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## Trends in Italy's Nonprice Competitiveness

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**IMF Working Paper**

European Department

**Trends in Italy's Nonprice Competitiveness**

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**Abstract**

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Italy's medium-term economic performance has raised "standard" competitiveness concerns as unit labor costs surged, and real export growth fell. But the recent economic upturn, low current account deficit, and robust nominal exports argue for less pessimism. An empirical analysis confirms the standard concerns, but also suggests that "residual" factors, which partly reflect nonprice economic restructuring, have supported Italy's real exports after 2005 (as in Germany but less so in France or Spain). An investigation of selected structural trends over the past decade offers some substantiation to Italy's "restructuring story," including quality upgrading, geographical trade diversification, and outsourcing. But sluggish services, low FDI, and modest "technological" upgrading indicate limits to Italy's restructuring.

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## I. INTRODUCTION

Over the past decade, the themes of weak growth and competitiveness loomed large in Italy. That period saw a marked fall in measured labor and total factor productivity growth (Sgherri, 2005). The sharp rise in unit labor costs (ULCs) relative to key EU competitors since the late 1990s—mostly reflecting poor productivity—raised concerns about external competitiveness. Against this background, exports also underperformed, as Italy experienced significant losses in market share, especially in real terms. These problems have been linked to several fundamental factors, such as policy/regulatory rigidities, fiscal imbalances, relatively weak institutions, and outdated specialization patterns (see Faini and Sapir, 2005).

But the recent economic and export recovery suggests the economy may be coping with the growth and competitiveness challenges somewhat better than initially thought. The hypothesis of sizable cumulative competitiveness losses is somewhat at odds with the 2006–07 upturn in output and exports. And some aspects of Italy’s prior stagnation, such as robust employment gains and respectable firm profitability, do not fit the paradigm of fundamental competitiveness weaknesses. Finally, several key external indicators—the current account and nominal export shares—have been relatively benign for an extended period of time.

Based on the latter trends, several recent publications suggest that Italy’s short-term performance and outlook may not be as poor as indicated by standard misalignment measures based on unit labor costs (see Codogno, 2008). For example, de Nardis, 2007 has argued that the Italian firms have been restructuring in ways that reduce the role of cost-based factors relative to more skill-intensive activities. Consistent with this view, there has been some micro-based evidence of restructuring via quality upgrading in some traditional exports (Lanza and Quintieri, 2007), while historical data on export volumes have been officially revised upward in early 2008.<sup>1</sup> But uncertainty persists as to the breadth of success of Italy’s external performance, its sustainability, and comparability with other countries.

This study aims to further investigate how the Italian external competitiveness<sup>2</sup> has evolved recently, with particular emphasis on nonstandard/nonprice factors. These latter in principle may encompass a range of issues, from micro-based (brand, quality, service after sale, etc.) to broader structural trends in trade, balance of payments, and the economy more generally that are not fully captured by price-based measures. An exhaustive and direct investigation of nonprice competitiveness is beyond the scope of this paper. In particular, suitable and timely firm-level data, which may permit to address the “micro-restructuring” theme head-on, are

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<sup>1</sup> See [http://www.istat.it/salastampa/comunicati/non\\_calendario/20080225\\_00/](http://www.istat.it/salastampa/comunicati/non_calendario/20080225_00/). However, the data release has been incomplete for some periods, with a follow-up expected further during 2008, see also Bugamelli 2007 for an early indication of a bias in the data.

<sup>2</sup> The analysis concentrates on exports and other aspects of external performance, rather than “broader competitiveness” issues of growth, productivity, and employment.

scarce, especially in terms of comparing countries. Instead, the focus is on “structural” aspects of external sector and in particular trade performance, which represents an important dimension for Italy given the country’s specialization in export-oriented manufacturing.

Two main trade-related themes are taken up. First, a mainstream time series analysis of aggregate data since the early 1990s is used to assess a “residual” contribution to external performance for Italy and other large euro area countries during the 2006–07 recovery. Second, based on disaggregated external sector data for the past decade or so, several exercises look at selected specific aspects of Italy’s nonprice competitiveness, drawing on results from a cross-country research project on competitiveness in the Southern euro area five (SEA-5) countries, in which the author participated (see Escolano, 2008).

The main conclusion is that Italy’s competitiveness has recently been moderately supported by nonprice factors. While much of Italy’s real export performance can be explained by relative price developments, the remaining variation, which may partly reflect economic restructuring, offers a positive contribution to real exports in 2006–07. More broadly, some medium-term trends point to quality upgrading, export diversification, and outsourcing in Italy’s goods trade, though in other areas Italy’s external performance looks less favorable.

The remainder of the paper is structured as follows. Section II presents some stylized facts and insights from the literature on Italy’s competitiveness problem. Section III analyzes how standard trade indicators empirically explain Italy’s medium-term trends and recent external developments, including the export recovery. Section IV discusses various conceptual possibilities whereby overall nonprice competitiveness may be affected, as well as Italy’s comparative performance or position in exploiting these. Section V looks at a subset of nonprice competitiveness-related issues that are particularly prominent in Italy, such as trade specialization, competition, reorientation, and quality upgrading.

## **II. ITALY’S STYLIZED COMPETITIVENESS DILEMMA: VOLUMES VERSUS VALUES**

Standard indicators and models point to an overall external competitiveness problem for Italy, but disparities are high. Judging by the evolution of real effective exchange rates (REERs) based on unit labor costs relative to a benchmark period, Italy’s accumulated competitiveness gap has been significant—around 20 percent by 2005 (Drummond, 2007). On the other hand, applying other methodologies, for example those based on the evaluation of the *nominal* current account against a norm or target (CGER, see IMF, 2006), suggests a much more modest gap, 5–8 percent. The discrepancy in these estimates prompts a more detailed discussion of the key facts and channels of competitiveness. In this context, two diverging characteristics of Italy’s performance stand out.

### **A. Sluggish Export Volumes**

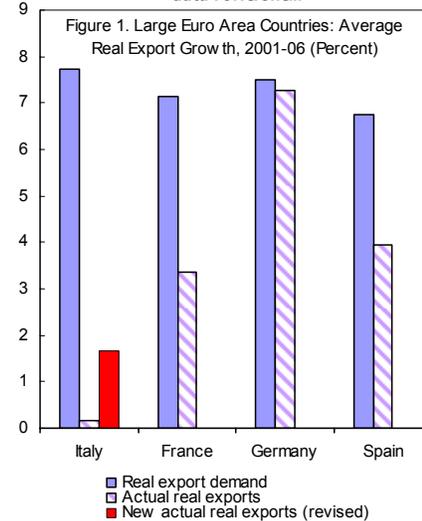
Italian real export growth has been well below that of other euro area countries. The extent of export weakness is quite remarkable as Italy enjoyed comparatively high cumulative growth

relative to other large euro area countries in its export demand (measured as a trade-weighted growth of real imports by Italy's trading partners since the mid-1990s). And while part of this large disparity was exacerbated by statistical issues in allocating Italian total exports in value terms between volumes and unit values, the recent revision to the data has only modestly improved the country's relative inability to exploit export demand (see Figure 1).

The slumping export volumes have coexisted with deteriorating price competitiveness. Thus, REERs based on ULCs increased much more than in other large euro area countries, particularly Germany and France, though the perceived "misalignment" may be less dramatic if one considers the long-run evolution and absolute level of these costs (see Figure 2).<sup>3</sup> And while official data on ULCs are set to be revised (reflecting the new series of export volumes and the related impact on GDP), partial data consistent with the new methodology suggest that these revisions would not significantly alter the uptrend in Italy's labor costs.

Still, using ULCs as a main gauge of price competitiveness in Italy involves some caveats. First, there is uncertainty with respect to a benchmark "equilibrium" year, considered by some authors to be 1998 (Drummond, 2007). Also, as suggested by Codogno, 2008, results vary depending on coverage of ULC-based indicators. For example, growth in whole-economy ULCs in Italy has tended to outpace that in industry or manufacturing as industrial wage growth was below that in the services sectors or the public sector.<sup>4</sup> Finally, ULCs in general are incomplete measures of "true" price competitiveness, as labor inputs represent only a part of total costs of exporting enterprises relative to raw materials and intermediate goods and services.

