Cea, C.F., Gonzalo Angulo, J.A. & Crespo Espert, J.L. 2022, "Effects of destination countries financial development and public export credit guarantees on Spanish export", *Journal of International Trade and Economic Development,* vol. 31, no. 3, pp. 410-426.

Available at http://doi.org/10.1080/09638199.2021.1983010

Effects of Destination Countries Financial Development and Public Export Credit Guarantees on Spanish Exports

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Abstract

Without accounting for the period 2008–2009, the evolution of Spanish exports from 2001 to 2015 was marked by constant growth. This period includes an economic recession in Spain from 2008 to 2013, which was accompanied by important credit restrictions to the private sector. This environment pushed Spanish firms abroad for survival, affecting the geographical mapping of exports. With this study, we examined the role played by the degree of financial development in destination countries, and by the export credit guarantees issued by CESCE, the Spanish export credit agency (ECA) in the evolution of such exports. Following previous studies, we proxied the financial development in the destination countries and used CESCE's new business underwritten on exports between Spain and 161 destination countries. We applied a modified gravity model and a System GMM estimator to show that the effects of the financial development in the destination countries on Spanish exports differed by regions and by periods, becoming statistically non-significant during the period of higher financial stress in Spain. Our results also provide evidence that CESCE behaved countercyclically during this period and contributed to the geographical diversification of Spanish exports.

Keywords: Financial development, credit restrictions, public export credit insurance, Spain, gravity equation, dynamic panel data

JEL: F13, F14, G21, G28, H81

Disclosure statement. There are no relevant financial or non-financial competing interests to report.

1. Introduction

Without accounting for the period 2008–2009, the evolution of Spanish exports from 2001 to 2015 was marked by constant growth. This period includes an economic recession in Spain from 2008 to 2013 (Spanish National Institute of Statistics), which was accompanied by important credit restrictions to the private sector as banks faced liquidity stress which hurt their ability to lend (Central Bank of Spain 2014). The stress of the Spanish financial system reached its historical maximum at the end of 2008 but continued to be extremely high in the context of the European sovereign debt crisis, especially by mid-2011 and mid-2012. During these episodes, the financial intermediary's segment was the most stressed affecting the real economy in a very negative way (Cambón and Estévez 2016) due to the high degree of bankarization of the Spanish economy. However, the number of firms that started exporting or became regular exporters grew significantly, and exports at the aggregate level increased helping to turn around the current account balance in terms of its contribution to GDP from -10% in 2007 to a positive 0.7% in 2013. This growth in exports was also accompanied by a change in their geographical mapping, which reduced their dependence on the EU passing from 73 per cent of total exports in both 2001 and 2007 to 66 per cent in 2015, to the detriment of non-traditional emerging markets.

In this scenario of negative economic growth, credit constraints, and exports growth, it is of special interest to analyze the effects that other sources of financing may have had on Spanish exports. Therefore, we pool the empirical results of other sources of financing by reasoning that the financial development in the destination countries, and the export-enhancing effects of the Spanish export credit agency (ECA) should have played a role in determining the level of Spanish exports, especially during the period of financial stress in Spain.

With respect to the financial development of destination countries, it is important for our work as it has received almost no attention in the literature on its role in attracting exporters (Ma and Xie 2019), and developing countries presented limitations in their access to trade finance (WTO and IFC 2019). On the other hand, regarding the effectiveness of the public export credit guarantees provided by Compañía Española de Seguros de Crédito a la Exportación (CESCE), the Spanish ECA, it is important as national governments seek to stimulate their local companies to increase their exports and create gross value added in the home country.[1] Since the financial crisis of 2008, competition in the international market for official export credit support has become unprecedently aggressive, not only among the ECAs to be Participants to the OECD Arrangement,[2] but especially in the context of uneven global competition from non-OECD Arrangement Participants such as China and India (Dawar 2020). In this context, the existence of official export credit support means that importers increasingly demand suppliers to provide better financing terms than those they can find in their own countries. This is especially so in destination countries that are poorly developed financially, particularly for buyers in emerging markets who need to import new machinery to perform capital-intensive activities, including investments with long repayment periods (Dinh and Hilmarsson 2013).

The analysis of the effects of CESCE´s public export guarantees is important for our objective, as the literature states that the export-promoting effects of ECAs are stronger when financing conditions in private markets are tight (Felbermayr and Yalcin 2013; Agarwal et al. 2019; Heiland and Yalcin 2020). Considering the evolution of Spanish exports during the study period, the growing importance of transactions considered as *non-marketable* from an OECD risk framework point of view from 2009 onwards should be highlighted. Our main

[1] By 2019, there were more than 110 national ECAs around the world (Dawar 2020).
[2] http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=tad/pg(2020)1). As of January 2020, the Participants to the Arrangement were: Australia, Canada, the European Union, Japan, Korea, New Zealand, Norway, Switzerland, Turkey, and the United States.

hypothesis is that CESCE should have played an important role in supporting Spanish companies in their internationalization process by providing coverage and, indirectly, financing transactions.

Our estimates show that the financial development in the destination countries should be closely assessed as its effects on Spanish exports differed by regions, becoming non-statistically significant during the period of financial stress in Spain. We also show that CESCE had positive and statistically significant export-enhancing effects, especially during the same period of credit constraints in Spain, contributing to the geographical diversification of Spanish exports.

