
DETERMINANTS OF EXPORT INTENSITY: COMPARISON OF SOME
EU COUNTRIES

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Biographic note

Sérgio Paulo de Oliveira Carvalho was born in South Africa on the 3 June 1991. Moving to Portugal he overcame the language and cultural barrier and finally completing his Bachelor degree in Economics in 2015 at the School of Economics and Management of the University of Porto (FEP).

Before completing his degree, he started working at CIRES, Lda., which is part of Shin-Etsu Chemical Co. Ltd. group; the largest chemical company in Japan. Since joining this multinational enterprise, he has rotated through various departments, namely logistics, accounting and financial department. In 2016, Sergio enrolled in the Master in International Business at FEP.

Passionate about finances, he grew up as an extremely independent, creative and curious child, continuously wanting to acquire more and more knowledge, never settling for the simple answer but rather delving deeper.

Sociable, entertaining and somewhat witty, Sergio has many friends since childhood. From competitive swimming to travelling and being with friends makes him an intuitive person blending well into groups as well as playing a guiding role. No job is too big or small, what essentially matters most to him is getting to the result effectively and efficiently.

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Abstract

The ever-increasing globalization process and consequent expansion of global trade provides ample possibilities for market research in the field of export performance. Even though this phenomenon is widely studied, few studies highlight the influence of the external environment. By analysing the domestic countries' influence on European firms' export intensity, this study tries to fill in the gap in literature, whilst attempting to provide new research possibilities. Based on a sample of 39,646 firms from nine European countries, for the period of 2010 to 2016, the empirical results show that the domestic country's population, export-to-GDP, GDP growth and inflation as well as the firm's age and productivity are important determinants of firms' export intensity.

Keywords: Export performance; export intensity; European firms; country characteristics.

Resumo

O crescente progresso de globalização e a conseqüente expansão do comércio global, oferecem amplas possibilidades de investigação inerentes às exportações. Embora já vários estudos se tenham debruçado sobre este tema, poucos são aqueles que focam a influência do ambiente externo. Ao analisar a influência do país doméstico na intensidade exportadora das empresas europeias, este estudo procura complementar a literatura, ao mesmo tempo que sugere novos rumos para a investigação. Com base em dados em painel de 39.646 empresas de nove países europeus, para o período compreendido entre 2010 e 2016, os resultados empíricos mostram que a população do país, a componente exportadora, o crescimento do PIB e a inflação, bem como a idade e a produtividade da empresa são fatores determinantes da intensidade exportadora das empresas.

Palavras-chave: *Performance* exportadora; intensidade exportadora; empresas europeias; características do país.

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Introduction

When approaching a new foreign market, firms are faced with the strategic and difficult task of choosing an entry mode. As such, firms tend to resort to entry modes where the level of resource commitment needed is relatively low. In this sense, as a firm gains experience and acquires knowledge of an overseas market, it tends to leverage a greater sum of its resources, increasing its risk level, whilst acquiring more control, return on sales and gradually increasing its international involvement (Beleska-Spasova, 2014; Johanson & Vahlne, 1977). This is the conceptual basis behind the Uppsala model of internationalization developed by Johanson and Vahlne (1977), which prescribes that there is an increasing commitment of resources, exposure to risk, increase in control and greater potential for profit as a firm goes from exporting, to owning a wholly owned subsidiary in a foreign market (Chu & Anderson, 1992).

In light of the above and considering that European firms' sales strongly depend on export revenue,¹ it is of the utmost importance to understand the determinants of export performance in order to provide policy and decision makers with the tools and information needed to make assertive and pondered macro and microeconomic decisions.

According to Katsikeas, Leonidou, and Morgan (2000), a firm's export performance depends on its internal resources and the external forces it is exposed to. In this regard, the internal resources refer to the resource-based view of the firm and the external variables refer to the institutional-based view (Chen, Sousa, & He, 2016). Taking this into account, the firm's export marketing strategy, resources and managerial characteristics can affect its export performance, while the domestic and foreign markets also play a part on its export performance (Sousa, Martínez-López, & Coelho, 2008).

The research in the field of determinants of export performance has been a central topic of research in International Business. Research in this field started over 50 years ago with Tookey (1964) pioneering research (as cited in Beleska-Spasova, 2014). Both Chen et al. (2016) and Katsikeas et al. (2000) empirical research focus on more than 100 articles highlighting the importance of the research in this field. In addition, Gemunden (1991) showed that more than 700 variables have been brought forward to the study of determinants

¹According to Berthou et al. (2015), export sales represented 46% of the revenue generated by European firms in 2010, estimation generated based on a population of exporters of 15 European countries (Belgium, Croatia, Estonia, Finland, France, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia and Spain).

of export performance and Sousa et al. (2008) highlighted the inconsistent influence of these variables on export performance. Taking this into account, it is not difficult to understand why it is considered to be a complex and discorded phenomenon (Katsikeas et al., 2000; Sousa et al., 2008; Tan & Sousa, 2011; Zou & Stan, 1998).

Despite the fact that export performance is considered to be “one of the most widely researched (...) areas of international marketing” (Sousa et al., 2008, p. 344), research into the impact of a firm’s domestic country characteristics on a firm’s export performance is relatively scarce as most studies focus on firms’ characteristics (Chen et al., 2016). For this reason, the present work proposes to tackle this field by constructing an econometric model which allows to analyse the export intensity of 39,646 firms spread across 9 European countries over the period of 2010 to 2016 in order to identify whether the domestic country of the firm influences its export performance. In doing so, we intend to find a relationship between a firm’s domestic country and its export performance, hereby filling in the gap in the literature on determinants of export performance.

The present work is structured into four chapters. The first presents a literature review where we clarify the topic at hand, identifying the definition of export performance, the different export performance measures and determinants, theoretical basis behind this phenomenon and review of empirical studies. In the second chapter, we present the methodology we intend to apply in this study and present a descriptive analysis of the data and variables. In chapter 3, we present and discuss the main empirical results. Finally, in the last chapter, we synthesize our main conclusions, as well as present the principle limitations and recommendations for future studies.

1. Literature review on export performance

In this chapter, we attempt to clarify the concept of export performance by analysing some of the literature on this topic. By doing this, we intend to obtain the theoretical basis that will sustain our analytical model. In section 2.1, we focus on the definition of export performance and we expose some of the different export performance measures that have been used in the study of this phenomenon. In section 2.2, we conceptualize the general theoretical basis behind export performance and look at the variables that influence firms' export performance. Finally, in section 2.3, we analyse recent empirical studies that resort to secondary data and econometric models to determine firms export performance.

1.1. Definitions and measures of export performance

Cavusgil and Zou (1994, p. 4) describe export performance as being “the extent to which a firm's objectives, both economic and strategic, with respect to exporting a product into a foreign market, are achieved through planning and execution of export marketing strategy”, in short “a strategic response by management to the interplay of internal and external forces” (Cavusgil & Zou, 1994, p. 3).

Reaching further into the definition, Beleska-Spasova (2014) defines a firm's export performance as its ability to utilize its assets and capabilities in a global setting at a given point in time. All-in-all, export performance of a firm can be defined as the composite result of its international ventures (Shoham, 1998).

As referred in the introduction, the study of export performance goes back over 5 decades. In this period, the study of export performance has shown little unanimity in the measurement of export performance (Chen et al., 2016), making it difficult to compare the findings of the different studies (Oliveira, Cadogan, & Souchon, 2012). To this point, a great number of export performance measures have been used to study the phenomena and these measures have been characterized in terms of their nature and objectivity.

In view of the above, Sousa (2004) categorized export performance measures as being objective and subjective. According to this author, the objective measures are those which rely on absolute values, referring to export intensity (the ratio between export sales and total sales), export sales volume and export market share as examples. On the other hand, export success and overall export performance, for example, which derive from “perceptual or attitudinal performance” (Sousa, 2004, p. 8) are considered to be subjective measures.

Furthermore, export performance measures can be conceptually divided into two broad categories: economic/ financial and non-economic/non-financial measures (Katsikeas et al., 2000). As such, economic/ financial measures include two categories, sales-related and market-related measures, while non-economic/ non-financial measures can be subdivided into general and miscellaneous measures, as shown in Table 1.

