



# Manager gender, entrepreneurial orientation and SMEs export and import propensities: evidence for Spanish businesses

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## Abstract

This paper investigates the role of manager gender in SMEs' decisions to get involved in exporting and importing activities, using a sample of 1,405 Spanish SMEs. We borrow insights from international entrepreneurship theories and feminist theories to set testable hypotheses regarding how managerial gender and entrepreneurial orientation (proactiveness, risk-taking and innovativeness) may influence SMEs export and import propensities. Using a *bivariate probit* model and controlling for other managerial and business characteristics, results reveal that there are not significant disparities in exporting propensities between men- and women-run businesses. However, female-led SMEs show a lower importing propensity, in comparison to male-led counterparts. In addition, the three entrepreneurial orientation dimensions (proactiveness, risk-taking and innovativeness) are important drivers for participating in overseas markets, and do not depend upon the manager gender. This work provides new empirical evidence on the comparison between men- and women-run SMEs as regards export/import behavior and thus, it contributes to improve our knowledge on the role of gender in SMEs internationalization. The role of manager's gender in SMEs import propensity has not been investigated so far, and this is the main novelty of our research.

**Keywords** Manager gender · Entrepreneurial orientation · Small and medium-enterprises · Exporting and importing

**JEL Classification** C35 · J16 · F14 · M21

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## 1 Introduction

There is a general consensus that international trade constitutes a first-order factor in shaping economic and social prospects of countries around the world. Trade creates new opportunities for businesses by expanding sales abroad, and provides access to new technologies and intermediate inputs available in global markets. It is also broadly understood that small and medium enterprises (SMEs) are key for the economic prosperity of any nation so that enabling their access to foreign markets can boost economic growth and productivity (European Commission, 2018). In fact, those SMEs involved in foreign trade tend to be more productive as compared to those which do not, since exporting leads to market expansion and sales growth, while importing may help to reduce costs and/or improve inputs' quality among other benefits (Baghdadi, 2015; Máñez et al., 2020a, 2020b).

Recently, several international organizations have highlighted the fact that gender has a significant effect on SMEs involvement in international trade, so that men and women present remarkable disparities in their entrepreneurial behavior related to internationalization activities (ITC, 2020; WB and WTO, 2020). In this line, several studies have investigated the disparities between men and women-led small businesses regarding decisions to operate in international markets, and specifically on the influence of owners/managers' gender on SMEs exporting activities (Grondin and Schaefer, 1995; Orser et al., 2010; Marques, 2015; Pergelova et al., 2018; Haddoud et al., 2021).

However, the role of owners/managers' gender on importing activities remains unexplored, even though this strategy is crucial for business access to intermediate inputs, competitiveness, and, in many cases, technological upgrading. In fact, evidence suggests that SMEs managed by women are not only less likely to be involved in exporting activities than their male counterparts, but also less prone to be engaged in imports (ITC, 2020). This is usually explained by the existence of greater barriers for female-led SMEs in raising funds and in accessing resources, information and networks. Female-led businesses are usually smaller than male-led companies, so that they often lack the resources needed to expand into foreign markets (WB and WTO, 2020). In addition to these contextual and external factors, empirical evidence shows that entrepreneurial orientation traits of the manager, such as proactiveness, risk-taking and innovativeness, may also act as key factors explaining SMEs internationalization decisions (Knight, 2001; Oviatt and McDougall, 2005). A recent systematic review of the literature on the determinants of SMEs' export entry is provided by Haddoud et al. (2021), including those works on the role played by manager's gender. However, the influence of gender and entrepreneurial orientation of owner/managers as drivers of SMEs decisions to get involved in foreign trade have not been sufficiently analyzed in the literature, and in particular with respect to importing activities.

The objective of this work is to fill these gaps. In particular, we explore the role of gender and entrepreneurial orientation of the manager on SMEs involvement in exporting and importing activities. We use insights from international entrepreneurship theories and feminist theories to set testable hypotheses regarding how managerial gender and entrepreneurial orientation (proactiveness, risk-taking and

innovativeness) may influence business export and import. In particular, by export we refer to sales of final goods and services in foreign markets, whereas by import we mean purchases of intermediate inputs from foreign suppliers. Following Máñez et al. (2020a, 2020b), in our empirical approach we jointly analyze exporting and importing decisions, since these two activities are likely to be interrelated. Exporting SMEs may use their experience in foreign markets to acquire inputs from abroad to incorporate into their production processes. Further, they may also face competitive pressure from other exporters to use higher quality inputs to improve the quality of their products. In addition, importing SMEs may benefit from new production techniques and knowledge embodied in imported inputs to improve the quality of their products, and this technological upgrading may ease the exporting of their final goods and services.

Our main research questions are the following. First, are SMEs run by men managers more probable to be involved in foreign trade activities, in terms of exporting and importing, in comparison to SMEs run by women? Second, does the gender of the manager influence the impact of entrepreneurial orientation on SMEs involvement in international trade?

To answer these research questions, we use a Spanish dataset obtained from a survey of SMEs collected in 2012 representing all economic sectors. Our working sample consists on 1,405 SMEs (70% corresponding to SMEs run by male managers and 30% by female counterparts). This survey contains relevant information about personal characteristics of the manager, such as gender, age, education, and business experience, and also information regarding her/his entrepreneurial orientation, namely, proactiveness in running the business, disposition to assume risky projects, and innovativeness. This information is very important for the analysis of the gender disparities between male- and female-run SMEs in engaging in exporting and importing activities. We use quantitative methods to implement a *bivariate probit* model that allows estimating the joint probability of an SME to undertake exporting and importing activities, and explore the role of gender and entrepreneurial orientation dimensions of the manager on these propensities, accounting for other managerial traits and business features.

Our contribution to the existing literature is manifold. First, we add new empirical results to the scant literature comparing women- and men-run businesses as regards their propensity to participate in foreign trade activities, and thus, to increase the knowledge on the role played by manager gender in SMEs internationalization. As stated by existing literature, given the relevance of international trade for economic growth and the global concern about reaching equal economic opportunities for men and women, the role of gender in the internationalization process of SMEs is a relevant issue and needs further research (Akter et al., 2019; WB and WTO, 2020). Gender equality is a general goal in national and global agendas. However, due to cultural and institutional factors and the different male and female roles in society, a gender gap subsists in many areas, to women disadvantage, such as in entrepreneurship and management. By embracing a gender perspective, our work increases the understanding of the role of gender in international entrepreneurship. In particular, by recognizing that the different dimensions of entrepreneurial orientation are equally important for male- and female-run SMEs to participate in export and import activi-

ties, we might help to acknowledge the importance of women in entrepreneurship, and contribute to reduce social gender-based stereotypes that may persist concerning female entrepreneurs.

Second, those studies on SMEs internationalization that have included gender issues have mainly focused on exporting activities (Orser et al., 2010; Marques, 2015; Pergelova et al., 2018), so that the role played by gender on the decision to import resources from foreign markets remains unexplored, and this is therefore our main contribution. The work of Zimmerman and Brouters (2012) analyzes gender issues in firms' internationalization decision, but their approach does not distinguish between exporting and importing activities, and their focus is on gender heterogeneity in ownership and management teams. Our work contributes to the analysis of the part played by the manager gender on both exporting and importing decisions, considering that both decisions may be closely linked. In doing so, our study also adds to the literature examining complementarities between exporting and importing as two distinctive types of internationalization choices by firms, and the suitability to jointly studying them (e.g., Melitz, 2003; Holmlund et al., 2007; Aristei et al., 2013; Mánuez et al., 2020a, 2020b). Third, existing evidence suggests that this is the first study exploring the links between manager gender, entrepreneurial orientation (proactiveness, risk-taking and innovativeness) and SMEs' export and import decisions, so that our results provide novel empirical evidence to the literature that attempts to build a bridge between feminist theories and international entrepreneurship theories (Akter et al., 2019).

The rest of this study is organized as follows. With the aim to connect international entrepreneurship and feminism theories, a brief literature review is offered in Sect. 2. Our research hypotheses are also presented in this section. In Sect. 3 we present the data, the variables to be used in the empirical analysis and the methodology. Section 4 reports and discusses the main results. Finally, Sect. 5 presents our main conclusions and implications of our findings.