The remainder of this paper is organized as follows. In the next section, we present an overview of the literature along with the hypothesis to be tested. In the third section, we describe the research method, which includes the data treatment and the empirical strategy. The fourth section sets out the results of the empirical analysis, while the final section contains our conclusions including suggestions for subsequent research.

2. Theory and Hypotheses

The literature widely accepts that countries with more developed financial institutions have a comparative advantage in shaping export patterns, especially in sectors that rely more on external finance (Beck, 2002; Manova 2013). However, despite the fact that over half of the world trade is funded by some sort of financial contracts that depend on the importers' financial institutions (IMF 2009), the literature on the role of the destination country's financial development in international trade is largely absent (Ma and Xie 2019). Recently, some authors have paid more attention on the importance of financial development and credit constraints on imports. Schmidt-Eisenlohr (2013) using gravity regressions and trade finance products showed that importer finance is as important for trade as exporter finance. Ma and Xie (2019) showed that financial development in the destination country is as important as it

is in the country of origin in regard to shaping international trade patterns on both, the extensive and intensive margin. They demonstrated that a higher level of financial development in the destination country attracts more trading partners (exporters), especially those in financially more vulnerable sectors. Serena and Vasishtha (2019) indicate that bank-intermediated trade finance is impaired by global financial strains but may also depend positively on imports growth and be facilitated by country-specific financial factors such as the funding costs of local banks. Nucci, Pietrovito, and Pozzolo (2020) showed that credit constraints have a restraining effect on imports, especially in countries with lower financial development.

These new findings are important for our objective and should be put in context. According to IMF (2009), during the 2008 financial crisis exporters asked importers to provide cash-in-advance or a letter of credit guaranteeing payment for the imports. In this scenario, some importers switched from bank financed trade credit to more general loans. WTO and IFC (2019) showed that after the 2008 financial crisis, developing countries presented limitations in their access to trade finance as global banks were reluctant to invest in them, and hundreds of thousands of correspondent banking relationships disappeared. In a similar way, Auboin and DiCaprio (2017) noted that access to trade finance was costly and scarce in countries which have the strongest potential for trade expansion, and the reduction in trade finance has been particularly important in emerging countries.

Based on the above, and taking the domestic credit to the private sector (Dcps) normalized by GDP as proxy for financial development in the destination countries (Beck 2002; Manova 2013; Schmidt-Eisenlohr 2013; Ma and Xie 2019), we posed our first hypothesis:

Hypothesis 1: *All else constant, higher levels of Dcps (normalized by GDP) in destination countries have positive effects on Spanish exports.*

Besides the financial development in destination countries as a potential source of financing for Spanish exports, we considered the public guarantees issued by the Spanish ECA, especially during the 2008 financial crisis and the subsequent period of financial stress in Spain. Intervention in financial markets can be justified when significant and persistent externalities or market failures persist, and support can be more effective in trade finance than for other types of credit (Chauffour and Farole 2009). Ellingsen and Vlachos's (2009) trade finance theoretical model analyzes public intervention during liquidity crises, showing that financing problems are particularly severe in international transactions, as it is more difficult to make credible pledges across borders than within borders. In this scenario, as well as in transactions that involve long-term commercial and political risks, commercial banks and private insurance companies are reluctant to participate as they are more difficult to forecast in any kind of actuarial way (International Financial Consulting Ltd 2012).

The theoretical considerations justifying the establishment of ECAs stem from Fitzgerald and Monson (1989). Among them, the inability of the financial sector to deal with asymmetric information in international trade should be highlighted, especially in countries with less developed financial systems (Mishkin 1998; Finger and Schuknecht 1999). The last 15 years have seen researchers paying greater attention to testing the export-enhancing effects of public export credit guarantees. This interest has increased since the 2008 financial crisis due to market frictions that provoked trade finance gaps in the form of missing or overshooting insurance markets. In this regard Baltensperger and Herger (2009) presented a model that linked the gravity equation on trade to the risk of default that exports may face, considering the coverage of ECAs to measure how the latter affects international trade.

Different empirical studies have been carried out on the export-enhancing effects of ECAs (Egger and Url 2006 for Austria; Moser, Nestmann, and Wedow 2008 for Germany; Herger and Lobsiger 2010 for Switzerland; Badinger and Url 2013 for Austria; Felbermayr

and Yalcin 2013 for Germany; Janda, Michalíková, and Skuhrovec 2013 for the Czech Republic; Polat and Yesilyaprak 2017 for Turkey; Agarwal and Wang 2018 for the USA; Agarwal et al. 2019 for Sweden; Heiland and Yalcin 2020 for Germany). Overall, they present positive empirical evidence of the export-enhancing effects of their local ECA.

Based on these previous works, we pose our second hypothesis:

Hypothesis 2: *All else constant, Spanish public export credit guarantees encourage Spanish exports*.

However, the literature also states that the effects of public credit guarantees differ across regions (Moser, Nestmann, and Wedow 2008; Baltensperger and Herger 2009; Herger and Lobsiger 2010; Felbermayr and Yalcin 2013; Agarwal and Wang 2018; Agarwal et al. 2019) and are stronger when the financing conditions in private financial markets are tight (Badinger and Url 2013; Felbermayr and Yalcin 2013; Agarwal and Wang 2018; Agarwal et al. 2019). In this sense Heiland and Yalcin (2020) built a theoretical model showing that financing conditions on private financial markets matter for the strength of the beneficial effects of public export credit guarantees, which should be stronger when financing conditions are tight.