*Italy has taken comparatively little advantage of export demand growth in real terms, even after adjusting for the recent data revisions...*



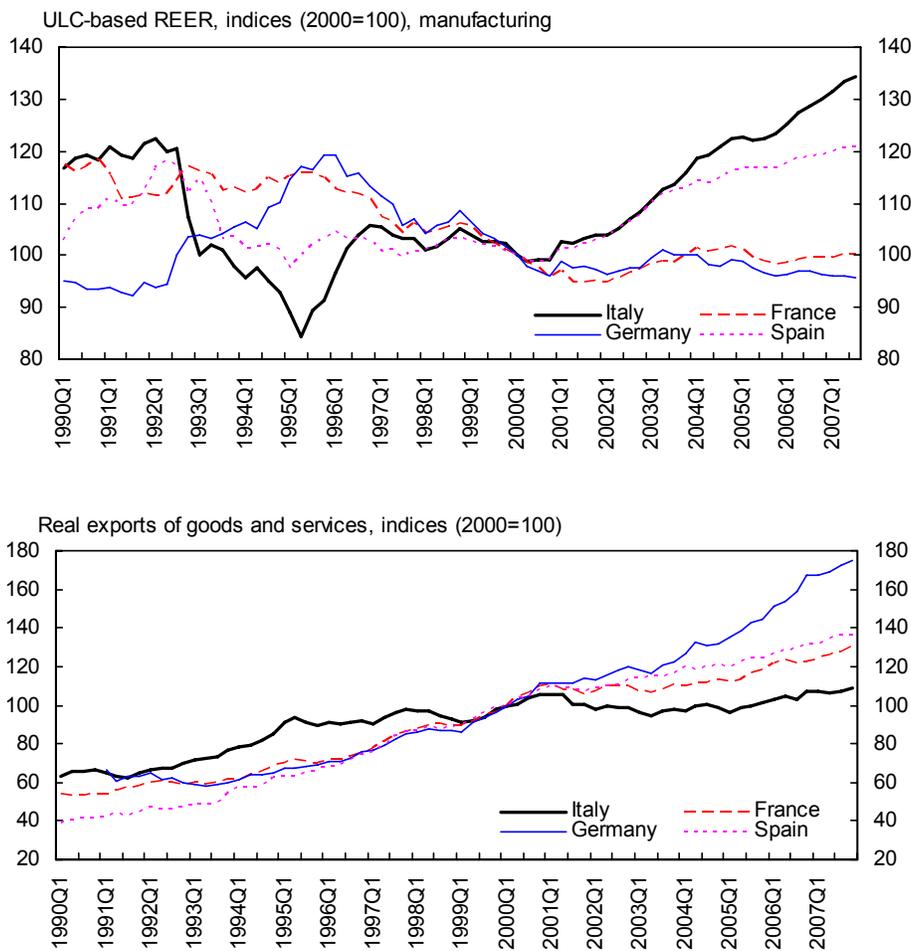
<sup>3</sup> Italy's nominal labor costs, measured in euros per hour worked, are still estimated to be much lower than in Germany and (to a lesser extent) France, (see Lanza and Quintieri, 2007).

<sup>4</sup> While there is some ambiguity, ULCs in manufacturing have been considered more relevant for competitiveness than whole-economy ULCs (see Danninger and Joutz, 2007).

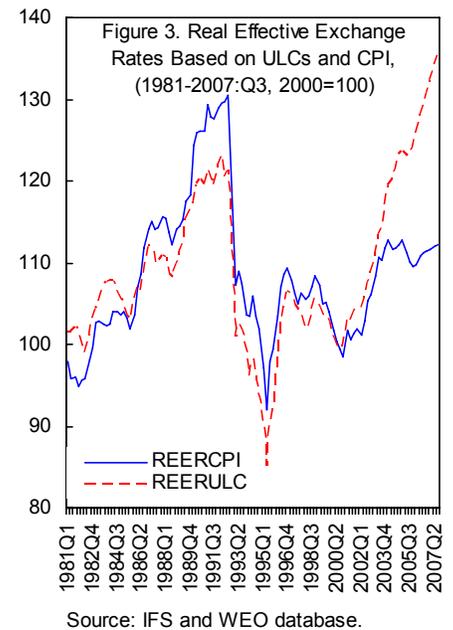
Alternative measures of price competitiveness, based on consumer prices, suggest a less pessimistic picture for Italy: after a similar deteriorating trend since the turn of the century they diverged from ULC-based measures, stabilizing since 2005 (see Figure 3). The picture is also less pessimistic if producer prices are used as another alternative indicator (see Codogno, 2008).

Figure 2. Unit Labor-Cost-Based REERs and Real Exports in Italy, France, Spain, and Germany

*Italy's rising labor costs have gone hand in hand with slowing real exports*



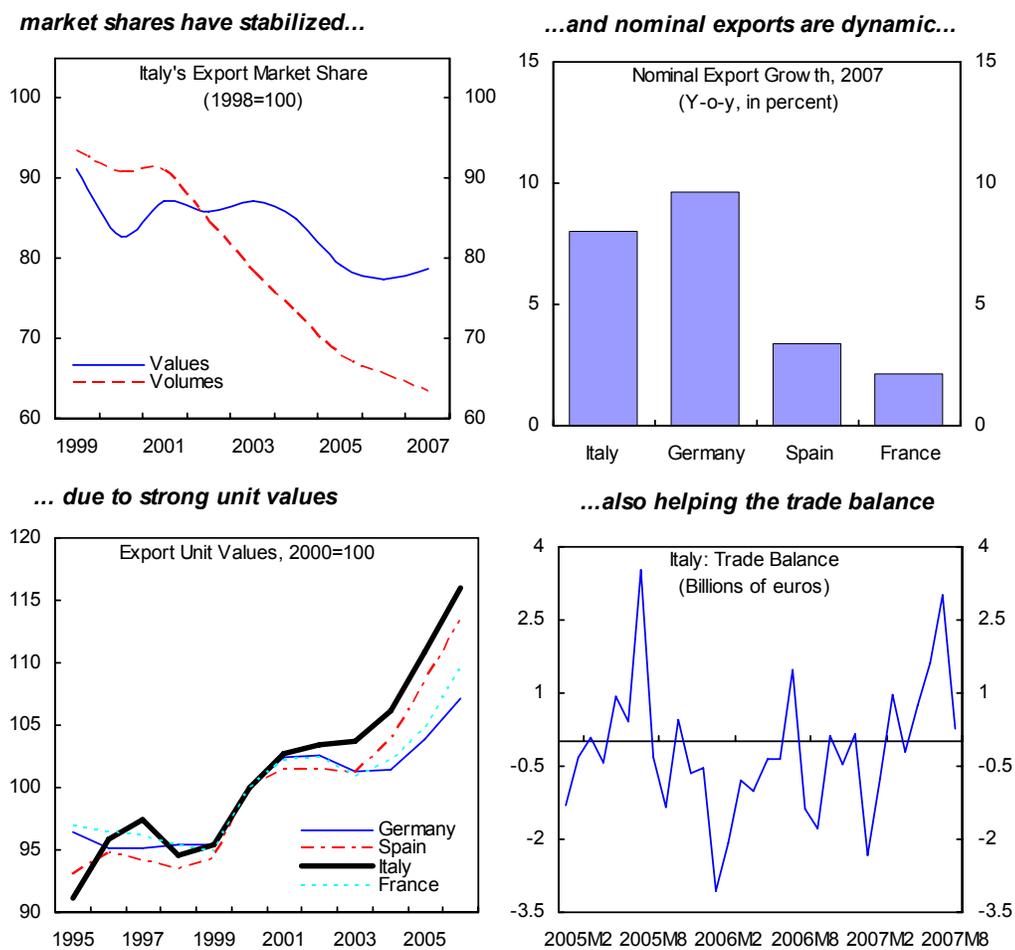
Sources: IMF WEO and IFS databases.



## B. Buoyant (Unit) Values

In contrast to volumes, Italy's nominal exports have held up, even accelerating recently, due to growth in export unit values (UVs), (Figure 4). The interpretation of UVs is far from straightforward as they reflect a mix of cost/price trends, firm behavior, "internal" quality upgrading, and changes in the composition of exportables, including via an exit of exporters. Some of these trends (i.e., quality upgrading) may suggest better competitiveness, but others, such as increases in costs, imply a deterioration.

Figure 4. Italy's Export Indicators



Sources: Istat; OECD; Eurostat; and Bank of Italy.

Over the short term, higher export prices may simply reflect a response by firms whereby exporters decide to maintain profit margins at the expense of export shares. But this argument is not compelling for Italy, since above-average increases in its UVs have been

observed for at least several years. Export UVs may be also driven by the relative cost and price trends in goods in which Italy specializes, reflecting various short and longer-term influences, from exogenous relative price shocks to the pricing power of exporters. Indeed, there has been some evidence that Italy's exporters enjoyed increased pricing power (Basile and others, 2007).

More fundamentally, higher UVs may imbed increases in the average quality of exportables (which are actually consistent with enhanced market power) as a result of restructuring, or change in the composition when low-quality products are discontinued. Several sectoral studies (see Lanza and Quintieri, 2007) have found some evidence of such quality upgrading in "traditional" Italian export sectors—food, shoes, clothing and textiles, furniture, glass/ceramics, and jewelry. Still, as reported by the same authors, in most of these sectors (with the notable exception of food) this process was accompanied by a pronounced contraction in Italy's market shares over the past decade or so, especially in volume terms. Thus, in many of these traditional sectors above-average increases in UVs only moderated, but did not prevent a continued loss in export market share in value terms.

Despite ongoing research progress, the debate has many unsettled issues. The sectoral studies, while detecting the restructuring in some selected areas, do not allow to form a broader view of Italy's competitiveness or even its trends. For example, coverage of these studies is far from complete, especially with respect to "semi-traditional" exports such as machinery – the backbone of Italy's exports and a major reason for its comparative success in stabilizing its "value" market share. In this respect, a study by Bugamelli, 2007, which is based on firm-based data but covers all major export sectors gives a more cautious view of quality upgrading, finding only some indirect evidence that is not fully conclusive.