Table 1: Export performance measures

Economic / financial measures	Non-economic / non-financial measures
Sales-related Export intensity Export intensity growth Export sales efficiency Export intensity growth compared to competitors Export sales growth Export sales growth compared to competitors Export sales return on investment Export sales return on investment compared to competitors Export sales volume Export sales volume compared to competitors	General Export success How competitors rate firm's export performance Meeting expectations Overall export performance Overall export performance compared to competitors Strategic export performance
Market-related Export market share Export market share compared to competitors Export market share growth Export market share growth compared to competitors Gaining foothold in the market Market diversification Rate of new market entry Rate of new market entry compared to competitors	Miscellaneous Achievement of objectives regarding response to competitive pressures Building awareness and image overseas Contribution of exporting to the growth of the firm and to the quality of firm's management Customer satisfaction Gaining new technology/ expertise Product/service quality compared to competitors Quality of customer relationships compared to competitors Quality of distributor relationships Quality of distributor relationships compared to competitors Reputation of the firm compared to competitors

Source: Beleska-Spasova (2014, pp.,69-70)

In spite of the large number of export performance measures, literature on this topic has shown that some measures are used more than others. In terms of economic/ financial measures research shows that export intensity, export sales return on investment, export sales volume and export sales growth are the most commonly used measures, while export success and the overall export performance are the most widely employed non-economic/ non-financial measures (Chen et al., 2016; Sousa, 2004).

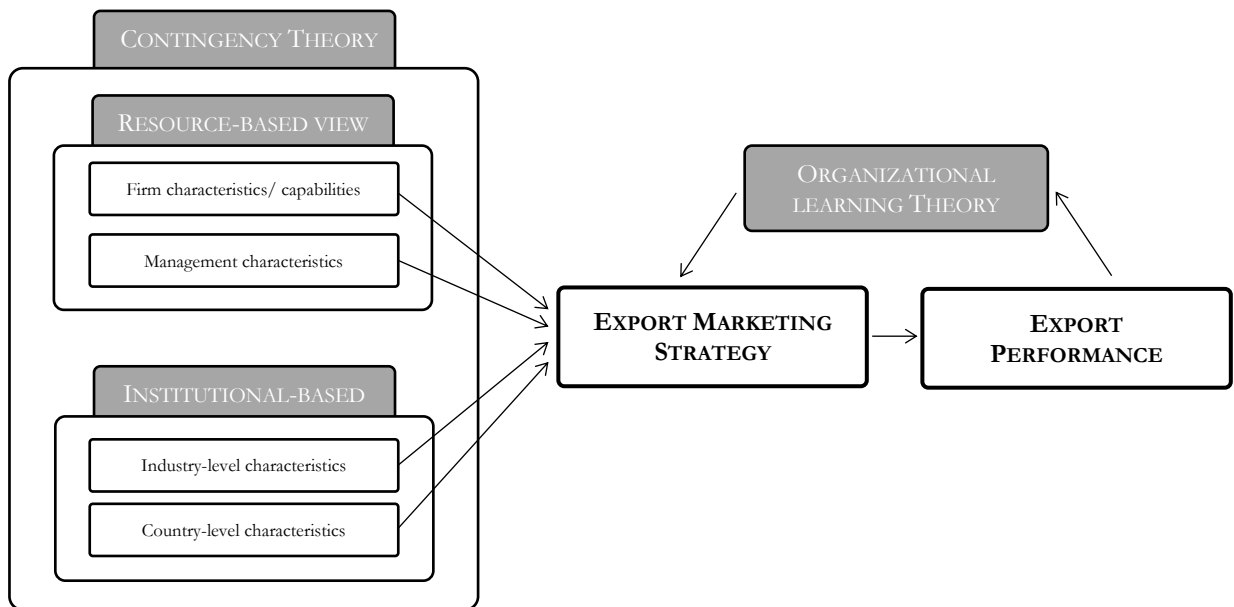
1.2. Export performance determinants: conceptual framework

In Chen et al. (2016) literature review on determinants of export performance, the authors found that in the 124 articles analysed, the most commonly utilized theories are: the resource-based view, the institutional-based view, the contingency theory and the organizational learning theory, as evidenced in Figure 1.

The resource-based view describes a firm as being a unique entity which holds a set of valuable tangible and intangible resources that due to their imperfect imitability and the fact they cannot be transferred allow the firm to sustain a competitive advantage in export markets (Barney, 1991; Barney, Wright, & Ketchen, 2001).

The institutional-based view, on the other hand, analyses the impact of the industry conditions and the institutional environment on a firm's strategic decisions and export performance (Porter, 1998). Bearing in mind that exporting firms are faced with multiple institutional environments both in the domestic and export markets, the comprehension of the effect of these forces grows exponentially (Peng, Wang, & Jiang, 2008).

Figure 1: Conceptual framework of export performance



Source: Adapted from Chen et al. (2016)

Deriving from the two previous theories but not limiting the study of export performance to the firm's resources or institutional context, the contingency theory requires a broader knowledge of the firm context (Chen et al., 2016). In short, a firm's competitive advantage is the result of the unique combination of its internal resources and the external forces it is exposed to (Harrigan, 1983).

The fourth theory mentioned by Chen et al. (2016) is the organizational learning theory by which a firm learns by exporting (Loecker, 2013). According to this theory, a firm's export strategies and export performance are the result of previous and continuous exporting activities. As a result, experienced export managers can look back at their previous export

encounters and be able to foresee the numerous outcomes of any given strategy due to their acquired understanding of the surrounding conditions (Peng et al., 2008).

The four theories mentioned above hereby prescribe that a firm's export performance is the composite result of their export marketing strategy, which in turn is influenced by numerous factors. Furthermore, the export performance, competitive advantage and export marketing strategy of a firm are influenced by internal and external factors (Chen et al., 2016; Katsikeas et al., 2000; Sousa et al., 2008; Zou, Taylor, & Oslan, 1998). On the one hand, the resource-based view and organizational learning theory advocate that the firm's internal factors influence its export performance; on the other hand, the institutional-based theory proposes that it is the external forces, and the contingency theory prescribes that a firm's export performance is the result of both.

Multiple firm internal factors have been appointed to be potential determinants of export performance. Chen et al. (2016) subgroup these factors into four categories: firm characteristics, firm capabilities, management characteristics and export marketing strategy. In terms of the firm characteristics, the firm's size, exporting experience, age and many other characteristics have been mentioned as possible export performance determinants (Sousa et al., 2008). Regarding the firm's size, a positive relationship is expected between this variable and export performance since larger firms tend to have greater access to finance, human resources, production capabilities and lower risk levels than smaller firms (Sousa et al., 2008). In terms of exporting experience, a firm with greater knowledge of the international markets, acquired over the years from exporting experience, is more likely to achieve success in its exporting ventures (Cavusgil & Zou, 1994). In turn, younger firms tend to be subject to constraints due to their lack of legitimacy, lower resource levels and insufficient experience, as a result export performance is positively related to the firm's age (LiPuma, Newbert, & Doh, 2013).

Concerning the firm capabilities, these have also been considered to influence the export performance of a firm, in particular the firm's market orientation (Chen et al., 2016). To this point, firms that are market-oriented show better export performance due to their ability to respond to the different markets needs, being able to adapt and take advantage of the opportunities that arise in today's global market (Sousa et al., 2008).

The managers' characteristics also play an important role in the firm's export performance, as their decisions and strategic market diversification strategies guide firms export marketing strategy (Katsikeas et al., 2000). All of these lead to the firm's export

marketing strategy which is measured by the capacity of the firm to adapt to the different export environments (Chen et al., 2016).

Nevertheless, there are external forces that play a role on firms' export performance (Katsikeas, Samiee, & Theodosiou, 2006). These forces cannot be controlled by the firm, as such they are considered to be external and hereby constitute external variables that affect firms' export performance (Chen et al., 2016; Lages, 2000; Sousa et al., 2008; Zou & Stan, 1998). Chen et al. (2016) divides external factors into two categories: industry-level characteristics and country-level characteristics. The first refer to industry characteristics, such as the concentration of the industry, technological development or the capacity of the industry to adapt, while the second concern the differences between the exporting and domestic markets characteristics. In terms of industry-level characteristics, it is expected that industries with lower concentration levels, greater technological development or better capacity to adapt to foreign markets tend to have better export performance (Clougherty & Zhang, 2009). Low industry concentration levels resulting in firm rivalry, pressure firms to innovate and improve processes which result in technological development, production efficiency and product sophistication (Porter, 1990). The positive effect that firm rivalry has on individual export performance is enhanced by the spillovers which result from employees changing jobs (Hollis, 2003). Technological development allows for lower production costs, better production reliability and greater production flexibility hereby contributing to the export performance of the firm.