Based on the above, and considering the environment of credit restrictions that Spanish companies faced during the period 2008–2013, we pose the following hypothesis:

Hypothesis 3: *All else constant, the export-enhancing effects of the Spanish public export credit guarantees are greater during periods of credit constraints (in the home country).*

3. Research Method

3.1. Data and Measurement of Variables

Dependent variable. The dependent variable is represented by Spanish exports disaggregated by destination country and year, obtained from the Spanish Ministry of Industry, Commerce and Tourism. The value of exports reached 240 billion real euros in

2015; to obtain the data in real terms, the World Bank's GDP deflator (base year 2010) for Spain is used. We worked with an unbalanced panel of 161 countries, which comprises a total of 2,415 observations. It is widely known that the existence of observations for which the dependent variable is zero creates a problem for the usage of the log linear form of the gravity equation. However, in our case, this is not an issue, as we do not have zeros in our export data.

Independent variables. The main independent variables are those used to capture the effects of the financial development in the destination countries and of the public export credit guarantees on Spanish exports.

Dcps: It reveals the degree to which the banking sector provides credit to firms (and households). Higher levels may positively affect the financing of local buyers (Beck 2002; Manova 2013; Schmidt-Eisenlohr 2013; Felbermayr and Yalcin, 2013; Ma and Xie 2019) and, therefore, Spanish exports. (We expect a positive coefficient.) The data used are from the World Bank Global Financial Development Database.

Cesce:[3] To assess the effects of the public export credit guarantees on Spanish exports, we took the coverage applied to new business underwritten by CESCE to country *i* at year *t* in real euros (base year 2010) during the period 2001–2015.[4] CESCE is a mixed capital company in which the Spanish government has a majority stake. CESCE can underwrite export credit insurance on behalf of the government (state account or Spanish ECA) but also to take exposure on their own account just like any other private credit insurance company. We focus our work solely on the state account, as it manages the commercial, political, and extraordinary risks related to the internationalization of Spanish companies on behalf of the Spanish government, in compliance with the applicable regulations under the OECD

[3] We use Cesce to refer to the variable that enters the econometric model.
[4] CESCE´s state account provided us with the coverage applied to new businesses underwritten. Data can be obtained on demand from CESCE.

Arrangement.[5] CESCE offers a wide range of insurance products. We only consider the products that cover the credit risk on the importer (international risk). The main products in terms of firms' usage and amount granted are the Buyer credit and the Supplier credit policies. The former guarantees the repayment of the credit granted by a financial institution to a foreign buyer for the acquisition of Spanish goods and services. The latter covers the collection of sales made on credit by the exporter, who may use the policy to obtain financing by discounting trade receivables under a contract. CESCE's guarantees might be zero if there were no new business authorizations for a given country-year. To resolve the problem with the logarithmic transformation, as in previous studies (Janda, Michalíková, and Skuhrovec 2013; Felbermayr and Yalcin 2013; Polat and Yesilyaprak 2017; Agarwal and Wang 2018), we added one monetary unit to CESCE's authorization values before taking logarithms so that all observations were kept in the log transformation. Based on previous literature on the effects of public guarantees on exports, we expect Cesce to have a positive coefficient, but we are cautious not to interpret the estimate as causal.

Control variables. We utilized bilateral data widely used in the literature as robust gravity proxies to account for trade costs and control for specific effects from Centre d'Études Prospectives et d'Informations Internationales (CEPII). The variables used are: GDP per capita of country *i* at year *t* in real euros (base year 2010);[6] population of country *i* at year *t*; distance, defined as the weighted distance between the largest cities in Spain and country *i*; common language, with the dummy variable being 1 if country *i* has the same official

[5] The Arrangement establishes an international consensus on what constitutes a legitimate export subsidy (Wright 2011). However, when needed, this discipline has been overruled, for instance, during the 2008 global financial crisis and in 2020 due to the Covid-19 pandemic. In the first case, the impossibility of subscribing credit insurance created a market gap that caused ECA to step in to cushion the downturn. Thus, in December 2008, the European Commission adopted a Temporary Framework that expired at the end of 2011, enabling the ECA of those Member States that applied for the exception to underwrite businesses that had previously been regarded as marketable (International Financial Consulting Ltd 2012).

[6] Although the literature on gravity models provides examples of any pair of variables GDP, GDP per capita and population used together, or even all three altogether, we used GDP per capita and population on the grounds that: a) there is more independent variation between these two variables than any other pair; b) several references have also used this variable in their analysis.

language (Spanish) as Spain; and landlocked countries, with the dummy variable being 1 if country *i* is landlocked. According to the literature and economic theory, we expect the following effects on Spanish exports: GDPpc (+), population (+), distance (-), language (+), landlocked (-), $Dcps$ (+), and Cesce (+). The list of destination countries is presented in the Appendix.

