

Does domestic demand matter for firms' exports?

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Outline

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Motivation

- The literature on the link between exports and domestic sales has been gaining momentum over the last years.
- It represents a departure from standard international trade models where it is assumed a constant marginal cost as in the seminal work by Krugman (1979, 1980) and Melitz (2003). Such an assumption implies that foreign and domestic markets can be treated independently.
- There is by now some evidence suggesting that the firm decisions are affected by both markets.
- At the macro level, Esteves and Rua (2015) present strong evidence of a negative relationship between exports and domestic demand for Portugal while Bobeica, Esteves, Rua, and Staehr (2016) extend the supporting evidence to a panel of eleven Euro area countries.



Motivation

- Vannoorenberghe (2012) finds a negative relationship between exports and domestic sales for French firms while, also for France, Berman, Berthou and Hericourt (2015) conclude that domestic sales are positively influenced by exports.
- Altomonte, Sono and Vandenbussche (2013) consider four European countries namely France, Germany, Italy and the UK and find that domestic demand conditions are important in driving exports with firms more likely to export during a downturn of the domestic market.
- Blum and Horstmann (2013) document a negative relationship between exports and domestic sales for Chilean firms.
- Drawing on data for Italian firms, Bugamelli, Gaiotti and Viviano (2015) report a significant relationship between exports and domestic sales.
- Ahn and McQuoid (2017) find a negative correlation between domestic sales and exports for Indonesia.



The model

We consider two markets, a foreign and a domestic market, which are assumed to be segmented so that different prices can be charged by the firm in each market.

By assuming monopolistic competition, each firm faces a downward sloping demand curve in the foreign market and in the domestic market.

The assumption of constant marginal costs is relaxed by allowing for the interplay between foreign and domestic markets.

Solving the firm optimization problem yields a model specification for firms' exports to be estimated. The corresponding stochastic version is given by

$$X_{it} = \beta_{i0} FD_{it}^{\beta_1} \left(1 + \frac{DD_{i,t}}{FD_{i,t}} \right)^{\beta_2} \xi_{it}$$

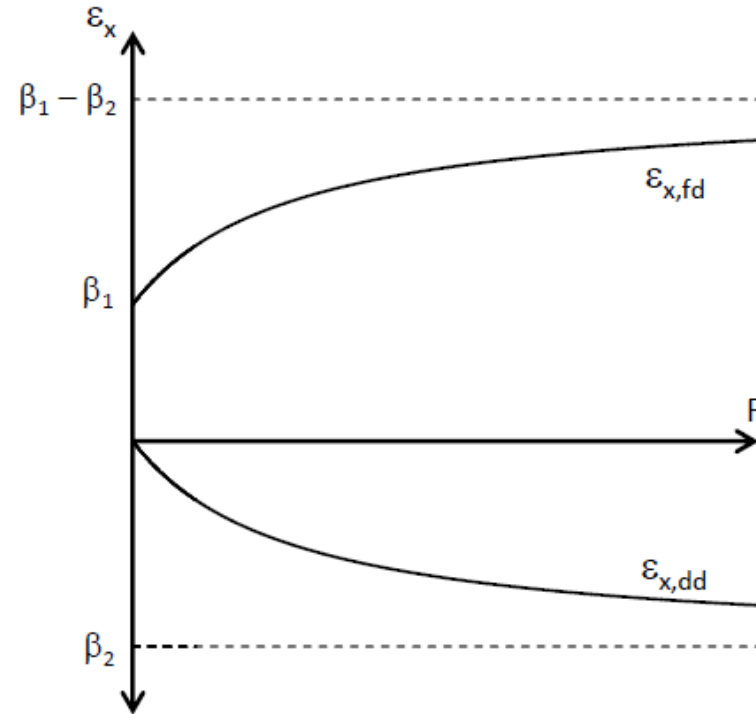


The model

The exports elasticities to foreign demand and domestic demand are given by

$$\varepsilon_{x,dd} = \beta_2 \frac{R}{1 + R}$$

$$\varepsilon_{x,fd} = \beta_1 - \beta_2 \frac{R}{1 + R}$$



where R stands for the ratio between domestic and foreign markets.



