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Exports and domestic demand pressure: a dynamic panel data model for the euro area countries*

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Abstract

The paper investigates the link between domestic demand pressure and exports by considering an error correction dynamic panel model for eleven euro area countries over the last two decades. The results suggest that there is a statistically significant substitution effect between domestic and foreign sales. Furthermore, this relationship appears to be asymmetric, as the link is much stronger when domestic demand falls than when it increases. Weakness in the domestic market translates into increased efforts to serve markets abroad, but, conversely, during times of boom, exports are not negatively affected by increasing domestic sales. This reorientation towards foreign markets was particularly important during the crisis period, and thus could represent a new adjustment channel to strong negative domestic shocks. The results have important policy implications, as this substitution effect between domestic and external markets might allow the euro area countries under stress to improve their trade outcomes with a relatively small downward pressure on domestic prices.

Keywords: Exports; Domestic Demand Pressure; Asymmetry.
JEL classification: C22, C50, F10.

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1 Introduction

Export growth is often considered to be an important gauge of macroeconomic performance, contributing to a sustainable economic growth and job creation. In the European context, the importance of export dynamics has been reinforced after the outbreak of the global economic and financial crisis and the deep downturns experienced by many European countries. For several countries, exports have been the key driving force to exit the crisis, but the policy focus has mostly been on price or cost competitiveness and how to improve it, whereas other factors affecting external performance have largely been ignored (Hall, 2012).

Numerous studies find that the standard determinants of exports, such as external demand and cost or price competitiveness, do not fully explain exports developments (ECB, 2013; IMF, 2013). Moreover, the estimated coefficients of price competitiveness measures tend to be relatively small, which translates into a slow adjustment of export volumes to relative price developments, which is particularly relevant for countries within a monetary union without the flexible exchange rate as an available policy instrument. These findings suggest that other factors might play a role for export performance, such as supply-side determinants related with the stronger than ever decline in domestic demand. This paper focuses on the linkages between domestic demand pressures and the evolution of exports in the euro area countries.

From a policy perspective, it is important to understand whether there is an additional channel which links domestic business cycle developments to export performance and whether this effect is a new endogenous adjustment mechanism created during the crisis, in the absence of nominal exchange rate flexibility and given the substantial compression of domestic demand across euro area countries. A possible substitution effect between domestic and foreign sales has been discussed in more policy-oriented studies in the context of assessing the success of the macroeconomic adjustment programs in the euro area countries that came under stress during the recent crisis (Pisani-Ferry *et al.*, 2013; Gros *et al.*, 2014).

From a theoretical point of view, the nature of the relationship between domestic demand and exports is not straightforward, as there are arguments for both a negative substitution effect and a positive complementary one. Nevertheless, under production capacity constraints, there will generally be a trade-off between sales to different markets and this induces a negative re-

lationship between sales to the external and domestic markets.[1] Resorting to a Melitz (2003) type model of international trade with demand uncertainty in which firms face market-specific shocks and short-run convex costs of production, it can be shown that firms react to a shock in one market by adjusting their sales in the other market (see, for example, Vannoorenberghe, 2012). It follows that exports may be a negative function of domestic sales, but also that the effect may be state-dependent and particularly pronounced in situations with very low capacity utilisation.

In fact, the relationship between domestic demand and exports may be asymmetric. In the presence of uncertainty and sunk costs to enter in the foreign market, the decision to start or stop exporting can be studied following the literature on investment under uncertainty (see, for example, Impullitti *et al.*, 2012). Firms try to substitute between domestic and foreign sales during periods of economic stress, being more willing to pay the sunk cost for entering a new market and/or shifting part of its output abroad, the so-called survival-driven exports. Firms will often choose not to cease exporting when foreign markets become relatively less profitable, as they would have to repay the sunk cost when the export market becomes more promising. Thus, in times of weak internal demand, firms might try to gain export market share, but in a subsequent boom they will continue serving the foreign markets. Such nonlinearity is important to evaluate the persistence over time of this effect on exports.

The empirical literature on this issue comprises both microeconometric and macroeconometric studies. The link between domestic demand and export sales is ultimately determined by firm behavior and their sales to different markets. Several recent microeconometric studies provide evidence of a negative relationship between domestic and external sales (see for example Vannoorenberghe (2012) for French firms and Altomonte, Sono and Vandenbussche (2013) for a dataset covering four European countries, namely France, Germany, Italy and UK). In addition, there is empirical evidence supporting the idea of a noteworthy persistence in the firm export status, suggesting an asymmetric reaction of exports to domestic demand (see for example Bernard and Wagner (2001) for German firms).