[*Table 1 near here*]

Descriptive statistics for the whole sample and period are summarized in Table 1. In addition to their high concentration in certain EU countries, it should be noted that the evolution of Spanish exports shows differences during the study period as they grew by 12% between 2001 and 2008, plummeted by 15% in 2008-2009, and then rose sharply by 57% from 2009 to 2015. Since the 2008 global financial crisis, although export growth dynamics were positive in all regions, they were stronger in less industrialized ones, gaining relative weight in Middle East and North Africa (MENA), especially Morocco where exports tripled, Southeast Asia, and Sub-Saharan Africa.

On the other hand, public export credit guarantees issued by CESCE grew significantly in 2009 and 2010, peaking at 7.3 billion real euros in 2011. This growth made the coverage ratio (guarantees granted over total exports) to evolve counter-cyclically, reaching its highest level in 2009 to 4.4 per cent, while the average ratio for the whole period was 2.96 per cent. By regions, CESCE´s guarantees in the EU fell from one third of total guarantees granted in 2001-2007 to one quarter in 2008-2013 and remained at almost the same level until 2015. In Latin American and MENA this concentration ratio rose slightly between both periods, while in the Commonwealth of Independent States (CIS) plus non-EU Balkan countries, and in Sub-Saharan Africa, it increased from 7 to 12 per cent, and from 2 to 7 per cent, respectively.

In contrast to the guarantees coverage ratio, which is higher in developing countries, the Dcps ratio is normally higher in developed countries (e.g., USA, Japan, Denmark, Hong Kong, UK) resulting both variables to vary significantly in the panel (i.e., Dcps ranged between 312% in Iceland 2006, and 0.41% in Guinea-Bissau 2001; Cesce ranged between 1,317 million real euros in Mexico 2010, and 0 in several country-year).

Given the dynamics of exports, financing inside and outside Spain and Cesce's coverage, we turn to our empirical research to analyze the effects of the different sources of financing on Spanish exports.

3.2. Empirical Strategy

Exporting is a persistent phenomenon, since being an exporter increases the probability of continuing to export in the future (Bernard and Bradford 2004; Greenaway, Guariglia, and Kneller 2007; Besedes, Kim, and Lugovskyy 2014). Therefore, past values of exports help to explain the process by which exports are adjusted to their equilibrium or desired level. To analyze this process, we used a modified gravity model reasoning that the financial development in the destination countries of Spanish exports and the export-enhancing effects of the Spanish ECA played a role in determining this level. Following previous studies that have estimated the effects of their local ECA capturing the effect of lagged exports on current exports (Moser, Nestmann, and Wedow 2008; Janda, Michalíková, and Skuhrovec 2013) we carried out a linear dynamic panel data model.[7] We used the System GMM (Generalized Method of Moments) estimator (Arellano and Bover 1995; Blundell and Bond 1998), which combines the standard set of equations in first difference with suitably

[7] Recently, gravitational models have used non-linear estimators, mainly the Poisson pseudo maximum likelihood (PPML) estimator with robust standard errors (Santos Silva and Tenreyro 2006). In the context of repeated observations, the generalized estimating equations (GEE) method (Liang and Zeger 1986) may also consider the within-group correlation to increase efficiency using a 'working' generalized linear model (GLM) for the marginal distribution of $exports_{it}$, and a 'working' correlation matrix. However, these non-linear estimators may present problems to reliably infer the statistical significance of the interaction term coefficients (Ai and Norton 2003).

lagged levels as instruments, with an additional set of equations in levels with suitably lagged first-differences as instruments (Janda, Michalíková, and Skuhrovec 2013).

The basic idea behind a gravity equation is related to the determinants of the strength of the gravitational pull. For our model, the volume of export flows from Spain is supposed to be positively determined by the importing country's mass, and negatively determined by the distance between them. Having data on one exporting country and several importing countries, we adapted the model accordingly. The panel's structure has one dimension of time, another dimension of country-level data for Spanish exports, and for the local countries' main variables.

As in previous works, we used a partial adjustment model to determine the equilibrium level. We made Spanish exports in year t depend on exports in year *t-1*, our variables of main interest, and the gravitational control variables. Thus, our equation presents the form:

$$ln(exports_{it}) = \alpha + \gamma ln\left(exports_{i(t-1)}\right) + \beta_1 ln(GDPpc_{it}) + \beta_2 ln(population_{it}) + \beta_3 ln(distance_i) +$$

$$\beta_4(language_i) + \beta_5(landlocked_i) + \beta_6 ln(Cesce_{it}) + \beta_7 ln(Dcps_{it}) + d_t + \varepsilon_{it} \qquad |\gamma| < 1$$

where *ln* refers to natural logarithms, subscript *i* refers to the import country, and *t* to the time in years, which covers the period 2001–2015. Together, $GDPpc_{it}$ and $population_{it}$ represent the measures of a country's *i* mass in year *t*, and $distance_i$ represents the distance between Spain and each importing country.

When searching for an adequate model specification, we paid attention to two aspects. First, we analyzed the stationary nature of each variable by subsample of countries running unit-root tests using Im, Pesaran, and Shin (2003). [8] Second, to establish an initial specification on how the variables may enter the model, especially $Dcps$ and $Cesce$, we

[8] Working on the entire panel presented limitations in the analysis, as not all countries had the minimum data to run the Im, Pesaran, and Shin (2003) test, so we proceeded to maximize the sample in each case. These limitations do not apply to exogeneity tests. (Test results not reported).

followed previous works on the effects of public guarantees on exports and carried out strict exogeneity tests (Wooldridge's Wald test). We obtained results by subsamples of countries that made us start treating them as exogenous, gradually incorporated them as endogenous or predetermined, combining instruments for different model transformations. For the analysis of the classification of these regressors and to help us establish the final specification of the model and the instrument set, we obtained difference-in-Hansen tests for the joint validity of different subsets of instruments and for each group of instruments. In all regressions we included time dummies as instruments avoiding the dummy-trap, used the collapse option to avoid instruments proliferation and the two-step Windmeijer (2005) correction.

