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TARIFF PROTECTIONIST MEASURES
AND SPANISH GOODS EXPORTS

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ABSTRACT

The rise in global protectionist tensions in recent years has, after decades of across-the-board declines, entailed increases in tariffs that are proving detrimental to international trade and thereby affecting the Spanish economy's external sector outlook. This article estimates the effect of tariffs on Spanish non-energy, non-EU goods exports drawing on data broken down by country of destination and type of product. The results show that an increase in tariffs adversely impacts both export possibilities and, persistently, export values. On the estimates made, a 1% increase in import tariffs imposed by another country on a Spanish product entails a reduction in nominal exports of around 0.6%. Protectionist risks underscore the role of the EU in promoting international trade agreements, such as those recently entered into with Japan, Canada and Mercosur.

Keywords: trade, exports, protectionism, tariffs.

JEL codes: F1, F13, F14.

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Introduction

Foreign trade was a primary lever in the recovery of the Spanish economy following the recession that began in 2008. It has also been a vital factor of support in the firming of a sound growth path in recent years, providing for a significant adjustment of the current account deficit (see Banco de España, 2017). That said, the year 2018 saw a downward turn in the contribution of the external sector to the increase in GDP. This was as a result of a significant slowdown in exports, which were affected by the deceleration in external demand and the appreciation of the euro as from 2017. Against this background, uncertainty over the resolution of the global protectionist tensions and the final outcome of Brexit are all the more relevant for assessing the balance of medium-term risks to the Spanish economy's external sector.

The protectionist tensions are leading, and might do so to a greater extent in the future, to tariff increases in trade between the main economic areas. Recently, the US administration announced increases to 25% and 10%, from 18 October 2019 for a year, in the respective tariffs applied to a range of agricultural products and civilian aircraft from the EU (in Spain's case, exports of the first type of good are essentially affected). The decision follows the ruling by the WTO arbitration panel on a dispute involving EU subsidies to civil aviation, which has authorised the United States to impose counter-measures on the EU worth €6.8 trillion (affecting Spain for a sum of around €790 million). If this announcement ultimately takes effect, the EU has said it will respond with similar measures once a similar dispute involving US public subsidies to its aeronautical sector is resolved by the WTO.

The adverse consequences of this imposition of tariffs for international trade in goods and services, for activity and, generally, for the efficient functioning of economies have been widely analysed in the literature (see Ahn *et al.*, 2016; Furceri *et al.*, 2019). These tensions are unfolding in a scenario in which global trade has already been weighed down since the global financial crisis by the increase in non-tariff barriers (see Henn and McDonald, 2014), whose impact on exports is significant, including in Spain's case (see Kirpichev and Moral-Benito, 2018).

Likewise, Brexit will involve a re-shaping of trade relations between Spain and the United Kingdom. The possible final outcome will encompass several scenarios ranging from those in which a substantial portion of the current institutional framework is retained to others in which these relations would be governed by World Trade Organization (WTO) rules, with the subsequent imposition of tariffs (see Vega, 2019).

This article estimates the elasticity of nominal exports to tariffs.[1] In this connection we construct a database, of an annual frequency, of Spanish non-energy goods exports, in nominal terms, to non-EU markets, together with the tariffs they bear. The data are broken down by country and by product, drawing on the World Bank's information on tariff measures *(World Integrated Trade Solution)* and on Eurostat's annual trade flows for the 1995-2017 period. The database contains information on exports to 178 countries and 1,226 types of goods.

The results obtained show that the elasticity of exports to increases in tariffs is negative and statistically significant, although the magnitude depends on the econometric specification used. In practical terms, these results reveal that increases in tariff barriers have an adverse and persistent impact on our economy's export capacity. Further, the results highlight the importance of the trade agreements recently reached by the EU with Japan, Canada and Mercosur, involving the elimination of tariffs in over 90% of the trade in goods with these regions, to which close to 3% of Spanish goods exports are sold (see González *et al.*, 2017; Banco de España, 2019).

The rest of the article is structured as follows. The second section analyses the main features and changes in the tariffs applied to Spanish exports in recent decades. The following section describes the estimation methodology used and the key findings.

