

Gender issues in knowledge-based entrepreneurship: women as knowledge creators and entrepreneurs

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Women's entrepreneurship: new evidence, new perspectives

There is broad agreement that new business creation is a fundamental component of the economic growth process (Minniti *et al.*, 2005). The emergence of new ventures in knowledge-based sectors is central to economic adaptation and change and, according to the endogenous growth theory (Romer, 1986), favours the achievement of long-term economic development. New ventures are important sources of market innovation (Audretsch, 1995) and job creation (Birch, 1987), as they replace less-efficient existing firms with more-efficient ones (Kelley *et al.*, 2011), and represent a job alternative for individuals with high levels of formal education.

In addition to the above, it is widely recognized that women play an important role in the growth process of a country (Minniti *et al.*, 2006). Fostering female entrepreneurship may be one way to contribute to economic growth through new venture creation in knowledge-based sectors. Thus, it is important that we understand the factors that mobilize or prevent women from starting new businesses.

An analysis of new venture scenarios over the past 20 years highlights the underrepresentation of female entrepreneurs across countries, especially in new firms within knowledge-based sectors (Arenius and Minniti, 2005; Davidsson and Honig, 2003; Delmar *et al.*, 2003). Research on female entrepreneurship has increased significantly in recent years (Minniti, 2009), focusing on women business owners' characteristics and development, women's motivations for starting and leading a business, women's leadership styles and management strategies and barriers encountered by women business owners. However, there is still a lack of empirical research on the phenomenon of female entrepreneurship in general, and of female entrepreneurship in high-tech sectors in particular (Fuentes-Fuentes *et al.*, 2012).

A diversity of economic agents in terms of motivation and opportunity recognition is essential for economic growth. The participation of females in entrepreneurial activities could favour this diversity. Moreover, the number of females who receive a high level of education in several industrialized countries is higher than males (Hausmann *et al.*, 2012); furthermore, females use different processes of opportunity recognition with respect to males (DeTienne and Chandler, 2007). Unfortunately, a large part of women's talent remains unrealized due to the specific barriers associated with their gender. Achieving an appropriate balance between work and family life is a major concern. Although both men and women experience work–family conflict, the constant tension between work and family has been shown to be a more acute issue for women (Brush *et al.*, 2009).

Authors, such as Uhlaner and Thurik (2007), emphasize the importance of interactions between economic, demographic and social factors, underlining the gendered influence arising from an entrepreneur's background. For example, two women with the same motivational factors but different demographic characteristics (i.e. the presence/absence of small children) might make different decisions about starting a new firm. The main finding regarding the differences between men and women is that women's businesses are concentrated in the retail and service sectors and, because of this, their businesses are smaller than the average male-owned business (Hisrich and Brush, 1984; Rosa and Hamilton, 1994; Scott, 1986).

With regard to an entrepreneur's capability to secure funding for their new ventures, Buttner and Rosen (1988) found that women were perceived by bank workers as less



entrepreneurial than men, and were evaluated lower on risk-taking propensity. This finding is supported by Sexton (1989), who illustrates how female entrepreneurs scored significantly lower than male entrepreneurs on their risk-taking scale.

Buttner (1999) argues that starting with a smaller capital base may disadvantage female firms, as a lack of working capital is one of the biggest problems for start-ups. Indeed, the literature argues that female entrepreneurs may face more difficulties than men in their efforts to access formal and informal finance. For example, Marlow and Patton (2005) explain why women encounter barriers in accessing both formal finance and informal business angel funding. This poorer capital base may be reflected in survival rates and subsequent growth opportunities.

Access to networks of information and assistance are often the main sources of information and contacts, but they often represent a mechanism of gender exclusion (Aldrich *et al.*, 1989). Entrepreneurs are embedded in social networks (Hoang and Antoncic, 2003), and these include advisors, business partners, buyers, customers, employees, friends, relatives, investors, mentors, shareholders, banks, venture capitalists, business angels and suppliers (Greve and Salaff, 2003). Through their social networks, entrepreneurs may be able to acquire financial capital, credibility, reputation, information, knowledge, skills, social legitimacy and social support (Welter and Kautonen, 2005).

A considerable body of research describes how entrepreneurs are more likely to have contact with other entrepreneurs, including family and friends (Arenius and Minniti, 2005; Davidsson and Honig, 2003; Menzies *et al.*, 2004). However, the lack of suitable and effective social networks suggests that female entrepreneurs are disadvantaged (Benschop, 2009).