4. Empirical Results

In this section, we present the results obtained from the gravitational model of Spanish exports, focusing on the importance of the financial development in the destination countries and Cesce. The findings are divided into two sections: (1) effects by regions; (2) effects by regions and by periods.

4.1. Effects of financial development in destination countries and public export credit guarantees on Spanish exports by regions.

In this section, we analyzed the whole period considering four different samples: a) all countries considered in the study; b) countries non-Participants to the OECD Arrangement; c) Sub-Saharan Africa, MENA, the Asia-Pacific, the CIS and non-EU Balkan countries (hereinafter, AAP); d) Latin American and the Caribbean countries (hereinafter, Latamca). In each case we dropped those countries that do not correspond to each specific group,[9] showing the results on a stand-alone basis in Table 2.[10] The coefficient of the lagged dependent variable (exports) is positive, significant, and less than 1 in all regressions, showing that the

[9] For the non-Participants to the OECD Arrangement group of countries, we considered the year in which the country joined the consensus.

[10] It must be noted that the AAP group of countries has only one country with Spanish as official language (Equatorial Guinea); thus, this variable was not introduced in the model.

data generating process is dynamic, which indicate that we would have had biased estimates using static models. As expected, this coefficient is slightly lower in AAP countries as they are, on average, less traditional destinations for Spanish exports, and conversely, for Latamca, the estimated coefficient is higher showing, on average, a greater recurrence in sales to this region. We understand that this regularity is due to the past colonial relationship, similar cultures, and having the same official language in most countries. Regarding the gravitational variables, from column (1) to (3), all variables, GDP per capita, population, Spanish as an official language, distance and landlocked countries present coefficient estimates with the expected sign and are statistically significant at the 1% level.

[*Table 2 near here*]

Regarding GDP per capita, we see that for the AAP group of countries, the coefficient estimate is slightly higher than for the rest of groups. The reason is that many of these countries are listed on the inferior levels of the World Bank classification by income groups; making the difference with respect to those countries with greater purchasing power more significant on Spanish exports. The distance and landlocked variables also present higher estimated coefficients in AAP countries, albeit with a negative sign. Regarding the former, this is because some countries in this group with greater proximity are more common destinations for Spanish exports (especially countries in North Africa, such as Morocco and Algeria), to the detriment of other countries such as those in the Asia-Pacific. Regarding the landlocked variable, this could be because there are countries whose condition of having no port exit adds to their lower levels of income, especially those in Sub-Saharan Africa. On the other hand, for the Latamca group of countries it is interesting to analyze the variables as a whole. GDP per capita and population present positive estimated coefficients that are significant at the 1% and 5% level, respectively, whereas having Spanish as the official language and distance become non-statistically significant. While these results may seem

strange at first glance, it should be remembered that we are looking at the region on a stand-alone basis. For the language variable, the reason is that there are several small countries, such as those in Central America, that attract fewer exports from Spain to the detriment of other countries such as Brazil, which would condition the result. Regarding the distance variable (which presents a high standard error), we understand that the important factor is having to cross the Atlantic Ocean, which could act as a common threshold. Furthermore, there are countries further away in South America, such as Chile and Argentina that attracted a significant amount of Spanish exports.

Focusing on our variables of main interest, an important outcome is that Dcps presents positive coefficient estimates in all regressions, being statistically significant in columns 1 (0.073, $p < .1$) and 2 (0.084, $p < .1$), indicating that higher levels of provision of credit to the private sector in destination countries had positive effects on Spanish exports to these same groups of countries when considering the whole period.[11] These results lead us to partially support Hypothesis 1, concluding that the financial development in destination countries had significant effects on Spanish exports, except for the AAP and Latamca group of countries when considering the whole period.

Regarding Cesce, it has positive coefficient estimates and it is statistically significant in all regressions, supporting the hypothesis that CESCE's coverage leads to higher Spanish exports, which is consistent with the theoretical arguments and previous empirical studies; thus, Hypothesis 2 receives support. The estimated coefficient for all countries (column 1), is slightly larger (0.021) than in the rest of groups, and statistically significant at the 1% level, while for the other groups of countries we may see lower estimated coefficients and statistical

[11] These results coincide (positive and significant coefficients) when dropping from the total sample those countries that had the euro as their official currency (0.104, $p < .05$); and when removing Muslim countries that must comply with Sharia (Islamic law) in those jurisdictions in which the Islamic finance sector had systemic importance (0.076, $p < .1$). For the latter case, we considered those countries that met this criterion during the first half of 2015 (i.e., Bangladesh, Brunei, Iran, Jordan, Kuwait, Malaysia, Qatar, Saudi Arabia, the United Arab Emirates (UAE), and Yemen), (Islamic Financial Services Board 2016).