Also, it is unclear to what extent these instances of restructuring may be offsetting, and interacting with, price-based competitiveness and impacting on sustainability of export performance. In this context, one analytical question is of particular interest: is the increase in export UVs contributing to or subtracting from subsequent export growth? A priori the answer is mixed, reflecting the above dichotomy of the UVs. On empirical grounds, evidence for a virtuous cycle, which points to quality upgrading, has recently been found for some countries. Thus, Fabrizio, et al, (2007) on the basis of a cross-country panel data document a positive link between export unit values and (nominal) export market shares. But it is not clear whether this answer holds for Italy, as the focus there is on emerging economies. In any case, detecting a positive relationship between higher UVs and export *volumes* (as values may reflect price trends and ultimately prove temporary), which was not explored in that study, would arguably constitute a yet stronger indication of the role of quality upgrading.

More broadly, there is the issue of whether the ongoing trends in exports and market shares, in value or volume terms, are a cause for concern for Italy. The country has continued to experience market share losses in real and, in many traditional sectors, nominal terms. While such losses may not be a problem given the natural global market share gains of fast-growing

developing countries, their extent could well be a concern if performance is in some respect subpar compared to Italy's industrialized competitors. These specific strengths and weaknesses should preferably be identified.

### **III. WHAT "STANDARD" TRADE COMPETITIVENESS INDICATORS CAN (NOT) EXPLAIN?**

#### **A. Rationale**

An initial pass at the competitiveness conundrum can be made through a traditional time series analysis of real trade flows, which offers several advantages. First, it permits to jointly evaluate the contribution of several factors in terms of explanatory power and relative importance. Alternative definitions of similar processes, as well as the robustness of some standard competitiveness criteria can be tested and compared. This regards the above-mentioned problem of different measures of price competitiveness (i.e., ULC- versus CPI-based REERs), or inferences about "benchmark" period, by testing robustness to varying sample size. The time series analysis also permits to investigate shifts in trends or patterns, which sometimes may be indicative of economic restructuring.

The key limitation of such empirics is the dearth of consistent series of intra-year data. A sufficiently large number of such observations is needed for statistical inferences during a (limited) period of interest. This confines research to relationships that can be meaningfully measured by intra-year data, thus omitting for example structural data with incomplete, or only annual, time series.

The analysis partly follows several studies have been done recently for European countries. The closest is Everaert, et al, 2005, which explores the determinants of real trade flows in Italy, France, Germany, and Spain. This section similarly focuses on these four economies, but also uses insights from several other, single-country studies of competitiveness (Danninger and Joutz, 2007 for Germany and Estrada and others, 2004 for Spain), in particular on alternative definitions of key explanatory variables.

This study different from the above papers in several respects, beyond the fact that its main focus is Italy's nonprice competitiveness. The updated data may help throw light on the 2006–07 recovery and, within it, several features important for Italy, including proxies for quality upgrading. Also unlike in other recent studies, a "long-run" relationships only starting from 1992 (not only for Germany, but all other countries) is estimated in the baseline. This reflects the view that the underlying economic environment of the 1980s may not contain much useful information, being starkly different from the subsequent period, because of very different macroeconomy and policy regimes. This, among other, concerns such factors as perceptibly higher inflation in Italy following bouts of competitive devaluations, or EU accession and convergence in Spain. In most cases, the more recent timeframe does not make much difference with respect to the long-run parameters of the model. Finally, a deliberate attempt to achieve maximum cross-country comparability has been made: model structure is

essentially the same for all countries, with the differences being largely reflected in the coefficients.<sup>5</sup>

## B. Data and Methodology

A basic time series regression is used to gauge the determinants of real exports (see Everaert, et al, 2005). The following traditional general relationship, whereby exports exhibit a negative long-term relationship with price competitiveness (proxied by the real effective exchange rate) and a positive relationship with (some measure of) global demand, is tested.<sup>6</sup>

Equation 1

$$Exports = f(REER^-, Gdem^+)$$

The empirical analysis is conducted in three steps: (i) testing the three series for integration (in logs); (ii) estimating the cointegrated long-run equations univariately in log-levels; (iii) formulating equilibrium correction models for the rates of change to capture short-run dynamics. Several tests have been employed to simplify the long-run relationships and dynamics along the lines of Hendry's general-to-specific methodology. The exercise and data are described in more detail in the Appendix.

The equation for short-run export dynamics is given by:

Equation 2

$$DLEExports_t = \alpha + \sum_{i=1}^k \beta_i DLEExports_{t-i} + \sum_{i=0}^k \chi_i DLREER_{t-i} + \sum_{i=0}^k \delta_i DLGdem_{t-i} + \phi ECM_{t-1} + other + \varepsilon_t$$

where D and L are the difference and the natural logarithm operators respectively, ECM is the estimated long-run cointegrated relationship on the basis of equation (1), "other" denotes any additional variables that may be helpful in explaining the evolution of real export growth, including seasonal and structural dummies (which, for the most part, did not prove significant), and  $\varepsilon$  is the standard error term.

To capture another trade-related aspect of competitiveness, a similar approach has been used to estimate the equations for real imports, with a different set of explanatory variables, with

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<sup>5</sup> Everaert, et al, (2005) employs a set of more country-specific equations that differ across countries (ad-hoc inclusion of trend terms, selected use of restricted coefficients for some countries, different breakdown of sectors). In this study, a fully-comparable structure, which turned out statistically acceptable, is used.

<sup>6</sup> For the exports regression, several available alternative measures of the key explanatory variables were initially tested: for price competitiveness, real effective exchange rates based on ULCs versus that on the CPI; for global demand, real (trade-weighted and unweighted) GDP growth versus trade-weighted real imports.

the main long-run determinants of real imports being real domestic demand and real exports, the latter to account for the import content of exports (see Everaert, 2005).

### C. Results

Parsimonious models deriving dynamics along the lines of equation (2) on the basis of cointegrated relationships for the four large euro area countries have a good fit and do well on the diagnostics. The summary results are presented in Table 1. Traditional determinants explain about one-half (slightly more in France) of the variation in goods export growth in all these countries. The long- and short-run signs of the “standard” coefficients are in line with the intuition and are generally statistically significant.

Table 1. Determinants of Real Exports in Large Euro Area Countries 1/  
(1992:Q2–2007:Q3)

	Long-term model equation (1)		Short-term model equation (2)		Diagnostics for the short-term model 3/				
	Regressors 2/			R-sq	AR 1-4 test	ARCH 1-4 test	Normality test	Hetero test	RESET test
	REERulc	Gdem	ECM						
Italy	-0.75*** -4.45	0.40*** 6.36	-0.26*** -4.22	0.50	[0.90]	[0.62]	[0.19]	[0.85]	[0.87]
France	-1.29*** -6.11	0.59*** 12.60	-0.37*** -5.46	0.56	[0.57]	[0.80]	[0.56]	[0.32]	[0.67]
Spain	-1.09*** -3.14	1.17*** 12.20	-0.15*** -2.93	0.51	[0.18]	[0.93]	[0.10]	[0.55]	[0.34]
Germany	-0.50*** -2.75	0.96*** 24.70	-0.31*** -4.18	0.48	[0.35]	[0.45]	[0.37]	[0.85]	[0.03]*

1/ Regressand(s): real goods exports (in natural logs for the long-term model and difference in logs for the short-term model), t-ratios shown below; for Spain the data sample is 1996:Q1–2007:Q3.

2/ In natural logs for the long-run model; the constants, as well as most coefficients for the short-run model, are not reported. Three asterisks (\*\*\*) denotes statistical significance at the 1 percent level.

3/ Statistical significance of the confidence interval for rejecting the hypothesis (none can be rejected at the 1 percent level). One asterisk (\*) indicates rejection at the 5 percent level).

#### Long-term relations: intuitive but (largely) negative for Italy

As expected, real goods exports are negatively affected by ULC-based REERs, although to a varying degree across countries. For Italy, the absolute value of the estimated long-term real exchange rate elasticities is intermediate—the range of 0.7–0.8 is quite robust to various sample periods—lower than in France and Spain, but higher than in Germany. Thus, a 1¼ percent real appreciation will reduce Italy’s goods exports by about 1 percent. The values and cross-country rankings of the REER/ULC elasticities and their approximate magnitudes for these countries are in line with other studies that are based on longer-term samples.<sup>7</sup> The

<sup>7</sup> An alternative measure of the real exchange rate—based on the CPI—underperforms statistically compared to ULCs. In any case, using this measure of competitiveness instead of ULCs does not modify the thrust of the results for Italy.

corresponding short-term coefficients (linking export growth to ULC-REER growth) also tend to be negative in all countries, but they are not precisely estimated.

The difference in the elasticities may partly reflect interpretable structural differences between countries, though specific interpretations involve many caveats. It is thus interesting that Italy's real exports over the last 15 years were affected somewhat less by a given percentage decline in unit labor costs (compared to Spain or France), and in this sense Italy's labor costs seem to play a slightly smaller role in real exports.<sup>8</sup> This in particular would not be inconsistent with Italian exporters' enjoying some "long-term" advantages (relative to these two countries) that weaken reliance on cost-based factors.

