.

Various authors share the opinion that entrepreneurship is an embedded phenomenon and, as such, the perception the entrepreneur has of the environment is as important as her relative position within that environment (Díaz-García & Jiménez-Moreno, 2010; Jack & Anderson, 2002). The beliefs, attitudes or behavioural norms of society (Thomas & Mueller, 2000; Zahra et al., 1999) may emphasize the importance of one characteristic or another that would be more appropriate for the success of the entrepreneurial activity (Marlow & Patton, 2005).

Linking the existing literature on female entrepreneurship and institutional economics, our research suggests four key socio-cultural factors as important determinants of female entrepreneurship: (i) **social networks** research is a popular topic in entrepreneurship, regarded as the 'perennial and potential sapling in women's

entrepreneurship research' (De Bruin et al., 2007:325). Yet, until recently, studies that consider women autonomously or compare them with male entrepreneurs were limited. The previous studies suggest that social networks normally facilitated the predisposition towards entrepreneurship, although not in the same way for both genders (Aldrich et al., 1989; Brush, 1992; Greve & Salaff, 2003; Kim & Aldrich, 2005; Rosa & Hamilton, 1994). (ii) **Role models**: research into entrepreneurship has confirmed the positive relationship between role models and entrepreneurship (Krueger et al., 2000; Scherer et al., 1989; Toledano & Urbano, 2008); what remains to be seen is whether the relationship is equal for the two genders. Given the positive relationship between role models and entrepreneurship, Barnir et al. (2011) observe the effect of role models on self-efficacy, while studying, at the same time, whether the effect is different for women as compared with men. Their results indicate that exposure to entrepreneurial role models is positively associated with entrepreneurial career intention, and they demonstrate that exposure to role models has a stronger positive effect on entrepreneurial self-efficacy for women than for men. Similarly, authors such as Schiller and Crewson (1997) suggest that there are differences between the effect that family role models have on men and women, observing that when mothers are entrepreneurs, their entrepreneurial intentions are affected, but not those of men. (iii) Investigations into **entrepreneurial attitudes** have suggested many reasons to justify why women may consider an entrepreneurial career undesirable. One such reason is the perception that entrepreneurial activity belongs more to the male domain (Ahl, 2002; Nilsson, 1997), which may be disadvantageous for female entrepreneurial activity (Marlow, 2002). In more recent studies, a change in tendency is observed: we can see that men and women with firm entrepreneurial intentions both perceive successful businesspeople as possessing feminine attributes (Díaz-García & Jiménez-Moreno, 2010). Similarly, it can also be seen that the motivation and self-perception of female entrepreneurs are similar to those of men (Birley et al., 1987; Catley & Hamilton, 1998; Fischer et al., 1993; Rosa & Dawson, 2006; Schreier, 1973). However, what is different is that society assigns higher management competence to men and more empathy, flexibility and communication skills to women (Brush et al., 2009; Fairlie & Robb, 2009). Following this line, investigations have been conducted with the aim of determining whether the perceptions and beliefs regarding the empathetic attitudes of female entrepreneurs are due to the physiological or intrinsic characteristics of women, or whether they are determined by socialization (Aldrich et al., 1989; Minniti & Nardone, 2007; Shelton, 2006; Yusuf & Saffu, 2005). Another reason why entrepreneurial activity is seen as less desirable for women than for men is found in the relationship between the perception of female entrepreneurs' own capacities and the environment in which

women or men must develop their entrepreneurship. In a society in which the female role is tied up closely with family responsibilities, the idea that entrepreneurial activity is less desirable is instilled in women (Baughn et al., 2006; Langowitz & Minniti, 2007). Kantor (2002) further comments on the existence of gender roles and responsibilities within society that limit female entrepreneurship but not male entrepreneurship. He defines the concepts of 'women exclusive constraints', distinguishing them from others, such as 'women intensive constraints', limitations that affect men as much as women, though they affect the latter in a more relevant manner. The fourth socio-cultural factor that determines female entrepreneurship is (iv) **family context**. The integration of family into entrepreneurship has been examined by various authors during the last decade, suggesting the need to include this dimension in conceptualization and analysis (Aldrich & Cliff, 2003). Prior to the inception of this concept, the embeddedness approach had ignored one of the institutions to which all entrepreneurs are related: the family. Authors like Williams (2004) conducted studies on whether the family, in particular the maternal role, affects female entrepreneurship, observing that while it is not conclusive that the time dedicated to the care of children influences the success of a business, social responsibility is an important element in the decision to create a company.

The situation in Spain has changed greatly during the last century. The family context for women has been modified as their participation in the labour market has increased, allowing them to gain experience and finance, but placing unfair labour practices (the glass ceiling) in their path, all of which may motivate female entrepreneurs to create their own businesses. As authors such as Brush (1992) note, female entrepreneurship is often motivated by the failure to achieve the desired work situation.

Furthermore, the relationship between family members has undergone changes in the last half-century: it has developed from the traditional family model that includes a father and mother, in which the woman might work professionally, to today, when a widely diverse set of household types exists (with children, without children, children with just one parent, elderly fathers, etc.). As Bianchi (2000) points out in a study published a decade ago, all of these changes may cause variations in the time dedicated to a professional activity and to the family, as well as their influence on female entrepreneurship.

The new family relationships bring with them new needs (persons to take care of the children, of the parents, etc.), and, as various authors point out, 'these changes in the social bonds between family members are creating entrepreneurial opportunities'

(Aldrich & Cliff, 2003:588), which may also in some cases promote female entrepreneurship.

4.3. Methodology

This research, as in Chapter 3, also makes use of a qualitative methodology based on case studies and in line with Eisenhardt (1989, 2007) and Yin (1989, 1994). It is worth noting that this methodology is being used more often within the field of new venture creation (Rosa & Dawson, 2006; Urbano et al., 2011).

This research utilizes a multiple-case study design following a theoretical replication to explore the main socio-cultural factors that influence female entrepreneurship in the service sector in Catalonia (Spain), and to establish the differences with regard to male initiatives. In order to fulfil the precept of reliability, a pilot phase is carried out before obtaining the final data: we analysed two companies (one created by women and one by men) to validate the designed protocol for the semi-structured interviews.

The selection process began with contacts with ten entrepreneurs, who in the last three years had created their own businesses in the services sector in Catalonia, one of the regions in Spain with the largest number of businesses (18.5%),⁷ and one of the four regions with a services sector that generates almost 70% of its business volume, and with one of the highest entrepreneurship indices of European Union countries (De la Vega et al., 2009). From among these ten entrepreneurs – five women and five men – three women and three men were selected, and within these two subgroups we included one immigrant entrepreneur, with the goal of obtaining the greatest diversity of information (Eisenhardt, 1989) from the point of view of the study of the effects of socio-cultural factors on female entrepreneurship. Table 4.1 provides a summary description of the participating cases.

The data were collected over a twenty-month period (November 2009 to July 2011), and the interviews⁸ were based on three sources of evidence. Firstly, male and female entrepreneurs complying with the basic guidelines were contacted.

Secondly, the immediate families and friends of the entrepreneurs were interviewed (parents, partners, children and friends) so as to be able to identify the influence of

⁷ INE (2010).

⁸ See the interview protocol in Annex 2.

social networks and family context on entrepreneurship and to understand the interdependence between them.

Finally, three entrepreneurship experts offered their views regarding the influence of social and cultural factors on female and male entrepreneurship and the differences between them, lending themselves as a whole to the triangulation of the data obtained.

The process for this qualitative analysis was as follows: as the interviews were recorded, they were transcribed and coded supported by a qualitative data analysis software package, ATLAS.ti.

Table 4.1. Characteristics and basic profiles of the cases of study

Case studies	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 6
Entrepreneur profile	Female, 28 years old, single, Barcelona (Spain).	Male, 45 years old, married, one daughter, Salamanca (Spain).	Female, 31 years old, married, two children, Barcelona (Spain).	Male, 24 years old, single, Barcelona (Spain).	Female, 40 years old, married, two children, Santiago de Chile (Chile).	Male, 42 years old, married, two children, Qingtian (China).
Business activity, year of constitution and location	Publicity and brand communication strategies, 2009, Barcelona.	Sales of computers and computer components, repair service and technical assessment, 2010, Abrera (Barcelona).	Fashion design and cosmetics products, 2009, Igualada (Barcelona).	Travel agency, 2010, Sabadell (Barcelona).	Food industry, 2008, Barcelona.	Textiles and accessories, 2010, Barcelona.
Entrepreneurship support programmes	Makes use of non-economic entrepreneurship support programmes.	Makes use of non-economic entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.	Makes use of economic and non-economic entrepreneurship support programmes.	Does not make use of entrepreneurship support programmes.
Education level, previous experience	University studies and a Master's. Previous experience in the sector.	Professional studies and incomplete university studies. Without previous experience in the sector, but possessing ample knowledge due to personal relationships and hobbies.	Non-university professional studies. Previous experience in the sector.	Currently studying at university. Possesses some understanding of the sector, thanks to the work-study programmes he participated in at various companies.	Basic, non-university studies. Currently undertaking language studies. High level of previous experience in commercial activities.	Basic, non-university studies. Previous experience, related to current activity, gained in businesses owned by his fellow countrymen.

Reasons for entrepreneurship	Self-fulfilment and personal improvement, desire to create a business.	Self-fulfilment and personal improvement and the desire to reconcile professional and family environment. His previous occupation kept him away from the family home.	The impossibility of finding a financially satisfactory job and the desire for self-fulfilment.	Started his business when the opportunity presented itself.	Difficulty finding adequate, reasonably paid employment.	Aspirations of having his own business.
Antecedents and key characteristics	Began her professional career working for an important advertising agency where she was assigned major brands, but she wished to apply her knowledge to small and medium-sized companies and to have more direct contact with people and their needs.	Worked as a salesman in multinationals. A year and half ago, he had a daughter and wished to spend more time with his family, while doing something he enjoyed.	For some time she had already considered the idea of creating something that was her own, but it was not until she was without work and having trouble finding another job that she decided to start her own business.	During his participation in the university work–study programme, he met a colleague and they made plans to start up a business once they had finished their studies. However, there was an opportunity to obtain a well-located store and so they decided to advance their plans.	Had worked in many businesses and diverse occupations – restaurant industry, domestic work, shops, etc. – but the moment arrived when finding employment became difficult and she decided to start her own business.	Had been working in companies run by fellow Chinese, saving money in order to start his own successful business, which is the reason he moved from his country of origin.
Interviews	November 2009 to June 2010	November 2009 to June 2010	November 2009 to June 2010	November 2009 to June 2010	January 2011 to July 2011	January 2011 to July 2011
Lasting	90 to 120 min on average	60 to 90 min on average	45 to 120 min on average	90 to 120 min on average	90 to 120 min on average	45 to 60 min on average

4.4. Results and discussion

The evidence obtained from the case studies, based on interviews, observations and secondary information, together with the knowledge provided by the literature on the subject, allows us to present a series of propositions on the influence of socio-cultural factors, or informal institutions, according to North (1990, 2005), on female entrepreneurship, as well as to establish the differences existing between female and male entrepreneurs. Table 4.2 shows the main characteristics of socio-cultural factors or informal institutions in the six case studies.

In the following, we discuss the socio-cultural factors from an institutional perspective (North 1990, 2005).

Table 4.2. Summary of socio-cultural factors or informal institutions in the case studies

Case studies	CASE 1	CASE 2	CASE 3
Social networks	Mix of networks made up of friends and colleagues, whom she has met in the course of carrying out her professional activity, and family networks. Diverse degrees of importance of each network according to needs, although the family networks have always been a constant factor with greater or lesser prominence. Mixed networks (men and women). Belongs to a professional association.	Social networks made up exclusively of friends and colleagues. Makes use of these networks in order to obtain financing and technical information. Networks made up almost exclusively of men. Does not belong to any professional association.	Social networks made up exclusively of family members. Few friends have their own businesses and fewer in the sector in question. Does not distinguish between networks according to gender or economic aspects. She consulted basically men. Does not belong to any professional association.
Role models	Her father, a businessman. Fundamentally male role models.	Friends who are businessmen and colleagues and acquaintances in the professional environment. Fundamentally male gender.	No noteworthy role models.
Entrepreneurial attitudes	She has doubts about her capacities because she is young and a woman, traits associated with less experience. Society does not prepare a person for entrepreneurship, an aspect that lately, nevertheless, has greatly improved. Reluctant when faced with risks. She believes she makes use of all the existing opportunities. While highly skilled in communication, she lacks management skills, though these are improving day by day. High level of confidence in personal capacities, low level of confidence in the current economic situation and its effect on business activities.	Society values the 'more social' professions, such as doctors. Society basically generates workers who work for others. High levels of confidence in himself and in the idea that opportunities do not depend entirely on the general economic situation. A risk-taker by nature, but not impulsive – risk-taking in moderation. Highly skilled in communication and management capabilities.	Society places high value on the activity. Society does not prepare us for entrepreneurship. Low expectations for the future and for the need to succeed. Knows how to work as part of a team and has confidence in herself. High communication skills, low organizational skills. Reluctant when faced with risks, but seeks to take advantage of opportunities as they arise.
Family context	The family context is basic; it may facilitate access to financing that otherwise would be quite difficult to obtain. It may also make it easier for many women to be able to create their own company and help cope with family responsibilities. She believes that women have the obligation and the need to combine their professional activity with the role assigned to them by society, namely a caretaker of the house and family.	The family context is important, especially with respect to motivation. An adequate family context should facilitate reconciliation with family. This entrepreneur quit his previous job in order to be able to combine his work and home life. Nonetheless, he recognizes that many women do not have the option to choose.	The family context is essential in order to be able to undertake any professional activity in today's world. Women have family responsibilities that, whether imposed on us by society or not, they desire to fulfil; it is not just an obligation.

Case studies	CASE 4	CASE 5	CASE 6
Social networks	Social networks made up exclusively of family members. There are no friendships involved. Basically, they discussed with men (father and professional consultants). Does not belong to any professional association.	Social networks made up basically of family members and close friends. The people she consulted regarding economic aspects were basically males.	Social networks made up basically of family members and fellow countrymen who are entrepreneurs and have similar businesses. Makes use of networks to obtain financing and labour for his company.
Role models	Father, who is a businessman, and acquaintances through his father. Basically, male gender.	She knows people from her community who have also created their own businesses (women and men).	Role models within his community of origin, friends and countrymen who have created similar businesses.
Entrepreneurial attitudes	Highly values the activity of the businessperson, independent of gender, as a minimum in the sector dealt with. High levels of self-confidence, vitality and enthusiasm. Considers highly the business profession. The creation of their company owes much to their taking advantage of an opportunity that presented itself.	The stereotypes of the most common activities undertaken by women and more so by foreign women are quite fixed and in many cases limiting. Women in this society are more inclined to work for others than become entrepreneurs. Highly skilled in communication. High levels of vitality, enthusiasm and capacity for work, which compensate for technical shortcomings in the area of management.	In his country there is a bias towards the creation of businesses. He has a high level of confidence in personal capacities. The current economic situation is not important; he considers that a person creates his own opportunities.
Family context	Dedication to family affects male and female entrepreneurs equally. The family context has been very important for the financing, information and support.	The family context is basic; without help from family, both economic and general support, it would not have been possible to start her own business. Creating a business has not modified her dedication to her family; she still performs the same domestic duties. That her children are now older helps her greatly in combining activities.	The whole family has a responsibility to the business. The relationship family–business dissolves; one is not understood without the other. All that is achieved leads to the well-being of the family or of the community, above the interests of the person.

Social networks. The evidence from the case studies indicates similar points of view to the previous literature, reaffirming the differences between the social networks created by female entrepreneurs and male entrepreneurs, as demonstrated by Case 2, in contrast to Cases 1, 3 and 5.

In these latter cases, one can observe that the social networks used most by these female entrepreneurs were family members, but in the case of male entrepreneurs, the

importance of friendships and above all professional contacts obtained earlier on is reaffirmed, as in Case 2, in which we note that:

The contacts my previous job afforded me are something that cannot be bought; they have been of great use to me, especially when obtaining references in order to secure the money necessary to start the company. (Case 2)

We have relied exclusively on help from the family; we have to help one another, today for me, tomorrow for you. (Case 3)

The women's social networks tend to be smaller and consist basically of family members, and male entrepreneurs' social networks tend to be bigger and made up exclusively of men.

Men dominate the top positions in the financial systems, and this may be one of the reasons why women are finding it increasingly difficult to access financing for their projects and opportunities from their environment.

For instance, in Cases 2 and 6, there are social networks that provide the support and financing necessary for entrepreneurship. This is an aspect that is confirmed in previous literature (Aldrich et al., 1989; Brush, 1992; Gatewood et al., 2009; Greve & Salaff, 2003, Sorenson et al., 2008; Urbano et al., 2011). The above discussion gives rise to the following proposition:

Proposition 1: Social networks have a positive effect on entrepreneurship.

- **Proposition 1a:** Social networks are more positively related to female than to male entrepreneurship.
- **Proposition 1b:** The social networks of female entrepreneurs have more gender equality among their members than those of men.
- **Proposition 1c:** Strategic social networks are more related to male than to female entrepreneurship.

Role models. In our cases of study, it is observed that the role models of the female entrepreneurs are found basically within the family, rather than being sought outside the immediate environment, whether their town, community or society generally. As a motivating element, this aspect is fulfilled in Case 5, in which role models are entrepreneurs already established in the community, or in Case 6, in which role models

are found in the family environment as well as among countrymen who have previously created businesses. In Case 2, we observe the importance of role models from outside the immediate family environment. The small influence of the non-family- member role models is reaffirmed in the case of the Spanish female entrepreneur. This is an aspect mentioned by some of those we interviewed: Nobody from my family has created a business, we have always served others, but I do know colleagues from Chile and from other countries who have created a business. (Case 4)

I have businessmen friends I met at my previous job and whom I really admire; I have always wanted to be like them (...) and one day I decided to. (Case 2)

I believe that had my father not been a businessman I would have found it more difficult to create my business, but it is what I have always lived. (Case 1)

These findings are supported by previous studies, which analyse the positive correlation between the decision to become an entrepreneur and having parents who are entrepreneurs (Chlosta et al., 2010; Dunn & Holtz-Eakin, 2000; Fairlie & Robb, 2007; Hout & Rosen, 2000).

They also point out that men and women are both affected by role models, but while these exist for men via the media, they are currently lacking for women, and therefore women need more personal role models (BarNir et al., 2011). Therefore, we suggest the following proposition:

Proposition 2: Role models positively affect entrepreneurship.

- **Proposition 2a:** Family role models are more positively related to female than to male entrepreneurship.

- **Proposition 2b:** Non-family role models are less positively related to female than to male entrepreneurship.

Entrepreneurial attitudes. We emphasized in Cases 1 and 5 that management by women is more participative, communicative, empathetic and flexible, and there is more sharing of information and working together as a team. There are similar findings in previous studies (Brush, 1992; Eddleston & Powell, 2008). The women are of the opinion that their entrepreneurial education is quite reduced and that society generates stereotypes related to their capacities or the types of jobs for which the women are prepared. For example:

At times I have found that they have associated the fact that I am a woman and young with a reduced capacity, an aspect which changes once work has begun (...) the problem is getting the job. (Case 1)

The ideas that people have regarding the jobs which women, and especially women immigrants, are capable of carrying out may limit you at the moment. (Case 5)

According to the analysed cases, favourable entrepreneurial attitudes constitute an important factor in explaining entrepreneurship (Cases 2, 4, 5 and 6, of which only one is a woman). It is noted that:

Working at other companies I saw that I was missing something, and furthermore I have always worked freelance, helping friends who had businesses, and I had wanted to put something of my own together. (Case 1)

It was natural; when I had saved up enough money I would begin my own business. (Case 6)

Therefore, we propose the following:

Proposition 3: Favourable entrepreneurial attitudes have a positive effect on entrepreneurial activity.

- **Proposition 3a:** The favourable entrepreneurial attitudes of women are more positively related to the creation of businesses than those of men, especially in non-technological sectors.

Family context. In our case, we observe that in Cases 1, 2, 3 and 5, all the female entrepreneurs and one male equally demonstrate the need to reconcile dedication to family and business. Some of their answers are:

Women have the obligation and the need to combine their professional activity with taking care of the family. (Case 1)

Creating my own business has not altered my dedication to my family; I still do the same household chores, but at different moments, and, furthermore, having children who are older has helped greatly to combine everything. (Case 5)

The family context is basic; it can bring money or facilitate access to financing as in my case, or in others help in the care of the children. (Case 1)

These findings are supported by previous studies, which suggest that working women still bear the main responsibility for household chores, even when they work full-time outside the home, and this fact is seen as discouraging female entrepreneurship (Aldrich & Cliff, 2003; Williams, 2004).

We observe that in the cases presented in this chapter, the importance of a family context, which favours female entrepreneurship, becomes essential, whether to provide the financing necessary to undertake a business venture, as motivation or as help in taking care of the children. It is evident that the family context may have a greater impact on female entrepreneurship than on male entrepreneurship (Jennings & McDougald, 2007), and the need for the family embeddedness perspective on entrepreneurship becomes essential (Aldrich & Cliff, 2003; Brush et al., 2009). Therefore, we suggest this final proposition:

Proposition 4: The family context conditions entrepreneurship.

- **Proposition 4a:** The family context is more negatively related to female entrepreneurship than to male entrepreneurship.
- **Proposition 4b:** The traditional family context is negatively related to female entrepreneurship.

4.5. Conclusions

The aim of this chapter was to analyse the main socio-cultural factors and their impact on female entrepreneurship, as well as to present their differentiation among female and male entrepreneurship in Catalonia. The results reaffirm the importance of the influence of the socio-cultural context on female entrepreneurship. Moreover, as we propose in consideration of the environment observed, informal factors benefit our understanding not only of female entrepreneurship, but also of male entrepreneurship.

We combined the literature on female entrepreneurship and institutional economics (North, 1990, 2005) and the information obtained from the case studies according to Yin's qualitative methodology (1989, 1994, 2003). Then, we suggested four propositions derived from our study, in order to explain the influence of the socio-cultural factors on female entrepreneurship.

Concerning the main findings of the study, it is observed that social networks are important to the promotion of entrepreneurship, and in the case of female

entrepreneurs, these networks are basically made up of family and friends, who do not provide them with the necessary contacts to access financing easily or help in identifying opportunities. They must, for example, depend on the family in order to obtain the money that they do not obtain from financial institutions. There are strategic differences in social networks between female and male entrepreneurs. Of further importance are role models, who, in the case of female entrepreneurs, are from within the family; they are not found in their community or in society. This latter aspect differs from that observed among male entrepreneurs and female immigrant entrepreneurs. A third important socio-cultural factor relates to the favourable entrepreneurial attitudes that Spanish society inculcates.

As a result, the lack of entrepreneurship education (a problem, nevertheless, that is gradually being resolved with the inclusion of entrepreneurial skills in secondary and higher education) means that society continues to emphasize directly or indirectly attitudes and responsibilities tied to the family, which often instil in women the notion that entrepreneurial activity is less adequate or less desirable than other activities (Aldrich & Cliff, 2003; Baugh et al., 2006; Langowitz & Minniti, 2007). This study found that the family context is a crucial factor in the development of female entrepreneurial activities, one that, in light of the information obtained, may not be considered as simply another socio-cultural factor of female entrepreneurship, but rather a factor that also affects the rest.

Different implications can, therefore, be drawn. From a political point of view, the research results may contribute to the creation of knowledge in an underexplored area such as female entrepreneurship in Spain, which could help politicians in the development of a sustainable entrepreneurial support infrastructure that might better meet the needs of female as well as male entrepreneurs. From the academic point of view, this study contributes to an understanding of the socio-cultural factors (Davidsson, 2003; Downing, 2005; Urbano et al., 2011) or informal institutions, based on the work of North (1990, 2005), that affect female entrepreneurship in Catalonia.

The results obtained in Chapters 3 and 4 suggest the suitability of institutional theory and reaffirm the importance of informal institutions over formal institutions with respect to research on female entrepreneurship. It might be interesting to test empirically the propositions derived from these investigations, using quantitative techniques and wider samples of female and male entrepreneurs. It would then be possible to reach more generalizable conclusions regarding the influence of institutional factors on female entrepreneurship.

Therefore, in the next chapters, and based on the previous literature review and the qualitative research, we focus on the influence of institutions on female entrepreneurial activity, at the regional level (Catalonia) and at the national level (Spain). Using quantitative techniques, we will formulate hypotheses with the aim of helping to develop a greater understanding of the environmental factors that influence female entrepreneurship and to ensure confidence in the validity of the findings.