This paper investigates the relationship between domestic demand and exports from a macroeconomic perspective, building on the seminal paper of Ball *et al.* (1966) for the case of UK. In particular, the global financial crisis and its knock-on effects in Europe have recently rekindled the interest

[1] See Esteves and Rua (2013) for a survey concerning the theoretical and empirical literature in the field.

in the effects of domestic demand on exports at the macroeconomic level. Esteves and Rua (2013) present evidence for the Portuguese economy using quarterly data for the last three decades and find that there is a negative relationship between domestic demand and exports, but also that the effect is stronger when domestic demand is declining than when it is increasing.

Belke *et al.* (2013) investigate the relationship between domestic conditions and exports for several individual euro area countries, namely Spain, Portugal, Italy, France, Ireland and Greece. Using a non-linear smooth transition regression model, they find for Spain, Portugal and Italy a strong substitution effect between domestic demand and exports in periods where the deviations from average capacity utilization are large independent of their signal. A less strong substitution effect is found for Ireland and Greece during business cycle troughs, whereas during normal times and booms domestic and foreign sales appear to be complementary. For France, the evidence for this substitution effect is weak.

This paper extends the related literature in several directions. First, the paper aims to assess the extent to which the substitution effect between domestic sales and exports identified so far for a limited set of countries is a general feature in euro area economies. To this purpose, export market shares equations are estimated on a quarterly panel dataset comprising eleven euro area countries from the mid-1990s and until the third quarter of 2013. The explanatory variables include fixed effects, the lagged dependent variable, measures of price or cost competitiveness and domestic demand. Second, the paper investigates the role of this effect during the current financial crisis. Following the theoretical discussion on the link between domestic demand and exports, we also assess whether this effect is state dependent, i.e. depending on whether domestic demand expands or contracts.

The remaining of the paper is organized as follows. Section 2 describes the considered dynamic panel data model. Section 3 provides a description of the dataset covering the period from 1995Q1 up to 2013Q3 for the eleven euro area countries as of January 1999. Section 4 discusses the results pointing to a negative relationship between domestic demand and exports in times of declining internal demand. Section 5 tries to explore the relevance of this effect during the latest economic and financial crisis. Finally, Section 6 concludes.

2 A dynamic panel data model for the euro area countries

We model both short and long run determinants of export volumes by considering a dynamic panel error correction model.

As standard in the literature, and not rejected also by the data in our case, we assume a unit coefficient for the foreign demand. Hence, the focus is on the export market share performance, *i.e.* the difference between the export volumes of goods and services (X_t) and the foreign demand measured by the imports of goods of the main trade partners (D_t^*). For the long-run dynamics, we consider a price/cost competitiveness indicator (E_t) (defined such as an increase represents an appreciation) whereas for the short-run behavior, we allow for lags of both the dependent variable and the price/cost competitiveness indicator as well as for lagged effects of domestic demand (DD_t) (see Esteves and Rua, 2013).

The considered general dynamic panel data model with an error correction mechanism is given by the following

$$\begin{aligned} \Delta X_{t,i} - \Delta D^*_{t,i} &= \alpha_i + \sum_{j=1}^{J} \beta_j \left(\Delta X_{t-j,i} - \Delta D^*_{t-j,i} \right) + \sum_{l=1}^{L} \gamma_l \Delta E_{t-l,i} + \\ &+ \sum_{s=1}^{S} \omega_s \Delta DD_{t-s,i} + \theta \left(X_{t-1,i} - D^*_{t-1,i} \right) + \\ &+ \lambda E_{t-1,i} + Trend \end{aligned} \tag{1}$$

where θ reflects the speed of adjustment to long-run equilibrium and subscript i denotes the country.

Following the approach in some related studies, a time trend ($Trend$) was also included in the long run relationship. Fagan *et al.* (2001, 2005) included a deterministic trend in order to ensure a cointegrating relationship between the exports market share and the real exchange rate when developing the well-known Euro Area Wide model of the ECB. Similarly, Allard (2009) estimates error correction models characterizing export dynamics of Central European countries and a time trend was also found significant. Di Mauro and Forster (2008) refer to the statistical significance of a negative time trend to explain euro area exports performance since 1999, which may reflect the global integration of China. Overall, such a deterministic variable can capture the long-run effects of the so-called non-price competitiveness factors. All variables except the trend are expressed in logs.