## 2 Literature review, theoretical framework and research hypotheses

Our empirical analysis is based on international entrepreneurship theories in combination with feminist theories regarding how gender and a number of managerial traits, characterizing entrepreneurial orientation, might influence business participation in international markets. International entrepreneurship deals with the study of cross-border strategies of entrepreneurs (McDougall and Oviatt, 2000; Oviatt and McDougall, 2005; Hessels, 2008). Within this field of research, two streams may be distinguished. The first looks at international new ventures, that is, new businesses that are international from foundation, also known as "born-global" start-ups (Oviatt and McDougall, 2005; Kropp et al., 2008). The second strand centers on SMEs internationalization, in particular on exporting propensity and its drivers, although other types of internationalization, such as FDI and alliances are also analyzed (Lu and Beamish, 2001). Our study belongs to this second strand, and analyzes managerial factors behind SMEs exporting and importing decisions.

The literature on international entrepreneurship considers that SMEs involvement in international activities may be considered as a form of entrepreneurship given that it is an act in pursuit of business opportunities to expand into new markets, and it entails high risk and a high degree of innovativeness (Lu and Beamish, 2001, Hessels, 2008). Consistent with this approach, a relevant stream of this literature has concentrated on the importance of the entrepreneurial orientation of the manager as a key driver of the SME's internationalization activities (Knight, 2001; Oviatt and McDougall, 2005; Romero, 2011). The concept of entrepreneurial orientation was pioneered by Miller (1983), and it is generally defined as the extent to which firms' decision-makers have a proactive attitude to pursue new market opportunities, are disposed to take risks and are prone to change and innovation within the firm (Covin and Slevin, 1988, 1989). Early views of entrepreneurial orientation postulated that these three dimensions (proactiveness, risk-taking and innovativeness) should be measured in an aggregated way to represent a unidimensional strategic positioning towards entrepreneurship (Miller, 1983; Covin and Slevin, 1989). However, a new perspective focuses on uncovering the different roles played by each dimension (Lumpkin and Dess, 1996; Kreiser et al., 2013). This approach is especially suitable for SMEs since the process of internationalization in SMEs crucially depends on the personal traits and attitudes of the manager/owner as the business decision-maker (Van Gills, 2005). Following this approach, a number of studies highlight the three dimensions of the entrepreneurial orientation that are expected to determine the SMEs involvement in international markets: proactiveness, risk-taking and innovativeness (Rauch et al., 2009; Zimmerman and Brouthers, 2012; Kreiser et al., 2013). Proactiveness means the search for new economic opportunities and the willingness to take advantage of them by expanding into foreign markets (Lumpkin and Dess, 1996; Zahra et al., 1999). Risk-taking allows the entrepreneur to face foreign markets, which are usually associated with higher risks as compared to national ones (Lu and Beamish, 2001; Leiblein and Reuer, 2004). Innovativeness also facilitates internationalization, since entry into foreign markets often requires new products or services that have to be adjusted to overseas markets (Leiblein and Reuer, 2004; Zahra et al., 2001).

Within the literature that researches international entrepreneurship, the role of gender of the entrepreneur has attracted insufficient attention. Studies such as Calás et al. (2009) and Orser et al. (2010) have stressed the need to further investigate the effect of gender on strategic decisions, such as internationalization. At this point, liberal and social feminist theories can be suitable to comprehend gender differences when analyzing SMEs propensity to get involved in international activities (Orser et al., 2010; Pergelova et al. 2018; Akter et al., 2019). Specifically, liberal feminist theories argue that, regardless the gender, managers with equal resources (and traits) should have similar export (and import) behaviors. By contrast, social feminism theories consider men and women to be constrained by the norms and rules of society. As result, women will more often own smaller, less growth- and less export-oriented businesses, so that female-run SMEs will be less prone to internationalize, as compared to businesses run by men (Fischer et al., 1993; Ahl, 2006).

Social constructionist and poststructuralist feminist theories constitute a third strand of literature. These postulate that upbringing and social interactions explain disparities among men and women (Fischer et al., 1993; Ahl, 2006). Gender is con-

sidered structural in nature and determined by the societal structure, thus leading to stereotypes on disparities in attitudes, abilities and behavioral patterns between men and women (Fischer et al., 1993). Pergelova et al. (2018) use this approach to analyze gender and international entrepreneurship, i.e., they consider that entrepreneurship is a gendered process that shapes individual assumptions concerning entrepreneurial roles of female and male managers (Eddleston and Powell, 2012; Marlow, 2014). If society considers that the role played by women is mainly connected to the family, and those principles are internalized by female managers, their proactive pursuit of market opportunities may differ with respect to males (Brush et al., 2009). Hence, the gender societal values will position women at a disadvantage regarding entrepreneurial preferences and behavior (Brush et al., 2009; Swail and Marlow, 2018; Wieland et al., 2019). Therefore, these theories argue the participation in international markets is a gendered process, so female managers are less prone to participate than males (Pergelova et al., 2018).

In summary, following liberal feminist theories, gender of the manager should not play any role on SMEs involvement in exporting and/or importing activities, and potential differences by gender may only appear due to the existence of unequal barriers (e.g., different access to financial resources or education). Conversely, social and constructionist feminist theories assert that gender disparities would remain after considering different attributes at managerial and corporate levels, since gender is a socialization construct determining managers conduct and choices. Thus, according to these theories, male managers are expected to be more prone to engage in international trade activities, as compared to female managers. Our first hypothesis is therefore:

**Hypothesis 1** *SMEs run by male managers are more prone to get involved in international trade activities (exporting and importing) than those SMEs managed by females.*

Additionally, we also consider that the three dimensions of the entrepreneurial orientation, namely, proactiveness, risk-taking, and innovativeness, will be positively associated with engagement in international activities, and this association may be influenced by gender (Runyan et al., 2006; Lim and Envick, 2013; Goktan and Gupta, 2015). Next subsections describe these three dimensions and how they may impact internationalization of the SME. The potential role of the manager's gender as determinant of this relationship is also analyzed with the aim to set further research hypotheses.

## 2.1 Proactiveness dimension

Proactiveness is one of the central dimensions characterizing entrepreneurial orientation (Covin and Slevin, 1988, 1989). In general terms, it has been commonly understood as a personal capacity to recognize opportunities (Lumpkin and Dess, 1996; Man et al., 2002), to identify future demand changes to gain competitive advantages (Zahra and Covin, 1995; Lumpkin and Dess, 2001), and to leverage opportunities through strategic planning (Gibson and Cassar, 2002). Empirical evidence shows that

proactive managers are more likely to seek business opportunities in foreign markets, thus more open to get involved in international activities (Zahra et al., 1999; Zimmerman and Brouthers, 2012). Regarding the role of gender, a number of works have documented differences between men and women regarding opportunity identification and proactiveness, although results are mixed. Entrepreneurship is associated with masculine gender role stereotypes that may have a negative impact on the evaluation of new opportunities by female entrepreneurs (Gupta et al., 2009, 2013). DeTienne and Chandler (2007) explored gender differences in identifying opportunities and found different processes for men and women. Lim and Envick (2013) and Goktan and Gupta (2015) found higher levels of proactiveness towards entrepreneurship in male students, as compared to female counterparts, whereas Runyan et al. (2006) showed no evidence of gender disparities in proactiveness of small business holders.

However, the issue of how manager gender may influence the impact of proactiveness on the firm's involvement in export and/or import activities is still unexplored. According to the social constructionist theory of gender, propensities to operate in foreign markets may differ due to different social norms and values constraining female behavior to their disadvantage (Brush et al., 2009; Wieland et al., 2019). SMEs run by female entrepreneurs are found to be less growth-oriented, so that they may be less interested in expanding into foreign markets (Cliff, 1998). In addition, there is evidence documenting that women are less confident in their entrepreneurial abilities, show greater fear of business failure and have different social networks, as compared to men (Koellinger et al., 2013). These gender differences could imply that, even with similar proactiveness, SMEs run by women managers may be less prone to get involved in international trade, as compared to those run by men. Thus, the following hypotheses need to be tested:

**Hypothesis 2a** *Managerial proactiveness is positively associated with SMEs participation in international trade activities (exporting and importing).*

**Hypothesis 2b** *A higher positive impact of managerial proactiveness on the involvement in exporting and importing activities is expected in the case of SMEs run by male managers.*

## 2.2 Risk-taking dimension

Export and/or import activities entail higher levels of uncertainty and risk compared to domestic markets, as they require collecting information about overseas markets and setting up distribution channels. The probability of business failure is greater and thus, the risk-taking profile of the manager plays a crucial role in explaining SMEs involvement in international activities (Lu and Beamish, 2001). As regards the role of gender, there is an extensive literature arguing that female SME managers have less risk-taking profiles, compared to males. Minniti (2009), Fairlie and Robb (2009), DiMauro and Musumeri (2011), Zimmerman and Brouthers (2012) and Buratti et al. (2017) argue that female managers, compared to males, show higher levels of risk aversion and this could have a negative effect on strategic business decisions, such

as internationalization. Humbert and Brindley (2015) by contrast argue that women would not see the fact of taking high risks in business as socially acceptable. Further, the works of Sonfield et al. (2001) and Croson and Gneezy (2009) document that gender does not affect the risk-taking profile of the manager.

