7.2. How did Portuguese exporters get through the crisis?

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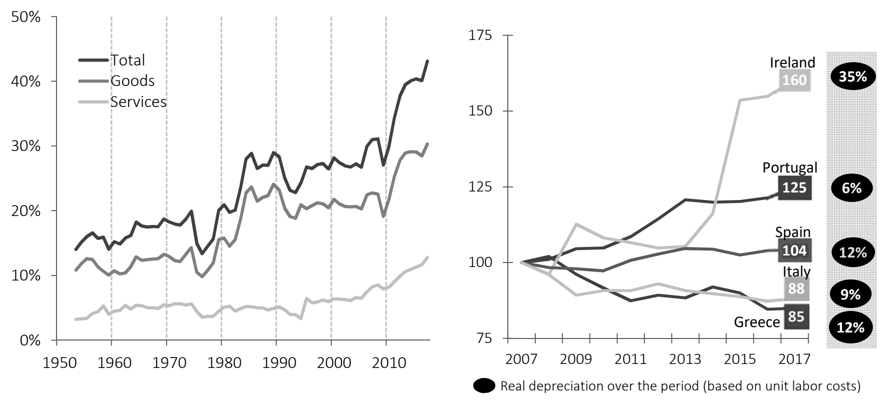
1. Motivation

Portuguese exports of both goods and services registered an outstanding behavior during the last decade, in particular during the latest economic and financial crisis, thus promoting Portuguese economic growth. Such a performance was not observed in other countries and understanding it is crucial to assess the (lack of) success of the recent economic adjustment of some European economies.[47]

The noteworthy behavior of the Portuguese exports can be succinctly highlighted through exports share on GDP (Figure 54a). After remaining stable between 25 to 30 per cent since the second half of the eighties, it increased substantially during the last ten years, attaining a level close to 45 per cent in 2017 (see Banco de Portugal (2017) for a more thorough view on the recent evolution of the trade openness of the Portuguese economy).

Naturally, one may argue that this sort of indicator suffers from a denominator effect, as GDP recorded a strong decline during the crisis. However, other indicators point to the same direction. The exports market share increased 25 per cent since 2007 (Figure 54b). With the exception of Ireland, this evolution was clearly more favorable when compared with the European countries most severely hit by the latest crisis. However, such an evolution cannot be explained by changes in the relative prices, as real exchange rate developments are not able to explain both the behavior of Portuguese exports or the differences between countries' exports performance (with the exception of Ireland).

47 The importance of exports reaction was already clearly present in 2010, in a IMF memo about Greece on 4th May from IMF's chief economist Olivier Blanchard to Poul Thomsen, the director of the Fund's European Department, quoted in Blustein (2016): "...In the absence of a strong export rebound, there is nothing that can support growth against the negative contribution of public sector...with a recession deeper and longer than projected, followed by a period of sluggish growth...".



(a) Exports/GDP

(b) Market shares, 2007=100

Figure 54: Exports/GDP ratio and exports market shares
Source: AMECO, INE and Pinheiro (1999).

In this Section, we argue that the observed behavior of Portuguese exports was partly related to the strong negative domestic demand shock. To put it simply, when facing adverse domestic market conditions, Portuguese firms were able to reorient their sales to external markets. In other words, the crisis was a trigger for deeper internationalization.

Such a view is supported by recent applied research. From a macro stance, it has been documented that this effect is strong and that the relationship between exports and domestic demand is asymmetric, being more significant when domestic demand declines, suggesting that market share gains will not be reverted when domestic economy recovers. From a micro perspective, the negative link is supported by the results drawing on firm level data. It has also been found that the activity sector and size of the firm also play a role concerning the magnitude of the link.

2. From a macro perspective to firm level insights

Based on macroeconomic data, the empirical research strongly supports a negative relationship between domestic demand and exports. In this respect, Esteves and Rua (2015) present evidence of such a link for the Portuguese economy, using quarterly data from 1980 up to 2012. Moreover, Bobeica *et al.* (2016) extend the findings to a panel of eleven Euro area countries, using quarterly data from 1995 up to 2013.[48] Esteves and Prades (2018) confirm the previous evidence using an annual panel data from 1997 up to 2014, arguing however

48 Greece is excluded given the lack of quarterly data.

that the exporting behavior may differ across countries, depending negatively on product concentration and thus explaining the less successful adjustment of the Greek economy.[49]

Furthermore, the above mentioned studies point to an asymmetric effect of domestic demand on exports, being larger and more significant when domestic demand declines. Such a result would suggest that a rebound of the domestic market may not have *per se* a negative impact on exports. A possible rationale for this asymmetry is the existence of uncertainty and sunk costs that firms face when entering into the external market which may deter the firm of leaving it when domestic demand recovers.