3 Dataset

We consider all the euro area countries as of 1999, namely Germany, France, Italy, Spain, Netherlands, Belgium, Austria, Finland, Portugal, Ireland and Luxembourg. The data spans over the period starting in the first quarter of 1995 up to the third quarter of 2013 and is provided by Eurostat and by the ECB.

Exports are measured in terms of volumes and refer to both goods and services. The foreign demand is constructed as a geometric average of the import volumes of the main trading partners, where the weights correspond to the export shares of the euro area to the respective trading partner countries, as discussed in Hubrich and Karlsson (2010). The price and cost competitiveness indicators are the ECB Harmonized Competitiveness Indicators, which are comparable measures across countries of the real effective exchange rate computed using the following deflators: GDP deflator (GDP), consumer price index (CPI) and unit labor cost in total economy (ULCT). The real effective exchange rate measures are computed vis-à-vis 37 euro area and non-euro area countries using weights based on trade in manufactured goods. The domestic demand measure refers to the final demand including stocks, working day and seasonally adjusted.

Tests for identifying the order of integration were performed both for individual series and within a panel framework. The findings suggest that the real variables are I(1), whereas the presence of a unit root is not so straightforward in the case of the relative price/cost measures. However, following Dieppe and Warmedinger (2007), we assume that these variables are I(1) and suitable for cointegration analysis.

4 Results

The choice of the lag structure was determined using a general to specific approach, having as a starting point a specification comprising four lags of each variable for the short run dynamics. The non-significant lags were eliminated sequentially, starting with the least significant one. Given that it is not straightforward a priori, neither conceptually nor empirically, which price/cost competitiveness indicator is more relevant for export developments (see Ca'Zorzi and Schnatz, 2007; Christodoulopoulou and Tkačevs, 2014), we investigate the effect of domestic demand on exports using several real effective exchange rates for robustness purposes. Table 1 presents the

estimation results of the panel model presented in equation (1).[2] The p-values of the usual t-statistic for significance testing are shown underneath the estimated coefficients.

Table 1: Estimated models with domestic demand pressure in the short-run

	GDP	CPI	$ULCT$
$Constant$	0.696	0.702	0.740
	5.96	5.38	5.99
$\Delta X_{t-1} - \Delta D^*_{t-1}$	-0.260	-0.265	-0.264
	-7.60	-7.78	-7.68
$\Delta X_{t-3} - \Delta D^*_{t-3}$	-0.096	-0.097	-0.099
	-2.88	-2.92	-2.96
ΔE_{t-1}	-0.097	-0.131	-0.104
	-1.67	-1.92	-2.25
ΔE_{t-2}	-0.129	-0.209	-0.096
	-2.27	-3.12	-2.12
ΔDD_{t-2}	-0.097	-0.120	-0.127
	-2.21	-2.74	-2.87
$X_{t-1} - D^*_{t-1}$	-0.051	-0.048	-0.056
	-5.80	-5.48	-6.11
E_{t-1}	-0.042	-0.048	-0.041
	-2.79	-2.62	-3.01
$Trend$	-0.00026	-0.00025	-0.00025
	-6.55	-6.25	-6.27
R^2	0.189	0.198	0.193
Countries	11	11	11
Observations	765	765	765
Sample period	96Q1-13Q3	96Q1-13Q3	96Q1-13Q3

[2] All the estimation results presented have been obtained using the usual fixed effects estimator. One should mention that the presence of the lagged endogenous variable might suggest the use of the well-known Arellano and Bond (1991) procedure. Firstly, the several estimation exercises conducted to assess the sensitivity of the results to the estimation procedure pointed to qualitatively similar findings. Secondly, one should stress that the latter method has been developed for panels with a short time dimension and a very large number of cross-section observations. When the number of periods is large and the cross section is small, the use of this alternative estimator may lead to a loss of efficiency. On the other hand, the fixed effects estimator becomes consistent as the number of periods gets large (see Nickel (1981) and Alvarez and Arellano (2003)).

The existence of a correction mechanism towards the long run equilibrium is confirmed by the statistically significant and negative error correction term; the magnitude of this term is similar across the considered measures of price/cost competitiveness. Panel cointegration tests also seem to suggest the presence of a cointegration relationship among the chosen variables.