The influence of the manager gender on the willingness to take risks as a potential driver explaining international SMEs decisions needs further research (Buratti et al. 2017). Research has documented that, on average, women are more afraid of business failure and less self-confident regarding their entrepreneurial abilities to run the business, as compared to male counterparts (Koellinger et al., 2013). There is also evidence that female-led businesses are more often found in traditional activities with high routine levels and low competition (Anna et al., 2000). Therefore, even when women entrepreneurs consider themselves as risk-takers, SMEs run by female managers may be less prone to operate in foreign markets, as compared to businesses run by men. Consequently, this study proposes the following hypotheses to be tested:

**Hypothesis 3a** *Managerial willingness to take risks is positively associated with SMEs participation in international trade activities (exporting and importing).*

**Hypothesis 3b** *A higher positive impact of managerial willingness to take risks on the involvement in exporting and importing activities is expected in the case of SMEs run by male managers.*

### 2.3 Innovativeness dimension

Competitive advantages acquired by innovating facilitate internationalization (Love and Roper, 2015; Love et al. 2016; Martineau and Pastoriza 2016). In particular, the works of Damijan and Kostevc (2015) and Feng et al. (2016) provide evidence on how innovation, exports and imports are interrelated in the case of SMEs. Regarding the role of gender, recent studies such as Marvel et al. (2015), Buratti et al. (2017), Dohse et al. (2019), Na and Shin (2019) and Expósito et al. (2021) address the issue of gender and business innovativeness. Buratti et al. (2017) argue that women managers tend to adopt a more conservative approach in business than men, being less prone to invest in innovation activities. In this same line, Marvel et al. (2015) show evidence of a higher propensity of men managers to spend on R&D and to patent, in comparison to women managers, though the gender-innovation relationship is also influenced by other factors, such as the sector and the existence of cooperation agreements with other business agents. Dohse et al. (2019) find that women managers are less prone to introduce product innovations than men counterparts, and Na and Shin (2019) report that women managers register lower probabilities to introduce product, process and organizational innovations in their businesses. The work of Expósito et al. (2021) shows that male managers of SMEs have a higher propensity to implement process innovation than females, while no gender differences are found in the case of product and organization innovations. Conversely, the work of Khan et al. (2021) shows that female representation in managing boards brings higher levels of creativity and strives innovation.

From the literature review, business innovativeness might be linked to the manager gender and their internationalization orientation (Marvel et al., 2015). Existing evidence suggests that female-led businesses are more often concentrated in traditional activities associated with low growth, high routines, and low opportunities for international expansion (Anna et al., 2000; Marlow and McAdam, 2013). Regarding high technological sectors, the work of Orser et al. (2012) has documented the perceived obstacles to career development specific to women, which may explain their low presence in these sectors. In addition, differences in social upbringing may determine different preferences regarding education, so that male entrepreneurs will more often hold degrees in engineering and technical fields, and concentrate in high tech activities, which are usually linked to higher degrees of innovativeness and international orientation (Marvel et al., 2015). Hence, even with analogous levels of innovativeness, male managers may be more prone to get involved in international trade, as compared to women. However, the role of gender in the innovativeness profile of the manager and its effect in the firm's participation in exporting and importing activities is an insufficiently explored issue. Hence, we propose to test the following hypotheses:

**Hypothesis 4a** *Managerial innovativeness is positively associated with the SMEs participation in international trade activities (exporting and importing).*

**Hypothesis 4b** *A higher positive impact of managerial innovativeness on SMEs involvement in exporting and importing activities is expected in the case of SMEs run by male managers.*

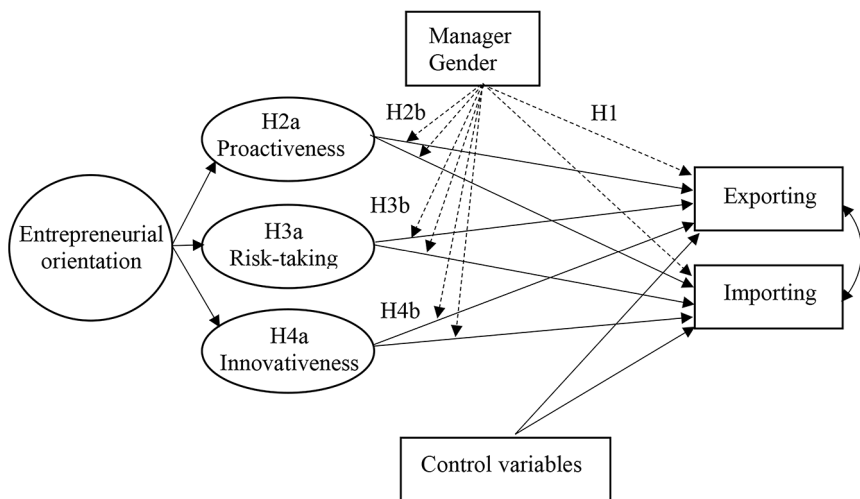


Fig. 1 Theoretical framework and hypotheses

In summary, this study aims not only to test whether these three entrepreneurial orientation traits of the manager are associated with SMEs involvement in international trade activities (Hypotheses 2a, 3a and 4a), but also to clarify whether the gender of the manager influences the chances of SMEs to get involved in exporting and importing activities (Hypothesis 1), and whether the relationship of entrepreneurial orientation traits and international trade involvement is affected by the gender of the manager (Hypotheses 2b, 3b and 4b). Figure 1 illustrates our conceptual framework and research hypotheses.

### 3 Data and methodology

#### 3.1 Data and working sample

Data used in this study come from a Spanish survey on SMEs competitiveness elaborated in 2012. The survey collects retrospective information for many variables of interest regarding innovation and internationalisation strategies on the previous three years. The firm population in the survey was stratified by size and sector according to the standards of the Central Directory of Firms (National Institute of Statistics in Spain). The survey reached a 20.8% response rate and no bias was observed comparing firms that responded and those that did not. The sample, corresponding to 41% of Spanish SMEs in 2012, is composed of businesses employing less than 250 workers and a sales turnover below 50 million euros, and operating in 6 Spanish communities (representing the northern, central and southern regions). This distribution has not significantly changed in the last decade (41.9% in 2019, last data available from the Spanish Central Directory of Firms).

This sample of SMEs is interesting for at least two reasons. First, Spain is an advanced economy where SMEs are very important in terms of value added and employment (European Commission, 2018). Secondly, gender inequality regarding labour participation and economic opportunities is still an issue in Spain. Although in the last decade Spain has experienced a considerable improvement towards gender equality in many aspects of society, gender equality regarding labour and economic participation in Spain is still low, and lags behind many other European countries. For instance, the Global Gender Gap Report (World Economic Forum, 2021) indicates that the sub-index of Economic Participation and Opportunity in Spain has experienced only a modest improvement during the last decade, increasing from a score of 0.65 (75th position) in 2012 up to 0.69 in 2020 (71st position). Hence, Spain still remains behind many other economies in Europe, such as Germany, France, United Kingdom, The Netherlands and in particular the Scandinavian countries, among others, in gender equality regarding economic and business participation. In addition to have a large number of businesses, which allow us to compare men versus women-led businesses strategies and international orientation, the survey has the advantage of including information on a number of attributes of the main decision-maker of the business (typically the entrepreneur or the general manager). The questionnaire was responded by the individual in charge of making major decisions. Since most of the businesses in the sample are microbusinesses, with less than ten employees, we may

consider that the manager is also the entrepreneur.<sup>1</sup> The information includes personality traits, such as proactive attitude, risk-taking, innovativeness, and also other socio-demographic attributes, such as gender, age, immigrant status, experience and education. Furthermore, the survey also gathers business characteristics information, such as business age, size, ownership form, main industrial activity, location, etc.