Also as expected, real exports are positively related to global demand, but the elasticities again vary for countries. Thus controlling for ULC-based competitiveness, Italy's capacity to "exploit" demand for its exports still looks subpar in absolute and comparative terms. While the estimated long-term global demand elasticity is appreciable for Spain (higher than unity) and Germany (around unity), in Italy it was only 0.4–0.5 (depending on the sample period), less than France's 0.6.<sup>9</sup> Italy's elasticity would rise to 0.6 if account was taken of the recent upward revision of the export volumes (full data are not yet available), with simulated data (using revised annual growth but leaving the pattern of distribution across quarters).

An alternative specification of the model, which aims to restrict the export demand elasticity to unity in line with theory, was statistically rejected for all countries except Germany. Further robustness checks that redefined export demand as linked to real GDP growth (instead of imports) yielded the same cross-country ordering of the global demand elasticities, though the level was much higher, closer to unity for Italy and France, but far above it for Spain and Germany—all close to levels estimated by Everaert, 2005.

In sum, Italy's still-low capacity to benefit from the relatively high "geographical" demand for its exports remains an important feature of its export performance. Furthermore, recursive estimates of the export demand elasticity for Italy suggest its large underestimation is unlikely, as these were relatively stable since 2003 or so (Figure 5). While factors behind Italy's subpar performance could be many, they may well reflect some long-term "structural" disadvantages not captured by the standard model. Given that Spain and Germany have exploited export demand much better, looking at their specific differences with Italy may be interesting, though drawing conclusions is premature. Some examples of these differences

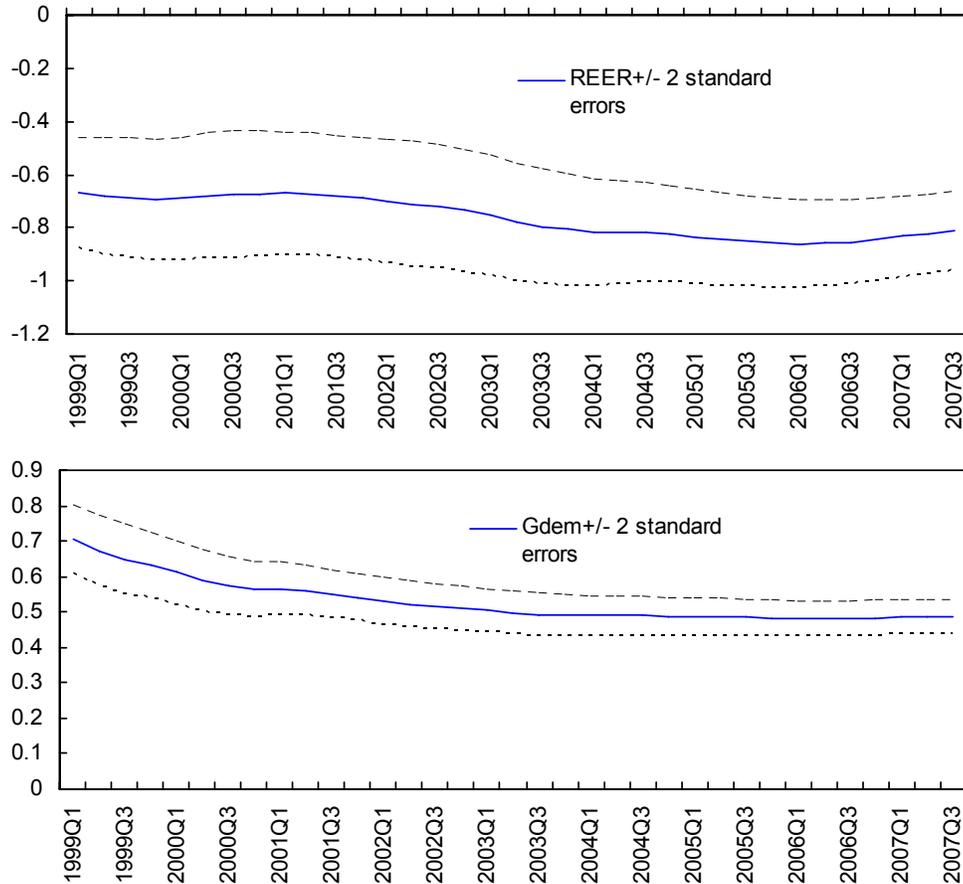
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<sup>8</sup> However, given the significant cumulative rise in Italy's unit labor costs, their overall contribution to competitiveness losses would be larger than in other countries (see Everaert, 2005). Also, the elasticity is particularly small for Germany, but it is not clear whether there is comparability in the asymmetric environment of declining German ULCs and rising ULCs for the other countries.

<sup>9</sup> As indicated by Danninger and Joutz, 2007, given the definition of export demand, the elasticity is interpretable in terms of export market shares, with values smaller than one indicating a loss in this share.

include the starting conditions that may have favored catch-up growth in Spain or markedly different, more technology-intensive, manufacturing sectoral specialization of Germany.

Figure 5. Italy: Recursive Estimates of the REER and Export Demand Elasticities (1999–2007:Q3)



Source: IMF staff calculations.

### Short-term trends: incipient support for exports/restructuring?

The short-run dynamics for exports are very similar in all countries (Table 1). The dynamics have the desirable property of accounting for variation of real export growth within a framework of fairly well-estimated long-term parameters. The correction toward a disequilibrium is quite swift for Italy (as well as Germany and France); 90 percent of the deviation of the export volume from equilibrium occurs within two years.

The contribution of residuals of the short-term dynamics of the export regression is of interest. While on average residuals are zero for the whole sample period, their behavior in subperiods, particularly at the end, may reflect new trends not yet captured by the model, including data issues or (changes in) nonprice competitiveness. The residuals tend to be

positive (and rapidly rising) for Italy in 2006–07, implying that standard determinants may understate real export growth. Italy’s up-trend (based on a smoothing via a four-quarter moving average) is similar to Germany’s, but not to France’s or Spain’s whose residuals were smaller during the period (Figure 6). Also, out-of-sample forecasts of Italy’s export growth are below actual export performance between mid-2005 and mid-2007 for Italy (Figure 7).

Clearly, the residuals are an imperfect measure of nonprice competitiveness as they pick up other influences, while omitting other aspects of this competitiveness due to the limitations of the model. Still, the basic results for residuals (and their cross-country ranking) hold in various alternative specifications of the standard models, for example, varying sample size, or variables (CPI-based versus ULC-based competitiveness, GDP versus imports for global demand), leave the contribution of the residuals largely intact for each country. This suggests that, as long as the “standard” results remain intuitive, “nonstandard” economic restructuring may be a primary factor behind the shifts in the behavior of residuals.

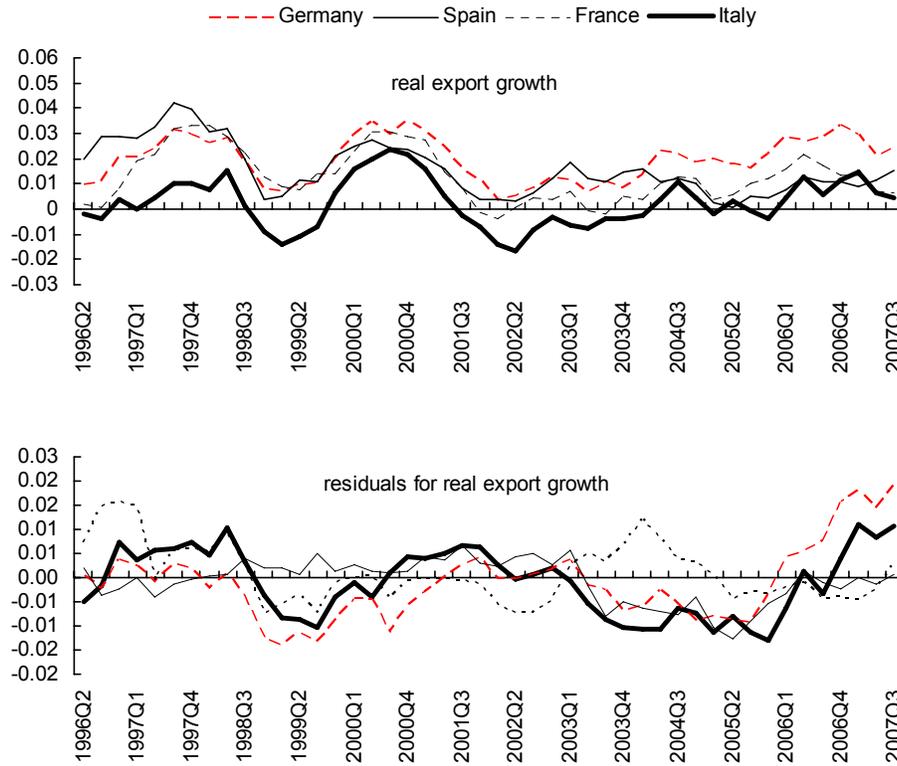
A further caveat is whether the period of 2006–07 is appropriate for inferring the effect of restructuring through residuals. The span is quite short, and in addition the better export performance may simply be a result of the cyclical upturn in 2006–07. Still, while the strong cyclical environment clearly helped exports, it should have helped all countries, but this was not reflected in the export residuals for France and Spain at least to the same extent as for Italy or Germany. In any case, identifying factors that could positively explain the cross-country differences in the performance of residuals would be useful.