This chapter is structured as follows. After this introduction, the second section presents the theoretical framework of the investigation. The third section presents the methodology employed in the empirical analysis and the fourth section discusses the most relevant results of the study. Finally, the article offers relevant conclusions and suggestions for future lines of research.

5.2. Conceptual framework: Informal factors

As has already been suggested, in recent times there has been growing recognition of the significant effect that the socio-cultural factors of the environment have on the entrepreneurial process. This idea is based on the understanding that the entrepreneurial process is an embedded phenomenon, whereby the perceptions each individual has of the environment and the position each individual holds within that environment are interrelated. As we have been able to see in previous chapters, many studies have demonstrated that socio-cultural factors play a relevant role in the increase or decrease of the perception of skills and characteristics needed to promote entrepreneurial activity (Langowitz & Minniti, 2007; Marlow & Patton, 2005; Thomas & Mueller, 2000). As previously, we shall refer to these socio-cultural factors as the informal institutions, or culture, of a society, as evidenced by its codes of conduct, attitudes, values and behavioural norms (North, 1990). This will serve as the theoretical framework of reference selected for this investigation.

Much of the literature on entrepreneurship proposes that perceptual variables, specifically fear of failure, perceived capabilities, perceived opportunities and role models, are the most important drivers of entrepreneurial behaviour (Arenius & Minniti, 2005; Koellinger et al., 2005), especially in the case of female entrepreneurship (BarNir et al., 2011; Díaz-García & Jiménez-Moreno, 2010; Koellinger et al., 2011; Langowitz & Minniti, 2007; Minniti & Nardone, 2007).

Classic economic theory suggests that entrepreneurs, by the very nature of their activities and roles in the economy and society, cannot be averse to risk (Douglas & Sheperd, 1999; Ekelund et al., 2005; Kirby, 2004). Any activity related to the identification and exploitation of ideas involves risk and possible failure, and a consideration of these possibilities is an important component of an individual's decision to start a business (Minniti & Nardone, 2007). Fear of failure is associated with appraisals of threats to an individual's ability to accomplish one or more personally meaningful goals when one fails in a performance, so it is a factor that can motivate one to reach a high level of performance or prevent one from actualizing one's potential

(Conroy et al., 2002). The literature suggests that women have a greater fear of failure than men and this factor could explain the gap in entrepreneurship according to sex (Koellinger et al., 2011; Wagner, 2007). Thus, we suggest:

Hypothesis 1: Fear of failure is negatively correlated with the probability of being a female entrepreneur.

Also, the literature considers the relevance of the perceived capabilities of female entrepreneurs. These perceived capabilities are linked to entrepreneurial intentions and actions or behaviour (Boyd & Vozikis, 1994), and are crucial to the decision to start a business (Minniti & Nardone, 2007). Previous studies have shown that, compared with men, women more frequently have a reduced perception of their own entrepreneurial skills, independent of their real skills, especially in the sectors considered to be traditionally male (Anna et al., 1999; Chen et al., 1998; Scherer et al., 1990; Wilson et al., 2007), and this perception affects their entrepreneurial behaviour and may translate into the fact that there are fewer female entrepreneurs (Verheul et al., 2003). It has also been demonstrated that women with proactive personalities who have been exposed to male entrepreneurial stereotypes may later fail to recognize their own entrepreneurial skills and experience a decline in their entrepreneurial intentions (Gupta & Bhawe, 2007). Along the same lines, various studies suggest that men have a more positive perception of their skills than women. On the other hand, women prefer to attribute good results to a job well done and not to their skills, although the women who demonstrate significant entrepreneurial skills possess greater credibility than their male counterparts (Gatewood et al., 2002; Menzies & Tatroff, 2006). Thus, the following hypothesis is proposed:

Hypothesis 2: Perceived capabilities are positively correlated with the probability of being a female entrepreneur.

Entrepreneurs are individuals who are more likely than others to be alert to opportunities (Kirzner, 1973, 1979). Shane and Venkataraman (2000) define entrepreneurship as the study of sources of opportunities; thus, opportunity recognition represents the most distinctive and fundamental expression of entrepreneurial behaviour (Shane & Venkataraman, 2000; Venkataraman, 1997).

Some authors establish the importance of the recognition of entrepreneurial opportunities independently of gender, but it can be observed that if women have a socialization process different from that of men, their perceptions of entrepreneurial opportunities are likely to be different (DeTienne & Chandler, 2007). Some studies, such as those conducted by Baron et al. (2001), Baugn et al. (2006) and Langowitz and Minniti (2007), suggest that the roles that are traditionally assigned to women promote the idea that entrepreneurial activity is less desirable for them than for men. Other authors observe that these gender-based roles assigned to entrepreneurs result in fewer entrepreneurial opportunities for women (Schiller & Crewson, 1997; Wilson et al., 2007). Similarly, there are authors who point out that women are not presented with more entrepreneurial opportunities because the prevailing stereotype of entrepreneurial activity is basically male (Ahl, 2002; Nilsson, 1997) and that women perceive entrepreneurial activity to be an activity in which they start out already at a disadvantage, as they believe they do not possess the entrepreneurial self-efficacy needed to create a business (Marlow, 2002). Hence, it is proposed that:

Hypothesis 3: Perceived opportunities are positively correlated with the probability of being a female entrepreneur.

The last factors analysed, known as role models, suggest that people who have been socialized among entrepreneurs have a higher likelihood of starting a new business venture (Davidsson & Honig, 2003). It can be observed that involving descendents and other young persons in one's own company impacts positively on entrepreneurial intentions (Van Auken et al., 2006), but it has not been demonstrated that this impact has a greater positive effect on the entrepreneurial intentions of women than on those of men (BarNir et al., 2011). The presence of entrepreneurs with experience and successful role models transmits positive messages to potential entrepreneurs (Gnyawali & Fogel, 1994), and provides information that reduces the ambiguity associated with starting a business. Also, role models, whether positive or negative, are important because of their ability to enhance self-efficacy (Minniti & Nardone, 2007). Similarly, we can see that for women, as opposed to men, exposure to role models may have a greater positive impact on how they perceive their own entrepreneurial skills. Women are generally more open to the introduction of role models than men. Networks and role models are particularly appreciated by women

involved in various stages of the entrepreneurial process (Langowitz et al., 2006). Consequently, we propose:

Hypothesis 4: Role models are positively correlated with the probability of being a female entrepreneur.

5.3. Methodology

The methodology employed in this chapter is based on the development of logistic regression to link socio-cultural factors and female entrepreneurship in Catalonia. The empirical work here draws on the analysis of data from the Catalonia Global Entrepreneurship Monitor (GEM) project, for the years 2009 and 2010. This chapter makes particular use of the APS (Adult Population Survey) micro-database of the Catalonia GEM project for the years 2009 and 2010, which holds a sample of 4000 randomly selected individuals.

Dependent variables. In this article, two dependent variables were used. Firstly, the female entrepreneurship binary variable was used, which has a value of 1 for female entrepreneurs and 0 otherwise. This variable is based on the TEA, the best-known indicator of the GEM project, which defines those individuals who are in the process of starting up a business and/or who are currently owners of a new business (established no longer than 3.5 years ago) as entrepreneurs. Secondly, and in order to compare results, the male entrepreneurship binary variable was used, which has a value of 1 for male entrepreneurs and 0 otherwise.

Independent variables. As stated earlier, entrepreneurship, and especially female entrepreneurship, is considered to be conditioned by socio-cultural factors such as fear of failure, perceived capabilities, perceived opportunities and role models.

Finally, other factors may also influence the entrepreneurial activity as **control variables**. This chapter made use of multiple socio-economic characteristics, such as the age of the individual and the individual's age squared, their educational level, their employment status and the household size. Also, we controlled for the specific year.

- Age. Empirical evidence indicates the existence of an inverted U-shaped relationship between age and entrepreneurial activity (Evans & Leighton, 1989; Levesque & Minniti, 2006). Thus, we included age and age-squared variables to verify the inverted U-shaped relationship.

- Educational level. Despite the fact that no clear evidence has been found regarding the relationship between education and entrepreneurship (Blanchflower, 2004), the likelihood of becoming an entrepreneur increases with higher levels of education (Arenius & Minniti, 2005). We controlled for educational level through a dummy variable that assumes the value 1 if the individual has primary education or less.
- Employment status. This variable was used as a proxy for work and wage experience (Evans & Leighton, 1989; Katz, 1992), which may also reflect the case of necessity entrepreneurship.
- Household size. Baughn et al. (2006) and Langowitz and Minniti (2007) observe that in societies in which the role of women is closely tied to family responsibilities, entrepreneurial activity is perceived as being less desirable. Thus, we included household size as a proxy for the role of a woman.

A summary of the variables used is presented in Table 5.1.

As noted, given the binary nature of the dependent variables, the effect of socio-cultural factors on female entrepreneurship was estimated by using models of logistic regression, also known as probability models, so that the probability of an event occurring could be estimated.

The model may be expressed as:

$$P(E_i = 1) = \delta_1 FI_i + \beta_1 X_i + \mu_i$$

where FI_i is a vector of the informal factors, X_i is a vector relating to the control variables and μ_i is the random disturbance.

However, only 5% of all persons included in the sample were entrepreneurs; 60% were males and 40% were females. Thus, we estimated the rare events logistic regression (RELOGIT) (King & Zeng, 2001), which estimates the same logit model, but uses an estimator that gives a lower mean square error in the presence of rare events data for coefficients, probabilities and other quantities of interest.

Table 5.1. Description of the variables of the study

Variable		Description
Dependent variables	Female entrepreneurship	Binary variable that takes the value of 1 for female entrepreneurs and 0 otherwise.
	Male entrepreneurship	Binary variable that takes the value of 1 for male entrepreneurs and 0 otherwise.
	Fear of failure	Binary variable that takes the value of 1 if he/she indicates that fear of failure would prevent him/her from setting up a business.
Informal factors	Perceived capabilities	Binary variable that takes the value of 1 if the individual considers that he/she has the knowledge, skills and experience to start up a business and 0 otherwise.
	Perceived opportunities	Binary variable that takes the value of 1 if the individual sees good opportunities to start a firm in the area where he/she lives.
	Role model	Binary variable that takes the value of 1 if the individual personally knows someone who has started up their own business in the last 2 years and 0 otherwise.
Control variables	Age	Age of the individual.
	Age ²	Age squared.
	Education level	Binary variable for the education level of the individual, which takes the value of 1 if the individual has primary education or less.
	Employment status	Binary variable for the employment status, which takes the value of 1 if the individual is working and 0 otherwise.
	Household size	Indicates the number of permanent members of the household.
	Year 2010	Binary variable that takes the value of 1 for the year 2010 and 0 for the year 2009.

5.4. Results and discussion

Table 5.2 presents the mean, standard deviation and correlations of all the variables. The descriptive statistics indicate that, on average, 2% of Catalanian people were female entrepreneurs, 3% were male entrepreneurs, 44% indicated that fear of failure would prevent them from setting up a business, 53% considered that they had the knowledge, skills and experience to start up a business, 18% saw good opportunities to start a firm in the area where they lived and 28% personally knew someone who had started up their own business in the last 2 years. In addition, the average age was 44 years, 28% of individuals had only primary or no education, 64% were working and the average number of permanent members in a household was 3 (the minimum was 1 and the maximum 9).

With regard to the descriptive statistics, the correlation matrix shows that the variables considered, apart from perceived opportunities and household size, were correlated with female entrepreneurship.

Table 5.2. Correlation Matrix

	Mean	Std. Dev.	Female entrepren.	Male entrepren.	Fear of failure	Perceived capabilities
Female entrepreneurship	0.02	0.14	1.00			
Male entrepreneurship	0.03	0.17	-0.03	1.00		
Fear of failure	0.44	0.50	-0.05***	-0.11***	1.00	
Perceived capabilities	0.53	0.50	0.12***	0.15***	-0.16***	1.00
Perceived opportunities	0.18	0.38	0.02	0.07***	0.12***	0.10***
Role model	0.28	0.45	0.06***	0.12***	-0.04**	0.19***
Age	44.43	12.25	-0.04***	-0.07***	0.04**	-0.04**
Age ²	2124.48	1058.07	-0.05***	-0.07***	0.03**	-0.05***
Education level (primary)	0.28	0.45	-0.04***	-0.02	0.05***	-0.10***
Employment status (working)	0.63	0.48	0.09***	0.10***	-0.01	0.18***
Household size	3.14	1.14	0.02	0.02	0.01	0.03**

	Perceived opportunities	Role model	Age	Age ²	Education	Employment status
Perceived opportunities	1.00					
Role model	0.10***	1.00				
Age	-0.05***	-0.15***	1.00			
Age ²	-0.05***	-0.15***	0.99***	1.00		
Education level (primary)	-0.02	-0.03**	0.16***	0.17***	1.00	
Employment status (working)	0.02	0.12***	-0.12***	-0.18***	-0.15***	1.00
Household size	0.01	0.04***	-0.18***	-0.20***	-0.04***	0.07***

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$; *significant at $p \leq 0.10$.

We conducted a diagnostic test of multicollinearity (examining the variance inflation factors (VIFs) of all the variables in the analyses) and found that it was not likely to be a problem in this data set. Also, the possibility of heteroscedasticity and autocorrelation occurring during the observations was controlled by using robust standard errors (White, 1980).

Table 5.3 presents the results of rare events logistic regression for socio-cultural factors and female entrepreneurship.

Table 5.3. Rare events logit results predicting female entrepreneurship

	Model 1. Female Entrepreneurship		Model 2. Female Entrepreneurship	
	dF/dx	Robust Std. Err.	dF/dx	Robust Std. Err.
Informal factors				
Fear of failure	-0.478*	0.278	-0.493*	0.259
Perceived capabilities	2.414***	0.598	2.708***	0.600
Perceived opportunities	0.160	0.289		
Role model	0.292	0.255		
Socio-demographic variables				
Age	0.189*	0.102	0.182**	0.088
Age ²	-0.003*	0.001	-0.002**	0.001
Education level (primary or less)	-0.212**	0.355		
Employment status (working)	1.516***	0.533	1.550***	0.481
Household size	0.063	0.103		
Year 2010	-0.396	0.265	-0.492**	0.237
Number of obs ⁹	3383		3876	
Pseudo R2	0.1579		0.1625	
Log pseudolikelihood	-277.14469		319.80223	
Percent correctly predicted	98.02%		97.99%	

⁹ Logistic Regression diagnostics and Goodness-of-fit were calculated using standard logistic regression models.

	Model 3. Male Entrepreneurship		Model 4. Male Entrepreneurship	
	dF/dx	Robust Std. Err.	dF/dx	Robust Std. Err.
Informal factors				
Fear of failure	-1.237***	0.270	-1.228***	0.270
Perceived capabilities	2.046***	0.400	2.054***	0.395
Perceived opportunities	0.391*	0.219	0.379*	0.219
Role model	0.814***	0.207	0.811***	0.208
Socio-demographic variables				
Age	0.015	0.063	-0.032***	0.009
Age ²	-0.000	0.000		
Education level (primary)	0.215	0.270		
Employment status (working)	1.201***	0.337	1.262***	0.324
Household size	0.057	0.088		
Year 2010	-0.424*	0.223	-4.533***	0.547
Number of obs.	3383		3876	
Pseudo R2	0.1937		0.1770	
Log pseudolikelihood	-399.26408		440.39418	
Percent correctly predicted	96.66%		96.90%	

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$; *significant at $p \leq 0.10$.

Model 1 presents the rare events logistic regression results with socio-cultural factors and female entrepreneurship, and Model 2 shows only the significant variables. Also, for the purposes of comparison, Model 3 and Model 4 present the results for male entrepreneurship.

Hypothesis 1 proposed that a fear of failure is negatively correlated with the probability of being a female entrepreneur. The marginal effect of this variable is negative and significant ($p < .1$) in Models 1 and 2, in support of this hypothesis.

Hypothesis 2 proposed a positive relationship between perceived capabilities and female entrepreneurship. The marginal effect for this variable is positive and significant ($p < .01$) with regard to the regression supporting this hypothesis. Hypothesis 3 proposed that perceived opportunities are positively correlated with being a female entrepreneur, but this variable was not significant.

Finally, hypothesis 4 proposed a positive relationship between role models and female entrepreneurship. The marginal effect for this variable was not significant, so hypothesis 4 was not supported. Similar to the other previous results (Evans & Leighton, 1989; Levesque & Minniti, 2006), age and female entrepreneurship showed an inverted U-shaped relationship, so that the probability of being a female entrepreneur increased with age, until it reached a maximum level at which this probability decreased. The marginal effect of primary education or less was only significant in Model 1. To be working had a positive and significant influence ($p < .01$) on the probability of being a female entrepreneur. Contrary to expectations, household size did not have a significant impact on female entrepreneurship. It could be that this variable was not a good proxy for the role of women, because it was not clear with regard to the relationship between the number of permanent members of the same household. Finally, the year 2010 only had a statistically significant impact in Model 2.

For the purposes of comparison, in Models 3 and 4 we included socio-cultural factors and a control variable for male entrepreneurship. We found that all the socio-cultural factors had a statistically significant impact on male entrepreneurship and they included the expected signs, negative for fear of failure and positive in other cases. Also, age and male entrepreneurship did not have an inverted U-shaped relationship, but a negative relationship, leading to the conclusion that entrepreneurship tends to be a 'young man's game' (Arenius & Minniti, 2005). Primary education or less and household size did not have a significant impact on male entrepreneurship. In a similar way to female entrepreneurship, to be working had a positive impact on male entrepreneurship. Finally, the year 2010 had a negative and statistically significant impact.

Table 5.4 presents the marginal effects for socio-cultural factors and female entrepreneurship, at median values. The baseline probability of being a female entrepreneur is 0.66%. When fear of failure changes from zero to one, the probability of

being a female entrepreneur decreases to 0.31%. Also, when perceived capabilities, perceived opportunities and role models change from zero to one, the probability of being a female entrepreneur is 1.85%, 0.11% and 0.19%, respectively. Finally, when all the socio-cultural factors change from zero to one (except for fear of failure, which changes from one to zero), the probability of being a female entrepreneur is 3.36%.

Table 5.4. Marginal effects for selected variables

Pr (Female Entrepreneurship=1) at median values		
Variable	Change in variable*	Change in predicted probability
Fear of failure	Zero to one (dummy)	-0.31%
Perceived capabilities	Zero to one (dummy)	1.85%
Perceived opportunities	Zero to one (dummy)	0.11%
Role model	Zero to one (dummy)	0.19%
All Socio-cultural factors	Zero to one (dummy)**	3.36%
Pr (Male Entrepreneurship=1) at median values		
Variable	Change in variable	Change in predicted probability
Fear of failure	Zero to one (dummy)*	-1.42%
Perceived capabilities	Zero to one (dummy)*	2.56%
Perceived opportunities	Zero to one (dummy)*	0.52%
Role model	Zero to one (dummy)*	1.13%
All Socio-cultural factors	Zero to one (dummy)**	11.3%

Note: Calculations are based on the estimates of Model 1 in Table 4.

* All other variables are held at their median. ** Except for fear of failure, which changes from one to zero.

For the purposes of comparison, we also present the marginal effects of socio-cultural factors and male entrepreneurship. In general, the predicted probabilities are higher. The results for fear of failure are in line with Koellinger et al. (2011) and Wagner (2007), who suggest that women have a greater fear of failure than men and that this factor can explain the gap in entrepreneurship according to sex (Koellinger et al., 2011; Wagner, 2007).

This conclusion is similar to that of Langowitz and Minnitti (2007), who found that most women see themselves as being less valid than men, and that this has negative repercussions for their entrepreneurial activity. Also, the results could indicate that women perceive fewer opportunities and also have fewer role models for starting a business.

Finally, these analyses suggest that, both for female and for male entrepreneurship, the most important factor is perceived capabilities, followed by fear of failure, when we control for other relevant variables, such as age, education level, employment status and household size.

5.5. Conclusions

The objective of this chapter was to undertake a quantitative analysis to observe the impact of the principal socio-cultural factors that condition female entrepreneurial activity in Catalonia.

The main results indicate that, of the socio-cultural factors analysed in the literature, the factors that seem to have the most significant positive or negative effects on the probability of being a female entrepreneur are the fear of failure (affecting entrepreneurship negatively) and perceived capabilities (affecting entrepreneurship positively). In the case of perceived opportunities and role models, although they have been proven to be positively correlated with the probability of being an entrepreneur, they are not significant. On the other hand, we can observe that all the socio-cultural factors are significant in the case of male entrepreneurs.

Although our data do not confirm this, the earlier literature corroborates the importance of role models in promoting entrepreneurship in both general and female entrepreneurship. Role models not only have a significant direct effect on entrepreneurial activity, but they may also have an indirect effect on the improvement of the perception of one's entrepreneurial skills, as authors such as BarNir et al. (2011) have pointed out.

As has been indicated, role models may provide female entrepreneurs with the confidence to use the entrepreneurial skills they are lacking (or believe they are lacking). Furthermore, we believe that by making greater use of female role models and 'feminizing' the vision of entrepreneurial activity, a greater number of women would

see entrepreneurship as desirable and would perceive the potential for enterprise in a greater number of entrepreneurial opportunities (Ahl, 2002). Also, these role models might result in fewer women expressing a fear of failure if more information was available with respect to the entrepreneurial process and its subsequent evolution.

In comparing female and male entrepreneurship, the marginal effects of socio-cultural factors have been presented for men as well as women, and the results indicate that the factors that offer the greatest probability of becoming an entrepreneur are the perception of personal skills, followed by the fear of failure, role models and, finally, the perception of opportunities.

These results may help advance the analysis of entrepreneurial activity from an institutional point of view (Aldrich & Zimmer, 1986; Berger, 1991; Shapero & Sokol, 1982; Steyaert & Katz, 2004), giving greater robustness to environmental factors as determinants of the creation of businesses.

Furthermore, in the case of Spanish women, and by extension Catalan women, the roles assigned by society continue to be very closely tied to the family and to household responsibilities (Institute for Women, 2005). Therefore, it would perhaps be necessary to confirm our results with samples from other countries or with samples that might permit the period of analysis to be widened. Finally, we believe that a study of the influence of socio-cultural factors, not independently but in terms of their overall effects, would be a very worthwhile endeavour (BarNir et al., 2011; Díaz-García & Jiménez-Moreno, 2010).

The results suggest a series of implications at the academic level as well as at the policy level with respect to the development of a field of study of the most relevant socio-cultural factors. In the first case, and from the policy point of view, this could be accomplished by increasing the number of courses and support programmes (at all educational levels) aimed at fostering a more positive perception of entrepreneurial skills and increasing the visibility of female role models, with the ultimate goal of increasing the levels of female entrepreneurship.

The aim of the next chapters is to contribute to a greater understanding of the findings obtained to date, and we will accomplish this by specifically analysing the relationship between formal and informal institutions and female entrepreneurship at the Spanish level, as well as by using quantitative



CHAPTER 6

Environmental factors and female entrepreneurship in Spain: a quantitative analysis

The most relevant findings from this chapter indicate that informal factors (the perception of entrepreneurial skills, social networks and family context) are more relevant to female entrepreneurship than formal factors (financing, non-economic support policies and education).

After this brief introduction, the chapter is divided into five sections. Firstly, the conceptual framework of the investigation is presented, then the methodology employed in the empirical section is explained and the most relevant results of the study are presented. Finally, the article ends with the conclusions and implications of the research.

6.2. Conceptual framework

As we mentioned before, the institutional approach and, more specifically, the assumptions made by North (1990, 2005) comprise the theoretical framework used in this investigation. This theory is based on the concept of institutions, which is understood as the limitations (and known as the rules of the game) conceived of by the persons who define the setting in which human interaction occurs.

Based on North's approaches, human behaviour is conditioned by the institutional environment. Therefore, formal and informal institutions may limit or favour the decisions of individuals and, specifically, the decision on whether to create a business or not.

For this study, applying institutional economics to the analysis of female entrepreneurship, the formal factors will be the following: a) financing; b) policies and non-economic support programmes for entrepreneurship; and c) education. In turn, the informal factors will be: d) the perception of female entrepreneurs' skills; e) social networks; and f) family roles.

6.2.1. Formal factors of female entrepreneurship

As we have previously observed, with respect to formal factors, financing is one of the aspects that most concern male and female entrepreneurs. It is also the one to which the most attention has been paid by the academic world, due to the problems of credibility faced by women in their negotiations with financial institutions. Authors such as Brush (1992), Carter and Rosa (1998), Hisrich and Brush (1987) and Schwartz

(1976) suggest in their studies that it cannot be demonstrated that women receive discriminatory treatment in their dealings with credit institutions, though they do highlight the fact that female entrepreneurs have greater difficulty in accessing financing, pointing out that some of the possible causes could be the reduced size of their businesses, which do not permit them to offer sufficient guarantees, and the more limited knowledge that many female entrepreneurs possess of the financial sector. The most recent studies follow this same line, deducing that while the criteria used by financial institutions to make their evaluations may be the same for both women and men, there are, in fact, differences in the negotiation process that may cause the levels of indebtedness to vary or may affect the access that female entrepreneurs have to financing (Alsos et al., 2006; Carter et al., 2007; Gatewood et al., 2009; Kim, 2006; Marlow & Patton, 2005). Consequently, the following hypothesis is proposed:

Hypothesis 1: Financing has a positive effect on the probability of being an entrepreneur.