In regards to the country-level characteristics, when exporting to a country with significant differences when compared to the domestic market, firms are expected to be faced with more challenges leading to a poorer export performance (Calantone, Kim, Schmidt, & Cavusgil, 2006). When describing the country-based characteristics, a separate approach should be made. As such, an analysis of the domestic-market and foreign-market factors should be done separately. The domestic-market factors include several aspects such as the infrastructure, legal and political environment and the domestic demand (Sousa et al., 2008). Out of these, the export assistance and environmental hostility have been found to have an effect on the export performance of a firm. Lages and Montgomery (2005) found that export assistance has a positive effect on export performance, hence the authors underline the significant impact long term export assistance has on the export performance. Alvarez (2004) discusses the environmental hostility of the exporting country, referring the negative impact it has on the firm's export performance. Tariff and non-tariff barriers, for

example, may lead firms to exit exporting markets. The foreign-market factors include political and social-cultural factors such as the legal and political environment of the exporting market, cultural similarity, market competitiveness, environmental hostility, access to distribution channels and customer exposure (Sousa et al., 2008). According to Styles and Ambler (1994), a firm's export performance is positively related to the exporting markets favourable importing conditions, quality of the infrastructures, good relationships with key players, access to networks and, social and cultural proximity.

1.3. Empirical studies on firm's export intensity

In order to better understand the phenomenon of export performance, in this section we look into empirical studies which resort to secondary data and export intensity as an export performance measure in order to identify if there are common trends among these studies.

The choice of the studies was widely influenced by the 124 studies reviewed by Chen et al. (2016). The studies reviewed by the Chen et al. (2016) include 24 studies which use secondary data to measure export performance, and within this group 15 resort to export intensity as a measure of export performance.² In addition to these studies, we then included three recent studies. These studies were obtained on Web of Science database, which was accessed in January 2018. The search criteria used "export performance" and "export intensity" as key words. Taking into account Chen et al. (2016) literature review focused on articles published between 2005 and 2014, only studies published after 2014 were considered. Altogether, we analyse 18 studies, which are summarized in Table 2. Table 2 organizes the studies by chronological order, providing a detailed description of the authors, year of publication, countries studied, period of analysis, sample size and analytical method utilized.

Considering the studies analysed, 16 look at the export intensity data of firms in a single country and only two focus (Gashi, Hashi, & Pugh, 2014; Raymond & St-Pierre, 2013) on more than one country. Raymond and St-Pierre (2013) look into small and medium enterprises from France and Canada in order to find a link between firm's strategic capabilities and their international performance. Analysing the export performance of small and medium firms in 31 transition countries, Gashi et al. (2014) analyse the

² Eight of the 15 studies use more than one export performance measure, export intensity being one of them.

internationalization process of firms in these countries and consider both internal and external factors which influence their behaviour. In terms of internal factors these authors highlight those related to the human capital and technological development of the firms. Technological spillovers, presence of networks and access to finance were the external variables found to influence the export performance of these firms.

Table 2: Summary of empirical studies on firms' export intensity

Author (Year)	Country	Period	Number of firms	Firm Size	Analytical method
Beise-Zee and Rammer (2006)	Germany	1999	3,272	Small	Tobit Model
Fernández and Nieto (2006)	Spain	1991-1999	10,579	Small Medium	Tobit Model
Wengel and Rodriguez (2006)	Indonesia	1996, 2000	18,132	Small Medium Large	Logistic Regression
Buck, Liu, Wei, and Liu (2007)	China	1998-2001	7,697	Large	Tobit Model
Lee, Beamish, Lee, and Park (2009)	Korea	1994-2000	283	Small Medium Large	Generalized Least Square Regression (GLS)
Lu, Xu, and Liu (2009)	China	2002-2005	592	Small Medium Large	Logistic Regression
Bertrand (2011)	France	1999	2,000	Small Medium Large	OLS Regression
Anwar and Nguyen (2011)	Vietnam	2000	10,710	Small Medium Large	Heckman Effects Model Regression
Yi, Wang, and Kafourous (2013)	China	2005-2007	359,874	Small Medium Large	Hierarchical Moderated Regression Generalized Method of Moments (GMM)
Raymond and St-Pierre (2013)	Canada, France	2006	292	Small Medium	Multivariate Analysis of Variance
Eberhard and Craig (2013)	Australia	1995-1998	1,304	Small Medium	OLS Regression
Wang, Cao, Zhou, and Ning (2013)	China	2000-2006	141	Small Medium Large	Tobit Model
Antonietti and Marzucchi (2014)	Italy	2001-2006	850	Small Medium	OLS Regression
Gashi et al. (2014)	31 Transition Countries	2002, 2005, 2008/2009	17,962	Small Medium	Tobit Model
Agnihotri and Bhattacharya (2015)	India	2002-2012	450	Small Medium Large	Tobit Model
Bramati, Gaggero, and Solomon (2015)	Belgium	2005-2008	3,932	Small Medium Large	Logistic Regression
Reis and Forte (2016)	Portugal	2010-2013	19,504	Small Medium Large	Tobit Model Random Effects Model Heckman Effects Model Regression
Rialp-Criado and Komochkova (2017)	China	2010	468	Small Medium	Hierarchical Moderated Regression

In terms of the countries studied, there is a clear tendency to study emerging markets (ten out of the 18 studies). China is the most studied country (five out of the 18 studies focus

on this country), which is not surprising considering that China is the world's biggest exporter (He & Wei, 2013) and the fact that Chinese exports have gradually shifted from high labour-intensity products to high value-added products (Yi et al., 2013). Regarding European firms, there is no clear tendency to study firms from a particular European country, even though France is mentioned in two of the studies reviewed.

The majority of the studies (11 of the 18) use panel data analysis for periods ranging between three and 11 years. However, some studies refer to single year data or to multiple isolated periods. In terms of the sample size, the pool of studies reveals that sample sizes range between 141 and 359,874 firms. Nevertheless, the majority of studies rely on sample sizes with less than 10,000 firms and if we do not consider the Yi et al. (2013) study, the top end of the sample size range drops to 19,504 firms. Bearing this in mind and considering the size of most of these markets (e.g. Germany, Italy and China), some sample sizes can be considered relatively small.

Regarding the size of the firms analysed, ten studies use the data of small, medium and large firms, six studies use the data of small and medium enterprises (SMEs), one study uses data of small firms and one study uses data of large firms only. All studies focus on the industrial sectors with the exception of Beise-Zee and Rammer (2006) who provide a detailed analysis of the manufacturing and service industries separately.

In regards to the analytical method used to estimate the econometric models, the Tobit model is the most used to estimate export intensity, however other methods such as the OLS regression and the GLS regression are also used.

All things considered, the studies reviewed show that there is more than one way to study the phenomenon of export intensity. In Table 3, we present a summarised description of the independent variables employed in 16 of the 18 studies reviewed. Two of the studies, Bertrand (2011) and Raymond and St-Pierre (2013), are excluded due to the insufficient information provided regarding the estimation models. The table structures the variables into internal and external (as evidenced in section 2.2.) identifying the frequency of use and the relationship with the dependent variable, export intensity.

Considering the internal variables first, we find that they are the most commonly used variables, representing nearly 90 percent of the variables used in the estimation of export intensity in the studies reviewed. Amongst the internal variables, we can distinguish those who refer to the firms' characteristics/ capabilities, export marketing strategy and management characteristics. The first are the most widely used and the last the least.

Table 3: Influence of independent variables on export intensity in the 16 studies reviewed

Independent variables	Frequency	Results		
		+	-	0
Internal (INT)				
<i>Firm characteristics / capabilities</i>				
Firm size	15	11	1	3
Ownership	12	7	2	3
Firm productivity	11	6	1	4
Capital intensity	9	4		5
Firm age	8	3	2	3
Organizational structure	6	2	2	1
<i>Export marketing strategy</i>				
Market research	9	8		1
Innovation	4	1	1	2
Distribution channel relationship	4	3		1
Market expansion	3	1		2
Process	3		1	2
Product strategy	3		1	2
<i>Management characteristics</i>				
International experience	3	1		2
Education	2	2		
External (EXT)				
<i>Domestic market characteristics</i>				
Market competitiveness	5	2	2	1
Legal and political environment	3	2	1	
<i>Industry characteristics</i>				
Industry capital intensity	4	3		1

Legend: (+) positive relationship with export intensity, (-) negative relationship with export intensity, (0) insignificant relationship with export intensity

In terms of the firms' characteristics, the firm's size is the most commonly used variable, being present in 15 of the 16 studies. The firm's size is usually measured by the number of employees, however other measures are also found, for example, the sales revenue of the firm (Lu et al., 2009) and the sales of the firm in relation to the average firm sales in the same sector (Anwar & Nguyen, 2011). As we expected, most of the studies (11 of the 15) show a positive relationship between the firm's size and export intensity.