significance levels. These results are in line with previous studies as similar conclusions were drawn by Baltensperger and Herger (2009) and Felbermayr and Yalcin (2013), who showed that public guarantees promoted trade towards middle- and high-income countries but failed to facilitate trade with more unstable low-income countries. We are interested in the long-run effect of Cesce, calculated as $\beta_6 \ / (1 - \gamma)$, which estimated coefficient can be expressed as an elasticity showing that a 1 per cent increase in guarantees leads to a 0.036 (0.021 / (1-0.406)), per cent increase in exports. These figures are slightly lower, but with higher level of statistical significance, than in the only two papers which used a similar methodology. In Janda, Michalíková, and Skuhrovec 2013 the estimated coefficient of the guarantees was (0.032, $p < .1$) and in Moser, Nestmann, and Wedow 2008 (0.030 $p < .05$), obtaining a long-run effect of 0.064 and 0.060, respectively. In our work, the lower long-run effect is due to two factors: a lower estimated coefficient of the guarantees; and to a lower estimated coefficient of the lagged dependent variable (γ), which shows a lower recurrence in exports produced by changes in the geographical mapping of Spanish exports during the period.

To check the validity of the model and the instruments set, we may see that the tests carried out show a good fit for each estimation. The Arellano-Bond AR(2) test does not suggest a second-order serial correlation. The Hansen test indicates that, conditional on exact identification, the additional instruments are valid. The difference-in-Hansen statistics for the joint validity of the GMM-style instruments for the levels equations, the one that must be valid for System GMM to be consistent, indicate similar evidence. Finally, we obtain a number of instruments relatively low with respect to the number of groups.[12]

4.2. Effects of financial development in destination countries and public export credit guarantees on Spanish exports by regions and by periods.

[12] For the Latamca group, the number of instruments is closer to the number of countries but below the individual units in the panel, which is considered a minimal rule of thumb (Rodman 2009).

In this section, we compared the effects of our variables of main interest on Spanish exports considering the different financial environments faced by Spanish companies during the study period. To this end, we introduced a dummy variable that indicates the period of financial stress that Spain suffered from 2008 to 2013 (SFS = 1), and we continued working with the same groups of countries to determine the differences between them.

Table 3 shows the results of each group on a stand-alone basis. As expected, the estimated coefficients of the variables that do not interact with the dummy present similar results to those obtained in the previous case. Thus, we focus on our variables of

[*Table 3 near here*]

interest that do interact. The first thing to note is that we have a new variable that captures the main effect of the period of SFS = 1 on Spanish exports, which differs among groups of countries. Considering all countries (column 1), we may see that the estimated coefficient is positive and statistically significant at the 1% level (5.135, $p < .01$), being similar in column 2 for those markets outside the non-OECD Arrangement region (5.046, $p < .01$). More interesting are the coefficients in regions AAP (6.076, $p < .01$) and Latamca (-4.214, -), showing that Spanish exports gained weight in non-traditional markets during the financial stress period (SFS = 1).

Regarding the effects of the financial development in the destination countries on Spanish exports, they present differences by regions and by periods. However, what is most interesting is to see is that the evolution of this variable followed a similar path irrespective of the chosen region. During the period with lower financial stress in Spain, SFS = 0, the estimated coefficients were higher and with higher levels of statistical significance (also in Latamca, even though it did not reach a ten per cent level) than during SFS = 1. These positive effects decreased during the period of financial stress in Spain, SFS = 1, losing their statistical significance in all regions. At first glance, the lower estimated coefficients and

statistical significances can be understood in a framework that encompasses the financial crisis of 2008 and subsequent years, but it can also be interpreted as a limitation of financing to operations involving Spanish companies due to the high perception of country risk. These results are relevant as they show that in addition to the existing credit restrictions in Spain, higher levels of financial development in the destination countries did not have significant effects on Spanish exports during period SFS = 1. Therefore, and returning to Hypothesis 1, when disaggregating the regions in different periods, we see that the hypothesis would be partially supported during the period SFS = 0, concluding that the financial development in destination countries had significant effects on Spanish exports, except for the group of Latamca countries.[13] However, the hypothesis is rejected when considering the financial stress period (SFS = 1).

Concerning Cesce, the first thing to note is that Cesce shows positive and statistically significant estimated coefficients in all regions and in both periods. An important thing to emphasize is the increase in the estimated coefficients, and in the levels of statistical significance, during the period of financial stress in Spain, SFS = 1. The estimated coefficients of those groups that do not include traditional EU markets (columns 2, 3 and 4) increased more than when considering all countries (column 1). This shows a greater increase of CESCE´s export-enhancing effects to non-traditional markets during SFS = 1, especially in

[13] These results indirectly show the importance of the financial development in the Latamca region on the evolution of Spanish exports to this region. This situation could be explained by several reasons. First, the lower level of profit efficiency in Latin American banks compared to Asian banks (Ioannidis, Molyneux, and Pasiouras 2008), impact that continued being different after the 2008 financial crisis as Asian banks depended more on bank-specific variables (Ahmad, Koh, and Shaharuddin 2016). Second, the systemic banking crises in Argentina (2001–2003) and Uruguay (2002–2005). Third, during the period SFS = 0, the region's financial development was already conditioned by a low level of efficiency. In line with Calice and Zhou (2018), who stated that this region has a specific idiosyncrasy regarding costs since financial intermediation expenses are particularly high, we obtained similar inferences using measures of financial development such as the bank net interest margin (Beck, Demirguç-Kunt, and Levine 2009; Chor and Manova 2012; Schmidt-Eisenlohr 2013), and the bank overhead costs as a percentage of total assets, which presented a similar path as the bank net interest margin with negative effects on Spanish exports (coefficients not reported). These efficiency variables reduced their negative effects on Spanish exports during the period SFS = 1, possibly due to the increasing convergence in efficiency in the banking sector in the region (Carvallo and Kasman 2017). (Note: Chor and Manova (2012) used interbank rates instead of the bank net interest margin as measure of financial development to capture the credit tightening across countries and over time.)