Data

- Data for exports at the firm level are from the external trade database of Statistics Portugal (INE), the Portuguese national statistical office, classified according to the 2010 Combined Nomenclature (NC). This database includes nominal values of internationally traded goods between Portugal and the rest of the world, by country.
- Data regarding domestic sales for each firm comes from the Integrated Business System (SCIE). This database results from a process of statistical data integration that covers enterprises and is based on administrative data, with an emphasis on Simplified Business Information (IES). INE compiles and validates a concise version of the database releasing it for the period 2006-2016. As each firm has a unique identifier, the two sources of information could be matched.



Data

- A foreign demand indicator is computed at the firm level by taking into account both the product and the geographical export specialization of each firm (in line with Berman *et al.* (2015))

$$FD_{i,t} = \sum_{p=1}^P \sum_{j=1}^J \omega_{i,p,j} M_{j,p,t}$$

The firm level weights are constant over time and are computed using the above mentioned database for the Portuguese external trade. The imports data for the trade partners are obtained from BACI, which is a world trade database developed by the CEPII with a high level of product disaggregation based on original data provided by the United Nations Statistical Division (COMTRADE database). The resulting dataset covers 213 trade countries/territorial units partners and a total of 4,875 products.



Data

We consider 3 samples:

- In Panel A, we consider all manufacturing firms leading to a sample of 21,749 observations and 3,996 firms.
- In Panel B, all the firms reporting total sales less than one thousand Euro are excluded to avoid very small firms which are more prone to reporting errors. Moreover, firms are considered if exports represent at least one per cent of domestic sales or if domestic sales represent at least one per cent of exports. The idea is to narrow the analysis to firms that are effectively present in both markets. This sample has 19,381 observations and 3,655 firms.
- Finally, as the theoretical model considered does not deal explicitly with the entry and exit of firms, the sample was further restricted to firms that are present in both markets in all periods. This sample has 8,784 observations and 1,098 firms (Panel C).