Ownership also appears as one of the most frequently used variables, measured by the foreign share in the capital structure (Anwar & Nguyen, 2011; Buck et al., 2007; Lee et al., 2009; Wengel & Rodriguez, 2006). In seven of the 12 studies where this variable is included, it shows a positive relationship with the dependent variable, meaning that the

presence of foreign capital in the firm positively affects its export intensity. According to Raff and Wagner (2014), foreign-owned firms tend to have superior export performance. The superior performance of these firms is widely based on the access to the international networks and credit facilities of the parent companies. Furthermore, foreign-owned firms tend to invest more on research and development and be more innovative, contributing to their better export performance (Raff & Wagner, 2014).

The firm's productivity, predominantly showing a positive relationship with the export intensity, is expressed by the firm's labour productivity (Buck et al., 2007; Reis & Forte, 2016), production increase (Eberhard & Craig, 2013) or its return on sales (Lu et al., 2009), for example. It is also one of the most commonly used internal variables in the studies reviewed. The firm's capital intensity, usually measured by the ratio of firm's fixed assets over its total assets, is also often used. This variable shows inconsistent findings, having a positive or an insignificant relationship with export intensity. Other variables such as the firm's age, measured by the number of years in business (Wengel & Rodriguez, 2006), and the organization structure, represented by dummies referring to the firm's presence in a business group (Yi et al., 2013) are also frequently used. These variables reveal inconsistent findings, showing a positive, negative or insignificant relationship with export intensity.

Concerning the export marketing strategy variables, great focus is given to the firm's expenditure on research and development (R&D) and the firm's capacity to innovate, represented for example by the number of licensed patents (Wang et al., 2013). These two categories, market research and innovation, together represent the most commonly used export marketing strategy variables, showing in most cases a positive relationship with export intensity.

In regards to the management characteristics, only two variables are mentioned, which is not surprising considering that the studies reviewed use secondary data and this information is generally not available. The managers' international experience variable, which shows a positive relationship with export intensity (Agnihotri & Bhattacharya, 2015) and with an insignificant relationship (Eberhard & Craig, 2013; Gashi et al., 2014). The other variable, the management education level reveals a positive relationship with export intensity (Agnihotri & Bhattacharya, 2015; Eberhard & Craig, 2013).

With regards to the external variables few were used in the pool of studies analysed, which validates the disregard of the external environment in literature. The external variables

present in the articles reviewed refer to the domestic market characteristics and the industry characteristics.

Amongst the domestic market characteristics variables, we can find variables which relate to the domestic market competitiveness and the legal and political environment of the country. The domestic market competitiveness variables include the average industry export intensity variable used by Fernández and Nieto (2006) and percentage of exporting firms used by Reis and Forte (2016), which reveal a positive relationship with the firm's export intensity.

In reference to the domestic legal and political environment, we can refer the product tradability variable, which refers to inexistence of export barriers, trade impairments and transportation costs (Beise-Zee & Rammer, 2006). This variable shows a positive relationship with export intensity. The other variable that shows a positive relationship with export intensity is a favourable foreign exchange rate (Lee et al., 2009).

Finally, amongst the industry characteristics we find the industry capital intensity variable which was employed by Reis and Forte (2016) and Wengel and Rodriguez (2006). Reis and Forte (2016) show a positive relationship between the industry capital intensity, measured by the total industry assets over the industry's sales and export intensity while Wengel and Rodriguez (2006) find that there is an insignificant relationship between the two. Another variable with a positive relationship with the export intensity is the domestic market concentration (Beise-Zee & Rammer, 2006; Reis & Forte, 2016).

In summary, the literature on export performance can be characterised as being methodologically fragmented, conceptually diverse and inconclusive (Tan & Sousa, 2011). The large number of different methods and analytical approaches that have been applied to the study of the phenomena justify its methodological fragmentation. On the other hand, the large number of indicators and determinants used to measure export performance and which have been reported to influence this phenomenon support the diverse nature of the literature. And finally, the inconsistency in the results shown by some of the variables justify the inconclusive nature of the literature reviews (Ruigrok & Wagner, 2002).

2. Methodology

As mentioned in the introduction, the present work tackles the field of export performance by analysing the influence of the firm's domestic country on its export performance. In short, the present study analyses the export intensity of European firms from 9 countries in order to determine whether the firm's domestic country influences its export intensity.

The present chapter is divided into three sections. In section 2.1, we outline our econometric model. In the following section, 2.2, we describe the data utilized providing the data source and the model selected. Finally, in the last section, 2.3, we provide a descriptive analysis of the model's variables.

2.1. Econometric model, variables and proxies

Our goal is to test whether the firm's domestic country influences its export performance. In order to do so we need to construct an econometric model which would identify variables related to the domestic country influence on the firm's export performance whilst controlling for other factors which influence the export performance.

According to Sousa et al. (2008) and Chen et al. (2016), export intensity, expressed by the ratio of export sales over the total sales of the firm, is one of the most commonly used measures of export performance. In light of the above, from an early stage in the research, we decided to use export intensity as our dependent variable.

According to Chen et al. (2016) there are several groups of variables that can explain the export intensity of firms: firm characteristics and capabilities, export marketing strategy, management characteristics, industry-level characteristics and country-level characteristics. In the present work, similarly to the studies reviewed, we used multivariate estimation techniques to analyse the effect of the domestic country on export intensity. The econometric model to be estimated is expressed by:³

$$\begin{aligned} \text{Export_Intensity}_{ijt} = & \alpha + \beta_1 \text{Population}_{ijt} + \beta_2 \text{GDP_growth}_{ijt} + \beta_4 \text{Exp\%GDP}_{ijt} + \\ & + \beta_5 \text{Inflation}_{ijt} + \beta_6 \text{Age}_{ijt} + \beta_7 \text{Size}_{ijt} + \beta_8 \text{Firm_Prod}_{ijt} + \varepsilon_{it} \end{aligned} \quad (\text{eq.1})$$

³ Indexes i , j and t refer to the firm, the country and the year respectively.

Where *Export_Intensity* is the dependent variable (export intensity), population (*Population*), gross domestic product growth (*GDP_growth*), export-to-GDP ratio (*Exp%GDP*) and inflation rate (*Inflation*) are the country variables, and *Age*, *Size* and *Firm_Prod* are the control variables corresponding to the firm's age, size and productivity, respectively, and ε_{it} is the disturbance term.

Concerning the variables related to the domestic country, analogously to Fasih and Ghazalian (2014), the population variable was introduced to depict the domestic market size, being measured by the number of inhabitants. According to Fasih and Ghazalian (2014), firms from larger economies tend to focus more on local markets than foreign ones, thus presenting lower export levels. As such, a country's population has a negative relationship with export intensity.

The choice of the GDP growth variable is founded on the macroeconomic principle that when there is a GDP increase, the nation income rises leading to the increase in expenditure and the subsequent increase in the demand for imported goods, both in the industrial and private sectors, resulting in lower export rates (Jarreau & Poncet, 2012). The rise in the domestic expenditure, encourages firms to divert their sales to the domestic market which in turn has a negative impact on the firms export revenue and therefore on its export intensity.

Similarly to Fernández and Nieto (2006), who included the average industry export intensity variable, we included the export-to-GDP variable, measured by the domestic country's exports over its GDP. By introducing this variable, we intend to study whether the export-to-GDP ratio influences the firm's export intensity. Firms in countries with higher export-to-GDP ratio should show higher export intensity.

Considering the macroeconomic principle which prescribes that high inflation rates have a negative impact on exports, hereby hindering firms trying to compete in the international markets, as firm's products become less competitive due to increase of the price of its inputs (Gylfason, 1999). As such, a decrease in the inflation rate should lead to greater international competitiveness, contributing to the increase of the firm's export intensity.

In light of the literature review above, in section 1.3, we included three control variables which we found to influence export intensity: age, *Age*, size, *Size*, and firm productivity *Firm_Prod*.

The firm's age is commonly used in the studies reviewed (e.g., Fernández and Nieto (2006), Wang et al. (2013), Reis and Forte (2016) and Rialp-Criado and Komochkova (2017)).

This variable was obtained using the same criteria as Reis and Forte (2016), number of years in activity. The relationship between the firm's age and its export intensity is expected to show ambiguous results (positive or negative). The first theories on the relationship between export performance and the firm's age, show that firm's learn by exporting (Johanson & Vahlne, 1977), being export performance and age positively related. However, firm's age may be connected to reactive thinking, inflexibility and adversity to change, showing a negative relationship with export performance (Love, Roper, & Zhou, 2016).