After filtering the data of missing values, our working sample corresponds to 1,405 SMEs. Out of these, 422 are women-led SMEs (around 30%), and 983 are men-led SMEs (70%). Thus, in the working sample, for each woman who qualifies as manager in an SME there are 2.33 men. This average ratio is similar to the ratio reported in the Spanish official statistics (Spanish Ministry of Industry, Energy and Tourism, 2013) and is comparable to other works. For instance, Koellinger et al. (2013), comparing men and women entrepreneurial propensities for 17 countries from 2001 to 2006, report that the average ratio of men entrepreneurs to women was 2.15.

### 3.2 Dependent variables

We analyse two variables, *Export* and *Import*, corresponding to two dummy variables indicating whether the business exports to foreign markets services or final goods, and imports from foreign suppliers' inputs, respectively.

### 3.3 Independent variables

We measure *Gender* using a binary variable taking the value of one if the manager (or major decision-maker of the business) is a man, and value of zero if it is a woman. The entrepreneurship literature has extensively established the difference between sex, determined by a biological category, and gender, as a social structure of feminine and masculine traits that fits with male and female individuals (Brush et al., 2009; Goktan and Gupta, 2015). However, the usual procedure for gender-based investigation is the analysis of data by sex. Hence, we consider the biological sex of the main decision-maker in the business to account for gender and to examine gender disparities. To test the hypotheses specified above, we construct a number of relevant variables using the information provided by the questionnaire. The information available allows us to measure the three dimensions of entrepreneurial orientation regarding the personal traits of the manager, namely, proactiveness, risk-taking and innovativeness (Covin and Slevin, 1988, 1989).<sup>2</sup> In relation to proactiveness, the manager is asked to state whether she/he regularly searches for new markets and new economic opportunities. Using this information, we construct a dichotomous variable conveying than the manager holds a *Proactive attitude*. As regards risk-taking, managers are requested to report their predisposition to start high risk and high expected returns

<sup>1</sup> However, the survey does not provide information on whether the manager of the business is also its owner, nor on the number of owners. There is no information either regarding the composition of the directors' board. Therefore, due to data limitation we are unable to investigate gender diversity issues.

<sup>2</sup> Unfortunately, we are unable to quantify entrepreneurial orientation in an aggregated manner using the nine items that are typically evaluated on a 7-point Likert-type scale (Covin and Slevin, 1989). Instead, we construct a number of variables to measure the three dimensions of entrepreneurial orientation: proactiveness, risk-taking and innovativeness.

projects, from which we construct the variable *High risk-taking* as a variable taking value one when the manager reports a high willingness to take risks. Finally, regarding the third dimension of entrepreneurial orientation, *Innovativeness*, the questionnaire also provides information regarding innovation activities carried out by the business. In particular we construct two variables capturing managerial innovativeness. The first one is a variable indicating that firm has implemented process, product and organizational innovations in the last three years (*Innovation output*). The second is a variable indicating engagement in R&D expenditures (*R&D engagement*).

### 3.4 Control variables

In line with the literature, we also account for other managerial trait and business features that might affect the propensity to participate in foreign markets. Manager immigrant status, age, educational level and years of experience have been considered as drivers of SMEs internationalization (Orser et al., 2010; Olivari, 2016; Ramón-Llorens et al., 2017; Expósito and Sanchis-Llopis, 2018, 2019). Those managers with an immigrant origin are more prone to participate in foreign activities, since they have special capabilities such as knowledge of foreign languages and markets (Orser et al., 2010; Kotorri and Krasniqi, 2018; Villares-Varela and Essers, 2019). The age of the manager is relevant, since younger managers may be more disposed to follow internationalization strategies, in comparison to older ones (Martínez-Roman and Romero, 2017). Those managers with accumulated experience are more likely to undertake cross-border actions (Saunila, 2016). We also account for the managerial education level since higher education enhances the skills to operate in foreign markets (Hsu et al. 2013; Ramón-Llorens et al. 2017; Gashi et al., 2014; Kotorri and Krasniqi, 2018).

As regards firm's characteristics, we control for size and age, since larger and older businesses are usually more prone to get involved in cross-border activities, as these firms are more capable to perceive business opportunities and to develop networks and knowledge to operate in foreign markets (Melitz, 2003; Marques, 2015; Expósito and Sanchis-Llopis, 2019). According to Stiglitz and Weiss (1981), managers in limited liability businesses are more prone to take risky decisions and thus to get involved in new business developments, such as internationalization. Family business are more prone to get involved in export/import activities, as they are more able to assume the long-run profits of internationalization than other firms (Minetti et al., 2015; Ramón-Llorens et al., 2017). The firm's ability to set cooperation networks with other agents and build relations through the participation in business groups and exhibitions may also play a relevant part in explaining exporting and importing (Kotorri and Krasniqi, 2018; Expósito and Sanchis-Llopis, 2019). Finally, we also include regional and sectoral dummies with the aim to consider the effect of institutional and other external factors (Romero, 2011; Turro et al., 2016). We define all variables used in our analysis in Table A1 as Appendix.

### 3.5 Methodology

Our empirical model considers that SMEs choose to export and/or import in a given year when the returns related with exporting and/or importing plus the discounted expected future revenues from those activities in year  $t$  exceed their costs. Companies planning to export will have to bear certain costs, such as creating proper distribution and advertising channels, and adapting its products to the quality and security standards of overseas markets. In addition, importing intermediate inputs may require searching for the best supplier or incurring investments to obtain superior quality inputs, or importing overseas technologies integrated in intermediate inputs (Bustos, 2011). To motivate the company's export/import decision, we rely on Kasahara and Lapham (2013) who extended the influential paper by Roberts and Tybout (1997) on the decision to export. Our specification will allow testing the hypotheses established in Sect. 2.

We specify the exporting and importing decisions using a methodology that allows (but does not impose) these strategies to be related. In particular, to jointly analyse SMEs exporting and importing decisions we use a discrete choice model (bivariate choice model) for the two internationalisation decisions. The likelihood of each decision in year  $t$  is specified as follows,

$$\begin{aligned} \text{Export}_i &= \begin{cases} 1 & \text{if } \beta_0^{\text{export}} + \beta_1^{\text{export}} X_i + \beta_2^{\text{export}} Z_i + e_i^{\text{export}} \geq 0 \\ 0 & \text{otherwise} \end{cases} \\ \text{Import}_i &= \begin{cases} 1 & \text{if } \beta_0^{\text{import}} + \beta_1^{\text{import}} X_i + \beta_2^{\text{import}} Z_i + e_i^{\text{import}} \geq 0 \\ 0 & \text{otherwise} \end{cases} \end{aligned} \quad (1)$$

where  $i$  refers to the firm; the variable *Export* (*Import*) is a dichotomous variable taking value 1 if the firms sells (buys) in international markets, and zero otherwise;  $X_i$  is a vector of individual managerial traits including gender, entrepreneurial orientation, among further attributes; and  $Z_i$  is a vector of firm's features that can affect the decision to trade in international markets, including size, age, industry and region, among others. Finally,  $e_i$  represents the error term.

The *bivariate probit* specification allows the export and import choices to be correlated.<sup>3</sup> This correlation might arise from substitutabilities or complementarities between the two choices. Should there exist a significant correlation, then estimating a separate *probit* specification for the decisions to export and import would be inefficient. We estimate the *bivariate probit* using the simulated maximum-likelihood two-equation *probit* models procedure employing the Geweke-Hajivassiliou-Keane (GHK) smooth recursive simulator to calculate the maximum likelihood.

<sup>3</sup> This model does not enforce that the two choices are necessarily linked; instead, it considers that firms may implement different export and import decisions. Thus, some firms may only export, some firms may only import, and some others may do both.

## 4 Results

### 4.1 Descriptive statistics

We start providing descriptive statistics of our sampled businesses. In Table 1 we report the mean and standard deviation of the variables we use in our study, differentiating between those SMEs run by men (70%) and those run by women (30%). In the final column we report the statistical significance of the mean values for all variables used in the study. It emerges that there are not gender dissimilarities in the percentage of companies exporting goods or services to foreign markets (comparing those businesses run by men with those run by women), but we find statistical differences for importing activities, so that 26.7% of businesses run by men import inputs from abroad, whereas this figure is 21.6% for businesses run by women.