the AAP region, where Cesce became statistically significant at the 1% level, (0.020, $p < .01$). These results lead us to support Hypothesis 3, regardless of which region is considered, indicating that the strength of the effects of the public export credit guarantees were stronger when financing conditions were tight, which is in line with the literature. But for our purpose, what is most important is to see that these CESCE enhancing effects coincided with the period in which Spain faced significant financial stress in its financial market while also experiencing a reduction in the effects of the financial development in the destination countries on Spanish exports.

4.3. Robustness Checks

We carried out several statistical robustness checks to ensure the reliability of the results obtained by our model. First, we examined its stability by checking that the estimated coefficients of each regression were reasonably stable when specifying different lags for the transformed equation. Second, we compared the results of each regression using the same lag limits for each one, normally obtaining values between 0.1 and 0.25 of the Hansen tests that evaluate the entire set of overidentifying restrictions, which is the optimal interval (Rodman 2009). Third, we considered the domestic credit to the private sector as endogenous based on the idea that bank-intermediated trade finance may depend positively on imports growth. Our results indicate that the estimated coefficients of $Dcps$ slightly increased in both periods in all regions (not reported) but the pattern of the dynamics does not change as the estimated coefficients remain statistically significant during SFS = 0 and not during SFS = 1.

5. Discussion and Conclusion

The relationship between exporting and finance is receiving more attention as recent studies have pointed in new directions, for example, emphasizing the role of the destination country's financial development in determining bilateral trade patterns. We contribute to the literature with a paper from the individual perspective of a country with exports growth

during two different periods, one of them with high financial stress and credit constraints in its local market. In this scenario, we analyzed the effects of the financial development in destination countries and of the Spanish ECA on Spanish exports, with the latter also being, to the best of our knowledge, the first study on the export-enhancing effects of CESCE. For this purpose, we used a dynamic panel data model and a System GMM estimator in order to deal with endogeneity and the fact of having two periods with few years. Our results show that exports growth was not homogeneous during the period of financial stress in Spain. Significant growth was experienced in non-traditional markets to the detriment of traditional markets, mainly the EU and to a lesser extent in Latin American and Caribbean region, which due to cultural aspects has traditionally been considered a potential destination for Spanish exports. Considering the period with lower financial stress in Spain, we provided evidence that the financial development in destination countries played a positive role on Spanish exports. However, this hypothesis was only partially supported as the Latin American and Caribbean region did not have a statistically significant effect on Spanish exports during this period, mainly because the idiosyncrasy of the banking sector in the region. On the other hand, during the period with higher financial stress in Spain, the dynamics changed and the effects of the financial development in destination countries on Spanish exports became statistically non-significant in all regions.

But along with these lower estimated coefficients and the loss of statistical significance, we show that the variable representing the export-enhancing effects of the Spanish ECA increased significantly during this period in all regions. These results provide evidence that CESCE behaved countercyclically and contributed to the geographical diversification of Spanish exports during the period of higher financial stress in Spain.

Our results open a path for future research on the role of export financing in Spain. It would be interesting to identify those country-sectors where CESCE might provide greater

additionality on Spanish exports based on the financial development of the destination countries. To this end, it requires the analysis of additional information such as disaggregated ECA coverage data at the sectoral level, which CESCE could not provide at the time of this study.

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Appendix

Table A: *List of Destination Countries*

Sub-Saharan Africa (& Islands)	Angola, Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Comoros, Congo, Congo Democratic Republic, Cote d' Ivoire, Equatorial Guinea, Eritrea, Eswatini, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome & Principe, Senegal, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zambia,
MENA	Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Tunisia, UAE, Yemen
East Asia & Pacific	Australia, Brunei Darussalam, Cambodia, China, Fiji, Hong Kong, Indonesia, Japan, Republic of Korea, Macao, Malaysia, Mongolia, New Zealand, Papua New Guinea, Philippines, Samoa, Singapore, Thailand, Vanuatu, Vietnam
South Asia	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
CIS & non-EU Balkans	Albania, Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Macedonia, Moldova, Montenegro, Russia, Serbia, Turkey, Ukraine
Latin America & the Caribbean (Latamca)	Argentina, Aruba, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Suriname, Trinidad & Tobago, Uruguay, Venezuela
Rest of Countries	Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech-Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, UK, US

Note: Split by region for better identification.