- **Hypothesis 1a:** The effect of finance will be greater for female entrepreneurship than for male entrepreneurship.

Another formal factor considered in this chapter is non-economic aid policies and programmes, to which most studies attribute great importance due to their positive effects on female entrepreneurship (Carter, 2000; Nilsson, 1997). In spite of this, some authors, such as Birley et al. (1987) and Chrisman et al. (1990), propose the elimination of this type of specific policy, arguing that the needs and problems faced by female entrepreneurs are not so different from those experienced by men. In a more recent publication, Baugh et al. (2006) study the positive impact of specific measures aimed at aiding women in the creation of their own businesses. They also established a relationship between those measures and the country's general promotion of the entrepreneurial spirit and the existing level of equality. The results they obtained showed that the countries with the highest levels of entrepreneurial activity and equality achieved these through aid measures, and also boasted higher levels of female participation in entrepreneurial activity. Therefore, the following hypothesis is proposed:

Hypothesis 2: Non-economic support has a positive effect on the probability of being an entrepreneur.

- **Hypothesis 2a:** The effect of non-economic support will be greater for female entrepreneurship than for male entrepreneurship.

On the other hand, education constitutes one of the most relevant formal factors for female entrepreneurship. Not many studies tackle this issue, nor is there any consensus among those that do. Most of the authors propose that education has favourable repercussions for female entrepreneurship (Fairlie & Robb, 2009; Wilson et al., 2007, among others), but some authors do not agree with this (Grilo & Irigoyen, 2006). On the one hand, Wilson et al. (2007) find, in their paper, a positive relationship between higher levels of education for women and their access to high executive levels, as well as a positive relationship between education and the increase in the number of female entrepreneurs. Along the same lines, Fairlie and Robb (2009) also observe the existence of a positive nexus between educational level, entrepreneurship and the economic results obtained. Grilo and Irigoyen (2006), on the other hand, study the effect of gender and education level on both the latent and the real entrepreneurial spirit, and the result they obtain suggests that entrepreneurship is not affected by the entrepreneur's education level or gender. In spite of the differing positions of the literature revised, this research considers education to be an important factor in female entrepreneurship, and we thus propose the following hypothesis:

Hypothesis 3: Education has a positive effect on the probability of being an entrepreneur.

- **Hypothesis 3a:** The effect of education will be greater for female entrepreneurship than for male entrepreneurship.

6.2.2. Informal factors of female entrepreneurship

As we mentioned earlier, with respect to informal factors, the literature considers the relevance of the perception of female entrepreneurs' skills from the general perspective of society (as society perceives the entrepreneurial skills of women), and from the point of view of female entrepreneurs. On the one hand, some authors suggest that this factor is quite similar for women and men, although in some cases it appears to be difficult to reach this conclusion, since the studies focus on sectors in which most of the entrepreneurs are male or women possessing typical male attributes (Birley et al., 1987; Catley & Hamilton, 1998; Fischer et al., 1993; Rosa & Dawson, 2006; Schreier, 1973; Schwartz, 1976). On the other hand, Langowitz and Minnitti (2007) conclude that most women see themselves as less valid than men, and this has negatives repercussions for their entrepreneurial activity. Finally, there are studies that relate the start of a business to perceptions of capability. These studies suggest that men create

businesses out of a sense of professional frustration or with the aim of improving their financial prospects, while women create businesses in order to distance themselves from an unfavourable or limiting labour situation. Thus, while starting a business may require those who do so to have an accurate level of self-perception, women may find this difficult (Brush, 1992; Dolinsky & Caputo, 2003; Gofee & Scase, 1990; Hisrich & Brush, 1987; Ljunggren & Kolvereid, 1996; Marlow, 1997). In the present study, we consider that the decision to start a business requires the persons who do so to perceive themselves to have enterprising capabilities.

Thus, the following hypothesis is proposed:

Hypothesis 4: Perceived capabilities have a positive effect on the probability of being an entrepreneur.

- **Hypothesis 4a:** The effect of perceived capabilities will be greater for female entrepreneurship than for male entrepreneurship.

Social and collaborative networks are also a very important informal factor for the female collective when making the final decision to create businesses. Social and collaborative networks are understood to mean those relationships that the female entrepreneur maintains with persons who are external to her business (such as suppliers, customers, service bureaus or other entrepreneurs) and that, in general, can help her business survive and succeed (Aldrich et al., 1989; Rosa & Hamilton, 1994). Investigations conducted in the United States, Italy and Northern Ireland indicate that, while the ways in which men and women create networks are quite similar, their respective networks differ considerably. The networks created by women are made up of women, and those created by men are composed mainly of men (Aldrich et al., 1989; Brush, 1992; Cromie & Birley, 1992). Some of these studies point out that perhaps women's networks are exclusively composed of women because women do not have access to men's networks, which are already established. They also note that the strategic level at which most of the women's relationships operate is lower than that of the men's relationships. Meanwhile, more recent studies demonstrate that female entrepreneurs prefer to use collaborative networks. These studies establish the existence of differences in the way women and men use their networks in the process of creating a business and observe that female entrepreneurs tend to 'use' the family to a greater extent (Gatewood et al., 2009; Greve & Salaff, 2003; Sorenson et al., 2008). Therefore:

Hypothesis 5: Social networks have a positive effect on the probability of being an entrepreneur.

- **Hypothesis 5a:** The effect of a social network may be greater for female entrepreneurship than for male entrepreneurship.

The last informal factor involves the family context. Various authors have dealt with the relationship between the female entrepreneur and the family (Aldrich & Cliff, 2003; Bruni et al., 2004; Brush et al., 2009; among others). Such studies prove that although most women may work full-time outside the home, the responsibility for carrying out the main chores at home still falls upon them, thus discouraging female entrepreneurship. At the same time, Baughn et al. (2006) and Langowitz and Minniti (2007) observe that in societies in which the role of the woman is closely tied to family responsibilities, entrepreneurial activity is perceived as less desirable. Williams (2004) analyses the relationship between the success in the creation of businesses and the time dedicated to children, concluding that looking after children reduces the longevity of businesses, which will impact on the need for policies that reconcile work and family. Consequently:

Hypothesis 6: The family context has a negative effect on the probability of being an entrepreneur.

- **Hypothesis 6a:** The effect of the family context will be greater for female entrepreneurship than for male entrepreneurship.

6.3. Methodology

As stated earlier, this chapter analyses the relationship between environmental factors and female entrepreneurship in Spain. The variables were obtained from the database maintained by the Spanish Global Entrepreneurship Monitor (GEM) project, for the year 2010. The GEM project is one of the most relevant research projects with respect to the analysis of entrepreneurial activity. The GEM project came about in 1999 as an initiative established by two universities, the London Business School (United Kingdom) and Babson College (USA), in order to facilitate international comparisons of entrepreneurial activity, to analyse the role entrepreneurship plays in the economic growth of countries and to facilitate the design of public policies that promote entrepreneurial activity. In 1999, 10 countries participated in the GEM project, while in 2010, 59 countries participated.

In general terms, each country participating in the GEM project commits to providing a sample of 2000 interviews. Spain, which has participated in the project since 2000, has, however, developed a structure similar to that of the Global Project, which involves 19 regions. This chapter makes particular use of the APS (Adult Population Survey) micro-database of the Spanish GEM project for the year 2010, which holds a sample of 24,543 individuals, and complements those data with data from the NES (National Expert Survey) expert database at the regional level.

Dependent variables. In this article, three dependent variables are used. Firstly, the entrepreneurship binary variable (TEA) is used, which takes the value of 1 when the individual is an entrepreneur and 0 in other cases. The TEA is one of the best-known indicators of the GEM project, which defines as entrepreneurs those individuals who are in the process of starting up a business and/or who are currently owners of a new business (established no longer than 3.5 years ago). Next, the female entrepreneurship binary variable is used, which has the value of 1 for female entrepreneurs and 0 otherwise. Finally, and in order to compare the results, the male entrepreneurship binary variable is used, which takes the value of 1 for male entrepreneurs and 0 otherwise.

Independent variables. In this chapter, as stated earlier, entrepreneurship, and especially female entrepreneurship, is considered to be conditioned by environmental factors, which are classified as formal factors (financing, non-economic aid policies and training) and informal factors (perception of entrepreneurial skills, social networks and family role).

With respect to formal factors, the GEM project survey of experts (NES) gathers information regarding the environmental conditions under which entrepreneurial activities are carried out, using 5 or 6 questions which are graded by the experts, who use a Likert scale of 1 (minimum) to 5 (maximum). Next, working from a principal components analysis, the GEM project constructs an indicator for each one of the environmental conditions. In this chapter, the financing variable in particular is used, in addition to government programmes. Furthermore, in order to consider the effect of education, the educational level of the persons interviewed is considered and is classified in 3 levels: primary, secondary and post-secondary (which includes university studies).

Regarding informal factors, the GEM project gathers information on the perception of entrepreneurial abilities, so this variable takes the value of 1 if the individual considers that he/she has the knowledge, skills and experience to start up a business and 0 otherwise. In order to evaluate social networks, another binary variable is used, which takes the value of 1 if the individual personally knows someone who has started up his or her own business in the last few years. Finally, to evaluate the family role, a binary variable is used, which takes the value of 1 when the individual (man or woman) dedicates time to housework and 0 otherwise.

Finally, as control variables, this chapter makes use of the age of the individual and the individual's age squared, family income using binary variables for low, middle and high income and the logarithm of the gross domestic product for each autonomous community, taken from the Spanish National Institute of Statistics (INE) database for the year 2009. Even though binary variables were included for each autonomous community in previous models, they were subsequently eliminated, as these variables were not significant. A summary of the variables used is presented in Table 6.1.

Given the binary nature of the dependent variables, the effect of environmental factors on female entrepreneurship is estimated using models of logistic regression, also known as probabilities models, so that the probability that the event will occur is estimated. The model may be expressed as:

$$P(E_i = 1) = \delta_1 FF_i + \delta_2 FI_i + \beta_1 X_i + \mu_i$$

where:

- FF_i is information about the formal factors,
- FI_i is information about the informal factors,
- X_i is information about the control variables and
- μ_i is random disturbance.

Table 6.1. Description of the variables of the study

Variable		Description	Source
Dependent variables	Entrepreneurship (TEA)	A binary variable that takes the value of 1 when the individual is an entrepreneur and 0 otherwise.	APS 2010
	Female entrepreneurship	A binary variable that takes the value of 1 for female entrepreneurs and 0 otherwise.	APS 2010
	Male entrepreneurship	A binary variable that takes the value of 1 for male entrepreneurs and 0 in the other case.	APS 2010
Formal factors	Financing	The availability of financial resources for new and growing businesses. The values range from 1 (min.) to 5 (max.).	NES 2010
	Non-economic policies	Government policies favourable to new and growing businesses. The values range from 1 (min.) to 5 (max.).	NES 2010
	Education	Binary variables for the educational level of the individual, classified as primary, secondary and post-secondary.	APS 2010
Informal factors	Perception of skills	A binary variable that takes the value of 1 if the individual considers that he/she has the knowledge, skills and experience to start up a business and 0 otherwise.	APS 2010
	Social networks	A binary variable that takes the value of 1 if the individual personally knows someone who has started up his or her own business in the last 2 years and 0 otherwise.	APS 2010
	Family context	A binary variable that takes the value of 1 when the individual (man or woman) dedicates time to housework and 0 otherwise.	APS 2010
Control variables	ln(GDP)	Natural logarithm of the gross domestic product for each autonomous community, for the year 2009.	INE 2009
	Age	Age of the individual.	APS 2010
	Income	Binary variable for the family incomes of the individual, classified as low, middle and high income.	APS 2010

6.4. Results and discussion

Table 6.2 presents the mean, the standard deviation and the matrix of correlations for the variables of interest. Considering that some correlations are particularly high, the multicollinearity was verified using the variance inflation factor (VIF). The results indicate VIFs of less than 3.5 for the variables, except, as is to be expected, for age and age squared. Furthermore, with the aim of correcting the heteroscedasticity and the problems of autocorrelation between the observations that pertain to the same

country, corrected standard errors were estimated by autonomous community (White, 1980).

Likewise, Table 6.3 presents the results of the logistic regression models for the environmental factors, distinguishing between entrepreneurship in general and female and male entrepreneurship. Two models are presented for each one of these dependent variables. The first model includes all the variables, and a second model only presents the significant variables. The results indicate that all the models are significant, that the pseudo-R² is superior to 0.10 and that the percentage of correct answers is superior to 96% in all the cases.

To analyse the results, the formal factors were initially considered, then the informal factors and finally the control variables.

With respect to the formal factors, hypotheses 1, 2 and 3 suggest that financing as well as non-economic aid policies and education levels have a positive effect on the probability of being an entrepreneur. However, the results indicate that none of the variables considered for the formal factors are significant.

Also, hypotheses 1, 2 and 3 propose that the effects of finance, non-economic support and education will be greater for female entrepreneurship than for male entrepreneurship. Although the coefficients are not significant in all the cases, they are higher for female than for male entrepreneurship.

While the literature offers ample documentation of the importance of financing (Gnyawali & Fogel, 1994; van Gelderen et al., 2005), non-economic aid policies (Baugh et al., 2006) and training for entrepreneurship (Davidsson & Honig, 2003; De Clerq & Arenius, 2006), the results obtained in this study can be explained by the minimal variation of said variables in the sample considered. This indicates, as may be expected, certain homogeneity among the formal factors (financing, aid policies and education level) for the different Spanish regions considered, as these factors for the most part are conditioned by policies at the national level. Therefore, hypotheses 1, 1a, 2, 2a, 3 and 3a are rejected.

Table 6.2. Descriptive statistics and correlation matrix

	Mean	Std. Dev.	1.	2.	3.	4.	5.	6.
1. Entrepreneurial activity	0.04	0.19	1.00					
2. Female entrepreneurship	0.01	0.15	0.59***	1.00				
3. Male entrepreneurship	0.02	0.11	0.80***	-0.02**	1.00			
4. Financing	2.20	0.19	-0.01	0.00	-0.01	1.00		
5. Non-Economic policies	2.98	0.27	-0.00	0.00	-0.01	0.31***	1.00	
6. Education level (secondary)	0.45	0.50	-0.03***	-0.01	-0.03***	-0.04***	0.03***	1.00
7. Post secondary	0.45	0.50	0.05***	0.02***	0.04***	0.03***	-0.04***	-0.82***
8. Perception of skills	0.49	0.50	0.17***	0.10***	0.01***	-0.01	0.01*	-0.08***
9. Social networks	0.30	0.46	0.11***	0.05***	0.10***	-0.01*	0.001	-0.05***
10. Family context	0.12	0.32	-0.07***	-0.03***	-0.06***	0.01	-0.02**	0.09***
11. Ln(PIB)	17.70	1.07	0.02*	0.01	0.02	-0.11***	-0.10***	-0.01*
12. Age	44.34	12.29	-0.07***	-0.04***	-0.05***	0.04***	-0.01	0.03***
13. Age2	2117.15	1053.36	-0.07***	-0.04***	-0.06***	0.04***	-0.01	0.04***
14. Middle incomes	0.21	0.21	-0.02***	-0.02**	-0.02**	-0.03***	0.04***	0.07***
15. High incomes	0.31	0.31	0.03***	0.00	0.03***	0.05***	-0.00	-0.12***
	7.	8.	9.	10.	11.	12.	13.	14.
7. Post-secondary	1.00							
8. Perception of skills	0.14***	1.00						
9. Social networks	0.10***	0.21***	1.00					
10. Family context	-0.18***	-0.14***	-0.09***	1.00				
11. Ln(PIB)	0.01	0.01	-0.00	-0.01	1.00			
12. Age	-0.15***	-0.05***	-0.14***	0.20***	-0.01	1.00		
13. Age2	-0.17***	-0.07***	-0.15***	0.20***	-0.01	0.10***	1.00	
14. Middle incomes	-0.09***	-0.02**	-0.01	0.02**	-0.02**	0.01	0.01	1.00
15. High incomes	0.19***	0.09***	0.07***	-0.11***	-0.02***	-0.01*	-0.03***	-0.35***

Note: ***p < .001, **p < .01, *p < .05

Table 6.3. Logit results

	Model 1. Entrepreneurial activity		Model 2. Entrepreneurial activity		Model 3. Female entrepreneurship		Model 4. Female entrepreneurship		Model 5. Male entrepreneurship		Model 6. Male entrepreneurship	
	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
Formal factors												
Financing	-0.072	(0.185)			0.103	(0.297)			-0.169	(0.228)		
Non-economic policies	-0.012	(0.138)			0.156	(0.225)			-0.104	(0.169)		
Education level												
Secondary	0.087	(0.170)			0.419	(0.294)			-0.097	(0.202)		
Post-secondary	-0.087	(0.170)			0.395	(0.291)			-0.082	(0.202)		
Informal factors												
Perception skills	2.157***	(0.119)	2.077***	(0.148)	2.207***	(0.199)	2.217***	(0.199)	2.078***	(0.148)	2.077***	(0.148)
Social networks	0.656***	(0.070)	0.783***	(0.087)	0.366***	(0.114)	0.367***	(0.114)	0.785***	(0.087)	0.783***	(0.087)
Family context	-2.011*	(0.338)	-3.717*	(1.002)	-1.105***	(0.362)	-1.121***	(0.361)	-3.722*	(1.003)	-3.717*	(1.003)
Control variables												
Ln(GDP)	0.080*	(0.035)	0.101**	(0.045)	0.049	(0.054)			0.092	(0.026)	0.101*	(0.044)
Age	0.169***	(0.022)	0.146**	(0.026)	0.197***	(0.037)	0.127***	(0.040)	0.147*	(0.028)	0.146*	(0.026)
Age2	-0.002***	(0.000)	0.002***	(0.000)	-0.003***	(0.000)	-0.002***	(0.000)	-0.002***	(0.000)	-0.002***	(0.000)
Incomes												
Middle	-0.341***	(0.101)			-0.578***	(0.166)	-0.575***	(0.166)	-0.176	(0.124)		
High	-0.052*	(0.078)	-0.198**	(0.087)	-0.400***	(0.130)	-0.385***	(0.128)	0.150	(0.096)	0.198**	(0.087)
constant	-8.952***	(0.959)	-9.621***	(0.940)	-11.016***	(1.477)	-9.039***	(0.732)	-8.662***	(1.209)	-9.621***	(0.940)
Number of obs	24543		24543		24543		24543		24543		24543	
Pseudo R-squared	0.1466		0.1397		0.1104		0.1094		0.1403		0.1397	
Log pseudolikelihood	-3312.4527		-2368.276		-1537.3709		-		-		-	
Percent correctly predicted	96.30%		97.63%		98.68%		98.68%		97.63%		97.63%	
AIC	6650.905		4752.553		3100.742		3094.34		4758.838		4752.553	
BIC'	6756.312		4817.418		3206.148		3159.206		4864.244		4817.418	

Note: *** significant at $p \leq 0.001$; ** significant at $p \leq 0.01$; *significant at $p \leq 0.05$. In brackets it present the standar errors corrected for the autonomous communities.AIC: Akaike Information Criteria, BIC: Bayesian information criterion or Schwarz Criterion.The reference categories are: primary studies and low incomes.

Regarding the informal factors, hypothesis 4 proposes that the perception of entrepreneurial skills has a positive effect on the probability of being an entrepreneur. As can be seen in Table 6.3, this variable has a positive and significant impact upon the probability of being an entrepreneur, and this impact is superior in the case of female entrepreneurs. Specifically, the odds ratios indicate that the perception of entrepreneurial skills increases the probability of being an entrepreneur by 9.09 times for women versus 7.99 times for men. Therefore, hypotheses 4 and 4a are not rejected.

These results are in agreement with those offered by Rosa and Dawson (2006) and Fisher et al. (1993), which are reaffirmed in later studies in which the influence of society on the perception of entrepreneurial skills according to the gender of the entrepreneur is analysed (Brush et al., 2009; Fairlie & Robb, 2009).

Likewise, hypothesis 5 suggests that social networks can also have a positive effect upon the probability of being an entrepreneur. The coefficients of this variable are positive and significant, and, therefore, hypothesis 5 is not rejected. Furthermore, the results indicate that the effect is greater in the case of male entrepreneurship. In fact, the odds ratios indicate that social networks increase the probability of being an entrepreneur by 2.19 times for men versus 1.44 times for women. Thus, hypothesis 5a is rejected. This result is consistent with the papers published by Aldrich et al. (1989), Gatewood et al. (2009), Rosa and Hamilton (1994) and Sorenson et al. (2008), in which the preference or need entrepreneurs have for using social networks is analysed, while at the same time it is observed, as Greve and Salaff (2003) also indicate, that in the case of female entrepreneurs these networks consist basically of family.

With respect to the family context, the results indicate that dedicating one's time to housework decreases the probability of being an entrepreneur, an effect that is especially important in the case of women. Therefore, hypothesis 6 is not rejected. The odds ratios demonstrate that being a woman and having family responsibilities reduces the probability of being an entrepreneur by 33.1%, while in the case of men the reduction is only 2.4%, thus hypothesis 6a is rejected.

The existing relationship between entrepreneurial activity and the time dedicated to family and family responsibilities was already pointed out in earlier studies (Baughn et al., 2006; Langowitz & Minniti, 2007), with the observation that dedication to the family had a greater effect on the entrepreneurial activity of women than on that of men. At the same time, Metz and Tharenou (2001) suggest that the weight of the family responsibilities and the time

dedicated to housework could also make it more difficult to develop a solid network of professional contacts, an aspect also made clear by the results obtained.

This result indicates that dedicating one's time to housework is only ever likely to be an interim situation for men, who, thanks to their professional mobility, can reinsert themselves into the world of work as entrepreneurs. However, women tend to lack such mobility, and dedicating their time to housework considerably decreases the probability of being an entrepreneur.

These last results agree with those obtained by Baughn et al. (2006) and Langowitz and Minniti (2007), and indicate that in a society in which the role of the woman is closely tied to family responsibilities, the idea that entrepreneurial activity is less desirable is implicitly instilled in her. Authors such as Kantor (2002) observe the existence of family roles that exclusively limit female entrepreneurship but not male entrepreneurship ('women exclusive constraints'), while at the same time indicating the existence of other family roles that limit male entrepreneurship as much as female entrepreneurship, though the latter is limited in a more relevant manner ('women intensive constraints').

Finally, with regard to the control variables, the literature indicates that the level of economic development is a key factor in explaining entrepreneurial activity (Carree et al., 2007; Wennekers et al., 2005). The results for the Spanish regions indicate that the above-mentioned relationship is valid when explaining male entrepreneurship principally, but that economic development has no significant effect on female entrepreneurship. On the other hand, the coefficients of age and age squared indicate a quadratic relationship between entrepreneurship and age, and as such the probability of being an entrepreneur increases with age until reaching a maximum, after which that probability begins to decrease (Levesque & Minniti, 2006). Apart from this, no major differences are observed between male and female entrepreneurs.

Likewise, the coefficients from Table 5.3 indicate that having a middle or high family income lowers the probability of female entrepreneurship by 56% and 67%, respectively. However, in the case of male entrepreneurship, a middle family income decreases this probability by 84%, while a high family income increases that probability by 1.16 times. These results suggest that, in the case of middle or low family incomes, men decide to start their own business as much as women, but in the case of high family incomes, women do not start their own businesses, while men do.

6.5. Conclusions

In this study, a quantitative analysis of the environmental factors that condition female entrepreneurial activity in Spain has been presented. The principal results indicate that the informal factors (perception of entrepreneurial skills, social networks and family role) can have a significant effect on the probability of being an entrepreneur, while the formal factors (financing, non-economic support policies and training) tend to have no effect. In the case of female entrepreneurship, the perception of entrepreneurial skills has a greater impact. Along the same lines, Dolinsky and Caputo (2003) and Langowitz and Minnitti (2007) suggest that the perception of entrepreneurial skills has a positive effect on the probability of being an entrepreneur, and Gatewood et al. (2009) and Greve and Salaff (2003) also establish the relevance of social networks to female entrepreneurship.

Thus, it can be affirmed that the informal factors are more relevant to female entrepreneurship than the formal factors, a generic approach that can be deduced from previous studies (Aidis et al., 2007; Welter, 2005; Welter & Smallbone, 2008).