As regards the three dimensions of the entrepreneurial orientation of the manager, we observe several differences by gender. First, regarding proactiveness, we observe that the percentage of managers holding a proactive attitude is high for both sexes, although it is slightly higher for women, in comparison to men (70% and 67%, respectively), and the gender difference is not statistically significant. Second, the percentage of male managers reporting a high willingness to take risks is greater than the one of female counterparts (11.7% and 10.4%, respectively), and the difference is not statistically significant. Third, regarding innovativeness, we find that the percentage of male managers introducing process, product and organizational innovations is higher than the percentage of female counterparts, 13.1% and 7.8%, respectively, being this difference statistically significant; and that engagement in R&D activities is also higher for male managers than for female ones (3.4% and 2.7%, respectively), but this difference is not statistically significant.

In relation to variables capturing other personal traits, we also observe statistical differences by gender. The percentage of female managers having an immigrant origin is greater than male counterparts (4.7% and 1.6%, respectively), and also regarding tertiary education (53% and 45%, respectively). However, male managers are on average older (48) than female ones (44), and have on average more years of managerial experience (18.1 versus 13.5 years).

Regarding business characteristics, there are more limited liability business among SMEs run by men (19.2%) than in businesses run by women (15.2%); SMEs run by men have more collaboration agreements for commercialization and distribution (22% versus 18%), participate more in business exhibitions (76% versus 68%), and their businesses are older (18.5 versus 15.4 years). Finally, we observe that the size of SMEs run by women tend to be small since 90.5% of them are micro-businesses with less than ten employees, whereas this percentage is 87.1% in the case of men led businesses.

Table 1 also presents the distribution of SMEs across industries, that is similar to the distribution of SMEs by industry and size using national statistics (Spanish Ministry of Industry, Energy and Tourism, 2013). By gender, nearly 52% of businesses operated by women are in the services sector (47% in the case of men); as regards manufacturing and real estate and construction, there is a greater percentage of men

**Table 1** Means and standard deviations for all variables by manager gender

	Male		Female		Difference
	Mean	s.d.	Mean	s.d.	
<b>Internationalization strategies</b>					
<i>Export</i>	0.193	0.395	0.180	0.385	0.013
<i>Import</i>	0.267	0.442	0.216	0.413	0.051**
<b>Entrepreneurial orientation</b>					
<i>Proactive attitude</i>	0.671	0.470	0.704	0.457	-0.032
<i>High risk-taking</i>	0.117	0.322	0.104	0.306	0.013
<i>Innovation output</i>	0.131	0.338	0.078	0.269	0.053***
<i>R&amp;D engagement</i>	0.034	0.095	0.027	0.078	0.007
<b>Other managerial traits</b>					
<i>Immigrant status</i>	0.016	0.127	0.047	0.213	-0.031***
<i>Tertiary education</i>	0.447	0.500	0.531	0.500	-0.054*
<i>Age of the manager</i>	48.030	9.911	44.320	8.761	3.713***
<i>Managerial experience</i>	18.142	10.395	13.542	8.798	4.599***
<b>Business characteristics</b>					
<i>Family business</i>	0.232	0.422	0.235	0.424	0.003
<i>Public limited company</i>	0.192	0.394	0.152	0.359	0.041*
<i>Part of a group</i>	0.084	0.278	0.078	0.269	0.006
<i>Collaboration in commercialization</i>	0.218	0.413	0.175	0.381	0.042*
<i>Participation in business exhibitions</i>	0.755	0.430	0.680	0.467	0.075***
<i>Age of Business</i>	18.496	14.398	15.36	11.259	3.138***
<i>Micro business (1–9 employees)</i>	0.871	0.336	0.905	0.293	-0.034*
<i>Small business (10–49 employees)</i>	0.112	0.315	0.085	0.280	0.027
<i>Medium business (50–250 employees)</i>	0.017	0.130	0.009	0.091	0.008
<b>Business sector</b>					
<i>Manufacturing</i>	0.117	0.322	0.088	0.283	0.029
<i>Real estate and construction</i>	0.159	0.366	0.128	0.334	0.031

Table 1 (continued)

	Male		Female		
<i>Commercial</i>	0.250	0.434	0.265	0.442	-0.015
<i>Services</i>	0.474	0.500	0.519	0.500	-0.045
<i>Number of observations</i>	983		422		

Note: \*\*\*, \*\* and \* mean that the difference between the mean for men and women is statistically significant at the 1%, 5% and 10% levels, respectively

managers, whereas the share of men and women managers in the commercial sector is similar.

Table 2 provides information regarding the number of SMEs with exporting and importing activities classified by sectors. We observe that exporters and importers are more prominent in the manufacturing sector (32.23% and 40.79%, respectively). However, SMEs in other sectors are also active in international trade activities. The percentage of importers is higher in the commercial sector, where a 42.18% of SMEs report importing activities. In the services sector, exporting is undertaken by a 20.58% of SMEs, whereas importing activities is reported by a 17.66%. The sector with a lower involvement in international trade is the real estate and construction, with only 8.10% and 9.05% of exporters and importers, respectively.

Finally, we also address potential multicollinearity concerns. In Table 3 we report the Pearson correlation matrix to test for multicollinearity. We notice that correlation between the pairs is low and not significant. Since the correlation coefficients are not high enough ( $>0.80$ ), we may state that the empirical method we carry out does not suffer from multicollinearity problems. Further, we also report the Variance Inflation Factor (VIF) test. We observe that all VIFs are inferior (or equal) than 2, so that the results are estimated without a bias related to multicollinearity.

## 4.2 Regression results

This paper explores how SMEs' choices to export and/or import may be interrelated and jointly determined by the manager gender, both directly and indirectly through personal traits related to its entrepreneurial orientation, measured across three dimensions: proactiveness, risk-taking and innovativeness.

Our estimation results are presented in Tables 4 and 5. In all cases, the coefficients of importance are those associated with gender variables. The tables set out the estimation results of the *bivariate probit* model regarding the firm's probability to participate in exporting and/or importing activities, allowing these two strategic decisions to be correlated. Before examining the results, it should be noted that the correlation between these activities (coefficients  $\rho$ ) is statistically significant and positive in all

**Table 2** Exporters and importers by sectors

Sector	Total SMEs		Exporters		Importers	
	Number of SMEs	(%)	Number of SMEs	(% within sector)	Number of SMEs	(% within sector)
<i>Manufacturing</i>	152	10.82	49	32.23	62	40.79
<i>Real estate and construction</i>	210	14.95	17	8.10	19	9.05
<i>Commercial</i>	358	25.48	59	16.48	151	42.18
<i>Services</i>	685	48.75	141	20.58	121	17.66
<b>Total SMEs</b>	1405	100	266		353	

Note: The percentages in the columns of exporters and importers are calculated over the number of SMEs within each sector

Table 3 Correlations of main independent variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<i>Part A: Pairwise correlation coefficients</i>																	
1. Gender of manager	1																
2. Proactive attitude	-0.03	1															
3. High risk-taking	0.02	0.03	1														
4. Innovation output	0.08***	0.14***	0.02	1													
5. R&D engagement	0.04	0.12***	0.10***	0.11***	1												
6. Immigration status	-0.09***	0.01	0.00	-0.02	0.03	1											
7. Tertiary education	-0.05**	0.13***	-0.05*	0.03	0.05*	0.03	1										
8. Age of the manager	0.17***	-0.11***	0.01	-0.09***	-0.03	0.02	-0.09***	1									
9. Managerial experience	0.21***	-0.08***	0.05**	-0.01	-0.01	-0.08***	-0.18***	0.61***	1								
10. Family business	0.00	-0.02	0.02	-0.01	-0.04	-0.06**	-0.12***	-0.07**	0.10***	1							
11. Public limited company	0.05*	0.07***	-0.01	0.07**	-0.01	-0.04	0.10***	0.14***	0.18***	0.18***	1						
12. Part of a business group	0.01	0.08***	0.03	0.04	0.02	-0.02	0.04	0.04	0.01	-0.03	0.11***	1					
13. Collaboration in commercialization	0.05**	0.11***	0.08***	0.11***	0.07***	0.04	0.04	0.01	0.01	-0.03	0.10***	0.10***	1				
14. Participation in business exhibitions	0.08***	0.14***	0.02	0.08***	0.07**	-0.01	0.04	0.04	0.11***	0.02	0.05*	0.03	0.10**	1			