Table 1: *Descriptive statistics*

Variable	Max	Obs.	Mean	Std. Dev.	Min
Exp (mill. euro)	38,430	2,411	1,146	3,883	0.01
GDPpc (euro)	105,761	2,409	11,112	15,364	155
Population (mill.)	1,371	2,411	39.64	144.06	0.07
Distance (km)	19,516	2,415	5,845	3,725	679
Language (0,1)	1	2,415	0.12	0.33	0
Landlocked (0,1)	1	2,415	0.17	0.38	0
Cesce (mill. euro)	1,317	2,414	33.96	95.29	0
Dcps (% of GDP)	312	2,379	51.58	44.62	0.41

Table 2. Effects of Financial Development in Destination Countries and Public Export Credit Guarantees on Spanish Exports by Regions

	(1)	(2)	(3)	(4)
Dep.var. ln(exp)	All countries	Non-OECD Arrangement	AAP	Latamca
ln(exp) (t-1)	0.406***	0.393***	0.327***	0.597***
	(0.057)	(0.060)	(0.068)	(0.124)
ln(GDPpc)	0.503***	0.525***	0.590***	0.339***
	(0.060)	(0.065)	(0.078)	(0.089)
ln(Population)	0.498***	0.519***	0.546***	0.328**
	(0.058)	(0.064)	(0.069)	(0.128)
ln(Distance)	-0.774***	-0.843***	-0.900***	0.370
	(0.103)	(0.121)	(0.121)	(0.728)
Language	0.717***	0.763***	-	0.228
	(0.123)	(0.133)	-	(0.277)
Landlocked	-0.530***	-0.612***	-0.789***	-0.256
	(0.102)	(0.118)	(0.150)	(0.160)
ln(Cesce)	0.021***	0.017***	0.017**	0.018*
	(0.006)	(0.005)	(0.007)	(0.009)
ln(Dcps)	0.073*	0.084*	0.088	0.063
	(0.044)	(0.048)	(0.062)	(0.112)
Nb observations	2216	1773	1392	397
Nb countries	161	139	101	29
Number of instruments	25	25	25	26
A-B AR(1) (p-value)	0.000	0.000	0.000	0.008
A-B AR(2) (p-value)	0.621	0.609	0.727	0.324
Hansen test (p-value)	0.158	0.151	0.293	0.178
Difference-in-Hansen subsets				
GMM instruments for levels				
Hansen test excluding group:	0.160	0.166	0.138	0.122
Difference (null H = exogenous):	0.216	0.191	0.611	0.474

Notes:

(i) The panel dimension is country-year. (ii) Response variable in logarithm. (iii) Cesce added 1 for logarithmic transformation. (iv) *p<0.1, **p<0.05, *** p<0.01. (v) Time dummies included (not reported). (vi) Robust standard errors are reported in parentheses. (vii) Windmeijer's correction for the two-step covariance matrix. (viii) Orthogonal deviations were used.

Table 3. Effects of Financial Development in Destination Countries and Public Export Credit Guarantees on Spanish Exports by Region and Periods

	(1)	(2)	(3)	(4)
Dep.var. ln(exp)	All countries	Non-OECD Arrangement	AAP	Latamca
ln(exp) (t-1)	0.394***	0.388***	0.326***	0.570***
	(0.056)	(0.060)	(0.062)	(0.092)
ln(GDPpc)	0.514***	0.540***	0.595***	0.386***
	(0.059)	(0.066)	(0.072)	(0.102)
ln(Population)	0.509***	0.530***	0.546***	0.365***
	(0.057)	(0.065)	(0.061)	(0.092)
ln(Distance)	-0.791***	-0.826***	-0.900***	0.332
	(0.102)	(0.121)	(0.114)	(0.630)
Language	0.732***	0.754***	-	0.269
	(0.122)	(0.133)	-	(0.237)
Landlocked	-0.545***	-0.609***	-0.785***	-0.246*
	(0.102)	(0.119)	(0.144)	(0.138)
Crisis	5.135***	5.046***	6.076***	-4.214
	(0.858)	(1.041)	(1.064)	(5.354)
ln(Cesce)				
Cesce, SFS = 0	0.018***	0.014**	0.015**	0.017*
	(0.006)	(0.006)	(0.007)	(0.009)
Cesce, SFS = 1	0.024***	0.020***	0.020***	0.023**
	(0.006)	(0.006)	(0.007)	(0.011)
ln(Dcps)				
Dcps, SFS = 0	0.103**	0.116**	0.102*	0.123
	(0.043)	(0.047)	(0.061)	(0.102)
Dcps, SFS = 1	0.028	0.030	0.060	-0.088
	(0.051)	(0.060)	(0.067)	(0.173)
Nb observations	2216	1773	1392	397
Nb countries	161	139	101	29
Number of instruments	27	27	27	27
A-B AR(1) (p-value)	0.000	0.000	0.000	0.002
A-B AR(2) (p-value)	0.602	0.595	0.732	0.237
Hansen test (p-value)	0.126	0.105	0.446	0.147
Difference-in-Hansen subsets				
GMM instruments for levels				
Hansen test excluding group:	0.146	0.129	0.327	0.248
Difference (null H = exogenous):	0.173	0.152	0.618	0.113

Notes:
(i) The panel dimension is country-year. (ii) Response variable in logarithm. (iii) Cesce added 1 for logarithmic transformation. (iv) *p<0.1, **p<0.05, *** p<0.01. (v) Time dummies included (not reported). (vi) Robust standard errors are reported in parentheses. (vii) Windmeijer's correction for the two-step covariance matrix. (viii) Orthogonal deviations were used.