Likewise, these results allow for advances in the analysis of entrepreneurial activity from an institutional point of view (Aldrich & Zimmer, 1986; Berger, 1991; Shapero & Sokol, 1982; Steyaert & Katz, 2004; among others), offering greater robustness to the environmental factors as determinants for the creation of businesses (Aidis et al., 2008; Alvarez et al., 2011; Thornton et al., 2011; Veciana & Urbano, 2008; Welter, 2005) especially in the case of female entrepreneurs.

A gap in the female entrepreneurship research is the limited use of longitudinal analysis, specifically, in non-Anglo-Saxon countries, such as Spain. Thus, in the next chapter, in order to analyse further the relationship between formal and informal institutions and female entrepreneurship, we shall extend the time period for the study to 2003–2010 and focus on Spain at a regional level.



CHAPTER 7

A longitudinal analysis of female entrepreneurship in Spain (2003-2010): Institutional factors



7. A longitudinal analysis of female entrepreneurship in Spain (2003-2012): Institutional factors

7.1. Introduction

In Chapter 6, we performed a quantitative analysis of the effect that some of the formal and informal factors had on female entrepreneurship in Spain during the year 2010. The results we obtained are in line with the qualitative research conducted in earlier chapters and reaffirm the informal institutions' greater importance with respect to the promotion of female entrepreneurship.

The academic studies conducted on the subject of female entrepreneurs in Spain have, until now, focused mainly on one or another region of Spain and on specific years (Díaz-García & Brush, 2012; Díaz & Carter, 2009; Sánchez & Fuentes, 2010). The limited amount of panel data research into female entrepreneurship in Spain (Alvarez et al., 2011; Díaz-García & Jimenez-Moreno, 2010) suggests the need to develop a longitudinal analysis that would offer greater capacity for the analysis of the effect that formal and informal institutions have had on female entrepreneurship in Spain in recent years.

This research is even more important when we consider how in recent years there has been a significant deceleration of the world economy and a downward revision of all the economic growth forecasts for the eurozone. Within this context, the figures for the Spanish economy cannot be very good: the gross domestic product (GDP) has declined from 4.1% in 2006 to a forecast of -1.0% in 2012 (Eurostat, 2012), ahead only of Greece, Portugal and Italy. These GDP forecasts, meanwhile, are accompanied by an increase in unemployment, with the unemployment rate rising from 8.3% in 2006 to 23.6% in 2012 (Eurostat, 2012; INE, 2012). This downturn, along with the consequent contraction in both private and public consumption brought about by the adjustments in spending and public investment policies anticipated by the Spanish Government, reflects the country's present situation.

Given the situation, it is becoming more necessary to establish the elements such as female entrepreneurship that favour economic growth and job creation. The paper presented by Wong et al. (2005) provides an extensive literature review as well as empirical evidence that links new business creation and growth, and there are also studies that indicate that fast-growing firms have generated most of the growth and new job creation in SMEs in developed countries (Birch et al., 1997; Fölster, 2000; Harrison, 1994; Van Stel & Storey, 2004). Many investigations analyse the relationship between the level of entrepreneurship and the economic growth in countries or in regions within particular countries (Acs et al., 2005; Audretsch & Thurik, 2001; Van Stel & Storey, 2004, Van Stel et al., 2005; among others).

In turn, authors such as Verheul et al. (2006:151) suggest that women not only contribute to employment creation and economic growth, but also 'make a contribution to the diversity of entrepreneurship in the economic process', and in their study, using Global Entrepreneurship Monitor data for 29 countries, they investigate the differential impact of several factors on female and male entrepreneurship at the country level and suggest that high female entrepreneurship rates also tend to be closely related to high total entrepreneurial rates within a specific economy (Delmar, 2003; Verheul et al., 2006).

In light of the situation set out above, the main objective of this chapter is to analyse some of the environmental factors that influence female entrepreneurship in Spanish regions, using, as in the other chapters, institutional economics (North, 1990, 2005) as a theoretical framework. To achieve this objective, the empirical analysis uses panel data of the Global Entrepreneurship Monitor project (GEM) for the period 2003–2010. The most relevant results from the study suggest that informal factors (recognition of the entrepreneurial career, female network and female role model) are more relevant to female entrepreneurship than formal factors (education, family size and income-level differences), in line with the findings obtained in the last chapters.

After this introduction, the chapter is structured in five sections. First, the theoretical framework of the investigation is described. Next, the methodology employed in the empirical section is explained, and the most relevant results of the study are presented. Finally, the article includes some conclusions and future lines of research.

7.2. Conceptual framework

In line with the investigation explained in the previous chapters, the theoretical framework used is based upon the institutional economic theory developed by North (1990, 2005).

For this study, and in the application of this theory, we analyse the influence of formal institutions (education, family size and income-level differences) and informal institutions (entrepreneurial career, networks and role models) on female entrepreneurship.

7.2.1. Formal factors of female entrepreneurship

Education

The first studies establish a negative relationship between educational level and entrepreneurship, suggesting that the option of creating a business is left basically to those persons who did not have a high educational level (Collins & Moore, 1964). Later studies, such as those developed by Robinson and Sexton (1994) or Bates (1995), which make use of a much broader empirical base, instead demonstrate quite the opposite, that there is a positive relationship between higher levels of formal education and the likelihood of creating a business. Furthermore, these studies indicate that women rely much more upon advanced education as their route to self-employment than men.

There are authors who have also suggested a positive relationship between education level and entrepreneurship; some of these authors use human capital theory as the basis for their investigations. Human capital theory indicates that knowledge provides people with an increase in cognitive abilities, making them potentially more effective and productive in their activities (Becker, 1964; Schultz, 1959). Included among the studies following this line of thought are the investigations conducted by Delmar and Davidsson (2000) and Davidsson and Honig (2003); they suggest that individuals with more human capital or higher-quality human capital available to them are more capable of perceiving entrepreneurial opportunities, if such opportunities exist. The latter study establishes human capital to be not only the level of formal education (ranking from primary to doctorate level), but also the level of non-formal education (training courses), as well as experience and practical learning. As a result, we observe that a higher level of formal education, together with the entrepreneur's previous experience, increases the probability of being an entrepreneur, although the study also establishes that this increase is not lineal to all levels of formal education (it is more positively related to secondary education and university education than tertiary education). Following this line of investigation, which suggests a positive relationship between education and entrepreneurial activity, we highlight research such as that carried out by Wilson et al. (2007:402), which indicates not only the importance of the educational level but also the strong relationship between the inclusion of entrepreneurship education in tertiary education and entrepreneurial self-efficacy, indicating that 'entrepreneurship education can be

positioned as an equalizer, possibly reducing the limiting effects of low self-efficacy and ultimately increasing the chances for successful venture creation by women'. However, the research suggests that the relationship between education and entrepreneurial activity may be contradictory, since we also find investigations such as those conducted by Castagnetti and Rosti (2011) and Witt (1993), which suggest that higher education might generate better outside options in paid employment, making the consideration of entrepreneurship as a desirable career option less probable.

Given the different positions found in the literature review, this investigation considers the level of education to be an important factor for all entrepreneurial activity. While the studies conducted by González and Nieto (2012) suggest that even though the educational level is positively related to the creation of businesses, it also indicates that individuals with a tertiary education are those who least take advantage of the existing opportunities to start a business.

As noted earlier, we put forward the following proposition:

Hypothesis 1: Tertiary education has a negative effect on female entrepreneurial activity.

Family size

In the previous literature, an important relationship was established between family and female entrepreneurial activity, even though the existing relationship between family members has changed drastically in recent decades, moving away from the model of the traditional family, in which the principal activity of married women was to take care of the children, and a professional job was an option that had to adapt to the existing family size, and not the other way around. That was the norm until the current situation took over: nowadays, marriage (and cohabitation by couples of all kinds) is postponed until a stable job is available, divorce rates are on the rise and birth rates are falling. In this context, authors such as Mincer (1985) suggest that reductions in the average family size – and in how long marriages tend to last – increase the motivation to form part of the job market and to start a business, although they assert that the woman continues to figure as the principal caretaker of the family (Unger & Crawford, 1992). Along the same lines, we find studies such as the one conducted by the OECD (2002), which determines that there is a negative relationship between the presence of children and female employment rates, while at the same time an increase in male employment rates is observed. On the other hand, studies such as that by Verheul et al. (2006) establish that, while women's family size may appear a priori to have a negative effect on female entrepreneurship due to the high demands on their time, there is

evidence to suggest that self-employment may provide women with the possibility of adjusting the number of hours they dedicate to the needs of the family, thereby promoting female entrepreneurship. Along the same lines, studies such as the one conducted by Mattis (2004) suggest that women choose to start a business in order to balance out work and family responsibilities, although most of the research has been focused more on the work role and family conflict experiences of female employees (Desrochers & Sargent, 2004; Grönlund, 2007; Mayrhofer et al., 2008; Shelton, 2006).

Meanwhile, Özkan (2011) also establishes a more positive relationship between being married and entrepreneurship, and suggest that having children is a relevant factor in the decision to create a business; however, the positive effect of marriage on women's entrepreneurial migration disappears, since in many cases women have a more traditional role within the family, and this aspect contributes, in the opposite sense, to their non-incorporation into self-employment. On the other hand, papers such as the one prepared by McGowan et al. (2012) suggest that the policies for the promotion of female entrepreneurship must encourage women to create businesses, though they also suggest that these policies must be based on a realistic vision of women's family size. Entrepreneurship offers greater autonomy and flexibility but it also translates into longer working hours, resulting in a situation that at times does not adapt well to the level of dedication expected to be given to the family.

Based on what has been observed, we put forth the following proposition:

Hypothesis 2: The family size has a negative influence on entrepreneurship.

Income-level differences

In previous investigations, it has been demonstrated that one of the relevant factors in the decision to create a business is the degree of satisfaction workers derive from their workplace. When working for others means a less-than-desired income level for the workers, or when their work conditions are not what they expected, they may consider starting their own business (Douglas & Shepherd, 1999; Dubini, 1988; Eisenhauer, 1995). In the case of working women, we find an added difficulty that they face in accessing high managerial positions when they work for others, a situation often referred to as the 'glass ceiling', which in many cases causes women to decide to create their own business to avoid the existing barriers that leave them dissatisfied and frustrated, thus hindering their professional and personal development (Powell, 1999). Fairlie (2005) also suggests in his papers that there is evidence that while young men from disadvantaged families who have created their own

businesses earn more than by working for others, on the other hand, young women from disadvantaged families who have created their own businesses tend to earn less than wage/salary workers.

We can see that some of the principal aspects reflecting job dissatisfaction involve the income level and the workplace environment. Women, because they have an average salary lower than that for men (INE, 2003–2010), and because they cannot access the workplaces they desire, decide in many cases to start up a business in order to avoid both salary and position discrimination in the workplace (Fairlie, 2005).

Based on the information provided, we put forward the following proposition:

Hypothesis 3: The existence of income-level differences has a positive influence on female entrepreneurship.

7.2.2. Informal factors of female entrepreneurship

Entrepreneurial career

The principal intention models used for the entrepreneurship study are Ajzen's theory of planned behaviour (1987) and Shapero's entrepreneurial event model (1982). Ajzen's theory indicates that there is a set of cognitive variables that influence entrepreneurial intentions; these variables are classified according to whether they refer to (i) perceived social pressure leading to the practice of or abstention from a certain behaviour, (ii) the perception of the ease or difficulty of practising the behaviour and (iii) the personal attitude toward entrepreneurship.

Based on the supposition that entrepreneurship is an embedded phenomenon, subjective perceptions of the environment and of the position a person maintains within that environment are quite important to the final decision to start up a business (Jack & Anderson, 2002). The various societal expectations that existed until relatively recently for men and women implied divergent work preferences, evidenced by the way in which children were steered towards career choices deemed appropriate for their sex (Harriman, 1985; Hisrich, 1986). Along the same lines, we find studies that suggest that the traditional roles assigned to women induce the idea that entrepreneurial activity is less desirable for women than for men (Baron et al., 2001; Langowitz & Minniti, 2007; Marlow & Patton, 2005).

The existence of various papers, such as those by Arenius and Minniti (2005), Kolvereid and Isaksen (2006) and Langowitz and Minniti (2007), makes clear the importance of perceptions

to entrepreneurship and suggests that men's and women's perceptions are equally relevant to the decision to create a business, but that those perceptions differ depending on the gender of the entrepreneur, given that the culture of a society, understood as a set of attitudes, values and social conventions belonging to that society, may encourage or discourage certain behaviours, including entrepreneurship (Thomas & Mueller, 2000; Zahra et al., 1999).

Following the guidelines indicated in earlier investigations, we can establish:

Hypothesis 4: Social recognition of the entrepreneurial career has a positive influence on female entrepreneurship.

Female networks

The literature has demonstrated an interest in how business networks may be a very relevant informal factor in the decision to create a business, as well as a key factor in directing the business towards innovation (Capaldo, 2007).

In order to start their business, entrepreneurs need information, capital, skills, etc., and may have all or some of those resources available to them personally, but they may also complement them by accessing their social networks (suppliers, customers, other entrepreneurs, etc.) (Aldrich & Zimmer, 1986; Aldrich et al., 1991).

Investigations have been conducted along a range of distinct lines, from those that establish that the networks available to them do not depend on gender, but instead on their status within the business (Katz & Williams, 1997), to those that, to the contrary, indicate that the networks created by women are quite important to the process of creating a business, but are at a lower strategic level with respect to the people pertaining to them, justified in part by the fact that women enter and exit the job market with greater facility and in the process lose the business networks that until then were available to them (Brush et al., 2009; Greve & Salaff, 2003).

Renzulli et al. (2000) also suggest in their study that women have less diverse relationships than men, thereby limiting the identification of opportunities. Meanwhile, the investigation also reveals that women prefer collaborative networks, in many cases using their contacts to obtain more personal support than operational support at the business level (Díaz & Carter, 2009; Sorenson et al., 2008).

There are investigations that confirm the importance of personally knowing someone who has started up a business in the last few years and the influence this has on the probability of

starting up a business. Additionally, in the case of female entrepreneurs, this is even more relevant when the entrepreneur they know personally is a family member (Hisrich & Brush, 1986; Klyver & Grant, 2010; Langowitz & Minniti, 2007).

In light of the investigations previously conducted, we propose the following hypothesis:

Hypothesis 5: Female networks have a positive influence on female entrepreneurship.

Female role models

The last of the informal factors analysed is role models, defined by Gibson (2004) as those people who are similar to oneself; this similarity allows one to learn more easily from the role model, facilitates the bond and helps one to define one's self-perception.

Bandura (1989), in her social cognitive theory, maintains that individuals pay great attention to the role models who provide indirect lessons; these lessons arrive in the form of observation of individuals whom they consider worthy of emulation and who make use of skills or norms that may be of use to them in their own activities. The existence of businesspersons with similar characteristics to ours is a factor that increases the probability of creating a new business, by reducing the uncertainty associated with the act of starting up a business (Arenius & Minniti, 2005; Davidsson & Honig, 2003).

Role models are important because of their ability to enhance self-efficacy (Minniti & Nardone, 2007). Exposure to role models may have a more positive impact on women than on men when it comes to how they perceive their own entrepreneurial skills. This aspect is related to the need to have more female role models, since they engender positive self-perception with respect to entrepreneurial activities (Sealy, 2007).

The reason for the absence of female role models lies in the fact that the attributes one needs in order to be considered a role model are generated by the very organizations that place a higher value on male characteristics, as opposed to female characteristics, thus reducing the probability that women will become role models (Meyerson & Fletcher, 2000). Furthermore, the importance of the existence of female role models is established, as these not only offer professional orientation, but also provide information and knowledge about specific problems brought about by the entrepreneurial activity relating to reconciling work and family, an aspect considered to be quite important by women when making the final decision to create a business. Finally, women associate the existence of male role models with the perception of the greater barriers they face in creating businesses (Lockwood, 2006; Ridgeway & Smith-Lovin, 1999; Sealy, 2007).

Based on this argument, we propose the following hypotheses:

Hypothesis 6: Female role models have a positive influence on female entrepreneurship.

Hypothesis 7: Male role models have a negative influence on female entrepreneurship.

7.3. Methodology

As noted previously, female entrepreneurial activity is influenced by environmental factors, measured through informal and formal institutions. We test the hypotheses using Spanish regional-level panel data covering an eight-year period, from 2003 to 2010, from two primary sources. The first is the project Global Entrepreneurship Monitor (GEM), the largest ongoing study of entrepreneurial dynamics in the world. The second source of the data is the National Statistics Institute (INE) of Spain. Table 7.1 presents a list of the dependent and independent variables used in this study, including their sources. Our final sample consists of a panel with 103 observations and 19 Spanish regions. We propose the following general model:

$$TEAfem_{it} = \alpha + \beta_1 FI_{it} + \beta_2 II_{it} + \beta_3 CV_{it} + \alpha_i + \mu_{it}$$

For $i=1,2,\dots, 19$ Spanish regions; $t=2003, 2004, \dots, 2010$.

In the above equation, $TEAfem_{it}$ is the dependent variable in year t ; FI_{it} is a matrix of formal institutions in region i in year t ; II_{it} is a matrix of informal institutions in region i in year t ; CV_{it} is a matrix of the control variable in region i in year t and finally, α_i is a vector of a region-specific constant term and is fixed over time and μ_{it} is an idiosyncratic disturbance that changes across time as well as across regions.

We estimate all the regressions using country fixed effects, according to Hausman's specification test, which does not reject the null hypothesis that errors are independent within regions. Also, the fixed-effects model is more adequate because it estimates average within-region changes in female entrepreneurship as the institutional environment changes over time. We discard autocorrelation problems but heteroscedasticity is detected. Thus, we estimate linear regressions with panel-corrected standard errors.

Table 7.1. Description of variables

Variable		Description	Source*
Dependent variable	Female entrepreneurial activity (TEAfem)	Percentage of female 18–64 population who are either a nascent entrepreneur or the owner-manager of a new business	GEM 2003–2010
Formal institutions	Education	Percentage of women enrolled in tertiary education	INE 2003–2010
	Family size	Average number of children for women	INE 2003–2010
	Income-level differences	Difference between male and female earnings expressed as a percentage of male earnings	INE 2003–2010
Informal institutions	Entrepreneurial career	Percentage of 18–64 population who agree with the statement that in their region, most people consider starting a business as a desirable career choice	GEM 2003–2010
	Female network	Percentage of females who know someone personally who started a business in the past 2 years	GEM 2003–2010
	Female role model	Percentage of female 18–64 population who are currently the owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages or any other payments to the owners for more than 42 months	GEM 2003–2010
	Male role model	Percentage of male 18–64 population who are currently the owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages or any other payments to the owners for more than 42 months	GEM 2003–2010
Control variable	Female unemployment	Unemployment rate of women between 16 and 64 years old	INE 2003–2010
	Per capita income	Gross domestic product (GDP) per capita in the Spanish regions, measured in three levels: high, medium and low	INE 2003–2010

GEM – Global Entrepreneurship Monitor. <http://www.gemconsortium.org/>

INE – Spanish Statistical Office. www.ine.es

7.4. Results and discussion

The means, standard deviations and correlation coefficients of the study variables are shown in Table 7.2. Also, Table 7.3 shows the results of the linear regressions with panel-corrected standard errors (PCSE).¹¹

The first model analyses the effect of control variables on female entrepreneurship. As we expected, both female unemployment and per capita income have a negative and significant ($p < 0.01$) influence on female entrepreneurial activity, in line with the previous literature reviewed (Carree et al., 2007; Wennekers & Thurik, 1999; Wennekers et al., 2005). This model explains 35% of the total variation of female entrepreneurial activity.

In the second model, we include both the control variable and the formal institutions. This model slightly increases the percentage of total variation of female entrepreneurial activity explained to 36%. The results show that the coefficients of formal institutions have no statistically significant effect on female entrepreneurship.

In the same way, Model 3 shows the effect of informal institutions on female entrepreneurship. In this case, almost all the coefficients are statistically significant and they have the expected sign, except female role model. The explanatory power of the model increases with 55% of the variance being explained.

Next, Model 4 includes formal and informal institutions and control variables. Again, the coefficients of formal institutions are not statistically significant, while the coefficients of almost all the informal institutions are significant.

Finally, Model 5 shows only the significant variables. This model explains 53% of the total variation of female entrepreneurship. Thus, the informal institutions of entrepreneurial career and female network have a positive and significant influence ($p < 0.01$) on female entrepreneurship in Spanish regions, when we control for female unemployment and per capita income.

As mentioned above, hypotheses 1 and 2 suggest a negative influence of tertiary education and family size, respectively, on entrepreneurial activity. Similarly, hypothesis 3 proposes that income-level differences have a positive influence on entrepreneurship. However, the coefficients of these formal institutions in Models 2 and 4 are not statistically significant; thus, the data reject hypotheses 1, 2 and 3.

¹¹ Given the correlations among the several independent and control variables, we tested for the problem of multicollinearity, one that might affect the significance of the main parameters in the regressions through variance inflation factor (VIF) computations. The VIF values were low (lower than 5.03).

Table 7.2. Correlation matrix and descriptive statistics

	Mean	Std Dev.	1. TEAfem	2.	3.	4.
1. TEAfem	4.55	1.78	1.00			
2. Entrepreneurial career	67.25	5.31	0.37***	1.00		
3. Female network	29.90	4.46	0.42***	0.29*	1.00	
4. Female role model	5.19	2.25	0.26*	-0.05	0.48***	1.00
5. Male role model	9.04	2.53	-0.16	-0.24*	0.04	0.44***
6. Education	55.80	3.68	-0.16*	0.07	0.05	-0.03
7. Family size	1.40	0.29	-0.13	0.15	0.09	-0.06
Income-level differences	16.09	5.61	0.08	0.06	-0.11	-0.13
9. Female unemployment	14.78	6.87	-0.49***	-0.19*	-0.03	-0.20*
10. Per capita income	2.05	0.84	0.05	-0.10	-0.14	0.18*
	5.	6.	7.	8.	9.	10.
5. Male role model	1.00					
6. Education	-0.30*	1.00				
7. Family size	-0.15	0.66***	1.00			
8. Gender pay gap	-0.20*	-0.25**	0.07	1.00		
9. Female unemployment	0.02	0.54***	0.50***	-0.66***	1.00	
10. Per capita income	0.10	-0.20*	-0.11	0.69***	-0.63***	1.00

*** p < 0.001; ** p < 0.01; * p < 0.10

Table 7.3. Regression analysis explaining female entrepreneurial activity

	Model 1	Model 2	Model 3	Model 4	Model 5
	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Formal institutions					
Education		0.022 (0.071)		0.049 (0.078)	
Family size		1.170 (0.910)		0.426 (0.925)	
Income level differences		-0.028(0.043)		-0.008 (0.038)	
Informal institutions					
Entrepreneurial career			0.079 (0.028)***	0.079 (0.032)**	0.079 (0.028)***
Female network			0.097 (0.040)**	0.138 (0.042)***	0.125 (0.042)***
Female role model			0.128 (0.078)	0.038 (0.084)	
Male role model			-0.108 (0.059)*	-0.118 (0.065)*	
Control variable					
Female unemployment	-0.198 (0.028)***	-0.250 (0.037)***	-0.155 (0.029)***	-0.134 (0.041)***	-0.163 (0.030)***
Per capita income	-0.914 (0.218)***	-0.979 (0.270)***	-0.609 (0.289)***	-0.376 (0.289)	-0.597 (0.229)***
Constant	9.488 (0.793)***	7.925 (4.544)	-4.245 (0.447)	-4.245 (0.447)	-0.742 (2.361)
R ²	0.3495	0.3627	0.5494	0.5632	0.5293
Observations	103	95	93	85	93
Regions	19	17	19	17	19

*** p < 0.01; ** p < 0.05; * p < 0.1 Note: Heteroskedasticity corrected standard errors in parentheses

Likewise, hypothesis 4 proposes that social recognition of the entrepreneurial career has a positive influence on female entrepreneurship (Langowitz & Minniti, 2007; Marlow & Patton, 2005; among others). The coefficients of this variable in Models 3, 4 and 5 are statistically significant ($p < 0.05$), and they are constant for all the models. Thus, hypothesis 4 is not rejected. The results show the positive influence of social recognition of the entrepreneurial career on female entrepreneurship.

In turn, in hypothesis 5 we suggest that female networks have a positive influence on female entrepreneurship. The coefficient of this informal institution is positive and statistically significant ($p < 0.05$), thus the data support this hypothesis. In line with the literature, this result confirms the importance to female entrepreneurship of personally knowing someone who has created a business (Brush et al., 2009; Greve & Salaff, 2003).