In addition to the above discussed macro evidence, Esteves *et al.* (2018) explore firm level data for the Portuguese economy during the latest economic and financial crisis period. The remainder of the article draws on Esteves *et al.* (2018) and focuses on the main firm level insights.

3. Model and data

Based on a monopolistic competition model of a firm selling to domestic and foreign markets, profit maximization conditions allow to define a function where exports revenues of firm i at period t (X_{it}) depend on its relevant foreign demand (FD_{it}) and, in a nonlinear way, on the ratio between the corresponding domestic (DD_{it}) and foreign demands, i.e.

$$X_{it} = \alpha_{i0} FD_{it}^{\alpha_1} \left(1 + \frac{DD_{it}}{FD_{it}}\right)^{\alpha_2} \tag{23}$$

The elasticity of exports to domestic demand converges to α_2 while the elasticity of exports to foreign demand converges asymptotically to $\alpha_1 - \alpha_2$.

The main estimation results are obtained using a sample covering the period from 2009 up to 2016. Firms' exports are collected from the external trade database of the Statistics Portugal (INE), where a product disaggregation at 8- digit level is considered.

Foreign demand is computed using information on imports for 213 countries, obtained from the BACI database at 6-digit product level of

49 One very intuitive and illustrative example concerns an oil exporting country. In this case, oil exports will not depend on the domestic consumption of oil, as domestic consumption of oil is typically insignificant when compared to exports.

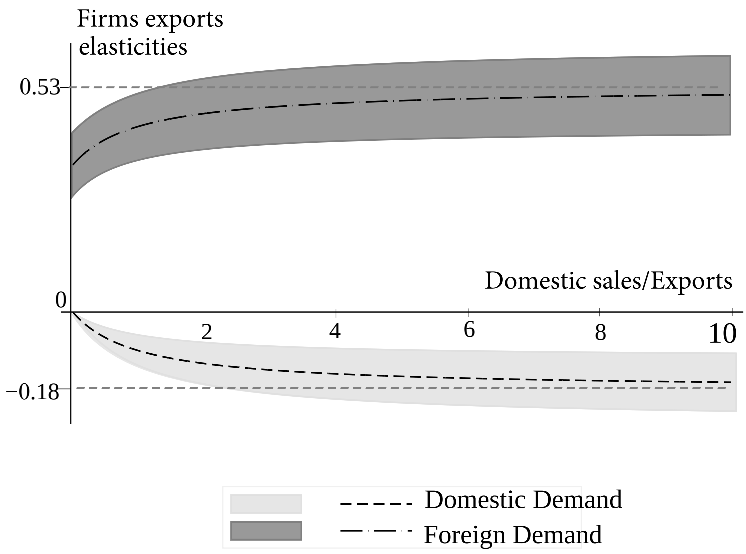


Figure 55: Estimated exports elasticities
Source: Esteves *et al.* (2018)

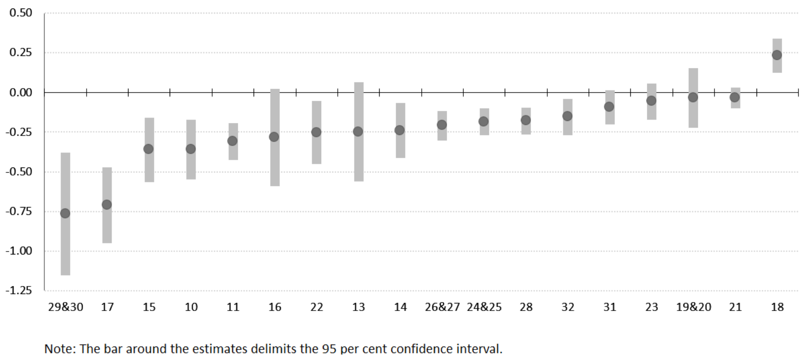
the Harmonized System classification. Such information is thereafter aggregated according to the relative importance of each market on firm exports. In this way, a specific foreign demand is computed for each firm, taking into account its product and destination specialization.