The firm's size, similarly to the firm's age, is also frequently used in the studies reviewed (e.g., Fernández and Nieto (2006), Agnihotri and Bhattacharya (2015) and Rialp-Criado and Komochkova (2017)). This variable was measured considering the number of employees, in accordance with Reis and Forte (2016) study. Older firms tend to have higher export intensity levels, showing a positive relationship with export intensity (Anwar & Nguyen, 2011; Buck et al., 2007; Lu et al., 2009; Reis & Forte, 2016)

According to Guner, Lee, and Lucius (2010) and Buck et al. (2007), firms with higher labour productivity levels, should be better prepared to compete in the international markets. Considering this, and taking into account that Buck et al. (2007) and Reis and Forte (2016) used this variable, the labour productivity variable was included in the estimation. According to Wagner (2007), firms with higher labour productivity tend to be more competitive in the international markets presenting better export performance. Similarly to Buck et al. (2007) and Reis and Forte (2016), who measured firm productivity considering the sales revenue per employee, we measured this variable considering the operational revenue per employee.

The independent variables, as well as the respective proxies and expected effect on the export intensity, are summarized in Table 4.

Table 4: Explanatory variables, proxy and expected result

	Variable	Proxy	Expected result
Country variables	<i>Population</i>	Number of inhabitants (million people)	-
	<i>GDP_growth</i>	Gross domestic product growth (%)	-
	<i>Exp%GDP</i>	Export-to-GDP ratio (%)	+
	<i>Inflation</i>	Variation in the consumer price index (%)	-
Control variables	<i>Age</i>	Number of years in activity	+/-
	<i>Size</i>	Number of employees	+
	<i>Firm_Prod</i>	Operational revenue per employee (thousand USD)	+

2.2. Data source and sample

By analysing the export intensity of firms of nine European countries over the period of 2010 to 2016 (seven years) we aim at finding the relationship between the firm's domestic country and its export performance. The countries considered and the time period analysed were strongly influenced by the available data.

We retrieved European firm's microdata from Bureau Van Dijn's Amadeus database in February 2018. The Bureau Van Dijn's Amadeus database provides insight into the economic and financial data of over 24 million European firms. Since most firms on this database are small firms (over 85 percent) and are considered to be less likely to export by Bertrand (2011), we opted to exclude them from our sample reducing significantly the pool of firms. Out of the 3.5 million remaining firms, we further limited the pool of firms by excluding firms which did not provide data for the export revenue, operational revenue or number of employees for the period of 2014 to 2016⁴. This search strategy significantly reduced the available sample size, as the data for the firms' export revenue is provided for less than 10 percent of the medium, large and very large firms. We were then faced with a sample of 202,617 firms of 17 European countries. Since some of these countries were poorly represented, we opted to eliminate 371 firms from 8 different countries. At this point 202,245 firms remained from nine European countries: Bosnia and Herzegovina (BA), Germany (DE), Estonia (EE), France (FR), United Kingdom (GB), Greece (GR), Croatia (HR), Hungary (HU) and Ireland (IE).

With the use of Microsoft Excel, the remaining data was analysed, in order to obtain a balance panel with the necessary data to estimate our model. Since nearly 75 percent of the firms did not provide data for export revenue for one or more of the years during the 2010

⁴ Bureau Van Dijn's Amadeus database only allows to filter data considering three year periods

to 2013 period, our sample size significantly reduced. The remaining firms, 50,862, were then analysed, filtering out those which did not provide the number of employees for one or more of the years between 2010 to 2013. The final sample consists of 39,646 firms from nine European countries, as shown in Table 5. The seven-year period considered, resulted in a balanced panel data set with 277,522 observations.

Table 5: Composition of the sample by country and number of firms

Country	ISO ALPHA-2 code	Number of firms	%
Bosnia and Herzegovina	BA	1,126	2.84%
Germany	DE	590	1.49%
Estonia	EE	1,626	4.10%
France	FR	12,344	31.14%
United Kingdom	GB	6,680	16.85%
Greece	GR	5,993	15.12%
Croatia	HR	8,433	21.27%
Hungary	HU	2,782	7.02%
Ireland	IE	72	0.18%
Total		39,646	100.00%

In order to complement our study, we also accessed the World Bank's DataBank. This database provided us with the necessary macroeconomic indicators we needed to estimate our model.

2.3. Descriptive analysis of the variables of the model

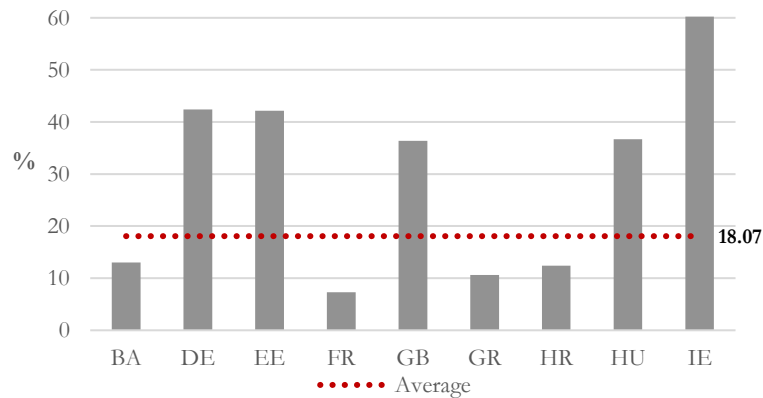
In order to understand the behaviour of the variables, it is useful to analyse their descriptive statistics, both at a global and country level. The descriptive analysis of the global data is portrayed in Table 6 showing the mean, minimum and maximum values, as well as the standard deviation of all model variables. Table A1, of Annex 1, shows the mean value of the variables calculated for each country. By analysing Table 6, we find sizable discrepancies between the country variables and the firms in terms of export intensity, age, size and labour productivity. These discrepancies are also present when analysing the variables at a country level, Table A1. For a more comprehensive analysis of the variables, the dependent and independent variables are analysed separately.

Table 6: Descriptive analysis variables of the model

	Variable	Proxy	Mean	Maximum	Minimum	Standard Deviation
Country variables	<i>Export_Intensity</i>	Ratio of export sales over the total sales of the firm (%)	18.074	100.000	0.000	29.129
	<i>Population</i>	Number of inhabitants (million people)	36.788	82.349	1.315	28.890
	<i>GDP_growth</i>	Gross domestic product growth (%)	0.765	25.557	-9.132	2.662
	<i>Exp%GDP</i>	Export-to-GDP ratio (%)	44.991	124.643	22.102	24.653
	<i>Inflation</i>	Variation in the consumer price index (%)	1.479	5.668	-1.736	1.834
Control variables	<i>Age</i>	Number of years in activity	21.933	319.000	0.000	16.723
	<i>Size</i>	Number of employees	196.174	129,916.000	1.000	1,935.408
	<i>Firm_Prod</i>	Operational revenue per employee (thousand USD)	372.451	214,303.400	0.001	1,944.723

The dependent variable, export intensity, has a mean of 18.07%, i.e., on average, 18.07% of the total sales of the firms of the sample are destined for export. At a country level, France is the country whose firms present the lowest mean of export intensity (only 7.33%) and Ireland is the country who shows the highest export intensity level (60,20%). Within the sample there are firms who show zero and 100 per cent values for export intensity, meaning that there are firms with no sales abroad and, on the other hand, firms whose sales are entirely exported. Figure 2 provides the mean value of export intensity by country alongside with the mean value of the export intensity of the firms of the sample during the 2010 to 2016 period.

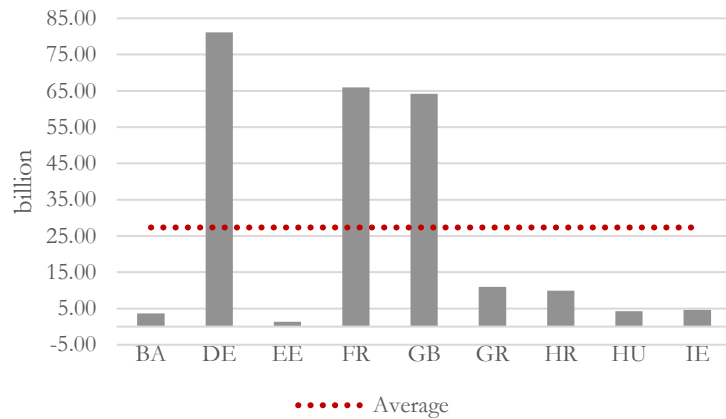
Figure 2: Mean of firm’s export intensity, by country, 2010-2016



As mentioned in section 2.1, the population variable was included to portray the size of the domestic market. By analysing Figure 3, the mean of the countries’ population over the 2010 to 2016 period, three countries clearly stand out, Germany, with the highest number of inhabitants followed by France and United Kingdom. In terms of their size these countries are significantly more populated than the rest, as they have a population more than six times

larger than the remaining six countries. Estonia and, Bosnia and Herzegovina are the countries with the lowest population, with less than four million inhabitants, during the time period considered.