Tariff developments

Over recent decades, the liberalisation of global trade has driven the progressive lowering of tariffs applied to trade in goods (see Chart 1.1). Spanish exports have benefited particularly from this process of trade openness: the average tariff actually applied to Spanish goods (which is weighted by the product structure

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1 Ideally, it would be desirable to conduct the analysis in real terms. The reason why it is carried out using nominal data is greater data availability. Given the nominal effects, the impact on real flows depends on the adjustment of prices. In this respect, if exporters faced with a rise in tariffs were not to alter their prices, the real and nominal effects would coincide. Conversely, if their margins were to absorb the amount – in full or in part – of the tariff, the nominal effect would be of a greater magnitude than the real effect.
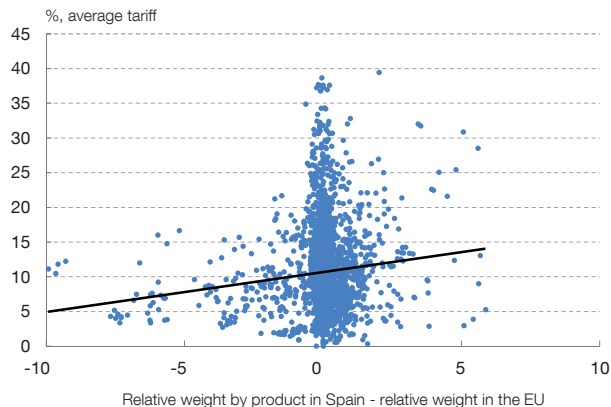
Chart 1
TARIFFS AND TRADE

Tariffs have fallen strongly in recent decades, including those applied to Spanish exports. In terms of sectors, this decline has been across the board.
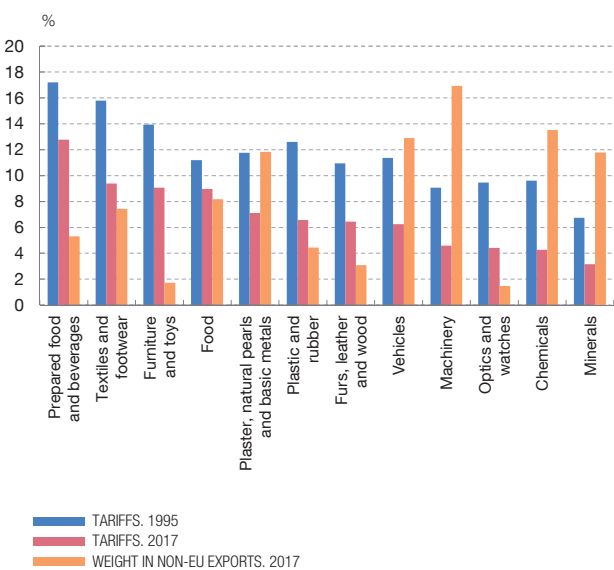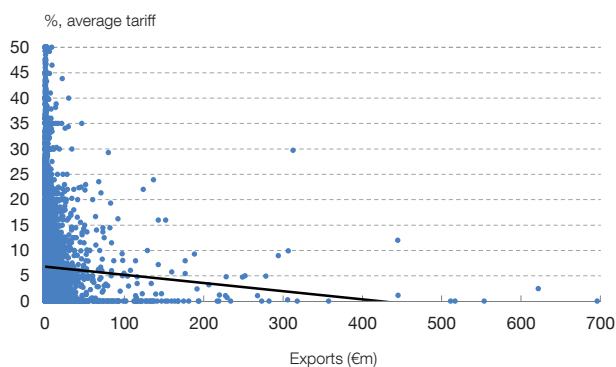
1 EFFECTIVE TARIFFS ON EXPORTS
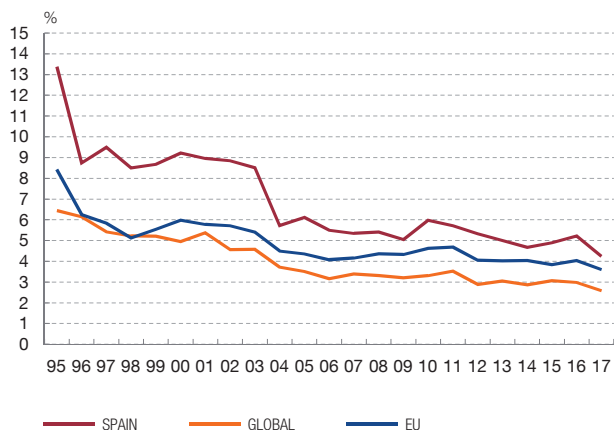
2 DIFFERENCE IN THE RELATIVE WEIGHT OF PRODUCT-DISAGGREGATED EXPORTS BETWEEN SPAIN AND THE EU, AND TARIFFS APPLIED