With regard to motivation, the entrepreneurship literature includes several studies that seek to understand the different factors and decision processes that affect females and males in terms of their interest in entrepreneurial activities. There is general agreement that opportunity perceptions, risk tolerance and self-efficacy are all highly correlated to the decision to start a new business (Koellinger *et al.*, 2013; Minniti *et al.*, 2005).

Wagner (2007) found that fear of failure is an important determinant of the difference in the rate of new business creation between men and women. The idea that women have low risk tolerance has also been used to explain supposed low growth rates in female-owned companies (Johnson and Powell, 1994).

According to Wilson *et al.* (2007), self-efficacy is based on individuals' perceptions of their skills and abilities. People with higher self-efficacy levels for a given task are expected to be more willing to do that task (Bandura, 1982). According to Minniti and Nardone (2007), attitudes towards entrepreneurship reflect subjective perceptions rather than objective conditions, and if women think they have the skills and abilities needed to achieve success, they will be more willing to start their own business. The entrepreneurship literature frequently mentions that females have lower self-efficacy levels in areas associated with business success, such as quantitative skills, problem-solving and money management (Marlino and Wilson, 2003), and less entrepreneurial interest compared to males (Wilson *et al.*, 2004; Marlino and Wilson, 2003; Minniti and Nardone, 2007).

There is some evidence supporting the idea that women have low risk tolerance when making financial decisions (Jianakoplos and Bernasek, 1998). Also, when asked about their attitudes, women report a lower propensity towards risk than men, and appear to be more risk-averse than men when gambling (Langowitz and Minniti, 2007).

Brighetti and Lucarelli (2013) investigate gender differences in behaviour under uncertainty, as this personal condition influences entrepreneurship. The authors collect objective measurements of risk/ambiguity aversion from a psycho-physiological task, and gather self-assessments of individual risk tolerance from a verbatim questionnaire. Their study shows some interesting findings: no statistical gender difference when risk/ambiguity attitudes

originate from the psycho-physiological task. Conversely, self-evaluated risk tolerance indicates that women define themselves as risk-averse. This supports the concept that self-assessed risk attitude originates from an overall (wrong) social construct. Women evaluate themselves coherently with this sex-based stereotype and end up reinforcing the social idea of their inferior attitude to assume risks.

The socio-cultural status of women, which identifies the primary role of women with family and domestic responsibilities, reduces the credibility of women intent on setting up businesses in a variety of ways. Supportive cultural attitudes complement framework conditions and are a key factor in promoting entrepreneurship. For example, in the USA, an entrepreneurial and risk-taking spirit is valued, whether or not the undertaking is successful. Many successful businesses are created by entrepreneurs whose previous businesses failed. A society in which failure is castigated can cause risk-averse behaviour and inhibit entrepreneurship. Women suffer more in this regard in societies in which their capabilities are insufficiently valued or respected. A positive image of entrepreneurship is therefore critical. In some countries, however, entrepreneurial activity may have negative connotations, and in many countries, important cultural and religious barriers to activities in the economic sphere exacerbate the negative image of entrepreneurship for women. Having strong, positive, visible role models is, therefore, important for encouraging women to consider becoming entrepreneurs.

This special issue contributes to extant literature in a number of ways. First, it offers a better understanding of the relationship between sex, gender-role orientation and the decision to become an entrepreneur (Perez Quintana). Second, it provides an up-to-date literature review on factors that affect the success of women's entrepreneurship at each stage of the entrepreneurial process (Cabrera and Mauricio). Third, it highlights gender differences in the entrepreneurial process, specifically in the context of academic entrepreneurship in universities (Javier), and fourth, it identifies the antecedents of entrepreneurial intentions in the case of youth beneficiaries of entrepreneurship higher education programmes and/or entrepreneurial role models (Emoke).

Perez Quintana's paper analyses the determinants of gender stereotypes that influence human behaviour; it explores how to assign gender-role orientation to each individual and the analysis of the relationship between entrepreneurial intention, sex and gender-role orientation. The study uses two different samples of students from Business Administration undergraduate programmes at the University of Barcelona.