Figure 3: Mean of the population, by country, 2010-2016



Regarding the GDP growth (see Figure 4) the nine countries present different growth levels, on average, during the period analysed. Most countries (eight of the nine) present positive GDP growth levels. Greece stands alone, as the only country with negative GDP growth levels, on average, during the period of 2010 to 2016. Despite revealing positive GDP growth levels, Hungary, France and, Bosnia and Herzegovina's GDP grew less than two per cent on average during the time period analyse, below. Ireland is a clear outlier, presenting GDP growth levels, on average, above six per cent.

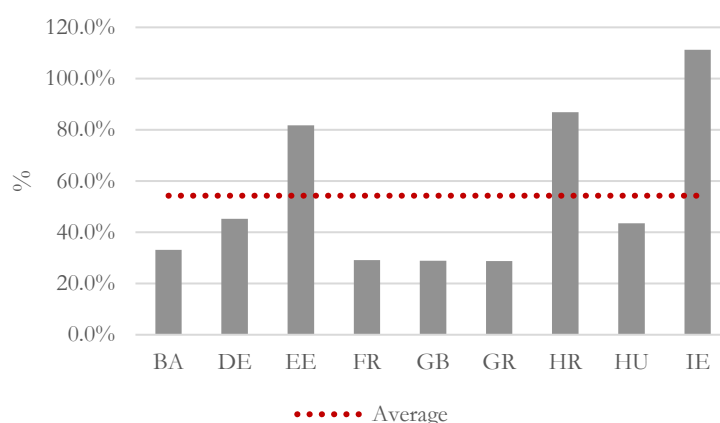
Figure 4: Mean of the GDP growth, by country, 2010-2016



Considering the export-to-GDP ratio (see, Figure 5) we find that most countries (six out of nine) present export-to-GDP ratios below 50 percent, i.e., they export less than half

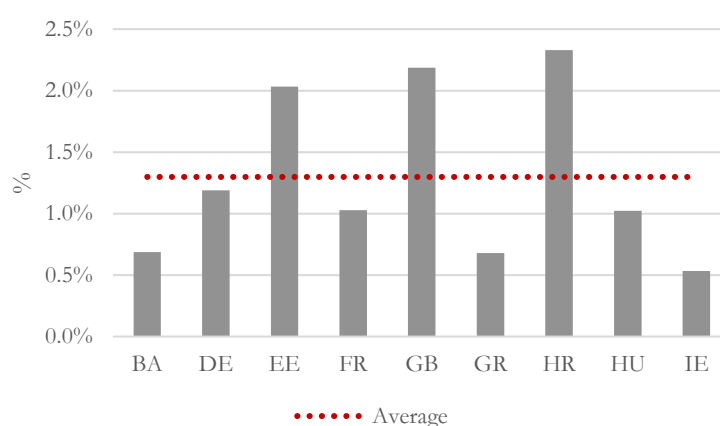
of their gross domestic product. Ireland has the highest average export-to-GDP ratio, well above 100 percent, followed by Hungary and Estonia. The countries with the lowest export-to-GDP ratios are Greece, United Kingdom and France which reveal averages below 30 percent.

Figure 5: Mean of the Export-to-GDP ratio, by country, 2010-2016



The last country variable, inflation, Figure 6, shows average values fluctuating between 0.5 percent to 2.3 percent, for the period of 2010 to 2016. Hungary is the country with the highest increase in consumer price index, followed by United Kingdom and Estonia. Ireland, Bosnia and Herzegovina and Greece are the countries which present the lower consumer price index increases during the analysed period.

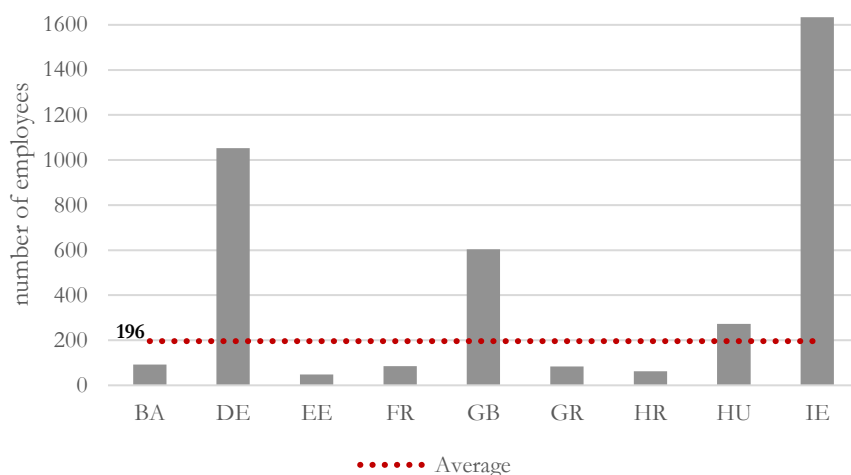
Figure 6: Mean of the inflation, by country, 2010-2016



Regarding the size of the firms, Figure 7, the global average is approximately 196 workers per firm, with firms in Ireland showing the largest number of employees (on average

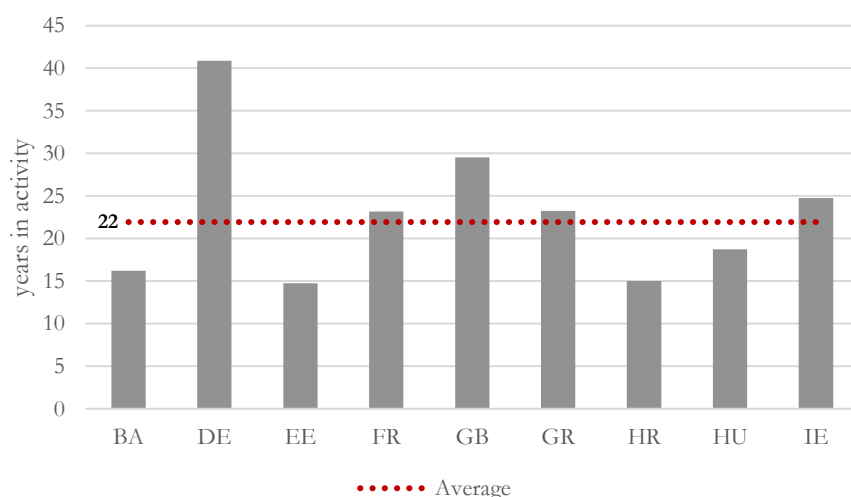
1,634 employees per firm), while Estonia includes firms with the lowest average, with approximately 48 employees per firm.

Figure 7: Mean of the firm's size, by country, 2010-2016



In terms of the age variable, Figure 8, the global average of the firms of the 9 countries is approximately 22 years of existence. Germany is the country with the oldest firms of the group, with an average of nearly 41 years in activity, while Estonia is the country with the youngest firms, on average 15 years of activity.

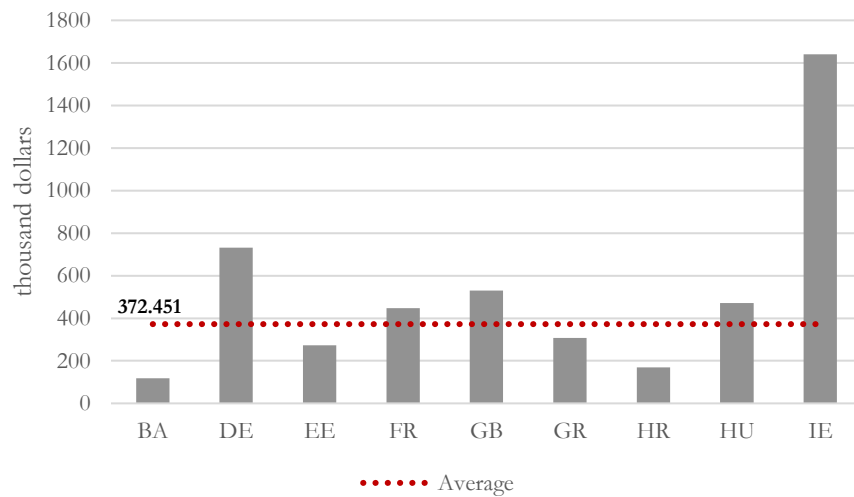
Figure 8: Mean of the firm's age, by country, 2010-2016



Regarding the labour productivity of firms, the country which encompasses the firms with the lowest operational revenue per employee is Bosnia and Herzegovina, with an average value of 117,375 euros per employee, and the country whose firms show the highest productivity is Ireland with an average operational revenue per employee in the order of

1,640,944 euros. This variable is the one that presents the largest difference between the minimum value of operational revenue per employee (0.001) and the maximum value (214,303.400), evidencing a high dispersion of the productivity values of the firms included in the sample.