Finally, hypothesis 6 postulates that female role models have a positive influence on female entrepreneurship, while hypothesis 7 suggests that male role models have a negative influence on female entrepreneurship. The male role model may be dissuading those women who do not identify with the archetype of the male entrepreneur (Lockwood, 2006; Sealy, 2007). Models 3 and 4 show that female role models are not statistically significant, thus the data reject hypothesis 6. Also, in Models 3 and 4, the coefficient of male role models is significant, but the significance level is low ($p < 0.1$). In fact, in Model 5, male role models are not significant; hence, hypothesis 7 is not supported.

At the same time, previous studies, such as those conducted by Fagenson and Marcus (1991) and Gupta et al. (2009), suggest that a woman's early exposure to the example of a successful female entrepreneur may provide her with greater self-confidence in the path towards entrepreneurship. Furthermore, authors such as Abrahamson et al. (2002) and Judge and Livingston (2008) demonstrate in their studies that the presence within the family of factors which promote gender equality, such as the fact that the mother works outside the home, promote greater values of equality. It can also be observed that when a family member is an entrepreneur, the psychological identification of the woman leads her to perceive the creation of businesses as an appropriate professional path to take.

Our study points out the relevance of role models, previously confirmed in earlier studies (GEM, 2009), and determines that female role models have a greater influence than male role models. This aspect indicates that, while the current

proportion of women entrepreneurs is not as high as that of men, women are performing a fundamental role in becoming the female role models for future generations, and so, should this relationship remain unchanged, an increase in the number and proportion of women entrepreneurs will in turn favour an increase in the future in women entrepreneurs.

These results establish the importance of female role models versus male role models, as previous research has indicated (Lockwood, 2006; Meyerson & Fletcher, 2000; Ridgeway & Smith-Lovin, 1999; Sealy, 2007).

7.5. Conclusions

The main purpose of this chapter was to contribute to the existing entrepreneurship literature by exploring how the environmental factors are associated with female entrepreneurship in Spain; to achieve this aim, we developed a longitudinal analysis for the period 2003–2010.

The results of this study show that formal institutions such as education, family size and income-level differences have no significant influence on female entrepreneurship in Spain. One potential explanation is the small difference of these institutions in Spanish regions.

Therefore, in Spain, informal institutions are more important than formal institutions for the promotion of female entrepreneurship, a result that is in line with other studies in the field (Alvarez & Urbano, 2011; Alvarez et al., 2011).

The informal institutions that appear to be most relevant to the creation of businesses by women are social recognition of the entrepreneurial career and female networks. In the first case, as we stated earlier, the level of desirability conceded by a society, through its values and social conventions and with respect to the career choice of entrepreneur, has changed according to the evolution of the role assigned to women (Baron et al., 2001; Langowitz & Minniti, 2007; Marlow & Patton, 2005) and to the presence of a greater number of female entrepreneurs in society, who provide greater visibility of their situation as female entrepreneurs and help potential female entrepreneurs obtain the support necessary to settle any doubts that may arise during the entrepreneurial process (Brush et al., 2009, Greve & Salaff, 2003).

In the future, the government must act to increase the presence and visibility of role models, and also to prepare education programmes, from primary school to university, which will promote a set of attitudes and values that encourage positive perceptions of entrepreneurship, and especially of female entrepreneurship.

In the next chapter we will present the main conclusions, the implications and the future research lines.



8. Conclusions

8.1. Main conclusions

The importance of entrepreneurship and new venture creation as crucial determinants of economic and social growth is increasingly recognized (Acs & Audretsch, 2003; Audretsch, 2007; Audretsch et al, 2006; Carree & Thurik, 2006; Brush et al., 2010; Terrell & Troilo, 2010). Important organizations such as the World Bank, International Monetary Fund (IMF) and United States Agency for International Development (USAID) have developed initiatives to promote and encourage entrepreneurship in developing countries. Along the same lines, most governments of developed countries are investing a large amount of money in designing and promoting different initiatives to promote entrepreneurship.

Female entrepreneurial activity has demonstrated the importance of this collective for the social and economic development (Minniti et al., 2005; OCDE, 2004, 2012; Verheul, 2005). To encourage female entrepreneurship, it is necessary to understand the factors, causes and motivations that lead women to become entrepreneurs, especially when the percentage of women involved in entrepreneurial activities is significantly lower than that of men (Georgellis & Wall, 2005; Aldrich & Kim, 2007; Minniti, 2010).

The current investigation has shown that environmental factors are more relevant than the individual characteristics to promoting female entrepreneurship. Moreover, as we propose in this thesis, the consideration of the social context would further benefit our understanding of both male and female entrepreneurship, along the same lines as research developed by authors such as Brush et al. (2009). Ahl (2002) also suggests that females and males are more similar than different with respect to their individual characteristics, and many

scholars recognize the role of environmental factors in developing entrepreneurial activity and specifically female entrepreneurship and the differences between male and female entrepreneurs (Aidis et al., 2008; Brush et al., 2009; Welter, 2011). In this context, there is a paucity of research considering the gender gap in environmental factors that affect female entrepreneurship and most of these studies focus only on a few aspects that affect female entrepreneurs (Amine & Staub, 2009; Baugh et al., 2006; Thornton et al., 2011). The need to obtain greater knowledge regarding the influence of environmental factors on female entrepreneurship has been demonstrated (Parker, 2004).

The main objective of this investigation was to analyse the influence of environmental factors (institutional factors) on female entrepreneurial activity in Catalonia (Spain), using the institutional approach as a theoretical framework.

This investigation used the institutional economic theory (North, 1990, 2005) in its analysis of the environmental factors that influence female entrepreneurship, and it took both formal and informal institutions into consideration. The results obtained indicate that socio-cultural factors (informal institutions), such as beliefs and societal attitudes, perceptions, social networks, role models and family context, affect female entrepreneurial activity to a greater degree than formal institutions do, and affect female entrepreneurs more than their male counterparts (see Table 8.1).

From a conceptual perspective, the results of this thesis support the importance of environmental factors to female entrepreneurial activity (Aidis et al., 2008; Brush et al., 2009) and, specifically, the relevance of the institutional framework to female entrepreneurial activity (Amine & Staub, 2009; Baugh et al., 2006; Brush et al., 2009; Díaz-García & Jiménez-Moreno, 2010).

This thesis advances the understanding of the environmental factors (institutional factors) that influence female entrepreneurship as well as the combination of more than one methodology for the study of the same phenomenon. Methodological triangulation was employed to study the phenomenon of female entrepreneurship (Creswell, 2003), thus taking advantage of the strengths of each of the methods (Denzin, 1989) in order to be able to provide greater validity to the results obtained and to try to reduce or eliminate the disadvantages of using a single methodology (Denzin, 1989; Johnson et al., 2003).

In Chapter 2, we explored the main research on female entrepreneurship published in journals indexed by the SSCI for the period 1990 to 2012, identifying the contents, units of analysis, statistical techniques and conceptual framework used. The literature review revealed several gaps. The first gap is that articles on female entrepreneurship are almost non-existent among the journals with the greatest impact factor within the business subject category (representing only 2% of the total published on the subject), with 70% of the research situated in Anglo-Saxon countries and only 5% in southern European countries. The second gap is that most of the research has been carried out at the micro (individual) level, and there is a lack of research, above all, at the regional level. Thirdly, more than 80% of the papers analysed made use of qualitative analysis, descriptive analysis or linear regressions.

Table 8.1 Summary of the main results of the research

Chap.	Institutions	Variables	Methodology	Main results
PHASE 1				
3	Formal institutions	Access to finance and financial assistance Non-financial assistance Education level	Qualitative analysis. Case studies: from November 2009 to July 2010. Catalonia (Spain) Interviewed: 8 female entrep. 8 male entrep. 3 pers. from support programmes 3 pers. from financial institutions	It can be observed that both formal and informal institutions are significantly relevant to entrepreneurial activity. The investigation suggests that informal institutions are of greater importance than formal ones to the promotion of female entrepreneurship.
	Informal institutions	Perception of female entrepreneur' skills Social networks Family context	20 family entrepreneurs 3 entrepreneurship experts	
4	Informal institutions	Social networks Role models Entrepreneurial attitudes Family context	Qualitative analysis. Case studies: from November 2009 to July 2011. Catalonia (Spain) Interviewed: 3 female entrep. 3 male entrep. 11 family entrep. 3 entrep. experts	Socio-cultural factors are quite important for the promotion of female entrepreneurship. It is suggested that social networks, role models and entrepreneurial attitudes are more positively related to female than to male entrepreneurs.

PHASE 2				
5	Informal institutions	Fear of failure Perceived capabilities Perceived opportunities Role model	Rare events logistic regression (RELOGIT) Sample of 4000 individual observations and 18 Spanish regions (GEM-APS data for the years 2009 and 2010)	While high levels of fear of failure have a negative influence on female entrepreneurship, high levels of perception of skills have a positive influence.
6	Formal institutions	Financing Non-economic policies Education	Logistic regression. Sample of 24,543 individuals from 18 Spanish regions (GEM-APS-NES and INE data for the year 2010)	Informal institutions (perception of skills, social networks and family role) are more relevant than formal factors with respect to promoting female entrepreneurship.
	Informal institutions	Perception of skills Social networks Family context		
7	Formal institutions	Education Family size Income-level differences	Data panel from 2003 to 2010. Sample of 103 observations and 19 Spanish regions (GEM and INE data from 2003 to 2010)	Informal institutions (entrepreneurial career and female networks) are more relevant than formal institutions.
	Informal institutions	Entrepreneurial career Female network Female role model Male role model		

Finally, it can be observed that articles employing the institutional approach as a theoretical framework are almost non-existent. Therefore, in order to fill those gaps, we developed the investigation of female entrepreneurship at the regional level for Catalonia (Spain), using qualitative analysis and quantitative analysis (logistic regressions, rare events logistic regression and panel data) and employing an institutional perspective (North, 1990, 2005) as the theoretical framework of reference.

In Phase 1, we analysed the influence of environmental factors on female entrepreneurship. In Chapter 3, we explored and analysed the formal and informal institutions using a qualitative analysis, and it can be observed that formal institutions (financing, non-economic entrepreneurial support programmes and education level), as well as informal institutions (perception of skills, social networks, entrepreneurial attitudes and family context), are relevant to the promotion of entrepreneurial activity, though the effects vary depending on the gender of the entrepreneur. The investigation also suggests, and this is

reaffirmed in Chapter 4, that informal institutions (social networks, role models and entrepreneurial attitudes) are more positively related to entrepreneurship in the case of female entrepreneurs than in the case of male entrepreneurs.

Next, in Phase 2 we quantitatively analysed the environmental factors that influence female entrepreneurship in Spain and Catalonia. Specifically, in Chapter 5, we examined the relationship between informal institutions and female entrepreneurship in Catalonia, and the findings obtained indicate that perceived capabilities (positively) and fear of failure (negatively) are the most relevant informal institutions found to be related to female entrepreneurship. Also, in Chapter 6, we analyse the relationship between formal and informal institutions in Spain and the results suggest that informal institutions (perception of entrepreneurial skills, social networks and family role) are more relevant than formal institutions. In the case of the perceptions of skills, the effect is greater on female entrepreneurial activity than on male entrepreneurial activity. Along the same lines, in Chapter 7, with the study from the period 2003 to 2010, in Spain context, we find that informal institutions are also more relevant than formal institutions. We observe that entrepreneurial careers and female networks are positively related to female entrepreneurship, while male role models are negatively correlated with female entrepreneurship but positively related to male entrepreneurial activity.

If we analyse the linkage between the Phase 1 (qualitative approach) findings and the Phase 2 (quantitative approach) findings, the Phase 1 results suggest that the effect of the formal factors, such as access to financial resources, non-economic support programmes and education, affect female entrepreneurship to a greater degree than male entrepreneurship. However, in Chapters 6 and 7 (Phase 2), we analysed the formal factors quantitatively and we observed that the coefficients are not significant, but in all the cases they are higher for female entrepreneurship than male entrepreneurship.

In the qualitative research, the findings indicate that informal institutions are more relevant to the promotion of female entrepreneurship than formal institutions. In Phase 1 (Chapters 3 and 4), the results suggest that the perceptions of knowledge, skills and experience have a positive effect on the probability of being an entrepreneur and this effect is greater for female entrepreneurship than for male. The findings obtained in Chapters 5, 6 and 7 (Phase 2) are along the same lines; they indicate that perceived capabilities have a positive effect on

entrepreneurial activity and the effect is greater for female entrepreneurship than for male entrepreneurship, both in Catalonia and in the rest of Spain.

The findings obtained in Chapters 3 and 4 (Phase 1) also suggest that social networks have a positive effect on female entrepreneurship, and this effect is more positively related to female than male entrepreneurship. However, in Chapters 6 and 7, the findings indicate that social networks have a positive effect on female entrepreneurship but the effect is greater for male than for female entrepreneurs.

Similarly, Phase 1 (Chapters 3 and 4) suggests that role models positively affect entrepreneurship and their effect is greater on female than male entrepreneurship. In Chapters 5 and 6, the coefficient of female role models is not statistically significant, but there is a positive correlation. Additionally, in Chapter 5, we observed that the coefficient of male role models has a negative influence on female entrepreneurship.

The family context is another relevant informal factor that affects female entrepreneurship. The findings obtained in Chapters 3 and 4 suggest that the family context affects female entrepreneurship negatively and this effect is more negatively related to female than male entrepreneurship. In the same vein, the findings of Chapters 6 and 7 reveal that the family context decreases the probability of being an entrepreneur, and the results demonstrate that being a woman and having family responsibilities reduces the probability of being an entrepreneur more significantly in the case of women than in the case of men.

In the qualitative as well as the quantitative research, the results obtained indicate that informal institutions are more important for the promotion of female entrepreneurship than formal institutions. Meanwhile, the results also suggest that some factors are more noteworthy, because they can offer greater contributions to the promotion of female entrepreneurship.

With the use of both approaches, qualitative and quantitative, we have obtained convergence in the main findings, thus providing greater reliability for the results obtained.

8.2. Implications

Different implications can be drawn from this thesis. From the academic point of view, the research contributes to the creation of knowledge in an understudied area such as the environmental factors that affect female entrepreneurial activity in Catalonia (Spain), above all with respect to knowledge of socio-cultural factors (Davidsson, 2003; Downing, 2005; Urbano et al., 2011).

Concerning the theoretical implications, we have conducted, following a qualitative methodology, in-depth research on the environmental factors that affect the entrepreneurial activity of women, and the result achieved with the quantitative methodology reaffirms empirically and validates the importance of environmental factors to female entrepreneurship.

In this thesis, we have used North's institutional theory (1990, 2005) to propose an operationalization of the environmental factors, distinguishing between formal and informal institutions. The results obtained may help to advance the analysis of entrepreneurial activity from an institutional point of view (Aldrich & Zimmer, 1986; Berger, 1991, Shapero & Sokol, 1982; Steyaert & Katz, 2004), providing greater robustness to environmental factors as determinants of the creation of businesses.

Another theoretical implication is focused on the framework used. The research on female entrepreneurship has used basically feminist theories, and others such as resource-based theory or institutional approaches; however, there are is a limited amount of research on female entrepreneurship that uses institutional theory (Baugh et al, 2006; Brush et al., 2009); one reason could be the difficulties related to the measurement of the variables in the institutional framework for both formal institutions and informal institutions (which is made even more difficult for the informal institutions by the specific characteristics of these institutions).

From the policy point of view, this thesis can contribute to the development of a sustainable entrepreneurial support infrastructure that might better meet the needs of both female and male entrepreneurs, but specifically female entrepreneurs. This could be accomplished by increasing the number of courses and support programmes (at all educational levels) aimed at fostering a more positive perception of entrepreneurial skills and increasing the visibility of female role models, with the overall goal of increasing the levels of female entrepreneurship.

The results of this investigation should help to contribute to policies that not only promote entrepreneurship and short-term innovation, but also focus on creating, in the long term, an entrepreneurial culture that permits entrepreneurship, creativity and innovation to be internalized as everyday activities. Along these lines, the Catalan and Spanish Governments are considering the introduction of entrepreneurial training in primary and secondary educational programmes. This should result in improvements in the general attitudes towards entrepreneurship as well as in the perception of entrepreneurial skills (from the perspective of the female entrepreneur as well as from the perspective of society), and it should generate, in the long term, more role models who are better suited to the needs of female entrepreneurs. Entrepreneurial 'socialization' should also boost the creation and use of more associations in which new entrepreneurs can find support during the early stages of their projects, while expanding their horizons beyond the family core (where today many social networks maintained by female entrepreneurs are to be found).

The results of this thesis suggest that, in order to improve female entrepreneurship, it is necessary to consider entrepreneurship as a 'basic competence', being able to define this competence as the set of cognitive, procedural and attitudinal skills that should be achieved by most people and that should allow them to adapt to the needs of the context in which they are situated, whether it be personal, academic or professional.

8.3. Limitations and future research lines

A number of limitations were identified in this study, at both the theoretical and the empirical part.

At the theoretical level, we have applied North's institutional theory (1990, 2005), which, based on the concept of institutions, differentiates between formal institutions and informal institutions. The first theoretical limitation is the problem arising at the moment of clearly establishing the differentiation between what can be defined as formal and what can be defined as informal institutions.

A second theoretical limitation is that the difficulty in employing a singular definition for the formal and informal institutions may also imply problems in making the dependent and independent variables operational.

A third theoretical limitation could be established by the interrelation between formal and informal factors, which would imply the study of the relationships and the effects generated upon them and upon entrepreneurial activity in general, and specifically upon female entrepreneurial activity (Welter & Smallbone, 2011).

Also, we could examine the relationship between institutional dimensions - regulative, normative and cultural-cognitive- (Scott, 1995) and female entrepreneurial activity.

As with all empirical research, even though it is carried out under the most rigorous conditions, employing both qualitative and quantitative techniques and with the aim of developing complementarities and triangulation between them, the results must be interpreted carefully. This is because the results that are obtained only make reference to the data that have been analysed and only to the period reflected. Then, a first future line of research is a comparison with the environmental factors of other regions or countries. First, we can compare the results with those of other Spanish regions, and second, we can compare them with other countries with more or fewer similarities (Mediterranean countries, Nordic or Anglo-Saxon countries, among others). Also, longitudinal studies in Catalonia and other regions or countries could be implemented.

To improve the level of knowledge of the factors that affect female entrepreneurship in Catalonia (Spain), we can incorporate other independent variables to analyse the effect of formal and informal institutions. Since the most important environmental factors that affect female entrepreneurship are the informal factors, we believe it would be more useful to place particular emphasis on informal institutions. As regards the measures of the dependent variable, in the quantitative research on female entrepreneurship, the dependent variable used refers to the total female entrepreneurial activity rate (TEA fem) of the GEM project, and it can be possible to use another characterization by this variable, distinguishing opportunity entrepreneurship or necessity, for example.

In addition, in other future research, it may be useful to develop an own database in which all the necessary data related to informal institutions are compiled to capture a greater diversity of approaches and greater richness of the findings.

Finally, an analysis of the implications of various contexts and wider sectors and geographical areas should be carried out, a variety of mixed methods (Carter et al., 2007) should be employed and, whenever possible, qualitative dimensions

should continue to be incorporated together with some quantitative components, in order to establish the complexity of female entrepreneurship, since the combination of the two methods permits a response to research questions that the methods could not address individually, while providing stronger inferences for the results obtained.



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ANNEXES

Annex 1: Descriptive and qualitative study of articles on female entrepreneurship

Author/Age	Review	Aims	Theoretical/ Empirical (Methodology)	Findings	Formal and Informal institutions North (1990,2005)
Jennings & McDougald (2007)	<i>Academy of Management Review</i>	To demonstrate how the constructs from the work-family interface (WFI) literature can help entrepreneurship.	Theoretical	The WFI system helps provide answers to questions about the performance differential between male-headed and female-headed firms.	Informal Institutions (family role)
Manimoy & Smith-Hunter (2011)	<i>Academy of information and Management Sciences Journal</i>	This paper investigates the role of the pre-entrepreneurial perceptions women have of their satisfaction levels.	Theoretical Empirical (probit analysis)	Research has often highlighted the motivational factors behind the decision to start up a business, as well as the key factors leading to the continuation of such businesses.	Informal Institutions (entrepreneurial perceptions) Micro level
Ogbor (2000)	<i>Journal of Management studies</i>	This article discusses the effects of ideological control on conventional entrepreneurial discourses and praxis.	Theoretical	The concept of entrepreneurship is discriminatory and gender-biased.	Informal institutions (perceptions)
Singh et al. (2011)	<i>African Journal of Economic and Management Studies</i>	The paper aims to draw on rational choice theory (RCT) to explore factors underpinning the decision by female entrepreneurs in Nigeria to enter self-employment.	Empirical (multivariate logistic regression)	Findings suggest the significance of 'educational' and 'family' capital, and orientation to social recognition.	Formal and informal institutions (education and family capital) Meso level
Ogunrinola (2011)	<i>African Journal of Economics and Management Studies</i>	The purpose of this paper is to examine the role that social capital plays in the determination and distribution of business earnings of female entrepreneurs in selected rural communities in Nigeria.	Empirical (ordinary least squares regression technique)	The study promotes a coordinated approach by the government to promote self-help organisations among women in rural areas.	Formal and informal institutions (non-financial assistance, social networks) Meso level

Greve & Salaff (2003)	<i>Entrepreneurship Theory and Practice</i>	The purpose of this paper is to study the network activities of entrepreneurs when establishing a firm.	Empirical (OLS regression models)	Entrepreneurs systematically vary their social networks according to the phase of entrepreneurship, but family members are present in all phases of business creation. Women make use of their kin to a larger extent than men do.	Informal institutions (social networks, family and networks) Macro level
Wilson et al. (2007)	<i>Entrepreneurship Theory and Practice</i>	The study of relationships between gender, entrepreneurial self-efficacy, and entrepreneurial intentions.	Empirical (descriptive: means, standard deviation, zero-order correlation, t-test)	Similar gender effects on entrepreneurial self-efficacy, but the effect of entrepreneurship education proved stronger for women than for men.	Formal institutions (entrepreneurial education) Informal institutions (entrepreneurial intentions) Meso level
Marlow & Patton (2005)	<i>Entrepreneurship Theory and Practice</i>	The study of the access women entrepreneurs have to finance, and the analysis of the barriers to the source of funding according to the entrepreneur's gender.	Theoretical	This article argues that limited access to financial resources exists, and that it is related to the socio-economic activity being carried out and to the social networks created.	Formal institutions (financial assistance, non-economic assistance) Informal institutions (social networks, perceptions)
Gupta et al. (2009)	<i>Entrepreneurship Theory and Practice</i>	This study examines the role of socially constructed gender stereotypes in entrepreneurship and their influence on entrepreneurial intentions.	Empirical (regression model, descriptive)	The results reveal that men and women perceive entrepreneurs to have masculine characteristics (masculine gender-role stereotype). Men and women did not differ in their entrepreneurial intentions.	Informal institutions (entrepreneurial intentions) Macro level
Baugh et al. (2006)	<i>Entrepreneurship Theory and Practice</i>	This study examines the impact that specific normative support for female entrepreneurship has on the numbers of women entrepreneurs in various countries.	Empirical (GEM) (multiple regression)	Specific normative support for women's entrepreneurship itself appears embedded within entrepreneurial attitudes and gender equality. When entrepreneurs are generally respected and admired, the proportion of female entrepreneurship is higher.	Formal institutions (normative support) Informal institutions (perceptions, role models) Macro level
Becker-Blasé & Sohl (2011)	<i>Entrepreneurship Theory and Practice</i>	This article examines the impact that gender diversity has on angel group investment.	Theoretical Empirical (Panel Data, Tobit analysis)	The results suggest that the proportion of women angels has a negative, though nonlinear, effect on investment.	Informal institutions (society's perceptions) Macro level