Table 3 (continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>15. Age of business</b>	0.11***	-0.06**	0.01	0.00	-0.03	-0.08***	-0.03	0.30***	0.47***	0.25***	0.42***	0.01	0.02	0.06**	1		
<b>16. Size small</b>	0.04*	0.08***	0.01	0.10***	0.05**	-0.01	0.09***	0.05**	0.08***	0.04	0.27***	0.06**	0.05*	0.04	0.15***	1	
<b>17. Size medium</b>	0.03	0.05*	0.03	0.08***	0.00	-0.02	0.05*	0.03	0.04	-0.01	0.07***	0.02	0.01	0.01	0.08***	-0.04	1
<b>Part B: Variance Inflation Factor (VIF), diagnostic on multicollinearity.</b>																	
<b>VIF</b>	1.07	1.09	1.02	1.07	1.04	1.03	1.09	1.71	2.00	1.14	1.36	1.03	1.06	1.06	1.60	1.12	1.03

Notes:

1. Pearson's correlation matrix

2. \*\*\*, \*\* and \* indicate significant at 1%, 5% and 10%, respectively

specifications. This corroborates that exporting and importing activities are positively linked, and the convenience of jointly estimating these two strategic decisions.

Specification 1 in Table 4 only includes the gender of the manager (a dichotomous variable taking value one when the manager is a man). Specification 2 adds the rest of explanatory variables. In both specifications we observe that the manager's gender does not affect the probability of exporting, but has a significant and positive effect on the likelihood of importing, even after accounting for all other managerial and business attributes. Thus, Hypothesis 1 is only validated in the case of the propensity to import.

Regarding the entrepreneurial orientation of the manager, we observe that the three dimensions (having a proactive attitude, high risk-taking and innovativeness, captured through innovation outputs and R&D engagement) are positive and significantly associated with exporting. We also observe that high risk-taking and innovation output have no impact on the probability of importing from foreign markets. The innovation output, that refers to the innovations implemented by the firm in the last three years, enables to estimate the relationship between innovation output and exporting and importing propensities, considering that innovativeness is a driver of future participation in foreign markets. Thus, Hypotheses 2a, 3a and 4a are validated regarding the propensity of exporting, and only partially validated as regards to the propensity of importing.

As regards the control variables, starting with managerial traits, we obtain that the immigrant status of the manager has a significant and positive impact on both the propensity of exporting and importing, whereas education, experience and age have no impact on either exporting or importing. Regarding business characteristics, we observe that being a family business, having agreements of collaboration in commercialization with other businesses, and being small (micro firm is used as reference), are factors that positively and significantly affect the probability of exporting, whereas being a public limited company, being part of a business group, participating in business exhibitions and the age of the business are characteristics positively and significantly associated with the propensity of importing.

Table 5 reports the *bivariate probit* estimates of the export and import decisions where we expand the model to consider in a parsimonious way the interaction of gender with the variables that capture the entrepreneurial orientation of the manager. We observe that the coefficient of gender is never significant for the export decision. In addition, none of the coefficients regarding the interacted terms of gender with the different traits capturing entrepreneurial orientation are statistically significant. These results indicate that manager gender has no impact on SMEs propensity of exporting (either in a direct or indirect way by influencing the entrepreneurial orientation dimensions).

However, we note that the coefficient for gender is positive and significant for importing in all specifications, with the exception of the specification regarding the interaction of gender with proactiveness attitude. Thus, gender has a direct and positive effect on the likelihood of importing, so that male managers are more prone to get involved in importing activities, as compared to female counterparts. In addition, none of the coefficients regarding the interacted terms of gender with the variables capturing entrepreneurial orientation are statistically significant. Hence, as in the case

**Table 4** Bivariate probit estimates of export and import decisions

Dependent variable	Specification 1		Specification 2	
	Export	Import	Export	Import
<b>Gender and Entrepreneurial Orientation</b>				
<i>Gender of manager</i>	0.051 (0.085)	0.165** (0.081)	0.053 (0.094)	0.188** (0.091)
<i>Proactive attitude</i>			0.725*** (0.107)	0.380*** (0.093)
<i>High risk-taking</i>			0.209* (0.125)	0.110 (0.122)
<i>Innovation output</i>			0.221* (0.122)	0.035 (0.121)
<i>R&amp;D engagement</i>			0.834** (0.412)	1.343*** (0.397)
<b>Other managerial traits</b>				
<i>Immigrant status</i>			0.400* (0.238)	0.508** (0.240)
<i>Tertiary education</i>			0.079 (0.087)	0.039 (0.084)
<i>Age of the manager</i>			0.325 (0.253)	0.115 (0.249)
<i>Managerial experience</i>			-0.111 (0.076)	-0.056 (0.074)
<b>Business characteristics</b>				
<i>Family business</i>			0.203* (0.104)	-0.037 (0.101)
<i>Public limited company</i>			0.049 (0.125)	0.284** (0.119)
<i>Part of a business group</i>			0.068 (0.144)	0.254* (0.136)
<i>Collaboration in commercialization</i>			0.258*** (0.097)	0.106 (0.095)
<i>Participation in business exhibitions</i>			-0.019 (0.098)	0.373*** (0.099)
<i>Age of business</i>			0.105 (0.070)	0.197*** (0.069)
<i>Small size</i>			0.333** (0.132)	0.177 (0.131)
<i>Medium size</i>			0.241 (0.298)	-0.145 (0.306)
<b>Constant</b>	-0.916*** (0.071)	-0.788*** (0.068)	-2.607*** (0.906)	-1.852** (0.880)
<b>Observations</b>	1405		1405	
$\rho_{\text{export import}}$	0.464***		0.452***	

**Table 4** (continued)

	Specification 1	Specification 2
	(0.043)	(0.060)
<i>LR test of rho = 0:</i>	94.168	56.486
<i>Chi<sup>2</sup>(1)</i>		
<i>Prob &gt; Chi<sup>2</sup></i>	0.000	0.000

Notes: 1. Gender of the manager is a dichotomous variable with value of 1 if the manager is man, and value 0 if it is a woman

2. \*\*\*, \*\*, \* mean statistical significance at the 1%, 5%, and 10% levels, respectively

3. Standard errors are reported in parentheses

4. In specification 2, we include dummy variables for sector and region

of exporting propensity, we obtain that gender has no influence on the entrepreneurial orientation traits of the manager as drivers of importing activities. Thus, Hypotheses 2b, 3b and 4b are not validated since the results of Table 5 show no role for gender in the effect of entrepreneurial orientation on the propensities of exporting and importing, indicating that the three dimensions of entrepreneurial orientation are drivers of foreign market participation regardless of manager gender. Regarding the estimated coefficients for the control variables, we find similar results to those shown in Table 4.

Finally, we perform several additional analyses to illustrate that the results presented are robust to different estimation methods and to alternative sample selection of SMEs. First, we complement our analysis by exploiting the information provided by the survey as regards the intensity in exporting (as a percentage with respect to total sales) and importing (as a percentage with respect to total purchases from suppliers), with six possible ordered values that account for the percentage range of firms' exports (imports). To jointly analyze export and import intensities, we estimate the specification (1) above, using the ordered intensities for both variables instead of the binary dummy variables (*export* and *import*). Thus, the alternative specification we use is a bivariate discrete multinomial ordered choice model estimated by pseudo-simulated maximum likelihood (Roodman, 2011). The estimating results we obtain are similar to the ones presented in Tables 4 and 5 for exporting and importing propensities, and in particular as regards the role of gender.<sup>4</sup>

Lastly, our results are also robust to an alternative sample selection of SMEs. A subsample of firms active in the market for at least three years (i.e., established SMEs) has been selected to carry out a similar analysis. These businesses have overcome the difficulties related to the start-up phase, which may be harder for female entrepreneurs, as documented in the literature (Koellinger et al., 2013). This analysis shows similar results, especially when we look at the role of gender and its interactions with the entrepreneur orientation traits. Therefore, our empirical results are robust to excluding nascent SMEs.

<sup>4</sup> For brevity, we do not present these results, but they are available from the authors upon request.