### **Aggregate export quality upgrading?**

One factor that could have played a role in the pattern of export growth residuals is quality upgrading. Other things equal, higher quality should have a beneficial effect on export performance. In turn, quality is generally assumed to be positively related to price (especially if the relationship is sustained over time), though this approximation involves a number of caveats (Borin and Lamieri, 2007).

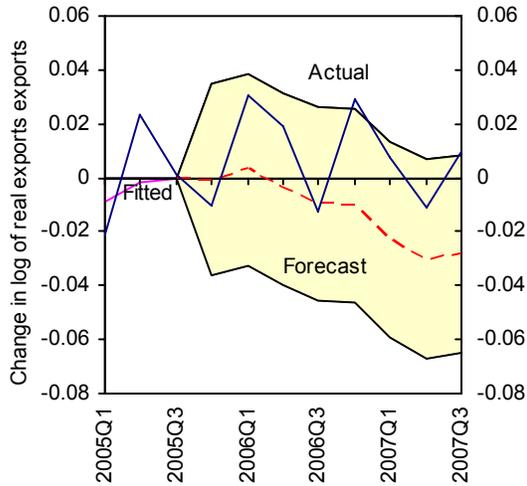
Indeed, Italy’s export deflator exhibits a positive and statistically significant (long-run) relationship with real exports without modifying the basic relevance of the traditional model (Table 2), possibly suggesting the role of cumulative quality upgrading in supporting real exports. This qualitative result is similar to that for Germany but not the other two large euro area countries, whose exports instead exhibit a negative relationship with the export deflator (these detailed results are not shown but are available from the author on request). At the same time, adding growth in the export deflator to equation (2), with a re-estimated long-run relationship including the deflator, yields negative coefficients (lagged by one–two quarters) on this export deflator growth in all countries. This latter result may capture the short-term role of cost-based pressures on export prices, which may for stretches dominate quality

Figure 6. Real Export Growth, 1996:Q2–2007:Q3  
(Log-differences, quarterly, 4-quarter lagged moving average)



Source: IMF staff calculations.

Figure 7. Italy: Actual, Fitted, and Forecast  
Real Goods Export Growth, 2005–07



Source: IMF staff calculations.

Note: Real exports have been higher than forecast (confidence intervals based on two standard errors).

Figure 8. Italy: Actual and Forecast  
Real Goods Import Growth, 2004–07

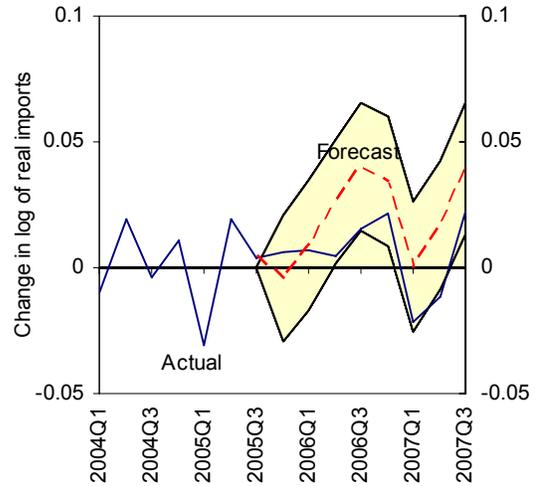


Table 2. Selected Time Series Results

The export equation for out-of-sample forecasts, based on data from Q1:1991 through Q3:2005  
(L – natural log, D – difference operator)

**The error correction model for real exports for Italy**

Estimated equation for real exports 1991 (1) to 2005 (3) used for out-of-sample forecast

Solved static long run equation for LExports\_of\_Goods

	Coefficient	Std. error	t-value
Constant	13.29	0.50	26.60
LGdem	0.36	0.04	9.18
LREER	-0.86	0.10	-8.23

ECM = LExports\_of\_Goods - 13.29 + 0.86\*LitREERULC - 0.36\*LGdem

**Short-run dynamics**

	Coefficient	Std. error	t-value
Constant	0.00	0.01	0.40
DLGdem	1.95	0.48	4.08
DLGdem_1	-1.97	0.71	-2.76
DLGdem_2	1.66	0.50	3.30
DLREER	-0.24	0.09	-2.82
DLREER_2	0.22	0.10	2.20
ECM_1	-0.29	0.05	-5.66

**Diagnostic tests**

AR 1-4 test	F(4,49)	1.80	[0.14]
ARCH 1-4 test	F(4,45)	1.09	[0.37]
Normality test	Chi^2(2)	2.37	[0.31]
hetero test	F(10,42)	0.62	[0.81]
hetero-X test	F(20,32)	0.75	[0.77]
RESET test	F(1,52)	0.32	[0.57]

**The role of quality upgrading: cointegration analysis 1991 (1) to 2007 (3) for Italy**

rank	Trace	[Prob]	Max	[Prob]	Trace (T-nm)	[Prob]	Max test (T-nm)	
0	59.42	[0.002]**	33.73	[0.005]**	48.78	[0.039] *	27.69	[0.045] *
1	25.69	[0.142]	16.52	[0.204]	21.09	[0.362]	13.56	[0.417]
2	9.18	[0.356]	8.99	[0.294]	7.53	[0.523]	7.38	[0.454]
3	0.19	[0.665]	0.19	[0.665]	0.15	[0.695]	0.15	[0.695]

beta

LExports_of_Goods	1.00				#
LGdem	-0.43				#
LREER	0.81				#
Lexpdeflgoods	-0.12				#

alpha

LExports_of_Goods	-0.34	0.00	0.00	0.00
LGdem	0.00	0.01	0.00	0.00
LREER	-0.03	0.04	0.00	0.00
LExpdeflgoods	-0.10	0.01	0.00	0.00

Solved static long run equation for LExports\_of\_Goods

	Coefficient	Std. error	t-value
LGdem	0.41	0.02	16.80
LREER	-0.84	0.08	-10.90
Lexpdeflgoods	0.15	0.07	2.16
Constant	12.33	0.26	47.60

upgrading, thus causing a deterioration in real exports.<sup>10</sup> In Italy and Germany, despite these negative short-term coefficients, the long-run positive link between export deflators and real exports possibly suggests that quality upgrading imbedded in UVs eventually more than offsets the cost-push components.

### **Imports: support for external position?**

In contrast to exports, real *import* growth of goods has been lower in Italy in 2006–07 relative to what could be explained/forecasted by the standard determinants (real domestic demand and real exports, see Figure 8). While there is some uncertainty in interpreting this result, it suggests that, on an aggregate basis, “nonstandard” factors not captured by the model have additionally supported Italy’s external position most recently.

The implications for economic restructuring are somewhat less clear. Lower import growth, other things equal, may well be a sign of such restructuring through enhanced efficiency in processing inputs. But reduced imports may be an indication of less outsourcing, and hence restructuring, compared the counterfactual.

Estimates for two equal subperiods periods—from 1982 to mid-1990s and from the latter to 2007—suggest that the long-term relationship between the level of real imports and real exports may have weakened over time, possibly due to the relaxation of Italy’s de-facto external financing constraint (which may have been tight at the time of competitive devaluations of the 1980s) reflecting euro adoption and the development of capital markets. But in the short-term the link from export growth to import growth has remained significant statistically and economically in both periods. This short-term coefficient has been interpreted in the literature as indicating a high import content of exports (Everaert, 2005), which would be consistent with the restructuring story.

### **Interim conclusions from time series analysis**

Overall, price-based measures seem to confirm the large cumulative deterioration in competitiveness and its effect in depressing real exports. Italy’s inability to gain traction from real global demand is particularly striking. But short-term factors seem to have supported Italy’s competitiveness during 2006–07 both on the side of exports and imports of goods, pointing to a possibility of structural improvements such as quality upgrading.

These conclusions are not without data, modeling, or statistical caveats, including precision/stability of the long-term coefficients and the appropriateness of linear framework, but consistency with similar “standard” studies is reassuring. The thrust of the results also

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<sup>10</sup> Alternatively, this result may reflect the process of “forced” upgrading through the exit of the lower-quality producers, whereby lower real exports are accompanied by higher unit values.

seem to withstand the recent revision of the trade volume data (although this could be checked only imperfectly so far on the basis of partly simulated data).

Still, some key issues important for Italy's performance have been left out above. First, aggregate competitiveness trends do not reveal specific microeconomic or sectoral developments underlying the restructuring process and especially quality upgrading. Second, the traditional analysis focuses only on the trade account of the external sector. While this is arguably the most important part of the balance of payments for Italy, a more comprehensive view may well be useful. Finally, even within the trade account, trends in nominal trade flows may complement information derived from real exports.