Langowitz & Minniti (2007)	<i>Entrepreneurship Theory and Practice</i>	Study of the variables which influence women's propensity for entrepreneurship, and differences between genders.	Empirical (GEM) Probit methods	Results suggest that perceptual variables may be significant factors influencing entrepreneurial behaviour. Women perceive themselves and the entrepreneurial environment as less favourable.	Informal institutions (perceptions, stereotypes) Macro level
De Tienne & Chandler (2007)	<i>Entrepreneurship Theory and Practice</i>	This article explores gender differences in opportunity identification.	Empirical (descriptive, regression analysis)	Men and women use distinct processes to identify opportunities, but it is not evident that any one method is superior to another.	Informal institutions (opportunity identification) Micro level
Fagenson & Marcus (1991)	<i>Entrepreneurship Theory and Practice</i>	The study examines women's perceptions of sex-role stereotypes and the effect that female role models have on these perceptions.	Theoretical	Women working in companies headed by females gave greater weight to feminine attributes than did women who worked in companies headed by males.	Informal institutions (perceptions capacities, perceptions of entrepreneurial attributes)
Manolova et al. (2007)	<i>Entrepreneurship Theory and Practice</i>	The study analyses the different effects that men and women entrepreneurs' human capital and networking have in the context of a transitional economy.	Empirical (descriptive analysis)	Significant gender differential effects. Findings indicate that male expectations for growth depend on the evolution of the economy and that female expectations depend more of previous experience.	Formal institutions (public policy for development). Informal institutions (stereotypes related to confidence in one's own skills) Micro level
Godwin et al. (2006)	<i>Entrepreneurship Theory and Practice</i>	This study examines how establishing a mixed-sex entrepreneurial team may benefit women entrepreneurs in male-dominated cultures.	Theoretical	Male partnering may be a strategic option, because the women entrepreneurs who partner males have greater access to key resources, a higher concentration of non-family contacts in social networks of their business and more contact sources.	Formal institutions (access to resources) Informal institutions (social networks, mixed-sex founding teams) Micro level
Sorenson et al. (2008)	<i>Entrepreneurship Theory and Practice</i>	This study presents a theoretical concept called the collaborative network orientation (CNO).	Empirical (descriptive statistics, ANOVA)	Empirical tests revealed that female owners had a stronger preference for a CNO. A CNO was associated with business success for all owners, but it was significantly more positively associated with success for male business owners.	Informal institutions (networks) Micro level

Alsos et al. (2006)	<i>Entrepreneurship Theory and Practice</i>	Investigates the possible funding gap for businesses owned by women, as compared with businesses owned by men.	Empirical (descriptive statistics, hierarchical linear regression)	The results detected few gender-based differences in perceptions and behaviour, but women obtain significantly less financial capital to develop their new businesses. The reduced amount of finance for women is associated with lower early business growth, as compared to that experienced by their male counterparts.	Formals institutions (financial resources) Informal institutions (perceptions) Macro level
Ahl (2006)	<i>Entrepreneurship Theory and Practice</i>	To analyse the factors that cause the tendency to believe that women entrepreneurs and their businesses are less important than men and their respective businesses	Theoretical	It would be necessary to account for factors 'beyond' the individual entrepreneur or her business, such as legislation, social norms, family policy, economic policy, structure of the labour market regarding the degree and type of women's participation.	Formal institutions (economic policy, legislation) Informal institutions (social norms, family)
Orser et al. (2006)	<i>Entrepreneurship Theory and Practice</i>	This paper examines gender differences among Canadian small and medium enterprise (SME) owners who were seeking external finance, including commercial debt, leasing and supplier finance.	Empirical (logistic regression)	There was no gender discrimination in terms of approval rates on commercial loans, leases or supplier finance, but women business owners were still significantly less likely to apply for external equity capital than men. Differences relating to education and social capital.	Formal Institutions (finance, education) Informal Institutions (social capital) Micro level
Williams (2004)	<i>Entrepreneurship Theory and Practice</i>	This article examines the determinants of success in self-employment and the effects of the time spent caring for children.	Empirical (descriptive analysis)	The time spent caring for children significantly reduces the duration of a venture, especially among women in southern European nations. The results suggest that policy-makers need to consider childcare policies in conjunction with self-employment policies.	Formal institutions (policies) Informal institutions (family role) Macro level
Dolinsky et al. (1993)	<i>Entrepreneurship Theory and Practice</i>	This study examines variations in the likelihood of entering, staying in, and re-entering self-employment, according to level of educational attainment.	Empirical (longitudinal analysis)	The study found that each likelihood increased as education levels increased. Less-educated women may face financial or human capital constraints which limit their business pursuits.	Formal institutions (education) Macro level
Fabowale et al. (1995)	<i>Entrepreneurship Theory and Practice</i>	Analysis of the differences in bank credit terms for men and women business owners.	Empirical (qualitative analysis)	The differences in credit terms for male and female business owners persist with respect to small businesses.	Formal institutions (finance) Macro level

Rosa & Hamilton (1994)	<i>Entrepreneurship Theory and Practice</i>	Gender and business ownership are examined.	Empirical (qualitative analysis)	Gender differences were identified. These referred to differential patterns of kinship for the respondent; the allocation and perception of specialist roles within the business.	Informal institutions (social networks, role models) Macro level
Brush (1992)	<i>Entrepreneurship Theory and Practice</i>	A review of articles presenting empirical research on women entrepreneurs.	Empirical (descriptive analysis)	Between women and men entrepreneurs there are more differences than similarities. Women see their businesses as a collaborative network. Businesses are integrated into the personal lives of women business owners. Observation of the lack of an underlying theoretical framework.	Informal institutions (social networks, family role) Micro level
Hughes et al. (2012)	<i>Entrepreneurship Theory and Practice</i>	Summarize the new frontiers explored in the field of women's entrepreneurship.	Theoretical	Current studies suggest traditional questions (comparison of the performance of firms headed by men versus women, the proportion of women engaging in entrepreneurial activity in different countries, exploration of the processes by which resource acquisition is gendered within different contexts) or nontraditional questions (comparison of the way in which male and female entrepreneurs construct entrepreneurial opportunities, exploration of how gender-role affects entrepreneurship and their evolution over space and time)	Formal (finance) and informal institutions (family role, social networks)
Wu & Chua (2012)	<i>Entrepreneurship Theory and Practice</i>	Analyse the questions regarding whether female and male entrepreneurs are treated differently in the process of small business borrowing.	Empirical (Multiple linear regression)	The results suggest that there are second-order gender effects on the US small business borrowing cost. They show that when the gender of the borrower is unambiguously female, as can be ascertained when the firm is of sole proprietorship (SP), the borrowing cost is significantly higher, both statistically and economically.	Formal institutions (financial resources) Macro level

Marlow & McAdam (2012)	<i>Entrepreneurship Theory and Practice</i>	To explore the influence of sex role attribution and associated gendered ascriptions upon the entrepreneurial experiences of a female high-technology business owner.	Empirical (qualitative analysis)	Their analysis and the empirical evidence suggest that stereotypical gendered expectations surrounding incubated high-technology venturing reproduce masculine norms of entrepreneurial behaviour.	Informal institutions (perceptions, entrepreneurial attitudes and role models) Micro level
Eddleston & Powell (2012)	<i>Entrepreneurship Theory and Practice</i>	This study examines how positive facets of their family experience, family-to-business enrichment and family support nurture their satisfaction with work-family balance.	Empirical (Structural equations)	Results support feminist theories that depict entrepreneurship as a gendered process. Female entrepreneurs tend to nurture their satisfaction with work-family balance by creating work-family synergies, whereas male entrepreneurs tend to nurture satisfaction with work-family balance by obtaining family support at home.	Informal institutions (family context) Micro level
Shinnar et al (2012)	<i>Entrepreneurship Theory and Practice</i>	This paper examines how culture and gender shape entrepreneurial perceptions and intentions within Hofstede's cultural dimensions framework and gender role theory.	Empirical (Structural equations)	Findings indicate significant gender differences in barrier perceptions. However, this gap is not consistent across cultures.	Informal institutions (entrepreneurial intentions) Micro level
Davis & Shaver (2012)	<i>Entrepreneurship Theory and Practice</i>	This article investigates differences in growth intentions among men and women entrepreneurs.	Empirical (Logistic regression)	Results show that young men are especially likely to express high growth intentions, while mothers expressed high growth intentions more frequently than did other women.	Informal institutions (perceptions and attitudes) Micro level
Eddleston & Powell (2008)	<i>Journal of Business Venturing</i>	To examine how gender influences the career expectations of male and female entrepreneurs.	Empirical (descriptive analysis, OLS regression analysis)	The study found that masculinity mediates the relationship between sex and preferences for status-based satisfiers and femininity mediates the relationships between sex and preferences for employee relationship satisfiers and contribution to society satisfiers.	Informal institutions (role models, social networks) Micro level
Aldrich & Cliff (2003)	<i>Journal of Business Venturing</i>	This article argues that families and businesses are inextricably intertwined.	Theoretical	Transformations in the institution of the family have implications for the emergence of new business opportunities. The article suggests that entrepreneurship would benefit from a family embeddedness perspective.	Informal institutions (family role)

Ahl (2007)	<i>Journal of Business Venturing</i>	Analysis of a case which deals with the entrepreneurial spirit, conducted from a post-structuralist feminist perspective.	Empirical (qualitative analysis)	The analysis finds gender-based discriminatory relationships.	Informal institutions (perceptions, stereotypes, beliefs) Micro level
Verheul et al. (2005)	<i>Journal of Business Venturing</i>	Examines the impact of business accomplishments and gender on entrepreneurial self-image	Empirical (descriptive analysis)	Creation of a relational model between entrepreneurial successes, gender and the female entrepreneur's self-image. Women are less likely to perceive themselves as entrepreneurs.	Informal institutions (beliefs, perceptions) Micro level
Fischer et al. (1993)	<i>Journal of Business Venturing</i>	Impact on the performance of businesses created by women, from the perspective of two theoretical frameworks: liberal feminist theory and social feminist theory.	Empirical (descriptive analysis, t-test, multiple linear regression)	The results indicate few significant sex differences in education, but there are more pronounced differences in relevant experience.	Formal institutions (education, policies) Informal institutions (attitudes, beliefs) Micro level
Riding & Swift (1990)	<i>Journal of Business Venturing</i>	Comparison of the actual experiences of both female and male business owners in their relationship with financial institutions.	Empirical (descriptive analysis)	The research found that the financial conditions for women principals are less favourable than those for male business owners.	Formal institutions (finance) Informal institutions (perceptions, beliefs) Macro level
Cliff (1998)	<i>Journal of Business Venturing</i>	This study examines male and female entrepreneurs' attitudes towards growth.	Empirical (qualitative analysis)	The study argued that female entrepreneurs would be less likely to state positive growth intentions.	Informal institutions (attitudes) Meso level
Shabbir & Di Gregorio (1996)	<i>Journal of Business Venturing</i>	This study examines the relationship between women's perception and their goals, advantages and constraints when they start their business.	Empirical (qualitative analysis)	There are key structural factors for female entrepreneurship (relevant qualifications, work experience and family support)	Formal institutions (finance, education) Informal institutions (social networks, family support) Micro level

Cromie & Birley (1992)	<i>Journal of Business Venturing</i>	The study of the effect of social networks as an aid to entrepreneurship	Empirical (descriptive analysis, discriminant analysis)	The study suggests that female networks are remarkably similar to those of men. Their networks are as diverse as those of men, and women are no more likely to consult family and friends than men.	Informal institutions (networks) Macro level
Lerner et al. (1997)	<i>Journal of Business Venturing</i>	The study analyses the relationship between individual factors and business performance.	Empirical (descriptive analysis, Pearson's correlations, multiple regression)	Network affiliation, motivation, human capital, and environmental factors affected different aspects of performance, but not the role models. The family role is very important. Israeli women became entrepreneurs after their children were grown.	Informal institutions (family role, social networks, role models) Micro level
Kourilsky & Walstad (1998)	<i>Journal of Business Venturing</i>	The study explores entrepreneurship knowledge and attitudes of female and male secondary students across the USA.	Empirical (logit analysis)	The results of this study provide compelling evidence in support of the need to improve the entrepreneurship education of the nation's youth. This educational effort is especially important for females because the study results suggest that they may be less confident in their entrepreneurial abilities, less interested in starting a business, and more negatively predisposed toward market mechanisms.	Formal institutions (education) Informal institutions (entrepreneurial attitudes, perceptions) Micro level
Aterido & Hallward-Driemeier (2011)	<i>Small business economics</i>	The article examines which entrepreneurial characteristics (education, management skills, experience and the motivation to be an entrepreneur) are most associated with higher productivity.	Empirical (descriptive analysis, and regression analysis)	The findings reveal some gender gaps in the prevalence of entrepreneurial characteristics (education, management skills, experience and the motivation to be an entrepreneur). Although women benefit as much as men from education and management skills, there are nonlinear impacts by gender in the benefits of having a family background in entrepreneurship (sons benefit more than daughters).	Formal institutions (education) Informal institutions (management skills, experience and motivation, role models) Macro level
Holmquist & Carter (2009)	<i>Small business economics</i>	Study and evolution of the Diana Project.	Theoretical	The aim of the Diana Project is to elevate the importance of women's entrepreneurship	

Estrin & Mickiewicz (2011)	<i>Small business economics</i>	This paper compares the impact of institutions on the decisions of men and women to establish new business start-ups between 2001 and 2006. They use data from GEM.	Empirical (random effects, probit models)	The article finds that women are less likely to undertake entrepreneurial activity in countries where the state sector is larger, but the rule of law is not generally found to have a gender-specific effect.	Formal institutions (educations) Informal institutions (role models, social networks) Macro level
Özkan (2011)	<i>Small business economics</i>	This paper studies the relationship between entrepreneurship and family context.	Empirical (descriptive analysis, multinomial logit models)	Family context is an important element in entrepreneurship.	Informal institutions (family context) Micro level
Bardasi et al. (2011)	<i>Small business economics</i>	The article analyses performance gaps between male- and female-owned companies in three regions.	Empirical (OLS regression analysis)	There are significant gender gaps between male- and female- owned companies in terms of firm size, but much smaller gaps in terms of firm efficiency and growth. In contrast, there was no evidence of gender discrimination in access to formal finance in any of the three regions.	Formal institutions (financial resources) Macro level
Wagner (2007)	<i>Small Business Economics</i>	Establishes a model in which one can observe how certain determinants are affected by gender ceteris paribus.	Empirical (descriptive statistics, logit model)	Differences between female and male entrepreneurs at start-up are established (fear of failure).	Formal institutions (governmental policies) Informal institutions (beliefs) Micro level
Gatewood et al. (2009)	<i>Small Business Economics</i>	This article discusses the questions and issues that prompted the founding of the Diana Project.	Theoretical	Details the myths and realities related to the creation of businesses by women and the growth of their businesses.	Formal institutions (support programs, finance) Informal institutions
Rosti & Chelli (2005)	<i>Small Business Economics</i>	This paper sets out to analyse women's self-employment and the role discrimination plays.	Empirical (descriptive analysis)	The rates of managerial survival for women are lower than they are for men, because women do not possess the same degree of entrepreneurial ability and, therefore, face a heightened risk of failure.	Informal institutions (role models, family context) Macro level

Verheul et al. (2009)	<i>Small Business Economics</i>	This paper investigates time allocation decisions in new ventures by female and male entrepreneurs, using a model that identifies the effects of preferences and productivity and establishes their relationship to the number of working hours.	Empirical (OLS, probit)	The research finds evidence for several gender effects. On average, women invest fewer hours in the firm than men do, because of a lower average preference for work time and a lower productivity per hour worked.	Informal institutions (role model, social networks) Micro level
Lofstrom & Bates (2009)	<i>Small Business Economics</i>	The article sets out to analyse the relative success of self-employed female Hispanics.	Empirical (descriptive analysis)	The findings indicate that Latina entrepreneurs often do well, once differences in mean observable characteristics, such as education, are taken into account.	Formal institutions (education) Informal institutions (family role) Macro level
Grilo & Irigoyen (2006)	<i>Small Business Economics</i>	This paper investigates the effects of entrepreneurial skills on the increases in productivity based on gender.	Empirical (Probit analysis)	Financial support as an obstacle to starting a new business. The level of education does not significantly impact female entrepreneurship.	Informal institutions (finance, level education) Micro level
Clark & Drinkwater (2010)	<i>Small Business Economics</i>	This article provides a description of the changes in ethnic self-employment through time and variations over spatial locations.	Empirical (probit)	It finds that future entrepreneur rates for some groups of second-generation immigrants will be lower than for first-generation immigrants	Informal institutions (social networks, role models) Micro level
Harada (2004)	<i>Small Business Economics</i>	Productivity is affected by human capital and by the gender of the entrepreneur.	Empirical	The age of the entrepreneur (male or female) affects entrepreneurship	Informal institutions Macro level
Minniti & Nardone (2007)	<i>Small Business Economics</i>	The purpose of this study is to investigate which variables cause differences in entrepreneurial behaviour across genders, and whether those differences are independent of country effects. And also to analyse the entrepreneurial options available to men and women placed in identical socio-economic environments.	Empirical (descriptive statistics)	The results show that, although work status and education have some minor gender-specific impact, the relationships between the likelihood of starting a business and age, household income, work status, and education do not depend on gender. Nonetheless, risk tolerance and perception of skills may play some role in gender differences.	Formal institutions (education, entrepreneurial policies). Informal institutions (perception of skills) Micro level

Kim (2006)	<i>Small Business Economics</i>	This paper presents an empirical study in which the credit access experiences of equally owned small businesses are compared with those of their female- and male-owned entrepreneurial counterparts.	Empirical (descriptive statistics, logit regressions)	It is shown that men and women do not have equal access, but female-owned small businesses do not always face greater difficulties than male-owned small businesses in their access to credit.	Formal institutions (financial access) Informal Institutions (beliefs, prejudices) Micro level
Sena et al. (2012)	<i>Small Business Economics</i>	The purposes of this paper are to identify whether women have different borrowing patterns from men when trying to get into self-employment and to quantify the impact of these differences in borrowing propensity on women's willingness to become self-employed.	Empirical (descriptive statistics)	The results of study show that women are less likely than men to seek external financing and that gender differences in access to financing are adversely affecting the transition into self-employment.	Formal institutions (financial resources) Macro level
Petrova (2012)	<i>Small Business Economics</i>	The aim of this paper is offer a model of entrepreneurial entry under financial constraints, where individuals choose between wage employment, part-time, and full-time entrepreneurship.	Empirical (Panel data)	The findings show that part-time entrepreneurs are not affected by financial constraints.	Formal institutions (financial resources) Micro level
Fairlie & Marion (2012)	<i>Small Business Economics</i>	In this paper, the authors estimate how business ownership rates for minorities and women changed in the wake of the elimination of affirmative action programs in the states of California and Washington.	Empirical (Panel data)	Eliminating affirmative action appears to have resulted in a modest increase in self-employment among minorities and women.	Formal institutions (non-financial policies and assistance) Meso level
Verheul et al. (2006)	<i>Entrepreneurship and Regional Development</i>	Using Global Entrepreneurship Monitor data for 29 countries, this study investigates the (differential) impact of several factors on female and male entrepreneurship at the country level.	Empirical (descriptive statistics, regression analysis)	The study finds the negative effect of unemployment is smaller for women and the effect of life satisfaction from entrepreneurial activity is positive for women and non-existent for men. Other findings in the present study also indicate that there may be a considerable number of (particularly female) entrepreneurs active in the informal sector, especially in less developed countries.	Formal institutions (policies) Informal institutions (family context) Macro level

Achtenhagen & Welter (2011)	<i>Entrepreneurship and Regional Development</i>	This article sets out to analyse the representation of women's entrepreneurship in German media, by analysing how it is depicted in newspapers and how this changes over time.	Empirical (descriptive analysis)	German newspapers overall still create a picture of women's entrepreneurship that is old-fashioned and builds on traditional gender stereotypes and role models. This representation might restrict the propensity for women to consider entrepreneurship seriously as a career option. The image of the entrepreneur as male is clearly problematic, as it fails to provide a source of identification for (potential) female entrepreneurs	Informal institutions (perceptions, family role) Macro level
Collins & Low (2010)	<i>Entrepreneurship and Regional Development</i>	Research into female immigrant entrepreneurship and a theoretical investigation as to how ethnic diversity and gender impact on entrepreneurship.	Empirical (Qualitative analysis)	Linguistic, religious and cultural differences of women from minority backgrounds – the glass ceiling – impede their labour market prospects and constrain their entrepreneurial experiences.	Formal institutions (education) Informal institutions (beliefs) Macro level
Rosa & Dawson (2006)	<i>Entrepreneurship and Regional Development</i>	To investigate the female founders of spin-out businesses in the United Kingdom.	Empirical (Qualitative analysis)	Motivations similar to gender-based entrepreneurial skills. Women science entrepreneurs also face some additional problems in areas such as the conflict between work and home life and networks.	Informal institutions (family role, social networks) Micro level
Amine & Staub (2009)	<i>Entrepreneurship and Regional Development</i>	This paper takes an international marketing approach to the study of women entrepreneurs in sub-Saharan Africa by examining factors in the environments in which WEs operate.	Empirical (descriptive analysis)	The unfavourable conditions in local regulatory, normative, and cognitive systems place additional burdens on women who desire to become entrepreneurs. In order to address these gender-specific problems, social marketing is recommended, with the goals of changing social beliefs, attitudes and behaviours with negative effects.	Formal institutions (normative) Informal institutions (social beliefs, attitudes) Macro level
Carter & Rosa (1998)	<i>Entrepreneurship and Regional Development</i>	Differences in financing between businesses created by men and by women.	Empirical (discriminant analysis)	Equality with respect to criteria, but differences in the negotiations carried out.	Formal institutions (finance) Micro level
Marlow (1997)	<i>Entrepreneurship and Regional Development</i>	The effect of personal experience on the businesses created by men and by women.	Empirical (qualitative analysis)	Women are subject to the patriarchal beliefs which exist in society.	Informal institutions (beliefs regarding roles) Micro level

Nilsson (1997)	<i>Entrepreneurship and Regional Development</i>	The effect of public support policies on entrepreneurship in rural areas of Sweden, from feminist and neo-institutional perspectives.	Empirical (qualitative analysis)	Dilemmas which exist between support policies and the dilemma produced by existing beliefs.	Formal institutions (support programs) Informal institutions (beliefs) Micro level
Aldrich et al. (1989)	<i>Entrepreneurship and Regional Development</i>	Differences in the creation of collaborative networks, among countries and among genders. Setting-up of collaborative networks.	Empirical (descriptive analysis)	There are no differences among countries, but there are differences among genders. Family, social organisation of the business.	Informal institutions (collaborative networks) Micro level
McGowan et al. (2012)	<i>Entrepreneurship and Regional Development</i>	The study explores women's motivations, expectations and actual experiences of entrepreneurship, and the extent to which entrepreneurship really offers an improved work/family 'balance'.	Empirical (qualitative analysis)	This paper presents findings from exploratory, qualitative research conducted in Northern Ireland which focused upon the entrepreneurial trajectories of 14 women as they established and managed their ventures whilst balancing domestic/family demands.	Informal institutions (perceptions and entrepreneurial attitudes) Micro level
Centindamar et al. (2012)	<i>Entrepreneurship and Regional Development</i>	The study examines the relative importance of three types of capital – human, family and financial – in pursuing entrepreneurship.	Empirical (qualitative analysis)	The article finds that the impact of human capital on the likelihood of becoming an entrepreneur is higher for women than men. Data also revealed that family capita facilitates women's entry into entrepreneurship only when family size is very large. Furthermore, findings suggest that women's likelihood of becoming entrepreneurs will be especially encouraged if they have increased access to education.	Formal institutions (financial capital, education) Informal institutions (family context) Micro level

Orser et al. (2012)	<i>Entrepreneurship and Regional Development</i>	The objective of this study is to gain a better understanding of the perceived barriers to career advancement specific to women in the advanced technology sectors.	Empirical (qualitative analysis)	The findings suggest the need to attract and retain women entrepreneurial talent and overcome perceived career barriers. Industry-level remedial strategies are advanced in the form of: women's mentoring programmes; case studies relating to successful women entrepreneurs, and a website to inform women about career advancement strategies.	Informal institutions (perceptions) Micro level
Manolova et al. (2012)	<i>Entrepreneurship and Regional Development</i>	The study analyses whether women may have different expectations regarding the growth of their ventures than do men.	Empirical (Panel data)	The findings indicate that while men want to grow their new ventures to achieve financial success, for women financial success is just one of many reasons to achieve growth.	Formal institutions (education, income) Informal institutions (perceptions, role models, family context) Macro level
Shelton (2006)	<i>Journal of small business management</i>	To study the relationship between entrepreneurial efficacy and the reduction of work-family conflicts with the application of female roles.	Theoretical	The results indicate that work-family management strategies are a significant determinant of venture growth; and women who develop high-growth businesses more effectively reduce work-family conflict by choosing strategies better matched to their internal needs and access to external resources as compared with less successful women; finally, role-sharing strategies are preferred, because they allow women to enjoy the enhancement of both work and family roles while reducing the level of inter-role conflict.	Informal institutions (family roles)
Morris et al. (2006)	<i>Journal of Small Business Management</i>	Owing to the growth in businesses created by women, the motives, obstacles, objectives and aspirations, needs, and the identity of the business are evaluated in order to determine if there is some factor which drives entrepreneurship.	Empirical (descriptive analysis)	The qualitative research made clear that modest- and high-growth entrepreneurs differ in how they view themselves, their families, their ventures, and the larger environment. The results suggest that women have a clear sense of the costs and benefits of growth and make careful trade-off decisions.	Informal institutions (perceptions, family role) Micro level