3 AVERAGE TARIFFS BY SECTOR

4 SPANISH NON-EU EXPORTS AND TARIFFS BY PRODUCT-DESTINATION. 2016

SOURCES: Own calculations, Eurostat and WITS.

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of exports) fell by 9 pp from 1995. This decline is more marked than that undergone by tariffs applied to global trade as a whole and to that of the EU (4 pp and 5 pp, respectively). However, the actual average tariff borne by Spanish goods is still somewhat higher than that of our Community partners (4.2% compared with 3.6% in 2017).

The positive difference between the tariffs effectively applied to Spain and to the EU reflects the interaction between the product structure of exports and

the tariffs borne by the different types of goods. As Chart 1.2 shows, the composition of Spanish exports is skewed, compared with that of the EU, towards products to which higher tariffs are applied. This gap is largely due to the higher relative weight in Spanish exports of the agricultural sector, which accounts for around 20% of non-EU exports and is subject to appreciably higher tariffs (9%-13%) than those applied to other types of goods (5% on average) (see Chart 1.3). Textile products also bear tariffs higher than 9% and their relative weight in Spain's non-EU exports (which exceeds 7% of the total) is also greater than in the EU on average.

The lowering of tariff barriers from 1995 to 2016 has been across the board in terms of types of goods. The most notable declines (of over 50%) have been in the tariffs applied to minerals, chemicals and machinery.[2] This ongoing reduction in tariffs has coincided with a notable internationalisation of the Spanish productive system. The following section estimates how tariffs affect Spanish exports.

Methodology and main findings

Analysis of the determinants of trade in goods, through the so-called gravity equations, reveals that transaction costs, among which are tariffs, exert a negative impact on the level of exports to a specific country. Chart 1.4 shows that the correlation between product-disaggregated Spanish nominal non-EU exports and the tariff applied by each country is clearly negative. This correlation suggests that sufficiently high tariffs could affect the decision to export a specific product to a specific country.

Table 1 summarises the estimates of the impact of tariffs on the probability of exporting a product to a specific country and the elasticity of nominal exports to tariffs, i.e. the extent to which exports vary given a percentage change in the level of tariffs.[3] Column 1 shows the estimation coefficients of a probit model that explains the probability of export in terms of the magnitude of the tariff. The dependent variable is a dummy that takes the value 1 if there is an export relationship and 0 if the opposite occurs. According to the estimation, the probability of export diminishes as tariffs increase. Accordingly, the positive effect of the across-the-board lowering of tariff barriers in recent decades on the probability of export is estimated to have been conducive to total export growth

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2 This reduction is also seen as the level of aggregation decreases to country-product combinations disaggregated by type of good (4-digit level).

3 In Customs data, exports are valued in FOB (Free on Board) terms and imports in CIF (Cost, Insurance and Freight) terms. In neither case are tariffs included to calculate the value of trade transactions.

Table 1
TARIFFS AND EXPORTS (a) (b)

	Probability of export	Exported value. Levels			
	(1)	(2)	(3)	(4)	(5)
Tariffs	-0.059***	-0.569***			
(s.e.)	(0.015)	(0.091)			
Tariffs (t-1)			-0.587***		
(s.e.)			(0.101)		
Tariffs (t-2)				-0.611***	
(s.e.)				(0.100)	
Tariffs (t-3)					-0.535***
(s.e.)					(0.098)
# obs.	973,261	693,680	551,072	512,059	481,087
R2	0.519	0.726	0.744	0.750	0.755
Controls (c)	pt, dt, pd	pt, dt, pd	pt, dt, pd	pt, dt, pd	pt, dt, pd

SOURCES: Own calculations, Eurostat and WITS.

a The sample used in the estimation comprises Spanish non-energy, non-EU nominal goods exports in the 1995-2017 period.
b * significant coefficient at 90%, ** at 95%, *** at 99%.
c Dummy variables that control for product-year (pt), country of destination-year (dt), product-country of destination (pd), product (p), country of destination (d) and year (t).

not only through deepening existing trade relations but also through the opening up of new markets, thanks to the increase in the probability of export to other countries or with other products.

The elasticity of nominal exports to tariff changes can be estimated using a set of variables to control for the impact of temporary factors, the characteristics of the goods exchanged and end-markets (see Henn and McDonald, 2014; Cheong et al., 2018). The relationship between nominal exports and tariffs is expressed by the following equation:

$$\ln x_{pdt} = \beta \ln(1 + T_{pdt}) + \delta_{pd} + \theta_{pt} + \alpha_{dt} + \varepsilon_{pdt} \qquad [1]$$

where x_{pdt} denotes the exports in logarithms of product p to destination d in year t; T_{pdt} the tariffs disaggregated by product-destination-year; and δ_{pd} is a dummy variable designed to capture fixed characteristics of products and end-markets, added to which are others that capture specific temporary shocks that affect the different products (θ_{pt}), markets (α_{dt}) and their interactions (ε_{pdt}). These variables help control for the omission of relevant explanatory variables, such as the distance to the counterpart country (which raises trade transaction costs), structural changes in the productive sector of a good and changes in the GDP of a trading partner (proxying market size).

The estimates show that the elasticity of non-energy nominal goods exports to increases in tariffs is negative and statistically significant.[4] Thus, a 1% increase in import tariffs imposed by another country on a Spanish product entails a reduction in nominal exports of approximately 0.6% (see column 2 in Table 1).

Lastly, the negative effect of tariffs affects long-term export capacity since, on the estimates made with lagged tariffs, the impact of tariffs is persistent over time (see columns 3-5 in Table 1).

The results obtained in this article can be used to estimate the foreseeable effects of the above-mentioned US increase in tariffs on a set of Spanish agricultural products from 3.5% at present to 25%. Specifically, according to the elasticities estimated in this article, the measure would entail a decline in the sales of these products to the US economy of at least 12%. This impact is equivalent to 0.01% of GDP, in terms of the weight of these exports in total Spanish goods sales to the rest of the world (0.3%).[5]

However, when interpreting these quantitative results, it is worth bearing in mind that the estimates do not incorporate non-linear effects related to the magnitude of the rise in tariffs and, in the event of a hypothetical no-deal Brexit, to the deep-seated institutional change the British economy's withdrawal from the free-trade zone would entail.

In sum, the results show that the materialisation of protectionist tensions has an adverse and potentially persistent impact on Spanish exports. The introduction of growing obstacles to trade highlights the global role of the EU in promoting trade, through the adoption of treaties with various economic areas, such as those recently entered into with Canada, Japan and Mercosur.

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4   As tariffs reduce the probability of exporting a specific good to a specific country, it is possible a country will not export to a specific country because tariffs are very high. These zero export flows are not incorporated into the estimation of the initial specification, since the variables are in logarithms, which may give rise to estimation bias. To alleviate this selection-bias problem, we use two approaches: firstly, the zero value in the dependent variable is replaced by 1 euro (see LInders and Groot, 2006); and secondly, a maximum likelihood estimator (MLE) is used on the basis of a Poisson distribution, which allows the zero export flows to be incorporated (see Timini and Conesa, 2018). The estimates made with both procedures result in an elasticity of exports to tariff increases that remains negative and statistically significant, and of a somewhat greater magnitude than in the initial specification.

5   The quantitative results would be similar were the US administration to raise tariffs on automobiles from the EU to 25% from their current level of 2.5%.

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