#### **IV. HOW ITALY MIGHT BE GAINING COMPETITIVENESS NOT (YET) CAPTURED BY STANDARD PRICE-BASED INDICATORS**

##### **Issues in “nonstandard” external competitiveness**

A broader investigation of some structural characteristics of Italy's external competitiveness may be useful for evaluating trends reported in the previous section, and in particular the role of identifiable factors of nonstandard competitiveness in the likely restructuring process. While the above time series analysis indicates a positive aggregate real export response mainly in 2006–07, adjustment that made this response possible may well have started earlier.

What factors—beyond the standard measures analyzed in the previous subsection—could sizably enhance a country's competitiveness? Within a balance of payments, the following aspects might indicate such additional external competitiveness strength:

- **Structural factors in sustaining goods exports.** As highlighted before, high export unit values (relative to competitors) reflect quality upgrading or a sustained ability to enhance market power, helping *future* exports. Similarly, advantages such as brand names or reputation may contribute to export potential over and above what is captured in the export performance to date. Countries may also gain traction from structurally faster growth of partners or sectors, which may reflect initial positioning or specialization, or ability to tailor the product mix to those markets.
- **Capacity to benefit from imports.** Higher imports would typically show as a deterioration of competitiveness, but this is not always so, and anyway has to be adjusted for changes in the import structure and quality. Imports can increase competition and thus favor restructuring, including as a by-product of outsourcing, which may make intermediate inputs available at lower prices. This allows firms to reduce production costs and, other things equal, produce/export more output, implying stronger competitiveness.
- **Development of services and their trade.** Services could be an important source of growth and external competitiveness gains, as their prices generally grow faster than

goods prices and thus countries specializing in services could enjoy positive terms of trade changes. Knowledge-based services have been key to realizing industrialized countries' potential in innovation-based growth, with positive spillovers on goods exports as services help “personalize” goods. Thus, focusing the analysis narrowly on exports of goods may understate broader export potential.

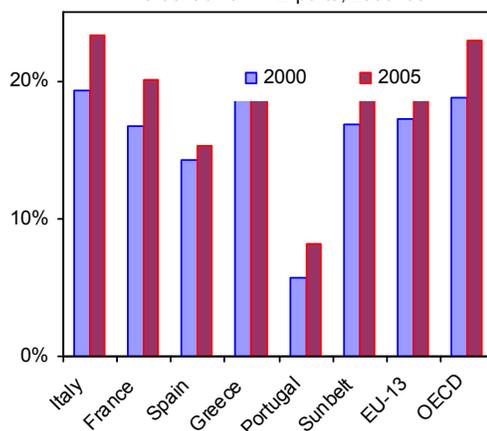
- **Foreign direct investment (FDI).** Inward FDI may increase the country's capacity for production and exports that would not be immediately reflected in trade statistics. Outward FDI, beyond the above beneficial effect of outsourcing on cheapening imported inputs, could in some cases tangibly support the external position through a repatriation of profits. Foreign direct investment is also an important source of technology and know-how—elements clearly central to any “nonprice” restructuring.

### Review of Italy's position

On the basis of the existing studies, in particular comparative papers contained in Escolano, 2008, Italy's performance on these structural aspects of external performance is generally mixed — somewhat encouraging with respect to several aspects of the trade in goods, but less so on other components of external accounts. In particular:

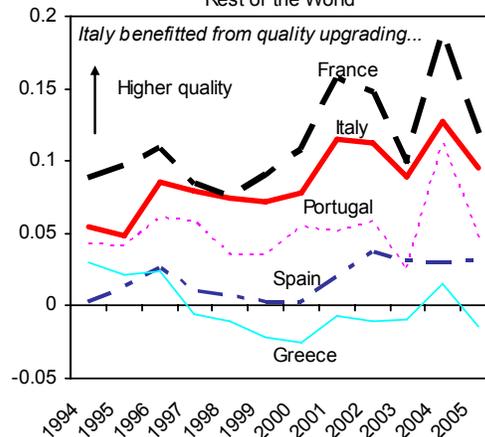
- There are selected signs of structural strength for Italy's **goods exports**. As per Escolano (2008), medium-term nominal export growth, after lagging in the 1990s, has been close to the OECD average in 2001–06—below that of Germany and Spain, but above France's. Italy's geographical export diversification has also been relatively extensive and moderately pro-growth – slightly behind Germany but ahead of France and Spain (Figure 9). Fabrizio, 2008 interprets Italy's rise in UVs as evidence of export quality upgrading relative to the world (Figure 10). Less encouragingly, the evidence of (directly identifiable) improvements in the technological composition of exports is scant. Italy's combined share of high-tech and medium-tech exports is lower than the EU average (Figure 11) and increased by only 1 percentage point (4 points for EU-15); though this result is partly driven by its sectoral specialization.

Figure 9. Exports to 43 Dynamic Economies as Percent of Own Exports, 2000–05



Sources: Comtrade database, Lissovolik (2008).

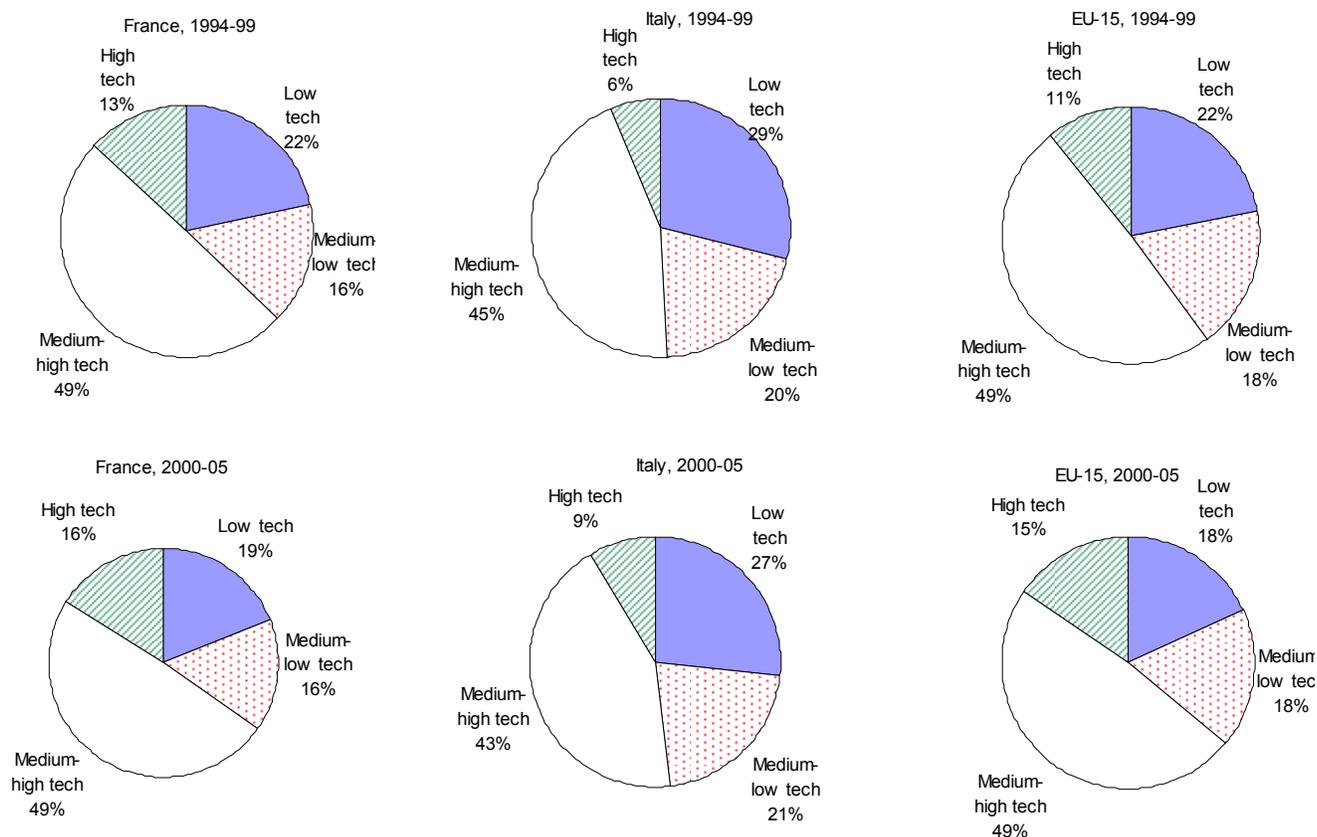
Figure 10. Unit Value Ratios Relative to the Rest of the World



Sources: Comtrade; and IMF staff calculations.