The findings show the persistence of gender stereotypes among young and future college graduates. The female gender stereotype continues to be linked to the person who is kind, loyal, modest, cautious, discreet, submissive and sensitive to the needs of others, while the male stereotype is related to people who are self-confident, individualistic, independent and ambitious, with risk-taking propensity and leadership capacity. The findings also demonstrate how gender orientation in the Barcelona sample differs slightly from findings obtained for the rest of Spain. Catalan women are more likely to be androgynous, while men present a lower propensity to androgyny and a greater propensity to masculinity. The study shows that entrepreneurial intention is higher for men than for women. Hence, the study confirms how fostering a female entrepreneur's social visibility, for example, through "role models", may increase a female entrepreneur's intentions. Moreover, emphasis on the androgynous entrepreneur traits in workshops, programmes and events at different levels of education could increase female entrepreneur intention.

Another interesting finding in this paper is the fact that there is no negative relationship between feminine gender-role orientation and entrepreneurial intention if only women are considered in the model. In this sense, enforcing more feminine entrepreneurial stereotypes could help women to identify with their career options.

In their paper, Cabrera and Mauricio review the literature on women's entrepreneurship, focusing on the relationship between a given factor (environmental or entrepreneur-based) and success at each stage of the entrepreneurial process. The factors identified at the level of the individual are competencies (managerial, entrepreneurial, labour and personal experience, educational level and personality characteristics). Another important piece of evidence is the fact that national educational systems are the most important means for acting on these factors at the level of the individual.

At the macro environment level, cultural features and government policy decisions are key to the productivity of women's ventures. Furthermore, the paper shows that when the motivation and opportunity identification phase is favourable – i.e. opportunities and resources exist – an opportunity for entrepreneurship is created. If this phase is negative, women may be motivated to start new ventures for the purposes of supporting both her family and herself.

The authors point to the negative effects of socio-cultural rules and regulations on women's business activities, and illustrate how they are influenced by gender-based stereotypes. Conversely, institutional rules and regulations could favour motivation, business opportunity identification and successful business performance if governmental policy frameworks promote women's entrepreneurship.

At the meso environment level, the authors illustrate the prevalence of men in high-tech sectors, while at the micro environment level, they highlight how family and personal contact networks are decisive factors for success in the motivation, opportunity identification and resource acquisition phases.

Javier's paper explores whether men and women demonstrate the same determining factors of entrepreneurial intention. Drawing on a sample of 1,178 academics, the study confirms that entrepreneurial intention in the academic environment is greater in men than in women. The authors observe the existence of significant differences in the entrepreneurial intention of men and women, even if the determining factors of entrepreneurial intention in academics are the same for both men and women. Entrepreneurial personality and aptitude are the two variables that best determine the intention to start-up a spin-off for both men and women. However, the order is different according to gender: entrepreneurial aptitude is the most important variable for women, whereas for men, entrepreneurial personality is most important. Moreover, the productivity variable measured in terms of patents has greater weight in explaining the intention to create a spin-off in the case of women. The differences in women's entrepreneurial behaviour compared to men's are determined by the existence of implicit barriers that hinder women's ability to become entrepreneurs; as a consequence, this impacts on their entrepreneurial intentions, such as entrepreneurial personality, ability or aptitude, their length of service in the university or their productivity.

The final paper in this special issue, by Eموke, explores how entrepreneurial higher education and training, behavioural characteristics, psychological characteristics and role models influence the entrepreneurial intention of Romanian students in the largest academic centre in the western part of Romania (Polytechnics and Medicine Universities of Timișoara). The paper shows how entrepreneurial higher education training and behavioural characteristics are significant and are direct predictors of how entrepreneurial intentions and behavioural characteristics mediate the influence of psychological characteristics and role models on entrepreneurial intentions.

All of the papers in this special issue confirm the importance of fostering entrepreneurial education among students. Entrepreneurship is crucial to boosting productivity, increasing competition and innovation, creating employment and prosperity and revitalizing communities. A policy framework that identifies strategic themes as key drivers for economic growth, improved productivity and a wider involvement in enterprise for all is needed. These include

building an enterprise culture, encouraging a more dynamic start-up market and building the capability of small business growth.

From a cultural perspective, it could be useful to disseminate information about the successful experiences of female entrepreneurs who have achieved greater gender equality or success. Moreover, some initiatives could mitigate women's fear of entrepreneurial failure, for example, by promoting entrepreneurship at all levels of education, enhancing the recognition and prestige of entrepreneurs and providing female entrepreneurial role models who would inspire women to start their own business.

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