In addition, the price competitiveness indicator always appears with a negative sign in the long-run, that is, an appreciation hurts exports performance. In particular, the implied long-run elasticity of price competitiveness is estimated to lie between 0.7 and 1 depending on the price indicator which is in line with previous literature findings (e.g. Fagan *et al.* (2001, 2005)). The time trend is strongly significant, evidencing a decline close to 0.5 per cent per year in exports market shares of euro area countries beyond what could be explained by price/cost competitiveness.

Concerning the short-run dynamics, the lagged values of the considered real effective exchange rates appear to impact market share growth with a negative sign, as implied by economic theory. Both the one- and three-period lags of export market share change are retained as being significant and also exhibit similar coefficients across price competitiveness measures.

On top of the traditional export determinants, domestic demand appears to significantly influence export market shares on the short-run with a two-period lag, with the results pointing to a negative elasticity around 10 per cent.[3]

From a policy point of view it is important to assess whether the negative influence of domestic demand pressure on trade outcomes is an effect which is appears only during economic downturns or whether there is a trade-off between domestic sales and exports also during growth periods. In order to investigate this, we test for the existence of an asymmetric relationship between domestic demand and exports by splitting domestic demand in two different variables, depending of its change being positive (ΔDD^{+}) or negative (ΔDD^{-}), that is

$$\Delta DD_t^{+} = \begin{cases} 1 \text{ if } \Delta DD_t > 0 \\ 0 \text{ if } \Delta DD_t < 0 \end{cases}$$

$$\Delta DD_t^{-} = \begin{cases} 0 \text{ if } \Delta DD_t > 0 \\ 1 \text{ if } \Delta DD_t < 0 \end{cases}$$

[3] Although it is not clear from a theoretical standpoint what would be the expected sign or magnitude, we also assessed the inclusion of domestic demand in the long-run relationship. As also found for the Portuguese case (see Esteves and Rua, 2013), it was not statistically significant for the panel of euro area countries.

Therefore, we consider the following model

$$\begin{aligned}\Delta X_{t,i} - \Delta D^*_{t,i} &= \alpha_i + \sum_{j=1}^{J} \beta_j \left(\Delta X_{t-j,i} - \Delta D^*_{t-j,i}\right) + \sum_{l=1}^{L} \gamma_l \Delta E_{t-l,i} + \\ &+ \sum_{s=1}^{S} \omega_s \Delta DD^+_{t-s,i} + \sum_{p=1}^{P} \psi_p \Delta DD^-_{t-p,i} + \\ &+ \theta \left(X_{t-1,i} - D^*_{t-1,i}\right) + \lambda E_{t-1,i} + Trend \end{aligned} \quad (2)$$

The resulting estimated models allowing for the asymmetric impact of domestic demand on export performance are reported in Table 2.

Table 2: Estimated models allowing for asymmetric impact of domestic demand pressure

	GDP	CPI	$ULCT$
$Constant$	0.694	0.705	0.748
	5.96	5.42	6.07
$\Delta X_{t-1} - \Delta D^*_{t-1}$	-0.261	-0.267	-0.266
	-7.65	-7.85	-7.75
$\Delta X_{t-3} - \Delta D^*_{t-3}$	-0.096	-0.097	-0.099
	-2.88	-2.92	-2.96
ΔE_{t-1}	-0.092	-0.130	-0.100
	-1.59	-1.91	-2.15
ΔE_{t-2}	-0.122	-0.199	-0.090
	-2.16	-2.97	-2.00
ΔDD^-_{t-2}	-0.220	-0.254	-0.271
	-2.83	-3.30	-3.50
$X_{t-1} - D^*_{t-1}$	-0.051	-0.048	-0.056
	-5.80	-5.48	-6.15
E_{t-1}	-0.042	-0.049	-0.042
	-2.80	-2.68	-3.13
$Trend$	-0.00026	-0.00025	-0.00025
	-6.63	-6.29	-6.31
R^2	0.192	0.202	0.197
Countries	11	11	11
Observations	765	765	765
Sample period	96Q1-13Q3	96Q1-13Q3	96Q1-13Q3