Figure 11. To What Extent SEA-5 Countries Have Experienced Technology Upgrading?  
Shares of Nominal Exports of Manufacturing Products by Technology Intensity, 1994–2005

*Italy's technology upgrading was limited...*



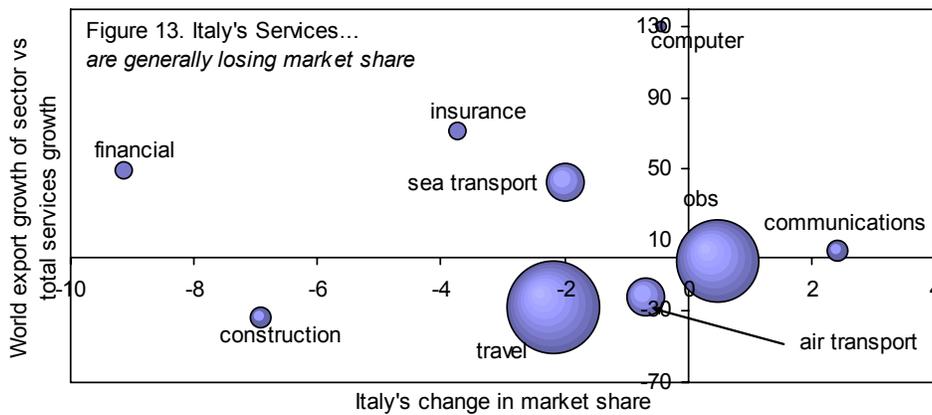
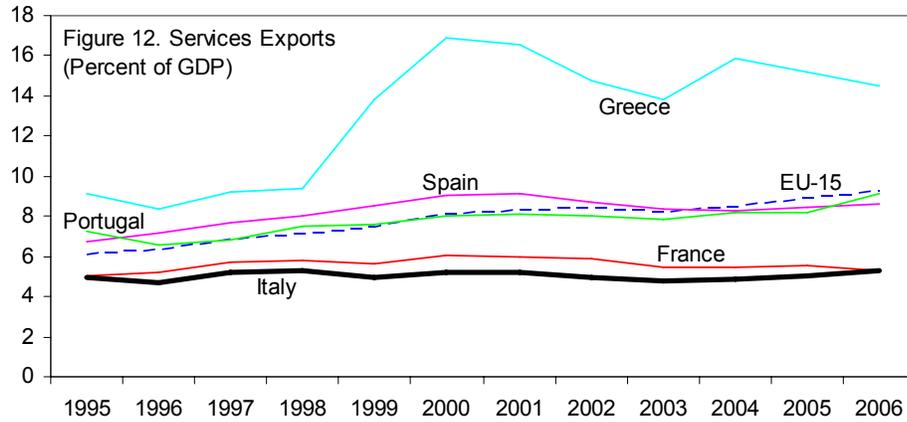
Sources: COMTRADE; and IMF staff calculations (Fabrizio, 2008).

Notes: High technology—aircraft, computers, office machinery, electronics-communications, and pharmaceuticals; medium-high technology—scientific instruments, motor vehicles, electrical machinery, chemicals, other transport equipment, nonelectrical machinery; medium-low technology—rubber and plastic products, shipbuilding, other manufacturing, nonferrous metals, nonmetallic mineral products, fabricated metal products, and ferrous metals; low technology—paper printing, textile and clothing, food, beverages, tobacco, wood, and furniture.

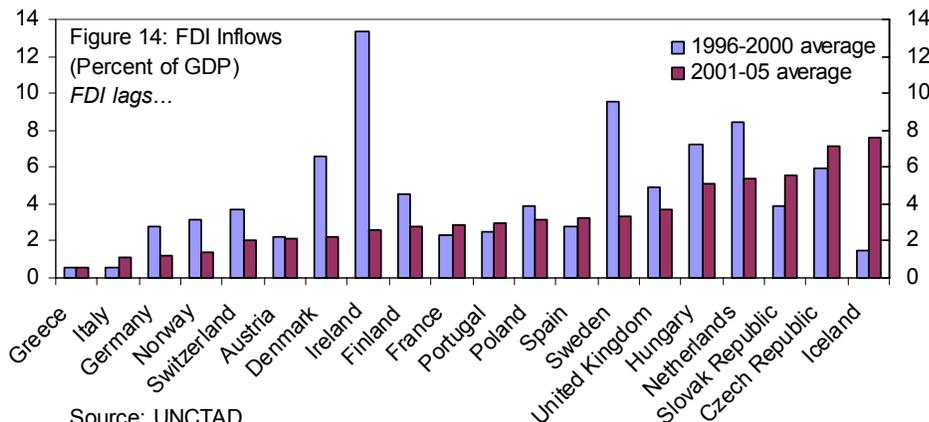
- Italy moderately benefited from outsourcing and increased efficiency in **imports**. Thus, Bracci (2006) shows that outsourcing has been increasing, but from a low base. Indeed, Italy's outsourcing, as proxied by off-shoring, increased early this century and compared favorably with countries like France (IMF, 2007). The technological content of Italy's imports has also improved, but more slowly than average (Schule, 2008).
- Italy's **services** trade has generally been sluggish (Gutierrez, 2008). The country has been underspecialized in services and its market share of world imports of services has been declining. Despite a relatively bright spot of "other business services"

(OBS) — legal, marketing, etc., travel (Italy’s key service sector) underperformed in recent years (Figures 12 and 13).

- Low inward **FDI** compared to other countries also signals large untapped potential for Italy (Figure 14). Indicating that this is a channel for productivity, and thus ultimately competitiveness enhancement (Escolano, 2008) is the finding that foreign-controlled enterprises have performed (in terms of size, productivity, profitability, and investment) better than domestic enterprises (Bracci, 2006).



Sources: IMF BOP statistics; Eurostat; and Gutierrez (2008).



Source: UNCTAD.

The above short survey indicates that structural changes in trade, and in particular exports, are the main factor that could have improved Italy's competitiveness relative to standard measures. The role of other potential underlying balance of payments explanations (foreign direct investment, expansion of the services sector) seems not very important in generating momentum for restructuring. The most plausible "restructuring story" thus seems based on the quality upgrading in goods exports.

## V. SELECTED ITALY-SPECIFIC ASPECTS OF GOODS EXPORT COMPETITIVENESS

With regard to the narrower but key area of goods exports, there are several "non-standard" issues whereby Italy stacks up relative to comparator countries. These peculiarities further modify its competitiveness challenges and affect assessment of actual performance and policy response.

### Challenges

Italy's manufacturing specialization in traditional products continues to be pronounced, and still appears to be a drag on performance. Faini and Sapir, 2005 had argued (on the basis of the data through the late 1990s) that the pattern of specialization of Italy's manufacturing is a key proximate factor behind the medium-term growth problem, as the specialization index was negatively correlated with growth in world trade in these sectors and with human capital intensity. Such a negative relationship between Italy's revealed comparative advantage and subsequent growth in global trade in these sectors was also evident more recently (Table 3), with Italy being an outlier compared to other euro area countries including at finer levels of disaggregation. Italy has been somewhat slower in reorienting its sectoral structure away from traditional areas, which may reflect rigidities, but also partly Italy's comparative advantage in those products (see below).

Sectors and products in which Italy is specialized also are exposed to particularly high competition, mainly from emerging economies.

- Moreno-Badia (2008) measures the general level of competition via Herfindahl index computed from disaggregated data at a six-digit (harmonized system) level for all goods exports, weighted by export share in each geographic destination/industry, inferring that competition for Italy's exports has been the highest relative to the large euro area peers (see Figure 15), and it was almost continuously intensifying (though more moderately than for Germany and France).

Table 3. Sectoral Specialization and Subsequent Growth (1995–2005, SITC manufacturing sectors)

	OLS t-ratios		
	2-digit	3-digit	4-digit
Italy 2/	-2.05*	-2.81**	-3.33*
France	1.04	0.13	1.70
Spain	-0.40	-2.16*	-1.01
Portugal	-1.49	-1.28	n/a
Greece	-0.92	-2.21*	n/a
Germany	1.17	0.05	0.47

Source: UN Comtrade database.

Note: \*\* (\*) denote significance at 1 (5) percent level.

1/ Least squares between: (i) Balassa's RCA index in 1995, defined as country's world share of exports in a sector divided by its share of total world exports; and (ii) world trade growth in 1995–2005 in a sector in value terms. Coefficients and constants are not reported, given no clear hypothesis of causality.

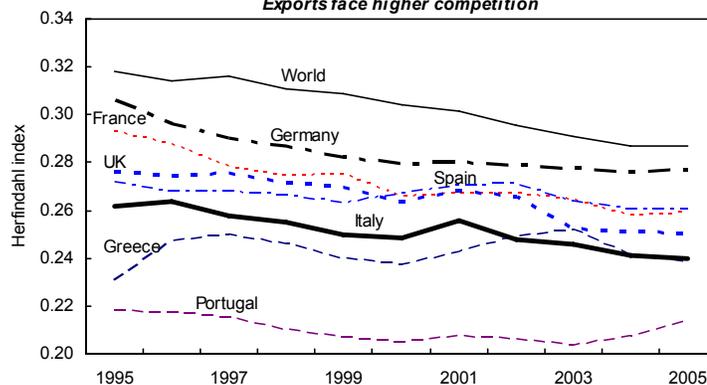
2/ Example: sectors in which Italy was specialized clearly tended to grow more slowly than other sectors (as the relationship is negative and statistically significant).

- The competition from emerging markets is apparent from the various sectoral export overlap indices that point to specific emerging country-competitors (Moreno-Badia, 2008). Thus, Italy's main emerging market competitor is China, to a larger extent than for other industrialized countries.<sup>11</sup>

This is confirmed by the ranking of top competitors for Southern euro area countries whereby, for Italy, China is second behind Germany, but is not present among the top five for France and Spain (Table 4).