Orhan (2001)	<i>Journal of Small Business Management</i>	This aim of this article is to provide further insight into the issue of finance for female-owned businesses in France.	Empirical (descriptive analysis, qualitative analysis)	Financing discrimination exists in France. When a gender bias is perceived, there are two main sources of communication problems: one relates to intercultural bias, as bankers (mostly men) tend to consider female entrepreneurs as women first, rather than as people; the other one is the apparent lack of financial competencies among women entrepreneurs.	Formal institutions (finance) Informal institutions (beliefs, perceptions) Macro level
Scherer et al. (1990)	<i>Journal of Small Business Management</i>	Potential differences are identified for males and females relating to a set of entrepreneurial career preference variables that describe social learning effects on the individual.	Empirical (descriptive statistics, ANOVA)	The results found that males have a higher preference for entrepreneurship than do females. Contributing most to this difference is the expectation of entering an entrepreneurial career. Self-efficacy is also helpful in differentiating between males and females, whereas the contribution of education and training aspirations is negligible. These results suggest that social learning differences have a strong impact on shaping the preference for an entrepreneurial career.	Informal institutions (perceptions, beliefs, social learning) Micro level
Olson & Currie (1992)	<i>Journal of Small Business Management</i>	The relationship between the personal values of female entrepreneurs and their chosen business strategies is examined.	Empirical (qualitative analysis)	Analysis of male entrepreneurs in the same industry indicates that women in male-dominated areas may feel forced to allow external factors to dictate their strategies, regardless of their personal values. In contrast, the male entrepreneurs' strategies mirror their personal values.	Informal institutions (perceptions, beliefs) Macro level
Buttner & Rosen (1992)	<i>Journal of Small Business Management</i>	Examines the discrepancy between women entrepreneurs' charges of gender bias in obtaining start-up capital and empirical findings that loan officers do not discriminate against female entrepreneurs.	Empirical (descriptive analysis)	The results suggest that female entrepreneurs have unrealistically optimistic expectations about securing start-up capital, and the tendency for women to attribute their difficulty in obtaining small business loans to gender discrimination was not evident. In general, men and women entrepreneurs responded in similar ways after a loan rejection.	Formal institutions (finance) Micro level

Van Auken et al. (1994)	<i>Journal of Small Business Management</i>	A study which extends prior research regarding advertising media selection by small businesses with a focus on women entrepreneurs.	Empirical (multiple regression analysis)	The findings are consistent with a previous survey of small business owners, which indicated that the use of advertising media during the first year of operation appeared to be the key determinant of its usage in the current year.	Informal institutions (perceptions) Macro level
Bliss & Garratt (2001)	<i>Journal of Small Business Management</i>	A study of the situation and the needs of women entrepreneurs in Poland.	Theoretical	Entrepreneurial policies adapted to the female entrepreneur are needed, in addition to more business education and more role models and 'best practices'.	Formal institutions (entrepreneurial support, education) Informal institutions (role models)
Schindehutte et al. (2003)	<i>Journal of Small Business Management</i>	The objective of this study was to explore the impact of care of children on businesses belonging to women.	Empirical (qualitative analysis)	The findings suggest that mothers who are entrepreneurs clearly impact on the childhood experiences of their offspring and that the overall experience is positive. This suggests that mothers, in exposing children to the business, might want to reinforce the flexibility, economic advantages, and ability to control one's destiny that come with entrepreneurship.	Informal institutions (family, perceptions, roles, beliefs) Micro level
Zapaiska (1997)	<i>Journal of Small Business Management</i>	The study explores the types of businesses started by Polish women, their business objectives, and the relationship between the entrepreneur's background and the entrepreneur's decision to start a new venture.	Empirical (qualitative analysis)	Analysis suggests that there are no significant differences between the psychological propensities of successful female and male entrepreneurs.	Formal institutions (finance) Informal institutions (motivations, perceptions) Micro level
DeMartino et al. (2006)	<i>Journal of Small Business Management</i>	This study explores the career/achievement and personal life orientations of entrepreneurs, specifically the impact of sex and dependent-child status.	Empirical (descriptive analysis)	The statistical analysis does not reflect significant differences between the achievements and orientation of women who are entrepreneurs and those who are not.	Informal institutions (beliefs) Micro level

Watson (2003)	<i>Journal of Small Business Management</i>	Study of whether or not the percentages of bankruptcy for businesses created by women are different from those created by men, and a comparison in different industries.	Empirical (Panel data)	There are more bankrupt businesses among women than men, but the industry is not significant.	Formal factors Macro level
Dolinsky & Caputo (2003)	<i>Journal of Small Business Management</i>	To establish determinants to explain the strong growth of entrepreneurship.	Empirical (panel data)	The findings suggest: when women are unemployed, they are more entrepreneurial.	Formal institutions (governmental assistance) Informal institutions (attitudes) Macro level
Collins-Dodd et al. (2004)	<i>Journal of Small Business Management</i>	To prove whether gender is a determinant in financial yield.	Empirical (descriptive analysis)	The results indicate that financial yield appears to be different for men and women.	Formal institutions (finance) Macro level
Yusuf & Saffu (2005)	<i>Journal of Small Business Management</i>	Differences in entrepreneurial planning in Ghana conditioned by gender.	Empirical (qualitative analysis, regression analysis)	The existence of cultural factors which affect the entrepreneurial capacity of women.	Formal institutions (legal regulation) Informal institutions (beliefs) Micro level
Verheul et al. (2002)	<i>International Small Business Journal</i>	The study investigates gender differences in strategy and human resource management (HRM) between male and female entrepreneurs in Dutch real estate brokerage.	Empirical (Qualitative analysis)	Findings suggest there are gender differences in entrepreneurship. In particular, there are gender differences with respect to the path to entrepreneurship, growth levels, degree of diversification and type of leadership.	Informal institutions (motivations, network) Micro level
Rosa et al. (1994)	<i>International Small Business Journal</i>	The study of gender differences in small business ownership and management.	Empirical (descriptive analysis)	The findings were: men were more likely to be refused bank loans, men were much more likely to use overdrafts to finance the business, women tended to start out with less initial capital in all sectors, within the business, and women had significantly smaller businesses even when sector and age of firm were held constant.	Formal institutions (finance) Informal institutions (attitudes, networks) Macro level

Spilling & Berg (2000)	<i>International Small Business Journal</i>	The study of the role of men and women as managers of SMEs.	Empirical (descriptive analysis)	Findings suggest there is a close correspondence between the role of women business managers and traditional gender relations in the labour market.	Informal institutions (role models) Micro level
Mckechnie et al. (1998)	<i>International Small Business Journal</i>	This paper examines the extent to which gender affects the interaction between banks and small business owners.	Theoretical	The findings suggest that gender based differences in both the provision of finance and the nature of the banking relationship are less substantial than might have been expected	Formal institutions (finance) Informal institutions (perceptions, networks)
Arenius & Kovalainen (2006)	<i>International Small Business Journal</i>	The article explore women's self-employment preferences across Scandinavian countries, and the influence of societal and individual factors affecting self-employment preferences	Empirical (multiple logistic regression analysis)	Their findings suggest that education is not a significant factor predicting self-employment preference. The household income variable is not a significant predictor of self-employment preference for women. Perception of skills significantly increases women's entrepreneurial activity in all Nordic countries.	Formal institutions (finance, educations) Informal institutions (perceptions skills, role models) Micro level
Roper & Scott (2009)	<i>International Small Business Journal</i>	The article studies the access to finance in small and medium-sized enterprises.	Empirical (Descriptive statistics, probit)	The perceptions of financial barriers are linked negatively to the start-up decision and stronger perceptions of financial barriers among women are having a disproportionate effect on women's start-up decisions.	Formal institutions (finance) Informal institutions (perceptions skills) Macro level
Patterson & Mavin (2009)	<i>International Small Business Journal</i>	This article offers an analysis of the reasons why women leave corporate careers to enter self-employment	Empirical (qualitative study)	The key themes within the findings were interrelated : domestic circumstances, gendered organisation, and a need for independence and control.	Informal institutions (perceptions, family) Micro level
Hampton et al. (2009)	<i>International Small Business Journal</i>	This study analyses the relatively little attention paid to the network development and networking activities of female entrepreneurs in general, and even less to such activities in technology-based ventures.	Empirical (qualitative study)	The study suggests that there are more barriers to women's access to formal networks because they are male strongholds.	Informal institutions (networks) Micro level

Fielden & Hunt (2011)	<i>International Small Business Journal</i>	This article explores women's experiences of accessing social support during venture creation and identifies the key aspects of social support desired, required and sought.	Empirical (qualitative study)	The findings suggest that an online relationship with a dedicated coach of the same gender could provide the required support in terms of quantity and quality in respect of all functional aspects of social support.	Informal institutions (social networks) Micro level
Schwartz (1976)	<i>Journal of Contemporary Business</i>	To analyse the differences in attitudes and characteristics of women entrepreneurs.	Empirical (regression analysis)	Motivations and characteristics of the woman entrepreneur (achievement, independence, security), difficulties in obtaining finance.	Formal institutions (finance) Micro level
Catley & Hamilton (1998)	<i>Journal of Management Development</i>	The need for gender-specific explanations of business creation.	Theoretical	Shows the typologies, characteristics and evolution of businesses created by women.	Informal institutions
Alsos & Ljunggren (1998)	<i>Frontiers of Entrepreneurship Research</i>	How public support policies affect the creation of female businesses in Scandinavia.	Empirical (regression analysis)	They affect these businesses favourably. Differences exist between women's businesses and businesses created by men.	Formal institutions (entrepreneurship support policies) Macro level
Hisrich & Brush (1987)	<i>Frontiers of Entrepreneurship Research</i>	Existing motivations, characteristics and differences between women and men entrepreneurs.	Empirical (regression analysis)	Longitudinal analysis in which we can observe differences between women and men entrepreneurs.	Informal institutions (motivations) Formal institutions Macro level
Birley et al. (1987)	<i>American Journal of small business</i>	To study the different characteristics of businesses created by women and men who participated in entrepreneurial training courses.	Empirical (regression analysis)	Differentiation in the age of creation of the businesses, in the sex of the hired personnel (women hire more women). No significant differences in the level of education and previous experience.	Formal institutions (training) Informal institutions Micro level
Carter (2000)	<i>Education and training</i>	To study the importance of training for the creation of businesses by women.	Empirical (regression analysis)	Importance of training: in spite of the support programmes, not as many businesses are created by women as by men.	Formal institutions (training) Micro level

Narayanasamy et al. (2011)	<i>The International Business & Economics Research Journal</i>	Examines the difference between male and female entrepreneurs.	Empirical (Qualitative research)	There are six main elements that could significantly affect gender differences in entrepreneurship: characteristic differences, family background, social background, government policy, education and capability.	Formal institutions (Government policy, education) Informal institutions (family background, social background and capability) Micro level
Yordanova (2011)	<i>International Journal of Management</i>	This paper presents the results of an empirical study of gender effects on entrepreneurship in Bulgaria.	Empirical (Logistic regression)	Gender differences in firm size, legal form, personnel, and sector account for gender differences in entrepreneurship.	Formal institutions (finance, education) Informal institutions (family, attitudes) Micro level
Nixdorff & Rosen (2010)	<i>New England Journal of entrepreneurship</i>	This article presents the commonalities found in women's entrepreneurship and women's leadership research.	Theoretical	In environments in which there are fewer male competitors and which hold less stereotyped views on gender, women may have more self-confidence, possibly as the result of exposure to successful women role models.	Formal institutions (education) Informal institutions (role models)
Terrell & Troilo (2010)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper is to research the extent to which different types of values influence a woman's decision to become an entrepreneur.	Empirical(Descriptive analysis, Probit)	It is found that work values of initiative, achievement, and respect are positively correlated with entrepreneurship.	Informal institutions (values, attitudes) Macro level
Minniti (2010)	<i>The European Journal of Development Research</i>	The aim is to establish the gender differences in entrepreneurial propensity.	Empirical (descriptive statistics, test non-parametric –equalised Bootstrapping-)	The results suggest that per capita GDP levels are significantly associated with gender, and that subjective perceptions also play an important role. In contrast, individual demographic and economic conditions are relatively unimportant.	Informal institutions (perceptions) Macro level
Humbert & Drew (2010)	<i>International Journal of Gender entrepreneurship</i>	The purpose of this paper was to explore the relationship between gender and entrepreneurial motivation theories in an Irish context.	Empirical (Logit)	The paper shows that there is a strong gender effect on some motivational factors, but that gender itself needs to be examined along with other social factors in order to explain differences in motivation. In particular, marital status, being a parent and/or age and their interaction with gender are useful in explaining differences in pathways into entrepreneurship for men and women.	Informal institutions (motivations, marital status) Micro level

Kobeissi (2010)	<i>Journal of International Entrepreneurship</i>	This paper examined the impact of five gender-related variables on the extent of female entrepreneurial activities in 44 developed and developing countries.	Empirical (multiple regressions)	The paper found female education, extent of female economic activities, female earnings ratio, and fertility rate to be significant in all estimations with two different dependent variables representing female entrepreneurial activities.	Formal institutions (education) Informal institutions (family) Macro level
Brush et al. (2009)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper was to offer a new gender-aware framework to promote women's entrepreneurship	Theoretical	The article found that motherhood is a metaphor representing the household and family context of female entrepreneurs which might have a greater impact on women than men.	Formal institutions (policies, laws) Informal institutions (Family)
Ettl & Welter (2004)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of the paper was to offer an insight into gender, context and entrepreneurial learning of women entrepreneurs in Germany.	Empirical (qualitative approach)	The article found that the meso environment is more of an indirect influence; the macro and micro environments are strong influences on lives and decisions of women entrepreneurs, especially on their opportunity recognition.	Formal institutions (entrepreneurship policies, education) Informal institutions (family) Micro level
Orser et al. (2011)	<i>Gender in Management</i>	The study examines how feminist attributes are expressed within entrepreneurial identity.	Empirical (qualitative analysis)	The findings suggest that there is no feminine archetype portrayed as caring and nurturing; there are other themes described as leadership, action-oriented, etc.	Informal institutions (motivations, attitudes) Micro level
Sánchez-Escobedo et al. (2011)	<i>Entrepreneurship and management journal</i>	The article analyses the existence of gender differences in the perceptions and attitudes of university students towards entrepreneurship.	Empirical (logistic regressions)	The findings indicate that gender plays a significant role in how the figure of the entrepreneur is perceived and in the intention to generate new business.	Informal institutions (attitudes) Micro level
Hampton et al. (2011)	<i>International Journal of Entrepreneurial Behaviour & Research</i>	This paper studies the dynamics and quality of female entrepreneurial networks in the engineering and technology sectors.	Empirical (qualitative analysis)	The findings include network type and composition, nature and frequency of engagement; and changes in network composition and networking activities through the business lifecycle. The results focus on the implications of quality in networks and their impact on the value of female networks.	Informal institutions (networks) Micro level

Kariv (2011)	<i>Journal of Small Business and Entrepreneurship</i>	The research determines entrepreneurial orientations of women founders and their impact on perceived business success.	Empirical (multiple regression analysis)	The findings determine that the genders' differential interpretations of necessity/opportunity orientations affect their perceived level of business success.	Informal institutions (attitudes, perceptions) Macro level
Neergaard & Thrane (2011)	<i>International Journal of Gender entrepreneurship</i>	The aim of this paper was to increase awareness and elucidate the impact of welfare policies on women's entrepreneurship because it may impact on women's entrepreneurial behaviour.	Empirical (multiple regression analysis)	The findings suggest the Nordic Welfare Model favours employment over entrepreneurship. A sole proprietor is not allowed to work whilst on maternity leave. If she does so, her maternity allowance is reduced. The authors suggest that may be tantamount to closing the business down if you have a child, and may account for the fact that women are generally much older than men when starting a business.	Formal institutions (impact entrepreneurial policies) Macro level
Waring & Brierton (2011)	<i>International Journal of Gender entrepreneurship</i>	The purpose of this paper was to quantify the impact of women's enterprise on Scotland's economy and to provide policy recommendations to the Scottish government on increasing women's business ownership.	Empirical (multiple regression analysis)	The impact of women's business ownership on Scotland's economic performance is not consistently measured by the Scottish Government. An increased commitment to women's enterprise policy development from the UK government has not been emulated in Scotland despite devolved responsibility for economic development.	Formal institutions (entrepreneurial policies) Macro level
Yordanova & Alexandrova-Boshnakova (2011)	<i>International Journal of Entrepreneurial Behaviour & Research</i>	The research objective of the study was to investigate the gender effects on risk propensity, risk perception, and risk behaviour of entrepreneurs, distinguishing between direct and indirect gender effects.	Empirical (regressions models)	The findings suggest that although female and male entrepreneurs have similar risk perceptions, female entrepreneurs are likely to have a lower risk propensity than male entrepreneurs.	Informal institutions (attitudes, perceptions) Micro level
Yu (2011)	<i>International of Business and Management</i>	This study examines whether there are gender differences in personal traits and decision-making patterns among Chinese private entrepreneurs.	Empirical (ANOVA, multinomial logistic regression)	The findings suggest that in the developed countries firms owned by Chinese women entrepreneurs are significantly smaller in term of the numbers of employees, revenue and profit. Women entrepreneurs in China are more likely to make important decisions with their major managers than are their male counterparts.	Informal institutions (entrepreneurs' attributes) Macro level

Hovorka & Dietrich (2011)	<i>International Journal of Entrepreneurship and Innovation</i>	This paper conceptualises entrepreneurship as a gendered process shaped by dynamic, context-specific structures in order to balance the underestimation of external factors and overestimation of individual factors in existing gender and entrepreneurship studies.	Empirical (qualitative analysis)	The findings reveal differences between men, women and their businesses in terms of capital, access to resources and business outcomes, all to the detriment of female entrepreneurs.	Formal institutions (Legal factors, political factors) Informal institutions (cultural factors) Micro level
Rodriguez & Santos (2009)	<i>International Entrepreneurship and Management Journal</i>	The main objective of this research was to study gender differences in the process of firm creation in Seville (Spain).	Empirical (qualitative analysis)	The results show primarily that the most important entrepreneurial promoter behaviours, such as the idea of elaborating a business plan or creating a social network, are more developed by male entrepreneurs and less by female entrepreneurs.	Formal institutions (policies) Informal institutions (family, attitudes, perceptions) Micro level
Nelson et al. (2009)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper was to explore conceptually and empirically issues that explain why women entrepreneurs access only a small percentage of venture capital (VC) investment in the USA.	Empirical (qualitative analysis)	The analyses suggest that women entrepreneurs vary in the degree to which they identify the gendered landscape they are navigating, and the level of attention and care that the management of this landscape demands.	Informal institutions (attitudes, perceptions) Micro level
Aidis et al. (2007)	<i>Feminist Economics</i>	This paper compares from an institutional perspective two countries at different stages in the process of transformation. Lithuania has followed a rapid transitional path leading to European Union membership, whereas Ukraine is on a much slower development path.	Empirical (qualitative analysis)	The results suggest that though formal institutions such as rules and regulations allow for the possibility of female business development, informal institutions such as gendered norms and values that reflect the patriarchy observed during the Soviet era restrict women's activities and their access to resources.	Formal institutions (policies) Informal institutions (perceptions) Macro level
Mueller (2004)	<i>Journal of Developmental Entrepreneurship</i>	This paper searches for differences between men and women with respect to traits associated with the potential for undertaking entrepreneurial activities.	Empirical (regressions analysis)	The gender gap in risk-taking propensity was positively correlated with the individualism dimension of culture and negatively correlated with the uncertainty avoidance dimensions of culture.	Informal institutions (culture) Macro level

Roomi & Parrott (2008)	<i>Journal of Entrepreneurship</i>	The study of different opportunities that women and men entrepreneurs enjoy owing to a number of deep-rooted discriminatory socio-cultural values and traditions.	Empirical (qualitative analysis)	The economic potential of female entrepreneurs is not being realised as they suffer from a lack of access to capital, land, business premises, information technology, training and agency assistance.	Formal institutions (entrepreneurial support) Informal institutions (beliefs) Micro level
Pardo-del-Val & Ribeiro-Soriano (2007)	<i>Diversity and Inclusion: An International Journal</i>	The purpose of this paper was to analyse the application of EU programmes that seek to help women to set up their own businesses in Spain.	Empirical (qualitative analysis)	The findings suggest that stimulating an entrepreneurial spirit among women would contribute to improving global levels of private investment in a region or country. Programmes that promote and lead to training and the provision of the necessary skills for women are considered fundamental.	Formal institutions (education, policies) Micro level
Alvarez et al. (2011)	<i>Journal of Small Business and Enterprise Development</i>	The purpose of this paper was to analyse the influence of environmental factors on entrepreneurship at the Spanish regional level, and how environmental conditions have different effects according to the gender of entrepreneurs.	Empirical (Panel Data)	The main findings of the study indicate that both informal and formal factors influence entrepreneurship, but the informal are more determinant than the formal. Concerning the gender issues, informal and formal institutions are also determinant, but female entrepreneurship is significantly associated with support for start-up, whereas primary and higher education are associated only with male entrepreneurial activity.	Formal institutions (intellectual property rights) Informal factors (cultural and social norms, social image) Meso level
Riebe (2012)	<i>Journal of Education for Business</i>	The study describes the benefits of university-based women entrepreneur centres as an educational and outreach strategy.	Empirical (Qualitative analysis)	Based on extensive research on women business owners and firsthand experience with two such U.S. university-based centres, the article describes the several advantages in meeting the distinctive needs of women as entrepreneurs and learners.	Formal institutions (education) Micro level
Sullivan et al. (2012)	<i>Journal of Managerial Psychology</i>	The purpose of this paper is to review the literature on gender and, specifically, women and entrepreneurship.	Theoretical	Women may engage in networking activities focused on family and friends in order to obtain financial resources. The societal attributions and socialization processes relative to the sexes may create barriers to entry for women, due to the uneven distribution of assets and differences in educational foci and daily life activity expectations amongst the sexes.	Formal (finance) and informal institutions (social networks, family context)

Naser et al. (2012)	<i>Journal of Developmental Entrepreneurship</i>	The main objective of the study is to investigate personal and external factors that might influence women's decisions to become entrepreneurs in Kuwait.	Empirical (Descriptive statistics)	The result of the analysis revealed that they attach a higher importance to external factors rather than personal factors when making their decision to become entrepreneurs.	Informal institutions (family context) Micro level
Lockyer & George (2012)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper is to explore the barriers that inhibit the development of female entrepreneurship in the West Midlands.	Empirical (Qualitative analysis)	The research findings suggest that the mechanisms (business support agencies) through which information and support are provided to potential entrepreneurs need to be reviewed.	Formal institutions (non-financial policies and assistance) Micro level
Treanor (2012)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this practitioner paper is to report on a recent discussion workshop exploring gender within entrepreneurship education.	Theoretical	The key conclusions revolve around the need to embed entrepreneurship education within university curricula.	Formal institutions (education)
Arasti et al. (2012)	<i>Journal of Management and Strategy</i>	The purpose of this study is to identify the effective normative institutional factors on entrepreneurial intention in the Iranian context, based on institutional theory and the theory of planned behavior.	Empirical (Qualitative analysis)	The factors of family context, societal norms, expectations from women, and technology growth in the country play an important role in the entrepreneur's intention to start a firm in the Information Technology sector in Iran.	Informal institutions (family context, role models) Micro level
Dautzenberg (2012)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper is to disclose the commonalities and differences among business owners of technology-based firms in Germany.	Empirical (Qualitative analysis)	Results confirm the supposed gender gap in the technology industry. Whereas firm characteristics such as firm size, number of employees, and revenue are correlated to gender, firm success appears to be independent of these.	Informal institutions (perceptions) Meso level
Ezzedeen & Souha (2012)	<i>International Journal of Gender and Entrepreneurship</i>	The purpose of this paper is to explore how women entrepreneurs experience entrepreneurship in the Canadian technology sector and the types of obstacles posed by the field's male-dominated character.	Empirical (Descriptive statistics)	The research shows that women encountered persistent gender stereotypes, a paucity of female role models, and resistance from associates within and outside of their organizations, as well as societal pressures to maintain appropriate levels of work-family balance.	Informal institutions (role model, family context) Micro level

Petterson (2012)	<i>International Journal of Gender and Entrepreneurship</i>	This paper aims at analysing national state support programmes for women's entrepreneurship in the Nordic countries, within a gender perspective.	Empirical (Qualitative analysis)	The results suggest that the Nordic countries are marked by some differences in their efforts to support women's entrepreneurship. All the countries have programmes or action plans, but there are differences between them.	Formal institutions (support programmes) Micro level
Coleman & Robb (2012)	<i>Management Research Review</i>	The purpose of this paper is to explore the extent to which various theories of capital structure "fit" in the case of new technology-based firms.	Empirical (Descriptive statistics)	The study's findings reveal that new technology-based firms demonstrate different financing patterns than firms that are not technology based.	Formal institutions (Financial resources) Macro level

Annex 2: Interview protocol

ENTREPRENEUR INTERVIEW PROTOCOL

GENERAL ASPECTS

- a) Preamble: Explanation regarding the subject of the interview and the presentation of its objectives.
- b) Explanation of the general objective of the research, based on identifying and evaluating the environmental factors that influence entrepreneurial activity in Catalonia, identifying the formal factors (policies and economic and non-economic support measures, access to financing and education level) and informal factors (structures that govern social interaction, within the family setting as well as the work setting) that affect female entrepreneurship. At the same time, the relative importance of both factors is evaluated by comparing their influence on female entrepreneurship and on male entrepreneurship.
- c) Reassure confidentiality of the information given.
- d) Because you have created a business within the last 3.5 years, I would like you to answer some questions related to both the formal and the informal factors that have conditioned the process of creating your business.