**Table 5** Bivariate probit estimates of export and import decisions. Expanded model with gender interacted terms

Dependent variable	<i>Gender interaction with proactive attitude</i>		<i>Gender interaction with high risk-taking</i>		<i>Gender interaction with innovation output</i>		<i>Gender interaction with R&amp;D engagement</i>	
	Export	Import	Export	Import	Export	Import	Export	Import
<b>Gender and Entrepreneurial Orientation</b>								
<i>Gender of manager</i>	-0.105 (0.203)	0.032 (0.173)	0.045 (0.099)	0.220** (0.097)	0.055 (0.100)	0.163* (0.096)	0.068 (0.100)	0.213** (0.097)
<i>Gender*Proactive attitude</i>	0.201 (0.226)	0.212 (0.200)	-	-	-	-	-	-
<i>Gender*High risk-taking</i>	-	-	0.071 (0.283)	-0.279 (0.274)	-	-	-	-
<i>Gender*Innovation output</i>	-	-	-	-	-0.009 (0.288)	0.235 (0.295)	-	-
<i>Gender*R&amp;D engagement</i>	-	-	-	-	-	-	-0.422 (0.966)	-0.697 (0.959)
<i>Proactive attitude</i>	0.583*** (0.191)	0.227 (0.171)	0.726*** (0.107)	0.380*** (0.093)	0.725*** (0.107)	0.381*** (0.093)	0.724*** (0.107)	0.378*** (0.093)
<i>High risk-taking</i>	0.210* (0.124)	0.109 (0.122)	0.156 (0.244)	0.315 (0.234)	0.209* (0.125)	0.112 (0.122)	0.213* (0.125)	0.115 (0.122)
<i>Innovativeness</i>	0.219* (0.122)	0.034 (0.121)	0.222* (0.122)	0.031 (0.122)	0.228 (0.256)	-0.152 (0.265)	0.220* (0.122)	0.034 (0.121)
<i>Engagement in R&amp;D</i>	0.838** (0.412)	1.350*** (0.397)	0.827** (0.413)	1.370*** (0.398)	0.834** (0.412)	1.348*** (0.397)	1.160 (0.845)	1.893** (0.857)
<b>Other managerial traits</b>								
<i>Immigrant status</i>	0.406* (0.238)	0.520** (0.240)	0.399* (0.238)	0.512** (0.239)	0.401* (0.239)	0.495** (0.240)	0.401* (0.238)	0.509** (0.240)
<i>Tertiary education</i>	0.077 (0.087)	0.036 (0.084)	0.078 (0.087)	0.042 (0.084)	0.079 (0.087)	0.037 (0.084)	0.077 (0.087)	0.036 (0.084)
<i>Age of the manager</i>	0.318 (0.253)	0.111 (0.249)	0.325 (0.253)	0.111 (0.249)	0.324 (0.253)	0.124 (0.249)	0.318 (0.254)	0.104 (0.249)
<i>Managerial experience</i>	-0.111 (0.075)	-0.056 (0.074)	-0.111 (0.076)	-0.054 (0.074)	-0.111 (0.076)	-0.057 (0.074)	-0.110 (0.076)	-0.054 (0.074)
<b>Business characteristics</b>								
<i>Family business</i>	0.203* (0.104)	-0.037 (0.101)	0.203* (0.104)	-0.038 (0.101)	0.203* (0.104)	-0.034 (0.101)	0.203* (0.104)	-0.037 (0.101)
<i>Public limited company</i>	0.050 (0.125)	0.287** (0.119)	0.051 (0.125)	0.281** (0.119)	0.050 (0.125)	0.281** (0.119)	0.053 (0.126)	0.290** (0.119)

Table 5 (continued)

	<i>Gender interaction with proactive attitude</i>		<i>Gender interaction with high risk-taking</i>		<i>Gender interaction with innovation output</i>		<i>Gender interaction with R&amp;D engagement</i>	
<i>Part of a business group</i>	0.070	0.260*	0.067	0.257*	0.068	0.252*	0.069	0.257*
	(0.144)	(0.136)	(0.144)	(0.136)	(0.144)	(0.136)	(0.144)	(0.136)
<i>Collaboration in commercialization</i>	0.258***	0.105	0.258***	0.108	0.258***	0.109	0.256***	0.103
	(0.097)	(0.095)	(0.097)	(0.095)	(0.098)	(0.095)	(0.098)	(0.096)
<i>Participation in business exhibition</i>	-0.021	0.368***	-0.019	0.372***	-0.019	0.378***	-0.017	0.377***
	(0.099)	(0.099)	(0.098)	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)
<i>Age of business</i>	0.106	0.198***	0.104	0.200***	0.105	0.197***	0.105	0.195***
	(0.070)	(0.069)	(0.070)	(0.069)	(0.070)	(0.069)	(0.070)	(0.069)
<i>Small size</i>	0.334**	0.179	0.333**	0.176	0.334**	0.173	0.333**	0.179
	(0.132)	(0.131)	(0.132)	(0.131)	(0.132)	(0.131)	(0.132)	(0.131)
<i>Medium size</i>	0.245	-0.142	0.238	-0.134	0.241	-0.143	0.241	-0.146
	(0.298)	(0.306)	(0.298)	(0.306)	(0.298)	(0.305)	(0.298)	(0.306)
<b>Constant</b>	-2.468***	-1.720*	-2.599***	-1.868**	-2.605***	-1.869**	-2.594***	-1.827**
	(0.920)	(0.888)	(0.907)	(0.880)	(0.906)	(0.880)	(0.907)	(0.880)
<b>Observations</b>		1405	1405		1405		1405	
<i><math>\rho_{export\_import}</math></i>		0.451***	0.453***		0.452***		0.452***	
		(0.060)	(0.060)		(0.060)		(0.060)	
<b>LR test of <math>\rho = 0</math>: <math>Chi^2(1)</math></b>		56.295***	56.762***		56.555***		56.308***	
<b><math>Prob &gt; Chi^2</math></b>		0.000	0.000		0.000		0.000	

Notes: 1. Gender of the manager is a dichotomous variable with value of 1 if the manager is man, and value 0 if it is a woman

2. \*\*\*, \*\*, \* mean statistical significance at the 1%, 5%, and 10% levels, respectively

3. Standard errors are reported in parentheses

4. We include dummies for sector and region in all specifications

### 4.3 Discussion of results

Our results show that the manager's gender does not play a role as a determinant of SMEs exporting propensity, consistent with results obtained by Westhead et al. (2001) and Ramón-Llorens et al. (2017). However, we obtain that SMEs led by male managers show a higher propensity to import from abroad, as compared to SMEs led by female counterparts, even after controlling for entrepreneurial orientation, other managerial personal traits and businesses characteristics. This finding is an important contribution to the literature on international entrepreneurship since the role of manager gender in the propensity to foreign sourcing has not been analyzed in the literature so far.

From a feminist theoretical perspective, the lower involvement of female managers in foreign sourcing is in line with feminist theories, alleging that gender is a socialization construct limiting and restraining managerial women behavior, so that gender disparities in international activities may persist even after accounting for

differences in manager and business characteristics (Fischer et al., 1993; Ahl, 2006). According to liberal feminist theories, the existence of discrimination or structural barriers for women (compared to men) would constrain female managers to get involved in import activities (e.g., barriers related to human capital and access to business networks). Conversely, social and constructionist feminist theories would argue that the lower import propensity among female managers is due to socio-cultural norms and values constraining female behavior to their disadvantage (Brush et al., 2009; Wieland et al., 2019).

In line with the existing literature, our results suggest that the different dimensions of entrepreneurial orientation, related to proactiveness, risk-taking and innovativeness, are important drivers for participating in international trade activities (Lu and Beamish, 2001; Knight, 2001; Zimmerman and Brouthers, 2012; among others). Our results contribute to this literature by showing that entrepreneurial orientation of the manager and the business propensities to export and import do not depend on the gender of the manager, so that entrepreneurial orientation is equally important for men- and women-led SMEs regarding both international decisions.

Our results also suggest that exporting and importing propensities of SMEs are interrelated, and that these two decisions ought to be analyzed jointly. Hence, our work also adds to the literature analyzing the possible complementarities between firm's exporting and importing choices, and the suitability to jointly investigate them (e.g., Melitz, 2003; Holmlund et al., 2007; Aristei et al., 2013; Máñez et al., 2020a, 2020b).