The estimation results for models (1) and (2) are broadly similar in what concerns the coefficients and corresponding statistical significance. However, regarding the domestic demand variable, it appears that only the negative changes of domestic demand present a statistical significant negative effect on exports dynamics, regardless of the price competitiveness measure.[4] During times of crisis, an insufficient domestic demand relative to existing productive capacity would translate into increased efforts to export and willingness to pay the sunk costs associated to entering foreign markets. Having paid this sunk cost can explain why exports are not negatively affected by a rebound in domestic demand. This asymmetric effect implies that gains in market share as a result of falling domestic demand would not necessarily lead to a cyclical, transitory improvement in export market shares, but to a more lasting expansion of the export sector. Once this asymmetry is taken on board, judging by the magnitude of the coefficients and statistical significance, the link between domestic demand and export performance is stronger than in the case of model (1).

As a sensitivity exercise, the models (1) and (2) were estimated excluding one country at a time. It was found that the results did not change much. This means that the results are not being driven by any particular country reinforcing the idea that this substitution effect is a broad feature of the euro area countries.

5 The importance of the latest economic crisis

The above results suggest that this negative relationship could have been particularly important during the latest economic and financial crisis given that this period was marked by noteworthy domestic demand declines in several countries. In order to evaluate the role of this channel during the crisis, the sample is split into two periods: from the beginning of 1996 up to the end of 2006 and from the first quarter of 2007 up to the end of the sample. Given the data constraints, we keep the specification identified via a general to specific approach for the entire sample; we do not consider the version including asymmetry given the high concentration of negative changes of domestic demand since the beginning of the crisis. Hence, to shed some light on the above issue, two exercises were carried out.

First, for model (1), that is without asymmetry, we investigate to what

[4] Before its exclusion from the regressions presented above, the coefficient associated with positive changes of domestic demand presented a value close to zero with a very low t-ratio.

extent the coefficients associated with domestic demand and real effective exchange rate differ across the two sub-samples (see Tables 3 and 4).

Table 3: Estimated models for the pre-crisis sample period

	GDP	CPI	$ULCT$
$Constant$	1.051	1.018	0.710
	5.73	5.01	3.90
$\Delta X_{t-1} - \Delta D^*_{t-1}$	-0.235	-0.256	-0.233
	-5.26	-5.69	-5.15
$\Delta X_{t-3} - \Delta D^*_{t-3}$	-0.074	-0.073	-0.039
	-1.77	-1.77	-0.95
ΔE_{t-1}	-0.044	-0.164	-0.115
	-0.69	-2.11	-1.87
ΔE_{t-2}	-0.094	-0.209	-0.096
	-2.27	-3.12	-2.12
ΔDD_{t-2}	-0.041	-0.045	-0.044
	-0.71	-0.79	-0.74
$X_{t-1} - D^*_{t-1}$	-0.071	-0.066	-0.058
	-5.20	-4.69	-4.25
E_{t-1}	-0.074	-0.078	-0.027
	-3.87	-3.43	-1.43
$Trend$	-0.00028	-0.00027	-0.00032
	-3.33	-3.21	-3.84
R^2	0.203	0.213	0.182
Countries	11	11	11
Observations	476	476	476
Sample period	96Q1-06Q4	96Q1-06Q4	96Q1-06Q4

Tables 3 and 4 show that price/cost competitiveness indicators tend to be statistically significant in the pre-crisis period, as opposed to the domestic demand variable. Since the outburst of the crisis, domestic demand has gained explanatory power when modelling export performance, while the role of the real exchange rate has become less important. This suggests that during the current crisis, the substitution effect between sales to domestic and foreign markets became a very noticeable adjustment mechanism, allowing to react to the pronounced negative shocks in a context where nominal exchange rates are not available as policy instrument at the country level and the low levels of inflation do not allow for a stronger role of the real

Table 4: Estimated models for the period covering the crisis

	GDP	CPI	$ULCT$
$Constant$	1.488	1.314	1.110
	2.65	2.25	2.52
$\Delta X_{t-1} - \Delta D^*_{t-1}$	-0.286	-0.291	-0.303
	-4.95	-5.08	-5.33
$\Delta X_{t-3} - \Delta D^*_{t-3}$	-0.161	-0.160	-0.157
	-2.96	-2.94	-2.89
ΔE_{t-1}	-0.061	0.073	0.038
	-0.49	0.55	-0.47
ΔE_{t-2}	-0.090	-0.220	-0.197
	-0.72	-1.57	-2.15
ΔDD_{t-2}	-0.150	-0.169	-0.127
	-2.15	-2.41	-1.81
$X_{t-1} - D^*_{t-1}$	-0.123	-0.066	-116
	-3.45	-3.42	-3.33
E_{t-1}	-0.045	-0.023	0.004
	-0.720	-0.29	0.07
$Trend$	-0.00020	-0.00013	-0.00000
	-0.73	-0.50	-0.18
R^2	0.186	0.189	0.196
Countries	11	11	11
Observations	289	289	289
Sample period	07Q1-13Q3	07Q1-13Q3	07Q1-13Q3

effective exchange rate.