PERSONAL INTERVIEW QUESTIONNAIRE

CHARACTERISTICS OF THE COMPANY, THE ENTREPRENEUR AND THE CREATION PROCESS

1. Sex of the entrepreneur:

- Female
- Male

2. Year of birth:

3. Sector to which the business belongs:

4. Type of company:

- Single-owner company
- Limited liability company
- Joint-stock company
- Cooperative company
- Other:

5. Year established:

6. Is this the first business you have created? YES/NO. *If the response is negative* How many? What is their current status?

7. How many owners does the business have? Indicate the approximate percentage of distribution between each owner.

- Only you
- You and your husband/wife
- You and another family member
- Others

%

8. Number of employees the business had in the year it was established:

9. Number of employees the business has currently:

10. How much time passed between the planning and the legal incorporation of the new business?

11. Did you prepare a business plan for the creation of your business?
YES/NO

12. What was the initial capital of the business? Please indicate the approximate amount.
13. How much money did the business bill for in the last fiscal year? Please indicate the approximate amount.
14. Did you work before you created your current business?
 Yes
 No
15. What job or jobs did you have before creating your business?
16. Do you believe your previous experience has helped you in creating your business? YES/NO. Why?
17. What were the most significant difficulties you found in the process of creating the business?

FORMAL FACTORS

CRITERIA AND ACCESS TO FINANCING

18. How did you finance the initial phase of your business? Please indicate the approximate percentage for each one of the following sources of financing

		%
Own savings		
Family's savings		
Friend's savings		
Bank credit without guarantees		
Bank credit with personal guarantees		
Bank credit with patrimonial guarantees		
Severance pay		
Capitalization of unemployment benefits		
Suppliers and customers		
Others		

19. From whom did you seek advice regarding financing?
- Family
 - Friend
 - Manager
 - Another businessperson
 - Others
20. *If he or she requested credit from a bank.* Did they ask you for guarantees? YES/NO. What kind? Do you think that now they would be the same? Why?
21. *If he or she requested credit from a bank.* Did you negotiate directly with the financial institutions or did you delegate the negotiating to third parties? Who? Why?
22. *If the previous response indicates he or she delegated the negotiating.* Do you believe that if you had personally conducted the negotiations the results would have been different? YES/NO. Why?
23. *If he or she requested credit from a bank.* Did you try negotiating better conditions than the ones offered initially by the institution? YES/NO. Did you obtain better conditions? YES/NO. Why?
24. Do you believe that financial institutions apply the same criteria, or apply them in the same way, independently of the business one might want to develop? YES/NO. Why?
25. Do you believe that the criteria for financing, or the way they are applied, depend on the gender of the person negotiating the credit? YES/NO. Why?

**ECONOMIC AND NON-ECONOMIC ENTREPRENEURSHIP SUPPORT
POLICIES AND MEASURES**

26. Are you aware of the existence of support programmes for the creation of businesses in your town/municipality? And in Catalonia? YES/NO
27. Do you know if there are programmes specifically directed at female entrepreneurs? YES/NO. Do you believe they are/would be necessary? YES/NO. Why?
28. Have you used any of the programmes? YES/NO. Which?
29. *If this is a female entrepreneur, and the response is affirmative.* Do you believe you would have created your business under the same conditions if you had not made use of the female entrepreneurship support programmes? YES/NO. Why?
30. What type of support measures for the creation of businesses, in general, do you believe are the most important? Why?

Economic measures	%
Loans, subsidies, venture capital, others	
Non-economic measures	
Information, guidance, advice, follow-up, training, others	

31. Which of the existing support measures (economic or non-economic) do you believe are greater determinants of female entrepreneurship? And for male entrepreneurship? Why?

EDUCATION

32. Level of studies of the entrepreneur:

- Primary studies
- Secondary studies
- University studies
- Master's
- Other. What?

33. Do you believe that your level of training has been a determining element in the creation of your business? YES/NO. Why?

34. Do you think you would have needed another level of studies? YES/NO.

If the response is affirmative. Indicate which type. Why?

- Specialized studies in the sector
- Business management and administration
- Marketing
- Finances
- Human resources
- Other. Which?

35. Did you receive business training before creating your business?

- Yes Do you believe it has been useful to you?
- No Do you believe it would have been useful to you?

36. Do you believe women have a different level of education in business management and administration than men? YES/NO. Do you believe this affects the creation of businesses by women? Why?

INFORMAL FACTORS

BELIEFS, MOTIVATIONS AND PERCEPTION OF ABILITIES

37. Do you believe the characteristics of the entrepreneur influence the operation of the business? YES/NO

Specify your answer by rating the following characteristics on a scale of 1 to 5, with 5 being the total presence of this characteristic and 1 the total absence.

CHARACTERISTIC	
Self-confidence	
Prepared to take risks	
Resistance to stress and pressure	
Vitality and enthusiasm	
Knows how to work as part of a team	
Knows how to delegate	
Vision of the future	
Tends towards planning	
Initiative	
Need for success	
Need for power	
Tolerant of ambiguity	

38. Please rate the following skills on a scale of 1 to 5, with 1 being the total lack of these skills and 5 the total presence of them.

SKILLS	
Communication skills	
Management skills	
Marketing skills	
Organizational skills	
Conflict resolution skills	

39. Do you believe other characteristics or skills that you do not possess would have been useful to you? YES/NO. Which ones? Why?

40. Do you think that when it comes to creating a business, society believes women have skills or abilities that are different from those of men? YES/NO. Which ones? Why?
41. *If the response is affirmative.* Do you believe this perception negatively affects female entrepreneurship? YES/NO. Why?
42. *Contextualize the situation.* Do you think the fact that most of the businesses created by women are in the services and retail sectors is related to society's beliefs regarding their skills and abilities? YES/NO. Why?
43. In your opinion, what score would be given to the following professions in your area, on a scale of 1 to 5, where 1 indicates little prestige/status and 5 indicates significant prestige/status?

Teacher	
Lawyer	
Doctor	
Engineer	
Sociologist or psychologist	
Businessman/businesswoman	
Manager of a large business	
Journalist	
Other	

44. What are, or have been, the motives for creating your own business, on a scale of 1 to 5, with 1 being the complete absence and 5 the complete presence of said motive?

Freedom of decision and of action	
Desire to make more money than as a salaried worker	
Impossibility of finding adequate work or of reaching their objectives in other fields	
Dissatisfaction with previous occupation	
Take advantage of an opportunity offered by their environment	
Contribute to society	
Direct an organization and a human team	
Invest in personal patrimony	

Family tradition	
Prestige or status of being a businessperson	
Create something that is theirs	
Other (specify)	

45. When you created your business, did you consider the possibility of failure? YES/NO. *If the response is affirmative.* Did that aspect represent an obstacle to, or delay in, starting your business? YES/NO. Why?
46. Do you believe you have made use of all of the good opportunities for entrepreneurship that exist in your zone of influence? YES/NO. Why?
47. *Contextualize situation.* Why do you think men create more businesses than women?
48. After the experience of creating your own business, what is your general attitude regarding the creation of businesses?
- Very positive
 - Positive
 - Neutral
 - Negative
 - Very negative

SOCIAL NETWORKS

49. With the aim of obtaining information/advice regarding subjects related to the process of creating a business, you contacted:

Indicate how important the following people were when making the decision to establish your business. Mark from 1 to 5, with 1 indicating minimum importance and 5 indicating maximum importance.

Networks of informal relationship	
Family members	
Friends	
Manager	

Other businesspeople	
Others	

50. Do you believe that the information/advice you were given affected the creation of your business positively? YES/NO. Why?
51. Currently, do you continue to consult them? Whom do you consult? What aspects do you consult them about (operational, tactical or strategic)?
52. How do you suppose the community (customers, suppliers, associated firms ...) views your business? Please indicate, using values between 1 (negative) and 5 (very positive).

Customers	
Suppliers	
Managers	
Financial institutions	
Official agencies	
Other businesspeople	
Society in general	
Other (specify)	

53. Do you believe the support your business receives from the community would be different if the owner were of a different gender? YES/NO. Why?

FAMILY ROLE

54. Has anyone from your family created their own business?

- My husband/wife
- My father
- My mother
- Both, jointly
- Both, separately
- My sons/daughters

- Some other family member
- Other. Who?
- No one

55. With respect to close friends, how many have created their own businesses?

Please indicate the approximate number.

- Many
- Some
- Few
- None

56. *If the interviewee answered My mother or My father in question 54. Do you think the fact that your mother/father is a businessperson positively affected the creation of your business? YES/NO. And in the case of friendships? YES/NO. Do you think having a friend who is a businessperson affects business creation in the same way?*

57. Do you think that if the entrepreneur's role model is a businessperson of the same gender, this favours the creation of businesses more or less? Why?

58. What was the attitude of your family, relatives and friends regarding your decision to create your own business?

- Very positive
- Positive
- Neutral
- Negative
- Very negative

59. Do you believe the family's support or attitude is essential for female entrepreneurship? YES NO. Why? And for male entrepreneurship? YES/NO. Why?

60. What effect do you think the woman's family role has on female entrepreneurship? And on male entrepreneurship?

61. Do you believe that having created a business will affect the family?
YES/NO. Do you believe male entrepreneurs are affected in the same way?
YES/NO. Why?
62. What view do the children claim to have regarding the family business?
63. *If he or she proceeds.* How many of them have joined the family business,
and what positions have they occupied or do they occupy?

CLOSING QUESTIONS:

64. Would you create a business again? YES/NO. Why?
65. *If the response is affirmative.* Indicate as a guide the reasons (financing, no opportunities, situation of the environment in general, etc.) you have not yet done so.
66. What would you do differently if you were to create a new business once more? What resources would you make use of? Did these exist when you created your business? YES/NO
67. Are there any other questions related to this subject that you would like to comment on? YES/NO. What are they?

Sample unit data:

- Name of the businessperson:
Position he/she holds in the business:
Tasks he/she carries out in the business:
Name of the business:
Mailing address of the business:
Telephone: Fax: E-mail:
Website of the business:
Observations:

Personal survey identification information:

Questionnaire no.:

Date of the interview:

Scheduled time for the interview:

Actual time the interview began:

Length of the interview:

Businessperson's business card:

INTERVIEW PROTOCOL – BUSINESS CREATION SUPPORT AGENCIES

- a) PREAMBLE: Explanation regarding the subject of the interview and the presentation of its objectives.

Explanation of the general objective of the research, based on identifying and evaluating the environmental factors that influence entrepreneurial activity in Catalonia, identifying the formal factors (policies and economic and non-economic support measures, access to financing and education level) and informal factors (structures that govern social interaction, within the family setting as well as the work setting) that affect female entrepreneurship. At the same time, the relative importance of both factors is evaluated by comparing their influence on female entrepreneurship and on male entrepreneurship.

- b) Because you represent an agency that offers support to the creation of businesses (at the state or local level), I would like you to answer some questions related to the formal and informal factors that in your experience condition the creation of businesses.

GENERAL INFORMATION REGARDING THE AGENCY

1. Year in which the agency was created:
2. Type of agency:
 - Public
 - Private
3. Number of people who work in the agency. And dedicated to the creation of businesses?

4. Level of activity (municipal, state, national)?

SPECIFIC INFORMATION REGARDING SUPPORT MEASURES OFFERED
BY THE AGENCY

5. What type of support measures does the agency offer?

Economic measures

- Loans
- Subsidies
- Other

Non-economic measures

- Information/orientation
- Advice/follow-up
- Education or training
- Research parks/business incubators
- Other

6. What is the principal objective of the support measures offered by the agency?

7. Does the agency you represent offer support measures for the creation of businesses directed at a specific collective? YES/NO

If the response is affirmative. Indicate which:

- Women
- Young people
- Unemployed
- Immigrants
- Retired
- Other

Independently of the response. Do you believe they are/would be necessary?
Which ones? Why?

8. How do female/male entrepreneurs know about the support programmes offered by the agency?

9. Do you believe that said support measures are widely used (in general)? YES/NO. Which ones? Why? *Ask if they have statistics available.*
10. Do you believe that said support measures are widely used by female entrepreneurs? YES/NO. Which ones? Why? *Ask if they have statistics available.*

CHARACTERISTICS OF THE MALE AND FEMALE ENTREPRENEURS WHO REQUEST SUPPORT

Ask if they have statistical databases available.

11. Sex of the entrepreneur:

- Female
 Male

%

12. Age of the male/female entrepreneurs

- Under 25
 Between 25 and 35
 Between 35 and 45
 Over 45

%

13. Indicate the principal sectors in which male entrepreneurs want to start up a business.

14. Indicate the principal sectors in which female entrepreneurs want to start up a business.

15. How much time passes between the planning and the legal incorporation of the new business?

FORMAL FACTORS

CRITERIA AND ACCESS TO FINANCING

16. How do male/female entrepreneurs plan to finance the initial phase of their businesses? Please indicate the approximate percentage for each one of the following sources of financing.

Own savings
Family's savings
Friend's savings
Bank credit without guarantees
Bank credit with personal guarantees
Bank credit with patrimonial guarantees
Severance pay
Capitalization of unemployment benefits
Suppliers and customers
Other

17. Based on your experience, do you believe that male/female entrepreneurs seek advice regarding financing? From whom?

- Family
- Agencies that support the creation of businesses
- Manager
- Another businessperson
- Other

18. Based on your experience, do you believe financial institutions apply the same criteria, or apply them in the same way, independently of the business one might want to develop? And independently of the gender of the person? YES/NO. Why?

19. Based on your experience, do you believe the application of the criteria for granting financing is more favourable to male entrepreneurship as opposed to female entrepreneurship? YES/NO. Why?
20. *If the previous response is affirmative.* Do you believe this makes it more likely that female entrepreneurs will delegate financing negotiations to men? YES/NO. Why?

ECONOMIC AND NON-ECONOMIC ENTREPRENEURSHIP SUPPORT
POLICIES AND MEASURES

21. *If the agency has specific programmes for female entrepreneurs.* Are there economic measures that are different from those offered in the generic programmes? YES/NO. Which ones? Why?
- Loans
 - Subsidies
 - Others
22. *If the agency has specific programmes for female entrepreneurs.* Are there non-economic measures that are different from those offered in the generic programmes? YES/NO. Which ones? Why?
- Information/orientation
 - Advice/follow-up
 - Training
 - Research parks/business incubators
 - Others
23. Do you believe the existence of specific non-economic support measures for women affects female entrepreneurship positively? YES/NO. Why?
24. Based on your experience, do you believe that non-economic support measures influence entrepreneurship to a greater degree than economic support measures, in the case of female entrepreneurs? YES/NO. Why?
25. Do you believe that non-economic support measures are greater determinants of female entrepreneurship than of male entrepreneurship?

EDUCATION

26. Level of studies of the entrepreneur:

- Primary studies
- Secondary studies
- University studies
- Professional training
- No studies
- Other. What?

% Women	% Men

27. Do you believe they would need a different level of studies in order for their future business to function well? YES/NO. Indicate what type.

- Specialized studies in the sector
- Business management and administration
- Marketing
- Finances
- Other. Which?

28. Based on your experience, have you observed a difference between female and male entrepreneurs with respect to their levels of business management and administration training? YES/NO

29. Do you believe that business management and administration training affects entrepreneurship positively? Does it affect female and male entrepreneurship equally? Why?

INFORMAL FACTORS

BELIEFS, MOTIVATIONS AND PERCEPTION OF ABILITIES

30. Do you believe that the characteristics of the entrepreneur influence the operation of the business? YES/NO

Specify your answer by rating the following characteristics on a scale of 1 to 5, with 5 being the total presence of this characteristic and 1 the total absence.

CHARACTERISTIC	
Self-confidence	
Prepared to take risks	
Resistance to stress and pressure	
Vitality and enthusiasm	
Knows how to work as part of a team	
Knows how to delegate	
Vision of the future	
Tends towards planning	
Initiative	
Need for success	
Need for power	
Tolerant of ambiguity	

31. Please rate the following skills, necessary for female/male entrepreneurs, on a scale of 1 to 5, with 1 being the total lack of these skills and 5 the total presence of them.

SKILLS	
Communication skills	
Management skills	
Marketing skills	
Organizational skills	
Conflict resolution skills	

32. Based on your experience, which characteristics and skills are more common to male entrepreneurs? And to female entrepreneurs? If differences do exist, why do you think that is?
33. Do you believe that male and female entrepreneurs are aware of their abilities and skills? In equal measures for women and men? YES/NO. Why do you think this is so?
34. What motives do male and female entrepreneurs state they have for creating their own businesses, on a scale of 1 to 5, with 1 being the complete absence of said motive, and 5 the total presence?

	Women	Men
Freedom of decision and of action		
Desire to make more money than as a salaried worker		
Impossibility of finding adequate work or of reaching their objectives in other fields		
Dissatisfaction with previous occupation		
Take advantage of an opportunity offered by their environment		
Contribute to society		
Direct an organization and a human team		
Invest in personal patrimony		
Family tradition		
Prestige or status of being a businessperson		
Create something that is theirs		
Other (specify)		

35. Do you believe that male/female entrepreneurs consider the risks and the possibility of failure when they create their business? YES/NO. In equal measures for men and women?
36. Based on your experience, have you observed differences between female and male entrepreneurs with respect to the levels of previous work experience related to the creation of their businesses? YES/NO. What are these differences? Why do you believe that they occur?

37. *If the previous response is affirmative.* Do you believe that work experience, or the lack thereof, has a positive or negative impact on entrepreneurship? On female entrepreneurship? On male entrepreneurship? In equal measures? Why?

38. What proportion of the entrepreneurial projects for which support was requested has come to fruition?

Indicate the proportion of male and female projects: %

39. *Contextualize the situation.* Why do you think men create more businesses than women?

SOCIAL NETWORKS

40. Based on your experience, apart from the agencies that offer support for the creation of businesses, who else do the male/female entrepreneurs state that they have sought out for information regarding the creation of their businesses?

Indicate the importance of the following people to female/male entrepreneurs. Mark from 1 to 5, with 1 indicating minimum importance and 5 maximum importance.

<i>Network of informal relationships</i>	Women	Men
Family members		
Friends		
Manager		
Other businesspeople		
Other		

41. Do you believe that social networks affect entrepreneurship positively? In equal measures for men and women? YES/NO. Why?

42. Do you believe that the support received by the business and the image the community (customers, suppliers, linked entities ...) has of the business are different if the business has been created by a man rather than by a woman? YES/NO. Why?

FAMILY ROLE

43. Based on your experience, is it normal for entrepreneurs to have family members who are already businesspersons? Is it the same for entrepreneurs of both sexes?
- Husband/wife
 - Father
 - Mother
 - Both, jointly
 - Both, separately
 - Sons/daughters
 - Some other family member
 - Other. Who?
 - No one
44. Do you think that having a family member or friend who is a businessperson affects the creation of the entrepreneur's business positively? YES/NO.
45. Do you think that if the entrepreneur's role model is female, this favours the creation of businesses more or less? YES/NO. Why?
46. Based on your experience, what is the attitude of the female/male entrepreneur's family, relatives and friends regarding their decision to create a business?
- Very positive
 - Positive
 - Neutral
 - Negative
 - Very negative

47. Do you believe the family's support or attitude is essential to female entrepreneurship? YES/NO. Why? And for male entrepreneurship? YES/NO. Why?
48. Do you think the woman's family role affects female entrepreneurship? How? To a greater or lesser degree than in the case of men? Why?
49. Do you believe that having created a business will affect the family? YES/NO. Do you believe that male entrepreneurs are affected in the same way? YES/NO. Why?

CLOSING QUESTIONS:

50. Do female/male entrepreneurs who have already created a business contact the agency? YES/NO. Are the proportions of men and women the same? Why do you think that is so?
51. Had they already requested support from the agency in the creation of their previous business? YES/NO. *If the response is negative.* From whom did they request support the first time they created a business? Why do you think they have changed their opinion now?
52. Are there any other questions related to this subject that you would like to comment on? YES/NO. What are they?

Sample unit data:

Name of the agency:

Mailing address of the business:

Telephone: Fax: E-mail:

Website of the business:

Observations:

Personal survey identification information:

Questionnaire no.:

Date of the interview:

Scheduled time for the interview:

Actual time the interview began:

Length of the interview:

Person interviewed:

Position he/she holds in the agency:

INTERVIEW PROTOCOL – FINANCIAL INSTITUTIONS

- a) **PREAMBLE:** Explanation regarding the subject of the interview and the presentation of its objectives.

Explanation of the general objective of the research, based on identifying and evaluating the environmental factors that influence entrepreneurial activity in Catalonia and identifying the formal factors (policies and economic and non-economic support measures, access to financing and education level) and informal factors (structures that govern social interaction, within the family setting as well as the work setting) that affect female entrepreneurship. At the same time, the relative importance of both factors is evaluated by comparing their influence on female entrepreneurship and on male entrepreneurship.

- b) Because you represent a financial institution offering generic or specific financing to female and male entrepreneurs in Catalonia, I would like you to answer some questions regarding the formal and informal factors that, in your experience, condition the creation of businesses.

QUESTIONNAIRE FOR THE PERSONAL SURVEY CONDUCTED WITH
REPRESENTATIVES OF FINANCIAL INSTITUTIONS

FORMAL FACTORS

CRITERIA AND ACCESS TO FINANCING

Ask if they have statistical databases available.

1. The entrepreneurs who come to the business you represent in order to create a business are mostly (*please indicate the proportion*):

- Men
- Women

2. Based on your experience, how do male/female entrepreneurs finance the initial phase of their businesses? Please indicate the approximate percentage for each one of the following sources of financing.

%

Own savings	
Family's savings	
Friends' savings	
Bank credit without guarantees	
Bank credit with personal guarantees	
Bank credit with patrimonial guarantees	
Severance pay	
Capitalization of unemployment benefits	
Suppliers and customers	
Other	

3. Do male/female entrepreneurs seek advice regarding financing? From whom?

- Family
- Financial institutions
- Manager
- Another businessperson
- Other

4. Do the male/female entrepreneurs with bank credit conduct the negotiation with the financial institutions directly or do they delegate to third parties? In equal measures for women and men? YES/NO. Who? Why?
5. What are the conditions for access to financing based upon? What do these differences depend on? Why is that?
6. Are there differences in the guarantees requested in order to obtain financing? YES/NO. What do these differences depend on?
7. Are there differences among the guarantees provided by entrepreneurs? YES/NO. What do these differences depend on? Why?
8. Do male/female entrepreneurs who request bank credit try to negotiate better conditions than the ones offered initially by the institution? YES/NO. Which ones yes and which ones no?
9. *If the response to the previous question is affirmative.* Indicate, based on your experience, which collective manages to obtain better conditions than those established:

<input type="checkbox"/> Men <input type="checkbox"/> Women <input type="checkbox"/> Neither	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center;"> % </div>
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10. What are the proportions for the total amount of credit granted for the creation of businesses? And depending on gender? Why do you think this is?

<input type="checkbox"/> Men <input type="checkbox"/> Women	<div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center;"> % </div>
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CLOSING QUESTIONS:

12. *Contextualize the situation.* Based on your experience, why do you think men create more businesses than women?
13. Are there any other questions related to this subject that you would like to comment on? YES/NO. What are they?

Sample unit data:

Name of the financial institution:

Mailing address of the business:

Telephone: Fax: E-mail:

Website of the business:

Observations:

Personal survey identification information:

Questionnaire no.:

Date of the interview:

Scheduled time for the interview:

Actual time the interview began:

Length of the interview:

Person interviewed:

Position he/she holds in the institution:

