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Overlooked in the Debate? Non-price Competitiveness in the Five Largest Euro Area Countries

RAMON XIFRÉ
ESCI-UPF School of International Studies
Public-Private Sector Research Centre, IESE Business School

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Overlooked in the debate? Non-price competitiveness in the five largest Euro Area countries

Ramon Xifré[†]

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Abstract

This paper obtains a comprehensive measure of non-price competitiveness factors (NPCFs) based on a simple international trade model. Trade frictions are reinterpreted as the NPCF's conditions (inferior product quality, and suboptimal geographical and industry specialization of exports) that inhibit trade. The setup is applied to the five largest Euro Area economies for the period 2000-2017. NPCF have improved significantly in the Netherlands and Spain, mildly in Italy and Germany, and mildly worsened in France. This result helps explain the Spanish 'paradox'. It also suggests that the conventional North-South divide in the Euro Area might not be entirely applicable regarding NPCF.

Keywords: Euro Area, export shares, non-price competitiveness, trade costs, structural reforms.

JEL codes: F14, F45.

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[†]ESCI-UPF School of International Studies; and PPSRC-IESE Business School. Email: ramon.xifre@esci.upf.edu. Pg. Pujades 1, 08003 Barcelona (Spain).

1 Introduction

The debate on the role that cost-competitiveness conditions have played in generating, or amplifying the effects of, the crisis in the Euro Area and the EU has been intense. The effectiveness of policy interventions on cost-competitiveness adopted in order to support the recovery, such as wage moderation, has also been controversial and it remains an open issue (Decressin et al., 2015). In contrast, the role that other factors, generally known as non-price competitiveness factors (NPCF), may have played in setting the stage for the crisis and characterizing the recovery has been largely overlooked. This paper aims to fill this gap in part by measuring the evolution of NPCF for the five largest Euro Area economies between 2000 and 2017. Our ultimate goal is to contribute to a more comprehensive understanding of the recent competitiveness conditions in the Euro Area and to better inform the policy debate.

Cost-competitiveness generally refers to the wage level and other labour costs in a given country. Cost-competitiveness results from the interaction of many factors: from the inflation rate and its expectation, to the nature of the organization of the labour market (degree of centralization, degree of wage flexibility, differential bargaining power, etc.) including, among others, productivity developments and nominal exchange rates (see Hancké 2013, Jones 2016, Baccaro and Tober 2017 and the references therein for a more detailed view).

Based on this perspective, some of the leading narratives on the origins of the crisis claim that the basic competitiveness problem in the Euro Area arises from high labour costs in the periphery (Thimann, 2015). Firms in countries with adverse cost-competitiveness developments, unable to devaluate their currency, have been forced either to go out of business or to increase the prices of their products and services. If the increase in price is not accompanied by a commensurate increase in the value for (domestic or foreign) customers, firms with price/cost competitiveness advantage will eventually drive out laggards from the market. The source of this disadvantage are "structural barriers" to the private sector which make job creation costlier in the periphery. It is necessary, following this logic, to cut labour costs and moderate wages in the periphery and use those savings to cut prices in order to recover competitiveness.

However, despite their popularity, the impact of structural reforms introduced to moderate wages and reduce labour costs remains a complex issue, particularly in the short run and when

the economy is operating with interest rates near the zero lower bound (Decressin et al., 2015; Duval and Furceri, 2018). The net, aggregate impact of policy reforms that reduce wages or make them more flexible remains an open issue. It has been shown to be negative if cost-reducing reforms are not accompanied with a proper monetary policy (Galí, 2013; Eggertsson et al., 2014; Galí and Monacelli, 2016; Decressin et al., 2015; Gomes, 2018).

More widely, there are alternative narratives regarding the origins of the crisis and, correspondingly, what is better to do to secure recovery. Some studies claim that the cost-cutting reforms adopted so far have been detrimental for the competitiveness of the periphery (Storm and Naastepad, 2015; Jones, 2016). From this perspective, what caused competitiveness imbalances were not higher wages in the periphery but the surge in imports, attributable to the growth of debt-financed domestic demand (Gabrisch and Staehr, 2015). As a result, reducing wages makes no sense if the other components of the total price of exports increase. According to this logic, competitiveness imbalances in the Euro Area periphery can only be resolved if this part of the bloc approaches the "high road" (Burroni et al., 2019) of development. This path would entail improving labour productivity, increasing the technological potential and strengthening the institutional setup for economic activity in the periphery to converge to the levels of the core.

In contrast with this rich literature focused on the merits and demerits of adopting reforms to improve price-cost competitiveness, the debate on the explicit role of non-price competitiveness in the Euro Area has been virtually ignored with some notable exceptions (Athanasoglou and Bardaka, 2010; Benkovskis and Wörz, 2016; Gabrisch and Staehr, 2015; Giordano and Zollino, 2016).

From this perspective, a contribution of the present paper is to inform this debate by proposing, as a diagnostic tool, a simple measurement of non-price competitiveness factors and track their evolution between 2000 and 2017 for the five largest Euro Area countries. This diverse set includes two Northern countries (Germany and the Netherlands), two Southern countries (Italy and Spain) and France which occupies an intermediate position. Our results show that NPCF have evolved with markedly different trajectories in these five countries. Non-price competitiveness has improved in Spain and particularly in the Netherlands; it has deteriorated in France and it has remained relatively stable in Germany and Italy. The positive evolution of NPCF we find for Spain contributes to explain in part the so-called "Spanish paradox" (Cardoso et al., 2012;

Giordano and Zollino, 2016) or "Spanish miracle" (Eppinger et al., 2018; Almunia et al., 2018). That is, the apparently abnormal situation in which Spanish price-cost indicators have deteriorated while the country's export shares in the main markets (the Euro Area, the EU and the world) have expanded.

The main analytical contribution of this paper is to obtain a comprehensive, direct measure of NPCF based on a workhorse gravity model of international trade (Costinot and Rodríguez-Clare, 2014) by reinterpreting trading costs. In this respect, we follow the literature on trade "wedges" (Chari et al., 2007; Alessandria et al., 2013). In essence, our approach consists in fitting wedges so that the equilibrium conditions match the actual bilateral export data. In our formulation, the parameter usually associated to trade costs is no longer an exogenous variable that captures transportation costs, cultural barriers and, more generally, the extent of the development of globalization. Here we interpret the parameter as a clearing variable that captures bilateral trade distortions associated to NPCF (lack of quality of the exported good; the suboptimal export structure of a country in terms of destinations and products, etc.) In our setup, this parameter takes on the necessary value so that a bilateral export share equation holds for a triple exporter-destination-period. Given that export shares and the ratio of prices can be recovered from data, NPCF can be measured as a residual. Finally, the aggregate measure of the NPCF of a country is computed as the weighted average of the bilateral measures across its main trading partners. This approach to measure non-price factors does not rely on the use of conventional price-cost indicators such as the real effective exchange rate (REER). Avoiding this is convenient as it has been shown recently that the REER (i) sends conflicting signals for the four largest Euro Area countries depending on the deflator adopted (Giordano and Zollino, 2016) and (ii) it has important conceptual and practical limitations because its conventional version does not account for value-added in trade exchanges (Bems and Johnson, 2017).

The paper is organized as follows. Section 2 performs a review of the literature that has covered non-price competitiveness factors. Section 3 introduces our analytical setup and shows how we derive our measure of NPCF. Section 4 explains the data we use. Section 5 reports the results and discusses them. Finally, section 6 concludes and draws policy implications.

2 Review of the literature: Non-price competitiveness factors

It is necessary to diagnose NPCFs since it is well established that prices and costs cannot account for much of a country's export variation (Levchenko et al., 2010; Alessandria et al., 2013; Athanasoglou and Bardaka, 2010; Gabrisch and Staehr, 2015; Crespo and García Rodríguez, 2016). However, the main reasons that have kept NPCFs largely unconsidered by literature so far are that these factors are numerous and they are typically measured separately from each other by means of specific models and analytical setups. The purpose of this section is to offer a panoramic view on how NPCFs in general have been covered by the literature.

One can mention two main sources of differences of non-price competitiveness across countries: quality of exports (and, more generally, horizontal and vertical differentiation) and the structural composition (in geographic and industry-specialization terms) of exports. There may be interactions between these two sources of NPCF with, for instance, wealthier foreign markets absorbing a larger share of high-quality or high-technology products. However, for clarity of exposition we present the review of both sources separately.

First, it is well established that different countries export different "qualities" and, for a given sourcing country, its exports typically also differ greatly across different destination countries. Indeed a substantial amount of both theoretical and applied research (Hallak, 2006; Khandelwal, 2010; Hallak and Schott, 2011; Martin and Mejean, 2014) has shown that quality plays an important role in determining the patterns of bilateral trade. This line of research requires making specific assumptions to obtain reliable estimates of the quality of exports. Some opt for constructing ad-hoc proxies for quality as unit value (Schott, 2008). The limitation of this method is that export prices may vary for reasons other than quality. Some others construct a relative export price index that explicitly adjusts for changes in non-price factors, such as quality but also preferences or the set of competitors (Benkovskis and Wörz, 2016). However, these methods typically require the use of highly disaggregated data (6-digit Harmonised System) which limits the availability of these indexes.