Second, another exercise was carried out to reinforce the previous findings and to assess if such link is more prominent in the latter part of the sample, using a more general approach in order to avoid the imposition of a specific lag structure. In particular, we conduct Granger causality tests for the full sample as well as for the two sub-periods, allowing for up to four lags of each variable in the short-run dynamics and perform a standard F-test on the coefficients associated with domestic demand changes.

The resulting test statistics for the two considered specifications in the previous section, *i.e.* with and without asymmetry, are reported in Tables 5 and 6 respectively, with the corresponding p-values appearing below each test result.

Table 5: Granger causality test for domestic demand changes

	GDP	CPI	$ULCT$
ΔDD			
Full sample (96Q2-13Q3)	1.57	3.05	3.16
	0.178	0.016	0.013
Pre-crisis period (96Q2-06Q4)	0.47	0.77	0.75
	0.755	0.544	0.552
Crisis period (07Q1-13Q3)	2.39	3.30	3.65
	0.051	0.011	0.006

Table 6: Granger causality test for asymmetric domestic demand changes

	GDP	CPI	$ULCT$
ΔDD^+			
Full sample (96Q2-13Q3)	0.40	0.65	0.67
	0.801	0.625	0.611
Pre-crisis period (96Q2-06Q4)	0.66	0.62	0.46
	0.618	0.641	0.763
Crisis period (07Q1-13Q3)	0.57	0.56	0.51
	0.681	0.688	0.726
ΔDD^-			
Full sample (96Q2-13Q3)	1.96	2.98	3.07
	0.097	0.018	0.015
Pre-crisis period (96Q2-06Q4)	0.98	1.38	1.28
	0.414	0.237	0.275
Crisis period (07Q1-13Q3)	2.21	2.81	3.48
	0.067	0.025	0.008

Table 5 suggests that domestic demand changes seem to Granger cause exports performance over the entire sample, although not significantly when one considers the GDP-based price competitiveness indicator. The sub-sample analysis clearly shows that this negative relationship between domestic demand and exports is only relevant during the latest economic and financial crisis period.

Table 6 further investigates this effect by disentagling between increases and declines of domestic demand. Irrespective of the price competitiveness indicator and sample period, the positive changes of domestic demand do not Granger cause export performance. In contrast, declines in domestic demand, concentrated in the crisis period, Granger cause exports behaviour. Once again, the results point to the reallocation of resources between domestic and foreign markets as an adjustment mechanism that emerged during the crisis.

6 Conclusions

The results based on a dynamic panel data model for eleven euro area countries over the last two decades suggest there is a trade-off between domestic demand and exports. This relationship appears to be asymmetric, as the link is much stronger when domestic demand decreases. Weakness in the internal market might translate into increased efforts to serve markets abroad, which are relatively more attractive, but, conversely, during times of boom, exports are not significantly affected by the expansion of domestic demand. One possible explanation for this asymmetry might be the fact that an increase in the extensive margin comes on the back of fixed sunk costs which need to be paid when entering a foreign market. The asymmetric relationship between domestic demand and exports implies that market share gains as a result of falling domestic demand lead to a lasting expansion on external markets and not to a merely cyclical improvement in trade outcomes.

Given that most of the declines in domestic demand occurred during the crisis period, when some of the euro area countries experienced significant drops in the domestic market, this reorientation of firms to foreign markets could represent a new adjustment channel to strong negative shocks. From a policy perspective, this channel might allow the euro area countries which came under stress to improve their external trade balances, in a context where nominal exchange rate is not available as a policy instrument at the country level and the low levels of inflation do not allow for a stronger role of the real effective exchange rate. Hence, the evolution of domestic demand

reinforced its role in the adjustment of external imbalances, affecting not only imports, but also export performance.

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