Figure 9: Mean of the firm's productivity, by country, 2010-2016



For a more detailed analysis of the data, in Annex 1, Table A2, we provide the mean value of the estimation variables by economic activity.

3. Empirical results

In this chapter we present the estimation of the econometric model used to analyse the impact of the domestic country on the firm's export intensity. In Section 3.1 we present a brief analysis of the correlations between the variables, and in section 3.2 we present the econometric estimation results.

3.1. Correlation

In order to complement the descriptive analysis of the variables conducted in the previous section (section 2.3), a brief analysis of the correlation matrix is presented in the current section to evaluate in what way the variables are related to export intensity, and whether or not the independent variables are correlated.

Table 7 shows a positive correlation of the dependent variable (*Export_Intensity*) and all the independent variables with the exception of population, which suggests that, on average and in a bivariate perspective, old, large firms which have higher productivity levels operating in countries with high GDP growth, export-to-GDP and inflation rates tend to present higher export intensity. In contrast, there is a negative correlation of the dependent variable and population, suggesting that firms in countries with more inhabitants tend to show lower levels of export intensity, which is in line with literature.

Table 7: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) <i>Export_Intensity</i>	1.000							
(2) <i>Population</i>	-0.013*	1.000						
(3) <i>GDP_growth</i>	0.112*	0.230*	1.000					
(4) <i>Exp%GDP</i>	0.018*	-0.613*	0.324*	1.000				
(5) <i>Inflation</i>	0.058*	-0.038*	-0.225*	0.190*	1.000			
(6) <i>Size</i>	0.053*	0.242*	0.010*	-0.235*	-0.112*	1.000		
(7) <i>Age</i>	0.062*	0.048*	0.025*	-0.031*	0.011*	0.070*	1.000	
(8) <i>Firm_Prod</i>	0.050*	0.056*	0.006*	-0.049*	-0.008*	0.010*	-0.005*	1.000

Note: * p < 0.01

Source: Own calculations on Eviews

Analysing the correlation between the independent variables we find that most variables do not present a high correlation. Population and export-to-GDP ratio are the only independent variables which present a relatively high correlation level -0.613. According to

Greene (2000), the presence of high correlation levels can signify the presence of intervariable dependency or that the variable is measuring the same determinant.

3.2. Estimation results

The present work intends to test the influence of the firm's domestic country characteristics (population, GDP growth, export-to-GDP ratio and inflation) on the firm's export intensity, controlling for a set of factors that can influence this export performance measure (firm age, size and productivity). Upon the exploratory analysis of the data and variables conducted in the previous sections, in this section a causal analysis is carried out by using multivariable econometric techniques with panel data. This procedure enables the combination of time-series with cross-sections, i.e., allowing to simultaneously explore variations over time (years) and different individuals (firms). Alike Eberhard and Craig (2013) and Reis and Forte (2016), we opted to logarithmize our size variables, population and firm size, and the financial variable, firm productivity. Using a balanced panel with 277,522 observations, we started by estimating the "pooled" model by OLS. Column (I), in Table 9, presents the results of this estimation, where we can verify that all the variables are statistically significant, despite some variables displaying an unexpected behaviour (GDP growth, export-to-GDP ratio and inflation).

Taking into consideration that the pooled model disregards the existence of heterogeneity among the firms, assuming the same coefficient for all, it is most probable, that many factors that affect the export intensity of the firm, namely those related to its internal characteristics, e.g., are not included in the equation of Column (I). Bearing this in mind and in accordance with Greene (2000), there are three different models which allow to analyse data panels:

1. Pooled least squares model – this model assumes that all firms share the same constant (α) and β_i values;
2. Fixed-effects model – this model assumes that there is heterogeneity between the firms and that this difference is captured in the model's constant term, which is different for each firm, i.e., the constant part of the model is different for each firm;
3. Random effects model – alike the fixed-effects model, this model assumes heterogeneity between the firms, however the difference is captured in the

disturbance variable and the constant is considered to be an unobserved random parameter.

According to Greene (2000), in order to choose the most appropriate model, three tests must be performed, Chow's Test, Breusch-Pagan Test and the Hausman Test. In Figure 8, we summarized the test's results, as well as, the models to be used in accordance with the hypotheses.

Table 8: Hypothesis testing for the econometric model

Test	p-value	
	Significant	Insignificant
<i>Chow</i>	Fixed-effects model	Pooled least squares model
<i>Breusch-Pagan</i>	Random effects model	Pooled least squares model
<i>Hausman</i>	Fixed-effects model	Random effects model

We started by performing the *Chow* test, this test would tell us whether we should use the fixed-effects or the pooled model. After obtaining a p-value of 0.000 we rejected the null hypothesis, concluding that the fixed-effects model is preferable to the pooled model.

Secondly, we performed the *Breusch-Pagan* test, to assess whether the pooled model was preferable to the random effects model. This test provided us with a p-value of 0.000 which led us to dismiss the null hypothesis, thus concluding that the random effects model was preferable to the pooled model.

Lastly, we needed to test which of the two models was preferable: fixed effects or the random effects. Using the *Hausman* test, we obtained a p-value of 0.000, which led us to reject the null hypothesis, concluding that the best model for our data set was the fixed-effects model.

Analysing the results of the fixed effects model, shown in Column (II) of Table 9, we verified that the four variables related to domestic country (population, GDP growth, export-to-GDP ratio and inflation), as well as the three control variables (age, size and firm productivity) are statistically significant.

The results related to the firm's domestic country characteristics indicate that the firm's domestic country's population and GDP growth ratio have a negative and significant impact on the firm's export intensity, as expected. The domestic country's population reveals a negative relationship with the firm's export intensity, meaning that firms in larger countries tend to export less, as they have to satisfy their domestic demand. This relationship falls in line with Fakhri and Ghazalian (2014), who concluded that the domestic country's size was

negatively related to the firm's export performance. Alike the domestic country's population, the GDP growth variable also shows a negative relationship on export intensity, i.e., an increase in the firm's nations GDP has a negative effect on its export intensity.

Table 9: Estimation Results (dependent variable: export intensity)

		(I) Pooled model	(II) Fixed effects model	(III) Fixed effects model	(IV) Fixed effects model
Country variables	<i>log(Population)</i>	-6.668133*** (-106.2554)	-3.600291** (-1.98715)		-1.842703 (-1.035172)
	<i>GDP_growth</i>	220.264*** (88.25659)	-6.53161*** (-5.201219)	-6.066184*** (-4.916839)	
	<i>Exp%GDP</i>	-17.22278*** (-50.92461)	6.82919*** (6.473457)	7.841957*** (8.48991)	5.345457*** (5.262794)
	<i>Inflation</i>	205.8376*** (64.69297)	3.489732* (1.860279)	2.89543 (1.56346)	8.523586*** (5.303802)
Control variables	<i>Age</i>	0.016801*** (5.023224)	0.102381*** (6.141922)	0.088006*** (5.860102)	0.123617*** (7.648406)
	<i>log(Size)</i>	4.767821*** (127.0617)	1.594151*** (26.78885)	1.596247*** (26.82812)	1.599126*** (26.87446)
	<i>log(Firm_Prod)</i>	3.972763*** (78.20793)	1.272134*** (24.40033)	1.271583*** (24.38995)	1.276878*** (24.49373)
Adjusted-R ²		0.120592	0.920879	0.920878	0.920870
Prob(F-statistic)		5437.571	82.45924	82.4602	82.45161

Note: (1) *** p < 0.01, ** p < 0.05, *p < 0.1
(2) t-statistic in parentheses

The export-to-GDP ratio and inflation variables show a positive and significant relationship with export intensity, meaning that firms in countries with higher export-to-GDP ratios tend to export more. Likewise, firm's in countries with higher inflation tend to export a larger part of their production. While the relationship between the export-to-GDP ratio and export intensity was expected, the relationship between inflation and the export performance measure shows an unexpected result, note the relatively low significance verified (ten percent). The positive relationship obtained may be justified by the fact that the period analysed is of economic revitalization and the relatively low inflation rates (slightly above 1%, on average), which firms may be absorbing with the objective to increase their sales.

Regarding the results of the control variables, the three variables, age, size and firm productivity, show a positive and significant relationship with export intensity, following the expected pattern. In accordance with the results, older firms present higher export sales to total sales ratio, which is in line with the results presented by Agnihotri and Bhattacharya (2015). The positive relationship between export intensity and the firms size reveals that

larger firms have a greater propensity to export a larger part of their sales, result which falls in line with most studies of our literature review, e.g. Anwar and Nguyen (2011), Gashi et al. (2014) and Yi et al. (2013). Lastly, firms with higher productivity levels export a larger portion of their production, presenting higher export intensity, result also obtained by Reis and Forte (2016).

In order to complement the study and bearing in mind the significance of the correlation of the population and GDP growth variables, we estimated two more equations, isolating each of these variables. The estimation results of the models are captured in Column (III) and (IV) of Table 9. Considering the estimation outputs provided we can conclude that only the GDP growth variable is individually significant. Curiously, the inflation variable loses its significance when export intensity is estimated isolating the GDP growth variable.

Analysing the GDP growth model first, Column (III), we find that all variables present the same relationships with export intensity. However, the inflation variable loses its significance. The estimation output of the population model, Column (IV), reveals an insignificant relationship between export intensity and population. The rest of the variables show the same relationship as the other fixed effects models.

4. Conclusions

The globalization of the world and especially of business, pressures firms to look beyond their domestic market in search of new opportunities, as competition no longer has borders amongst firms. The importance of companies exporting activities for growth and sustainability is generally accepted, especially in times of internal market stagnation and downturn. Exports are equally important to ensure economic growth, hence the importance to understand the determinants of export performance in order to provide policy and decision makers with the tools and information needed to make assertive and pondered macro and microeconomic decisions.

Despite the vast amount of literature on the determinants of export performance, most studies focus on internal factors, while external factors, in particular the country-level characteristics, have been poorly explored (Chen et al., 2016). Focusing our attention on these characteristics, the present work examines the influence of the firm's domestic country on its export intensity, one of the most commonly used measures of export performance found in literature.

Based on a balanced data panel of 39,646 firms from nine European countries, for the period of 2010 to 2016, the empirical results show that the domestic country's population, export-to-GDP ratio, GDP growth and inflation as well as the firm's age, size and productivity are important determinants of firms' export intensity.

The results obtained in this study shed some light on the influence of the domestic country on the export performance of firms. Considering our size variable (population) we find that firms in larger countries tend to isolate themselves more, being dependent on the internal market, evidence that corroborates both economic theory and the empirical results of Fasih and Ghazalian (2014). The estimation results also reveal a positive relationship between our economic growth variable, GDP growth, and export intensity. This result contradicted our expectations, as when there is a rise in the domestic country's economic performance, *ceteris paribus*, the increase in domestic demand is greater than foreign demand, leading to a reduction in firms export intensity. The positive relationship found between this variable and export intensity might be the result of the post 2008 financial crisis economic recovery process, which international trade greatly contributed to (Čerović, Pepić, Petrović, & Čerović, 2014). Our findings also indicate that in countries with higher export-to-GDP ratios, firms tend to present higher export intensity, suggesting that high export-to-GDP rates indicate favourable export conditions. According to our empirical results, high

inflation rates have a positive and significant relationship with export intensity, which contradicts economic theory. Considering that the period analysed is of economic revitalization, as mentioned above, this result should be looked upon with a critical eye, as the firms may be absorbing price increases of its inputs, which are relatively low, in order to sell their products.

Although the results of the present study are statistically significant and contribute to the research in the field of export performance, they are far from conclusive and present some limitations. Firstly, the sample size despite being relatively large was significantly reduced due to limited access to firm's microeconomic data, namely the export revenue and other key financial variables necessary to enrich our model, which limited the amount of countries considered in the panel and the scope of the analysis. Future studies should seek alternatives sources of data in order to overcome this limitation and test other theoretical approaches. Secondly, the econometric model presents some limitations as few studies analyse the domestic country characteristics, not allowing for a strong conceptual base from which to build the estimation model. Future research should focus on these determinants as they have the potential to provide useful insights into the effects of the domestic country's characteristics on export performance. Lastly, the present study does not take into consideration the economic activity of the firms, allowing for possible distortions in the results. Applying a broader approach to the research into this topic, considering both the domestic country characteristics and the industry level characteristics, may prove useful in future research.

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Annexes

Annex 1:

Table A1: Mean of the variables of the model, by country

Variable\ Country	Bosnia and Herzegovina (BA)	Germany (DE)	Estonia (EE)	France (FR)	United Kingdom (GB)	Greece (GR)	Croatia (HR)	Hungary (HU)	Ireland (IE)	Mean
<i>Population</i>	3.612	81.163	1.321	65.971	64.170	10.961	9.901	4.263	4.640	36.788
<i>GDP_growth</i>	1.532	2.048	3.247	1.144	2.002	-3.564	1.801	0.111	6.499	0.765
<i>Exp%GDP</i>	33.114	45.307	81.724	29.170	28.858	28.747	86.863	43.545	111.195	44.991
<i>Inflation</i>	0.687	1.188	2.032	1.028	2.185	0.678	2.328	1.022	0.533	1.479
<i>Age</i>	16.203	40.885	14.737	23.170	29.525	23.261	15.021	18.745	24.764	21.933
<i>Size</i>	91.734	1,052.433	48.156	84.612	603.865	83.186	62.046	272.217	1,633.692	196.174
<i>Firm_Prod</i>	117.375	731.470	272.579	447.131	529.954	307.284	169.307	471.719	1,640.944	372.451

Table A2: Mean value of the variables calculated by economic activity

Economic activity\ Variable	<i>Export Intensity</i>	<i>Population</i>	<i>GDP_ growth</i>	<i>Exp%GDP</i>	<i>Inflation</i>	<i>Age</i>	<i>Size</i>	<i>Firm_Prod</i>
A - Agriculture, Forestry and Fishing	17.754	22.841	0.775	55.639	1.591	19.709	99.319	293.804
B - Mining and Quarrying	21.388	38.846	0.885	42.458	1.524	26.191	189.008	603.045
C - Manufacturing	32.073	35.353	0.844	44.765	1.571	26.336	229.793	229.625
D - Electricity, Gas, Steam and Air Conditioning Supply	5.329	16.975	-0.026	51.288	1.366	16.438	700.218	2,640.027
E - Water Supply; Sewerage, Waste Management and Remediation Activities	9.414	26.129	1.167	58.573	1.668	17.733	112.955	215.611
F - Construction	3.534	39.860	0.913	47.187	1.411	19.552	76.164	243.493
G - Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	10.345	34.143	0.551	45.072	1.396	20.984	113.535	608.486
H - Transportation and Storage	21.641	33.768	0.813	47.326	1.433	20.980	255.866	266.950
I - Accommodation and Food Service Activities	4.881	31.257	-0.027	46.986	1.340	19.813	178.101	96.440
J - Information and Communication	24.155	43.737	1.091	41.833	1.616	19.382	265.657	354.264
K - Financial and Insurance Activities	15.601	54.350	0.668	31.608	1.259	18.085	151.723	520.264
L - Real Estate Activities	6.243	41.635	0.800	44.381	1.401	24.016	170.827	398.471
M - Professional, Scientific and Technical Activities	22.454	44.077	1.165	43.957	1.555	19.519	409.081	289.900
N - Administrative and Support Service Activities	17.253	45.332	0.963	41.060	1.529	19.047	264.794	386.872
O - Public Administration and Defence; Compulsory Social Security	22.036	42.485	1.298	38.986	1.875	21.056	4,351.754	281.308
P - Education	5.054	28.930	0.326	51.262	1.535	16.745	65.580	91.738
Q - Human Health and Social Work Activities	2.092	38.794	0.544	41.296	1.244	19.583	224.977	90.492
R - Arts, Entertainment and Recreation	8.071	43.640	1.063	45.853	1.535	21.700	207.180	236.660
S - Other Service Activities	18.062	43.587	1.430	44.953	1.769	21.430	271.928	259.361
U - Activities of Extraterritorial Organisations and Bodies	2.839	64.170	2.002	28.858	2.185	24.000	45.286	336.720
Mean	18.074	36.788	0.765	44.991	1.479	21.933	196.174	372.451