Athanasoglou and Bardaka (2010) explicitly account for non-price competitiveness in the case of Greece for the period 1962-1999. The authors find that non-price competitiveness, which they proxy by the capital stock in manufacturing as an indirect measure of product quality and va-

riety, plays a key role in explaining export performance both in the long run and in the short run. Their paper shows that failing to include non-price competitiveness may lead to a serious mis-specification error in explaining export performance. With respect to this work, the present paper adopts a different theoretical approach intended to capture all factors other than price-competitiveness that may determine bilateral exports. In the same vein, Gabrisch and Staehr (2015), looking at a panel of the EU27 for the period 1995 – 2011 and using Granger causality tests, find that incoming capital flows are likely to have eroded competitiveness in the short run without finding significant evidence of the reverse effect. Their work suggests, therefore, that a comprehensive diagnosis of the competitiveness conditions needs to include other elements apart from the conventional price-cost measurements such as the REER.

One of the reasons for this is the methodological and informational limitations of the REER, as documented by Giordano and Zollino (2016). These authors estimate the association between five different measurements of price-cost competitiveness measures (the REER deflated by consumer price indices, producer price indices, GDP, unit labour costs in manufacturing and unit labour costs in total economy) and exports, for the countries we are studying except for the Netherlands for the period 1993 – 2012. They find that the five price-cost indicators send conflicting messages and explicitly advocate for a proper measurement of non-price factors. In order to assess the explanatory role of non-price competitiveness factors they have developed an indicator based on total factor productivity (TFP). This indicator includes two key ingredients typically disregarded in the price-cost competitiveness models: the country's (relative) productive efficiency and its ability to innovate. They find that these two NPCFs exert a strong positive impact on exports for most of the countries. In this respect, their paper points to the relevant role played by NPCFs in the largest Euro Area economies. In the present paper we have included the Netherlands (not considered in their paper) as this country is found to have had a high profile regarding the evolution of its NPCFs.

Burroni et al. (2019) refer to the importance of the "triangle of growth", which comprises the labour market, human capital and innovation policy, for explaining differences in the models of growth between Italy and Spain on the one hand and Germany and France on the other hand. The first element of the triangle, the functioning of the labour market, is pinned down in most price-cost competitiveness frameworks. However, the other two elements are part of the NPCFs.

These authors argue that the differences in both sets of countries along the three elements of the triangle help to explain why the first group has gone the "high road" of development while the second group has institutional inertia towards adopting a "low road", based on the low quality of products, low prices and low-quality employment in labour-intensive sectors.

Secondly, regarding the geographical and industry composition of exports, it is well known that the composition effect plays a strong role in determining trade exchanges. Some studies have decomposed the Euro Area export performance into a (purely price-cost) "competitiveness" effect and a "structure" effect (Storm and Naastepad, 2015). The latter refers to the influence on a country's overall export share of the commodity composition of its exports as well as its destination markets. If a country is specialized in commodities and destinations with growing demand, its share in world exports will increase if it keeps a constant market share in these 'superior' commodities and destinations With data for the period 1996-2007, it has been found that Germany's gains in the export market have relied heavily on an export structure that privileges medium-tech industries in high-growing markets (ECB, 2005; ECB, 2012).

In a similar vein, it has been documented that a larger share of high-technology exports in total exports is positively related to the total amount of exports, in the Euro Area for the period 1988-2009 (Wierts et al., 2014). These authors find that export composition has both direct and indirect effects on total exports. The direct effect relies on the differentiated growth of export markets, with those having a larger share of high-technology products growing faster. The indirect effect stems from the fact that export composition conditions the effect of the real exchange rate and partner income growth on exports, with this effect being smaller the higher the share of high-technology exports. This work is relevant to the present paper as it makes a strong case for the impact of the 'quality' of exports on the total volume of exports, which is one of the features in our setup.