Our findings also raise the question of why do female managers show a lower propensity to acquire inputs from foreign suppliers as compared to male counterparts, that is, which could be the factors explaining the direct effect of gender on imports. In the existing literature, there are no studies addressing this issue. In what follows we provide some plausible and tentative explanations for this result, although they could also be applied to explain gender differences in export propensities.

First, women managers are likely to face gender-specific barriers to get involved in importing activities, such as accessing to financial resources, information and networks related to foreign markets and suppliers. These barriers are usually faced by small businesses managed by women (ITC, 2020), and have been found higher for women entrepreneurs than for men (Davies and Mazhikeyev, 2015). Second, sectoral segregation by gender has been also documented, whereby women entrepreneurs are placed in traditional industries and services, instead of growth- and international-oriented sectors (Anna et al., 2000). Thus, female-run SMEs located in these sectors would be less likely to acquire resources from abroad, as compared to male led businesses.

Third, the lower involvement of female managers in importing activities could be due to higher constraints from family responsibilities, as compared to male counterparts (ITC, 2020). In this sense, some qualitative studies have reported anecdotal evidence that family duties may constrain the exporting behavior of female business owners, who usually face the challenge of combining the role of primary family care-keeper and the managerial role of traveling and staying abroad, which may be especially relevant in the case of business international activities (Welch et al., 2008).

These family constraints are also likely to affect importing activities, although, we are not aware of the existence of studies dealing with this issue.

Fourth, another plausible explanation of the lower propensity of female managers to import could be a preference for domestic suppliers, which could also be linked to perceptions of potential negative gender stereotypes from foreign suppliers (Akter et al. 2019). The works of Gupta et al. (2009) and Goktan and Gupta (2015), among others, have documented that gender stereotypes impact negatively on women willingness to undertake decisions commonly characterized by “male roles”, such as entrepreneurship or internationalization. This is in line with works showing that there is a persistent gender bias within the entrepreneurship discourse, that favors men and masculinity, to women disadvantage (Ahl, 2006; Marlow, 2014).

Lastly, international trade organizations have highlighted the need to eliminate discriminatory procedures and regulatory barriers that might hinder female involvement in international trade activities. This might be achieved through the incorporation of specific gender clauses in trade agreements to avoid gender discrimination and promote women involvement in international trade (ITC, 2020; WB and WTO, 2020). Unfortunately, there is no information in our data allowing us testing for the relevance of these factors in explaining the lower participation of women-led SMEs in importing activities, and this is beyond the scope of our study.

## 5 Conclusions

This study investigates the role of the manager gender on SMEs exporting and importing propensities using a representative sample of Spanish SMEs. Spain remains behind many other European economies in various gender equality dimensions, such as business participation and involvement in international trade. In particular, we analyze the influence of the manager gender in the linkages between his/her entrepreneurial orientation, measured by indicators of proactiveness, risk taking and innovativeness, and the firm’s propensities to export and import. We consider that our research contributes to improve the understanding of the impact of gender in the export/import behavior of SMEs and provide valuable information for managers and policymakers in order to better design internationalization strategies for gaining competitive advantages in global markets and enhance survival of established business.

Our findings show that the differences in exporting propensities between men- and women-led SMEs are not significant. However, our results indicate that SMEs led by male managers show a higher propensity to import from abroad, as compared to SMEs led by female counterparts. This finding constitutes the main novelty of our research since the influence of manager gender in the propensity to foreign sourcing has not been explored in the literature. Hence, we add to the literature on international entrepreneurship by providing new empirical evidence on the role of the gender of the decision-maker on the probability of SMEs to import from foreign markets. This is a relevant issue given the importance of foreign sourcing for SMEs technological upgrading and competitiveness.

Our results also indicate that entrepreneurial orientation of managers (in terms of proactiveness, risk-taking and innovativeness) is important for participating in over-

seas markets, both for men- and women-led SMEs. Hence, our findings contribute to the international entrepreneurship literature by revealing that the links between entrepreneurial orientation and SMEs propensities to export and import do not depend on the gender of the decision-maker. One implication from these results is the importance of designing instruments to promote entrepreneurial orientation in order to facilitate internationalization of SMEs, and in particular policy actions focused on building and sustaining a proactive attitude of the manager towards the search of new opportunities and markets abroad. These results may also contribute to acknowledge the role of women in international entrepreneurship, and help to diminish social gender-based stereotypes that may remain against female entrepreneurs.

The lower propensity to foreign sourcing shown by female-led SMEs suggests that internationalization and entrepreneurial policies should contain specific actions to promote and facilitate access of female managers to import activities, so that they can better benefit from international markets as a channel for acquiring intermediate inputs and technological upgrading. Our results further indicate that female managers may face gender-specific barriers to import from abroad, suggesting the specific need to design instruments to reduce gender inequality in the access to foreign sourcing. Additionally, this finding shows the need to incorporate a gender perspective in trade policies at all levels (i.e., international and national) with the aim to guarantee that men and women entrepreneurs are equally likely to participate in both export and import activities. Constraints faced by female entrepreneurs that hamper their capacity to import from foreign markets might have a multi-dimensional nature, from human and financial capital constraints to socio-cultural factors. Though the analysis of these factors is beyond the scope of this study, entrepreneurial and internationalization policies should address these factors with the aim to promote an equal involvement of female managers in international trade activities.

Finally, it is worth noting that our study is subject to some limitations which may serve as routes for further research. First, we use data on a representative sample of Spanish SMEs, and although our results are likely to reflect those of other developed countries, our results could be verified in the context of other countries. Second, since our data is cross-sectional, we should be cautious about the causal interpretation of results. Further investigation based on longitudinal panel data could be used to confirm the causal relationships revealed in this study. Lastly, we have focused only on exporting and importing activities and have not analyzed the role of gender on other foreign strategies, such as alliances or foreign direct investment, which constitute another avenue for further research.

## 6 Appendix

**Table A1** Definition of variables

Variable name	Definition
<i>Gender of manager</i>	Binary variable with value 1 if the business manager is a man, and taking value of 0 if it is a woman.
<i>Export</i>	Binary variable with value 1 if the company sells/serves international markets, and 0 otherwise.

**Table A1** Definition of variables

Variable name	Definition
<i>Import</i>	Binary variable with value 1 if the company buys supplies in international markets, and 0 otherwise.
<i>Proactive attitude</i>	Binary variable with value 1 if the business manager declares searching regularly for new markets and new economic opportunities, and zero otherwise.
<i>High risk-taking</i>	Binary taking the value of 1 if the manager states having a high disposition to assume high risk and high expected returns projects.
<i>Innovation output</i>	Binary variable with value 1 if the firm has jointly introduced product innovations, process innovations, and organizational innovations in the previous three years, and 0 otherwise
<i>R&amp;D engagement</i>	Expenditures on R&D activities over the business' budget, average for the previous three years.
<i>Immigrant status</i>	Binary variable with value 1 if the firm manager is an immigrant, and 0 otherwise.
<i>Tertiary education</i>	Binary variable with value 1 if the manager has a university degree, and 0 otherwise.
<i>Age of the manager</i>	Log of the manager age.
<i>Managerial experience</i>	Log of the number of years of manager experience in managerial doings.
<i>Family business</i>	Binary variable with value 1 if the firm is a family business, and 0 otherwise.
<i>Public limited company</i>	Binary variable with value of 1 if the firm is a public limited company, and 0 otherwise.
<i>Part of a business group</i>	Binary variable with value 1 if the firm belongs to a business group, and 0 otherwise.
<i>Collaboration in commercialization</i>	Binary variable taking the value of 1 if the firm holds collaboration arrangements with other entrepreneurs or companies regarding distribution and commercialization, and 0 otherwise.
<i>Participation in business exhibitions</i>	Binary variable taking the value of 1 if the firms attends regularly business fairs and exhibitions, and 0 otherwise.
<i>Age of business</i>	Log of the age of the firm, calculated as the number of years since its founding.
<i>Size</i>	Three binary variables accounting for 3 firm sizes: (1) Micro (1–10 workers); (2) Small (11–50 workers); (3) Medium (20–250 workers).
<i>Region</i>	Six binary variables to account for 6 Spanish Autonomous Communities: (1) Andalusia; (2) Extremadura; (3) Madrid; (4) Murcia; (5) Navarra; (6) Basque Country.
<i>Sector</i>	Four binary variables for industries: (1) Manufacturing; (2) Real estate and construction; (3) Commercial; (4) Services.

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