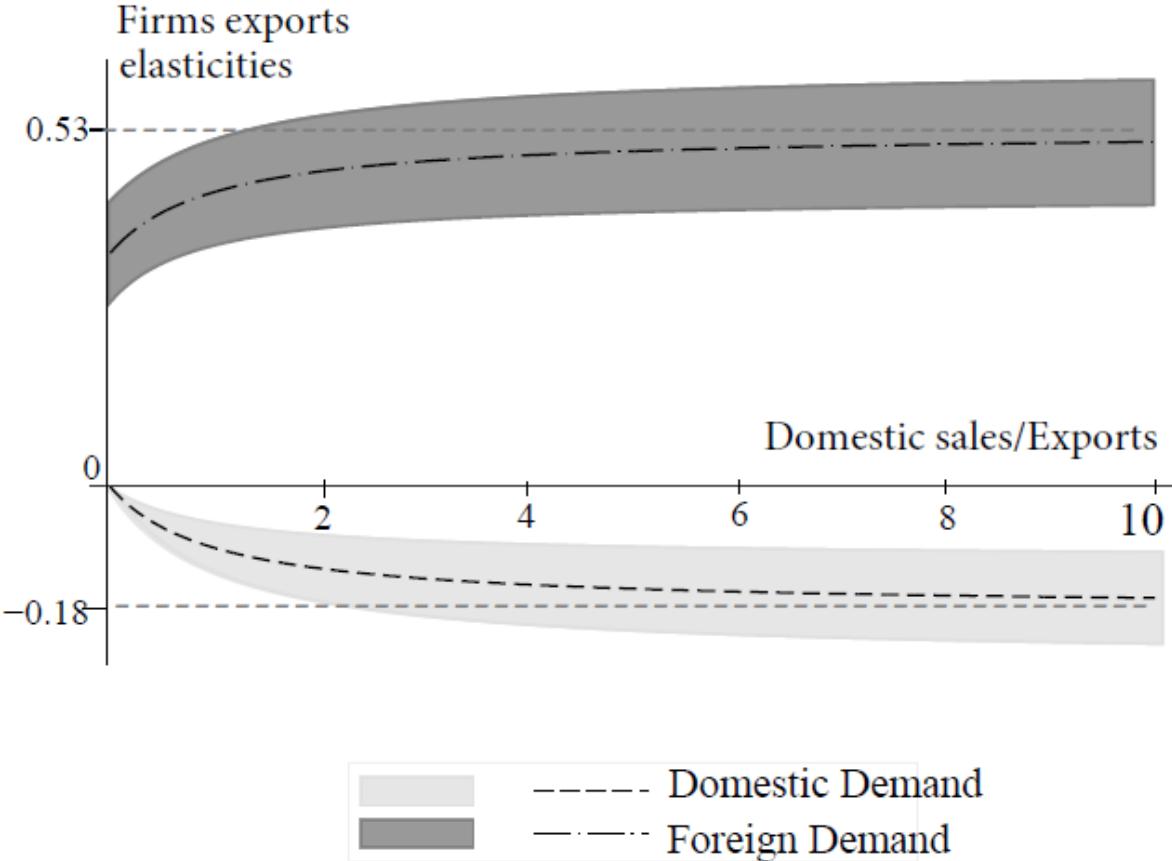
Results

	Panel A		Panel B		Panel C	
	$\ln(X_{it})$ (FE)	X_{it} (FE Poisson)	$\ln(X_{it})$ (FE)	X_{it} (FE Poisson)	$\ln(X_{it})$ (FE)	X_{it} (FE Poisson)
$\hat{\beta}_1$	0.477*** (0.011)	0.386*** (0.043)	0.406*** (0.013)	0.349*** (0.040)	0.416*** (0.020)	0.304*** (0.044)
$\hat{\beta}_2$	-0.137*** (0.024)	-0.237*** (0.045)	-0.125*** (0.013)	-0.183*** (0.040)	-0.256*** (0.027)	-0.277*** (0.057)

Notes. FE corresponds to the linear fixed-effects estimator; FE Poisson reports fixed-effects Poisson estimates. The fixed-effects are at the firm level. Robust standard-errors in parenthesis (clustered by firm). Significance levels: 1%, ***; 5%, **; 10%, *. All models include time dummies (which are jointly statistically significant in all estimations). The models are estimated for three samples, panels A, B and C, respectively. Panel A corresponds to the full sample. In Panel B we drop observations if ratio < 0.01 or > 100 , while in Panel C we drop observations if ratio < 0.01 or > 100 and keep just the firms that are in all periods. The first sample has 21,749 observations, corresponding to 3,996 firms. The second sample uses 19,381 observations and 3,655 firms, while the third sample has 8,784 observations and 1,098 firms. See Section 3.2 for a description of the data and Section 4 for a discussion on the estimation strategy. *Source:* Own computations.

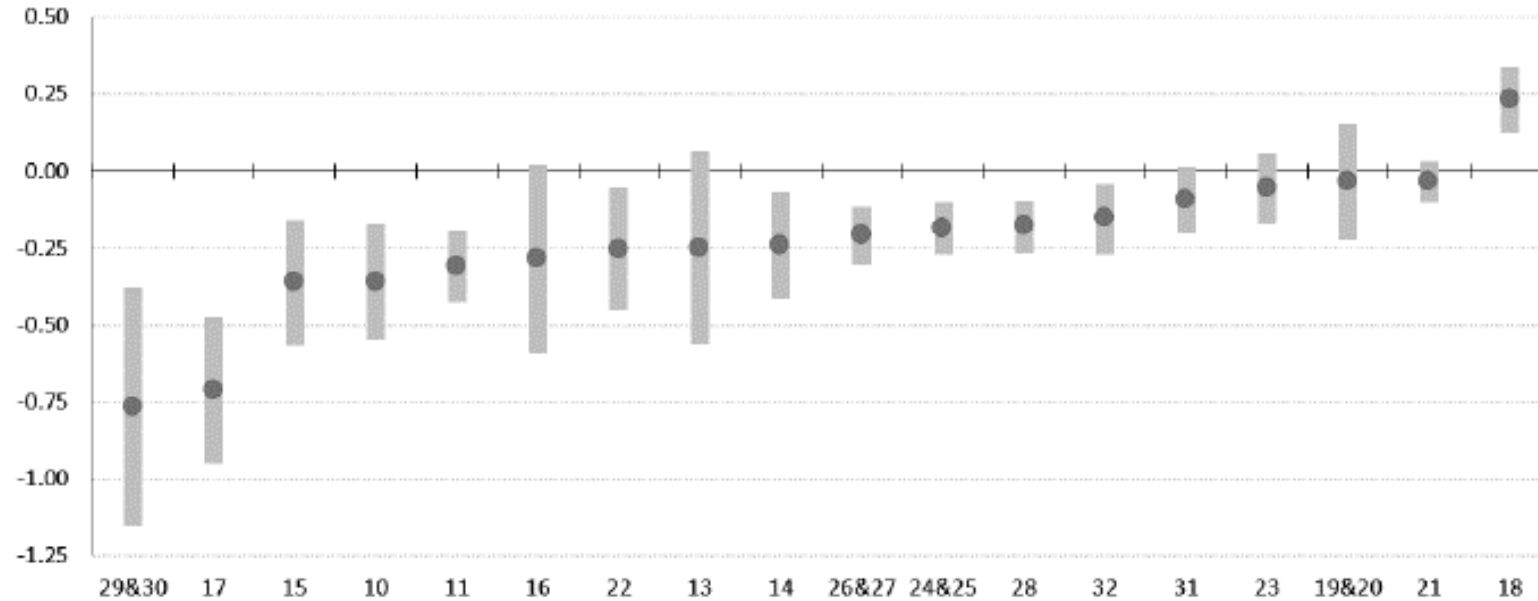


Results



Results

Estimates by sector

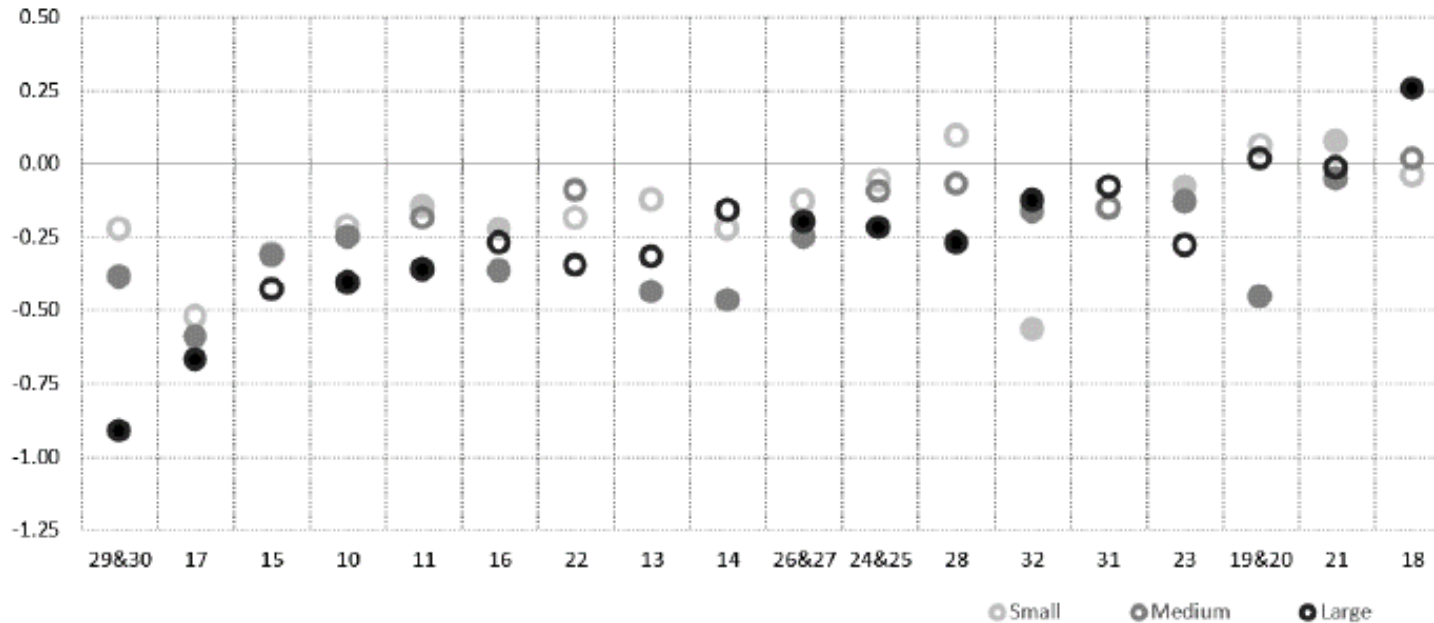


Notes: Industry codes: 10, Food Products; 11, Beverages; 13, Textiles; 14, Wearing Apparel and Dressing; 15, Footwear, Articles of Fur; 16, Wood and Cork; 17, Paper and Paper Products; 18, Publishing, Printing and Reproduction; 19 & 20, Fuel and Chemicals; 21, Pharmaceuticals; 22, Rubber and Plastic; 23, Other Non-Metallic Mineral Products; 24 & 25, Basic Metals and Fabricated Metal Products (exc. Machinery and Equipment); 26 & 27, Computing, Communication and Electrical Machinery; 28, Machinery and Equipment; 29 & 30, Motor Vehicles; 31, Furniture; 32, Other Manufactures.



Results

Estimates by firm size



Notes: Industry codes: 10, Food Products; 11, Beverages; 13, Textiles; 14, Wearing Apparel and Dressing; 15, Footwear, Articles of Fur; 16, Wood and Cork; 17, Paper and Paper Products; 18, Publishing, Printing and Reproduction; 19 & 20, Fuel and Chemicals; 21, Pharmaceuticals; 22, Rubber and Plastic; 23, Other Non-Metallic Mineral Products; 24 & 25, Basic Metals and Fabricated Metal Products (exc. Machinery and Equipment); 26 & 27, Computing, Communication and Electrical Machinery; 28, Machinery and Equipment; 29 & 30, Motor Vehicles; 31, Furniture; 32, Other Manufactures.



Concluding remarks

- The link between exports and domestic sales has been fuelling recent economic literature and the policy debate. In particular, the presence of a negative relationship may constitute an additional economic adjustment channel, in particular in the Euro area countries, where a common currency in a low inflation environment leads to the rigidity of real exchange rates.
- The focus is on Portugal, one of the countries which underwent a severe crisis during the latest economic turbulence episode. The economic and financial assistance program implemented in May 2011 reinforced the effects of the 2008-2009 recession on economic activity in a way never seen in Portugal. However, at the same time, exports grew well above foreign demand which resulted in large exports market share gains. The Portuguese success of the adjustment process has been partly attributed to the behaviour of the exporting firms.



Concluding remarks

- We consider the relationship between exports and domestic sales obtained from a monopolistic model of a firm selling to both domestic and external markets. It implies a non-linear relationship between exports and domestic demand that is not typically considered in empirical studies.
- Drawing on firm-level data for the Portuguese exporters for the period 2006-2016, we find a negative and statistically significant relationship between exports and domestic sales.
- One should note that the implied elasticity of exports to domestic demand and to foreign demand depends on the relative degree of exposure to the domestic and foreign markets.
- Based on a sectoral analysis, we also find that such a relationship holds for almost all industries within the manufacturing sector although the magnitude differs from industry to industry. Furthermore, there is evidence that the effect is stronger for larger firms.



Thank you!