3 Setup

We build our setup from the exposition Costinot and Rodríguez-Clare (2014) undertake of a classical gravity model with Constant Elasticity of Substitution (CES) utility function and we follow their notation. There are n countries, each endowed with a given amount of a distinct good $i = 1, ..., n$. Each country j is populated by a representative agent with CES preferences,

$$C_j = \left(\sum \psi_{ij}^{(1-\sigma)/\sigma} C_{ij}^{(\sigma-1)/\sigma} \right)^{\sigma/(\sigma-1)}, \tag{1}$$

where C_{ij} is the demand for good i in country j; $\psi_{ij} > 0$ is an exogenous preference parameter; and $\sigma > 1$ is the elasticity of substitution between goods from different countries. The price of good i in country j is p_{ij} and the consumer price index in country j is

$$P_j = \left(\sum_i \psi_{ij}^{1-\sigma} p_{ij}^{1-\sigma} \right)^{1/(1-\sigma)}. \tag{2}$$

In the classical version of the model, international trade between countries is assumed to be subject to iceberg trade costs: in order to sell one unit of good i in country j, country i needs to ship $\tau_{ij} \geq 1$ units. In our setup we keep this formulation but assume that parameter τ measures the trading frictions associated to non-price competitiveness factors (NPCF). Only for illustration purposes, consider that quality is the dominating NPCF and that therefore τ_{ij} captures the trade frictions (resulting in lower exports) due to the lack of quality of good i as perceived in destination market j. Then, as the quality of good i deteriorates, it is necessary for country i to ship $\tau_{ij} \geq 1$ units of the good to country j to obtain the revenue corresponding to one unit of the good of superior quality. In both interpretations, higher trade frictions correspond to higher values of τ.

To avoid arbitrage, the price of good i in country j must be equal to

$$p_{ij} = \tau_{ij} p_{ii}, \tag{3}$$

where p_{ii} is the domestic price of good i.

In this setup, the exports of country i to country j are defined as

$$X_{ij} = \left(\frac{\psi_{ij} p_{ij}}{P_j} \right)^{1-\sigma} E_j, \tag{4}$$

where E_j is the country j's total expenditure.

We are now interested in using this setup to find the relationship between export market shares and price-competitiveness factors. The idea is to identify the residual in this relationship as the effect generated by NPCFs.

To do so, we first rearrange terms and use (3) to rewrite equation (4) as

$$\frac{X_{ij}}{E_j} = \left(\frac{\tau_{ij}\psi_{ij}p_{ii}}{P_j}\right)^{1-\sigma}. \tag{5}$$

On the left-hand side of this equation there is the export share of country i in destination country j, i.e how important are exports of country i in country j's total imports, which is also referred to as the external competitiveness of country i in destination j. On the right-hand side, P_j is a price index but p_{ii} is not - it is the domestic price of good i in country i. To obtain an international relative price index, we multiply the right-hand side term by $(P_i/P_i)^{1-\sigma}$. After rearranging, the market share can be rewritten as

$$\frac{X_{ij}}{E_j} = \phi_{ij}^{1-\sigma}\left(\frac{P_i}{P_j}\right)^{1-\sigma}, \tag{6}$$

with

$$\phi_{ij} = \tau_{ij}\psi_{ij}\frac{p_{ii}}{P_i}. \tag{7}$$

The second term on the right-hand side of equation (6) is the relative price of goods consumed in country i in terms of goods consumed in country j. This will facilitate the empirical analysis as there are available measures of aggregate price indices comparable across countries. An increase in the ratio P_i/P_j over time typically results from inflation in country i being larger than in country j and therefore it is in principle a manifestation of a loss in the price competitiveness of country i relative to country j.

The term ϕ_{ij} represents an extended notion of trade frictions beyond those captured by parameter τ_{ij}. It includes three elements, none of which are related to country i's external price-competitiveness. For this reason we will call the term ϕ_{ij} a measure of the NPCF of country i with respect to country j. The first two coefficients are specific to the relationship between country i and j: the trade friction parameter τ_{ij} (discussed above) and the exogenous parameter ψ_{ij} that captures differences in preferences between both countries. The third term is the ratio between the domestic price of good i and the general price index in country i. This term can be interpreted as a measure of the penetration of imports in country i; as the imported goods get cheaper in relative terms to the domestic good, the ratio p_{ii}/P_i increases, suggesting that production conditions in country i are deteriorating.

In order to obtain an aggregate measure of the NPCF of country i we compute the average of ϕ_{ij} across the relevant export destinations, weighted by the importance of each destination in

country i's exports. That is, we define

$$\phi_i = \sum_j \omega_{ij} \phi_{ij}, \tag{8}$$

with $\omega_{ij} = X_{ij} / \sum_j X_{ij}$ and $\sum_j \omega_{ij} = 1$.

Note that this approach of measuring non-price competitiveness differs from the approach of measuring price competitiveness by means of the real effective exchange rate (REER). The REER is typically constructed as a (weighted) geometric average of the nominal exchange rates of country i's main trading partners adopting a particular deflator. The REER is a *single* rate (up to the choice of the deflator) for all destinations which is then used to analyse the conditions in which the exports of country i compete in terms of price. In contrast, our measure of non-price competitiveness ϕ_{ij} is specific of triple exporter-destination-period and it is then aggregated across destinations.

In order to get the measure ϕ_{ij} from the data, one can solve for ϕ_{ij} from (6), resulting in

$$\phi_{ij} = \left(\frac{X_{ij}}{E_j} \left(\frac{P_i}{P_j} \right)^{\sigma - 1} \right)^{\frac{1}{1-\sigma}} \tag{9}$$

where both X_{ij}/E_j and P_i/P_j can be recovered from available datasets.

This expression shows a direct interpretation of the measure ϕ_{ij} over time. As $\sigma > 1$, ϕ_{ij} will increase if the market share of country i in the destination country j decreases, and if country i's domestic price index appreciates with respect to country j's. In other words, if the variation of the ratio domestic prices/foreign prices is inversely proportional (scaled up by the factor $\sigma - 1$) to the variation in the market shares, the measure ϕ_{ij} would remain constant over time. The measure ϕ_{ij} of NPCF can be interpreted, analogously to trade costs, as the non-price conditions that may inhibit trade beyond disadvantages in international relative price. A higher value of ϕ_{ij} implies the worsening of the NPCFs of country i in relative terms to country j, that is, a loss in non-price competitiveness.

4 Data

We cover data on exports of goods (merchandise trade) for the period 2000 - 2017. We consider as exporters the five largest euro area countries (Germany, France, Italy, Spain and the Netherlands). We consider as destinations a bloc of 32 countries (the EU28 countries plus Japan, Switzerland,

United States and Turkey) for which there is official information on comparable price indices supplied by the EU. On average, the bloc of the 32 economies covers 75% of total exports of the five exporters in 2017 (see panel C in table 1).

Data on bilateral trade flows when at least one of the countries is a member of the EU are taken from Eurostat (Comext database) and are in current euro terms. When both countries are not members of EU (i.e. bilateral flows between Japan, Switzerland, United States and Turkey) data are taken from the United Nations (UN Comtrade database). In this case, data are in current US dollars and they are converted to euros by employing the euro/dollar exchange rate that makes both series consistent.

The export market share X_{ij}/E_j is computed as exports of country i in country j over the total imports of country j from the 31 countries of the rest of bloc.

Data on internationally comparable prices come from Eurostat (Price level indices database). Price indices for individual countries are reported and normalized in terms of two alternative geographic aggregates, the euro area (EA15) or the whole EU (EU28). For the set of our 32 countries, price indices are available for most of the years for two different macroeconomic aggregates: GDP and actual individual consumption (the price data for Poland and Slovakia are not available for 2000 and 2001 and these observations are removed from the analysis). We have computed the results for the four possibilities of price indices. Results do not different significantly (they are reported at the end of the next section) and we opt for considering the EU28 normalization for the actual individual consumption as our lead case because it fits better in the theoretical setup.

As a preliminary descriptive, table 1 shows the percent variation between 2000 and 2017 of the bilateral export market share of the five exporting countries in the 32 countries of the bloc (panel A). For the same period of time, table 1 also presents the percent variation of the aggregate market share of the five exporting countries in the bloc as a whole (panel B).

This table shows that Italy, and specially France, have lost an important part of their market share in the bloc between 2000 and 2017, with losses of 9.6% and 31.4% respectively. Indeed France has lost market share in all destinations except for Estonia and Japan, and Italy has lost market share in 26 of the 31 destinations. Conversely, the Netherlands and Spain gained export presence in the vast majority of the destinations and have both increased their export market

share in the bloc as a whole by more than 18%. Germany, the EU export leader, faces a difficult task in improving its already large presence in most markets. It has had a mixed performance across destinations but it has nevertheless managed to increase its export share in the bloc by more than 9%.

[Table 1 around here]

5 Results and discussion

Main results. Following Costinot and Rodríguez-Clare (2014), we perform our quantitative exercise for two possible values of the price-elasticity of substitution between goods from different countries, σ: 3.8 and 5.6. Intuitively, a smaller value of the price-elasticity generates higher non-price effects. If exports are assumed to react more moderately to prices, then it must necessarily be the case that non-price factors have a stronger effect in explaining the variations in external competitiveness. This intuition is verified in our exercise.

Figure 1 and table 2 report the evolution of NPCF between 2000 and 2017 for the five exporters. The data are obtained using the price index that corresponds to individual consumption and taking the EU28 as the reference. Figure 1 represents, for the case of $\sigma = 3.8$, ϕ rebased so that it takes the value of 100 in year 2000 for each country. In figure 1, increases over time represent a deterioration in NPCF. For a more natural interpretation, table 2 reports the *gains* in non-price competitiveness, that is, the percentage variation of $-\phi$. In table 2, a negative number therefore represents a loss in non-price competitiveness. Table 2 reports the results for both values of the elasticity.