Domestic sales are used as a measure of domestic demand, which are obtained from the Simplified Business Information (IES), that also includes many other variables, such as the sector of activity. The sample encompasses 3655 firms in a total of 19381 observations.

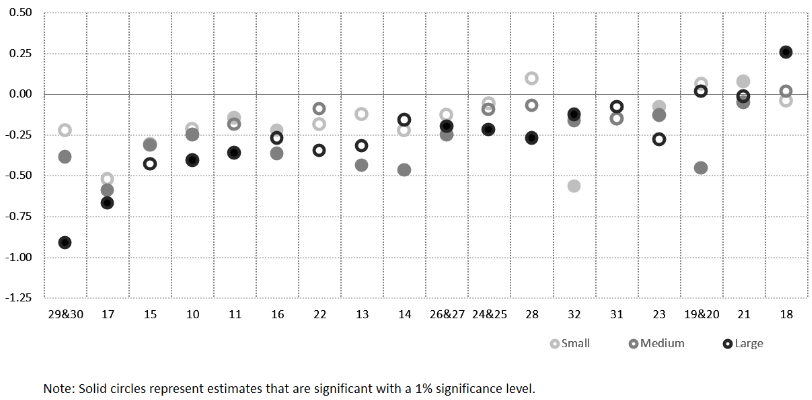
4. Results

Overall, the results confirm a negative link between domestic demand and exports, as found in previous literature using macro level data. During the most recent years, firms reacted to adverse domestic demand conditions through an increase of sales to external markets. The results are robust to alternative samples and estimation methods. Furthermore, the use of firm-level data unveils some new insights about this relationship.

Firstly, the elasticity of exports is not constant, neither over time nor between firms (Figure 55). In particular, it depends on the ratio between domestic and foreign sales. Naturally, firms' exports should



(a) Estimates by sector



(b) Estimates by firm size

Figure 56: Parameter estimates underlying the elasticity of exports to domestic demand

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.
Source: Esteves *et al.* (2018)

not react to domestic market conditions if the firm does not sell in the home country. This finding is also consistent with the above discussed effect of exports concentration. Likewise in the case of a country, if exports are fully concentrated in a commodity, the importance of domestic sales can be close to zero and therefore the effect of this reallocation will be irrelevant. The reaction is expected to be larger if the scope for shifting is also larger.

Secondly, one should highlight that sales reallocation seems to depend on the activity sector. Figure 56a presents the estimated value of the parameter underlying the elasticity of exports to domestic demand (α_2) as well the respective confidence interval with a 95 per cent confidence level, covering 18 manufacturing sectors. The results point to a generalized negative relationship between exports and domestic demand. Nevertheless, among those industries where the effect is statistically significant, the magnitude of the coefficient varies quite substantially. Such heterogeneity highlights the importance of considering industry level data when analysing the evolution of total exports.

Finally, the importance of firm size is also evaluated within each sector. By considering firms classified in each sector by terciles of the size distribution (small, medium and large), the negative relationship between domestic and external sales seems to be larger and statistically more significant when considering larger firms (Figure 56b).

5. Final remarks

Portugal recorded a severe crisis during the latest economic and financial crisis. The economic and financial assistance program deepened the effects of 2008-2009 recession on economic activity. Domestic demand declined in an unprecedented way. In parallel, exports grew well above foreign demand, which cannot be explained by real exchange rate developments.

The empirical results of applied research with macro data and, more recently, with firm level data during the crisis period suggest a noticeable reaction of Portuguese firms. Facing an impressive negative shock, there was a reallocation of sales from domestic to foreign markets. The results also suggest that this reallocation will not be reverted, since firms will not leave the external market when domestic demand rebounds due to the presence of uncertainty and sunk costs. Moreover, as shown in Banco de Portugal (2017), despite the remarkable evolution during the most recent period, the Portuguese economy continues to be less open than others with similar characteristics (area, size, geographical location, among others).

The reaction of Portuguese firms to a strikingly adverse economic episode unveils a remarkable ability to adjust to new conditions. In particular, the occurrence of a pronounced deterioration of the domestic market resulted in a set of firms more oriented towards the foreign market leading to an important structural change of the Portuguese economy. Such a change should be supported and promoted to assure improved economic prospects.

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