Between 2000 and 2017 NPCFs deteriorated only in France. As explained above, the imputed effect to NPCFs depends on the value assumed for the price-elasticity. Assuming that exports are less elastic to prices, the deterioration on non-price conditions goes up to 7% in France. If instead exports are assumed to be more elastic, the loss is contained slightly above 2%. This is clearly consistent with the severe losses in market share that France has suffered in most of the market destinations considered in this analysis. The loss in the country's export share is so important that it cannot be accounted for just by the adverse evolution of price-cost developments in the foreign markets.

Figure 1 and table 2 report NPCF similar trajectories for Germany and Italy with improvements in non-price competitiveness around 4% (except in case of assuming the largest elasticity for Germany, which limits the positive effect to 2.4%). However, experiences in both countries differ because Germany has gained market share and Italy has lost it. The implication is therefore that the ratio of international relative prices and costs has been (relatively) more competitive for Germany than for Italy, which is consistent with extensive evidence of moderate wage growth in Germany.

Finally, Spain and specially the Netherlands have experienced a sustained improvement in their non-price conditions, resulting in cumulative gains over the period of between 14% and 16%, and 20% and 22% respectively. These spectacular positive results, which are consistent with the equally notable increases in market share of these two countries, suggest that non-price factors have dominated over any adverse development regarding price-cost factors.

[Figure 1 around here]

[Table 2 around here]

Consistency. To the best of our knowledge there are no alternative comprehensive, quantitative estimates of the evolution of non-price competitiveness factors (NPCF) against which we can benchmark these results. However, our results are qualitatively consistent with other studies that have measured partial non-price effects on exports in one or more of the countries under study and, particularly, for Spain.

Giordano and Zollino (2016) construct a measure of total factor productivity (TFP) that captures the innovation content of exports as a proxy of non-price competitiveness (table 5 in their paper). They find that this variable exerts a significant effect in explaining exports for Germany, Italy and Spain but not in France, whose TFP has deteriorated (they do not include the Netherlands in the analysis). The deterioration of TFP in France, even before the crisis, is well established (Cette et al. 2017). Regarding the size of the positive effect of TFP on exports, the largest observed effect corresponds to Spain. Indeed, Giordano and Zollino (2016) explicitly argue that non-price competitiveness is a crucial determinant of export growth in Germany and particularly in Spain. All this is aligned with our results.

Discussion. In this respect our findings can contribute to explaining the apparently atypical behaviour of Spanish exports, both before the crisis (the so-called "Spanish paradox" (Cardoso et al. 2012, Giordano and Zollino, 2016)) and after the crisis (the "Spanish miracle" (Almunia et al. 2018, Eppinger et al. 2018)). Basically, the behaviour of Spanish exporting firms has been considered atypical because the surge in export volume cannot be explained by an improvement in price-cost competitiveness. Our model and results reconcile both facts and point at a sizable improvement in non-price competitiveness conditions as a plausible explanation. This is aligned with the conclusions that other papers have reached. Spanish producers, facing a shrinking domestic demand, have been particularly active in expanding their export basis both along the intensive and extensive margins (Eppinger et al. 2018, Almunia et al. 2018). This "venting out" behaviour cannot be pinned down by price-cost indicators but it is precisely part of what our measure of NPCFs is diagnosing. In the same vein, Crespo and García Rodríguez (2016) report that Spanish exports, consistent with our results, are much more elastic to foreign income than to conventional price-cost competitiveness indicators (real effective exchange rates). Finally, Giordano and Zollino (2016) suggest that part of the paradox could be attributable to the major structural reforms adopted in Spain, whose effect would be also captured in part by our measure of NPCFs.

Robustness. In order to check for the robustness of our results presented in table 2, table 3 reports the percentage variation of $-\phi$ when using other price indices for both values of the elasticity. It is clear that, for a given value of the elasticity, performing the exercise with different price indices does not lead to substantial, qualitative differences and the main results discussed above still hold. What this quantitative exercise shows is that the values of NPCFs depend more on the assumptions about the price-elasticity than on the choice of the particular price index.

[Table 3 around here]

It is worth mentioning some of the limitations of our setup, which has been kept deliberately simple. We adopt a simplified, structural model for the aggregate economy and we abstract from the heterogenous effects that changes in the composition of exports in world trade may have had in our sample (Levchenko et al. 2010, Bussière et al. 2010). More precisely, it may be the case that the demand for certain type of goods (for instance, durable goods, intermediate goods or

high-technology goods) has increased globally, and that different countries in our sample profit more than others of this surge in particular type of goods. In this case, the NCPF gains we document would reflect in part this export composition shift effect. A deeper investigation of this phenomenon remains a research avenue for further work.

6 Conclusions

This paper shows how to perform a comprehensive diagnosis of non-price competitiveness factors (NPCFs) based on a simple theoretical international trade model. NPCFs are interpreted, analogously to trade costs, as the conditions (inferior product quality and a suboptimal geographical and industry specialization of exports) that may inhibit bilateral trade beyond the evolution of international relative prices. The measure is used to track the evolution of NPCFs in the five largest Euro Area countries between 2000 and 2017. The five countries differ significantly, the best performing country being the Netherlands (with an improvement in its NPCF between 14% and 22%) and the worst results being observed in France (with a deterioration between 2% and 8%). The qualitative results are preserved assuming different values of the price-elasticity of exports and adopting different versions of the price indices.

The policy corollary of this diagnosis is twofold. First, our results suggest that a reconsideration of the conventional North-South Euro Area divide regarding non-price competitiveness factors is in order. In terms of non-price competitiveness, the evolution in the Netherlands resembles that of Spain, and the one in Germany that of Italy. From that it follows that it is necessary to transcend the logic of "sides", at least in its strictest form, and approach each country in all its complexity. Second, our analysis is consistent with previous research that emphasized the importance of structural reforms aimed not only at improving price-cost conditions (typically wage moderation) but also enhancing non-price factors with a positive impact on productivity. Among those factors, for the case of the Euro Area, one can mention the innovation capacity, the education system, good operating conditions of the product markets and the quality of institutions (ECB, 2018).

Table 1. Descriptive statistics

(A) Exporters' market share variation in the destination country, 2000-2017					
Destination	*Exporter*				
	Germany	France	Italy	Spain	Netherlands
Austria	2.6%	-39.8%	-12.9%	8.7%	7.7%
Belgium	-15.8%	-20.3%	7.1%	46.0%	14.8%
Bulgaria	-14.2%	-50.9%	-26.1%	221.1%	52.3%
Croatia	-8.3%	-47.7%	-20.4%	58.8%	62.0%
Cyprus	-23.3%	-82.7%	-24.2%	-22.6%	43.6%
Czechia	-19.9%	-38.2%	-13.4%	-5.2%	128.3%
Denmark	24.0%	-31.6%	-8.5%	19.9%	20.1%
Estonia	22.9%	9.2%	16.8%	137.5%	152.3%
Finland	-6.6%	-28.7%	-18.9%	13.2%	29.1%
France	5.0%		-6.5%	19.0%	25.0%
Germany		-32.5%	-24.1%	10.8%	11.8%
Greece	3.7%	-24.4%	-29.8%	61.0%	18.6%
Hungary	-15.4%	-27.2%	-32.0%	11.1%	46.2%
Ireland	31.1%	-43.5%	-24.3%	9.9%	39.0%
Italy	-1.9%	-22.0%		38.1%	11.7%
Japan	43.5%	10.7%	43.3%	90.8%	45.0%
Latvia	-34.8%	-49.2%	-26.4%	33.5%	-1.9%
Lithuania	-41.0%	-45.3%	-35.2%	193.2%	48.4%
Luxembourg	32.6%	-52.7%	-14.9%	18.7%	24.2%
Malta	48.2%	-35.1%	64.3%	80.6%	154.3%
Netherlands	24.7%	-34.4%	-13.4%	20.9%	
Poland(*)	5.8%	-29.8%	-14.6%	30.9%	44.1%
Portugal	-7.0%	-46.3%	-28.1%	10.7%	23.7%
Romania	0.8%	-19.7%	-53.6%	307.6%	25.8%
Slovakia(*)	-25.4%	-1.5%	-34.7%	-52.3%	13.6%
Slovenia	-11.0%	-64.0%	-22.5%	0.1%	13.3%
Spain	-1.5%	-30.1%	-13.0%		31.6%
Sweden	13.7%	-42.4%	0.2%	5.9%	27.1%
Switzerland	-3.4%	-44.2%	10.1%	58.4%	-18.1%
Turkey	-5.1%	-39.1%	-21.1%	-2.3%	15.8%
United Kingdom	20.7%	-34.6%	-10.3%	32.8%	30.3%
United States	34.7%	-16.9%	12.1%	52.2%	37.7%
(B) Exporters' market share in the bloc of 32 countries					
2000	18.4%	10.5%	7.6%	3.7%	8.3%
2017	20.1%	7.2%	6.9%	4.4%	9.9%
Variation	9.4%	-31.4%	-9.6%	18.4%	18.9%
(C) Bloc coverage of world exports					
2017	74.7%	72.1%	72.9%	74.1%	81.6%

Note. (*) The variation for Poland and Slovakia corresponds to the period 2002-2017.

Table 2. Non-price competitiveness gains between 2000 and 2017.

	$\sigma = 3.8$	$\sigma = 5.6$
Germany	4.6%	2.4%
France	-7.0%	-2.1%
Italy	3.8%	4.5%
Spain	16.6%	14.2%
Netherlands	22.2%	20.0%

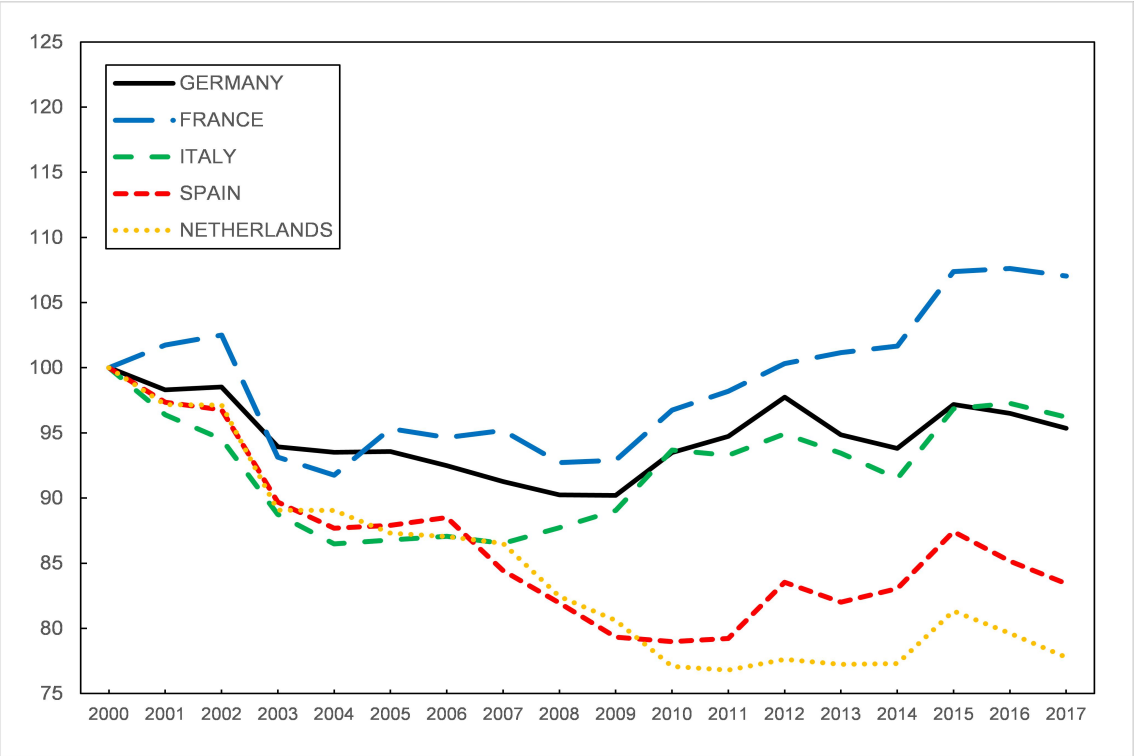
Note. Positive values correspond to non-price competitiveness gains and negative values correspond to non-price competitiveness losses.

Table 3. Non-price competitiveness gains between 2000 and 2017 for different price level indexes.

	$\sigma = 3.8$				$\sigma = 5.6$			
	EU28=100		EU15=100		EU28=100		EU15=100	
	GDP	Cons	GDP	Cons	GDP	Cons	GDP	Cons
Germany	4.0%	4.6%	4.0%	4.7%	1.8%	2.4%	1.8%	2.4%
France	-8.8%	-7.0%	-8.8%	-7.0%	-3.7%	-2.1%	-3.6%	-2.1%
Italy	4.5%	3.8%	4.5%	3.7%	5.3%	4.5%	5.3%	4.4%
Spain	13.3%	16.6%	13.2%	16.6%	10.9%	14.2%	10.8%	14.3%
Netherlands	16.8%	22.2%	16.7%	16.7%	14.5%	20.0%	14.4%	14.4%

Note. Positive values correspond to non-price competitiveness gains and negative values correspond to non-price competitiveness losses.

Figure 1. Non-price competitiveness gains (index, 2000 = 100)



Note. Decreasing values correspond to non-price competitiveness gains and increasing values correspond to non-price competitiveness losses.

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