- Trade dynamics also point to the particular role of competition from China for Italy, indicating a possibility of a “displacement-type” effect of such competition for nominal exports. Thus, disaggregated data on manufacturing exports over the past decade reveal a negative correlation between cumulative changes in Italy's sectoral market shares and those of China, to a much larger extent than for other euro area countries (Table 5). This relationship is only suggestive of the effects of competition and does not formally imply causality. Still, it does not seem to be spurious, as export “displacement” originating in China is a clear logical possibility, especially in the light of the stylized fact that, as per same table, the cumulative changes in China's market shares are also negatively correlated with Italy's nominal export growth. This helps put in perspective the fact that Italy's traditional exports have not

Figure 15. Market Concentration, 1995–2005 1/  
*Exports face higher competition*



Sources: COMTRADE; and IMF staff calculations (Moreno-Badia 2008)

1/ A higher herfindahl index indicates higher market concentration and lower competition.

Table 4. Top Competitors 1/

France	Italy	Greece	Portugal	Spain
DEU	DEU	DEU	DEU	DEU
NLD	CHN	ITA	FRA	FRA
USA	FRA	FRA	CHN	USA
GBR	USA	NLD	ITA	NLD
ITA	NLD	CHN	NLD	ITA
JPN	GBR	USA	GBR	
			USA	

Sources: COMTRADE; and IMF staff calculations (Moreno-Badia, 2008).

1/ Countries that have been among the top five competitors during 1995–2005. Importance of a competitor is determined by its export share in each geographic destination/industry (double weighting). Competitors are sorted in order of importance (as of 2005), starting from the top.

Table 5. Correlation Coefficients: SITC-3-Digit Sectors  
With cumulative change in China's world market share...  
(133 "manufactured goods" sectors, cumulative percentage changes in 1995–2005)

	Italy	France	Spain	Germany
Nominal export growth in sector (percent)	-0.20	-0.13	-0.09	-0.02
Country's increase in world imports in sector (percentage points of world trade)	-0.28	-0.09	-0.09	0.00

Source: U.N. Comtrade database.

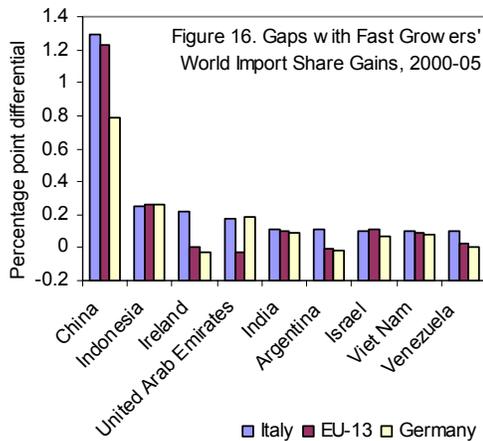
<sup>11</sup> As a counterpoint, there is also evidence whereby due to higher unit value levels of Italy's exports (Monti, 2005) “effective” competition may well be weaker.

only lost market share, but also tended to grow more slowly, in nominal terms, than other Italian exports.

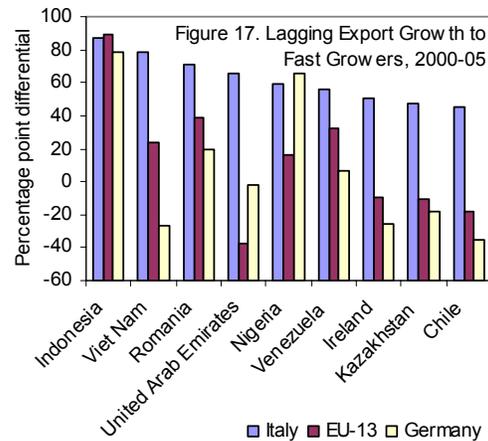
### Response by Italy’s economy

In response to the challenges posed by Italy’s specialization and high and increasing competition, a number of structural economic developments seem to distinguish Italy from other countries.

Italy has been reorienting exports toward high-growing markets and sectors, but unevenly. With respect to adjusting its *geographical* export structure toward fast-growing countries, Italy seems close to the OECD average and Germany, which can be regarded as a good performance, particularly compared to Southern European countries (Figure 9). Against the background of this positive performance on average, Figures 16 and 17 indicate dynamic country destinations in which Italy tends to lag relative to the growth of these markets or their market share.<sup>12</sup> In some cases, this lagging performance is observed not only with respect to the dynamic markets in question, but also relative to Germany and the EU, suggesting that in several specific markets, including China, there is some potential for improving Italy’s performance.



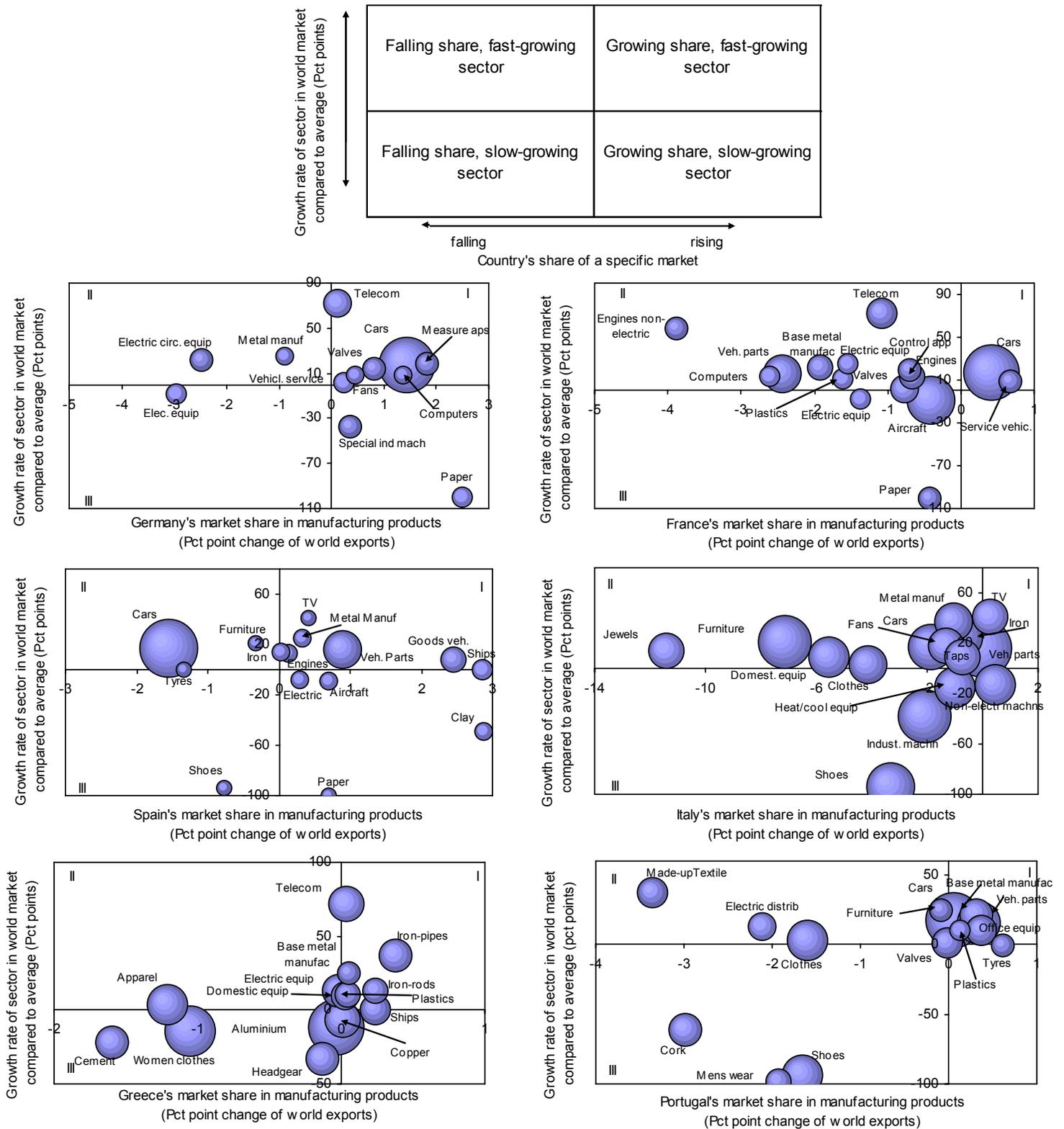
Source: UN Comtrade database.  
 Notes: 1) Gains of destination country in world imports less the increase in the weight of this country in exports of the Italy, EU-13, and Germany; and 2) e.g., share of China in world imports rose by 1.3 pp more than China's share in Italy's exports



Source: UN Comtrade database.  
 Notes: 1) Import growth in destination country less export growth to this country by Italy, EU-13, and Germany; and 2) e.g., Indonesia's total cumulative import growth exceeded Italy's export growth to Indonesia by more than 80 percentage points.

<sup>12</sup> The definitions spelling out full methodology of these Figures can be found in Lissovlik, 2008.

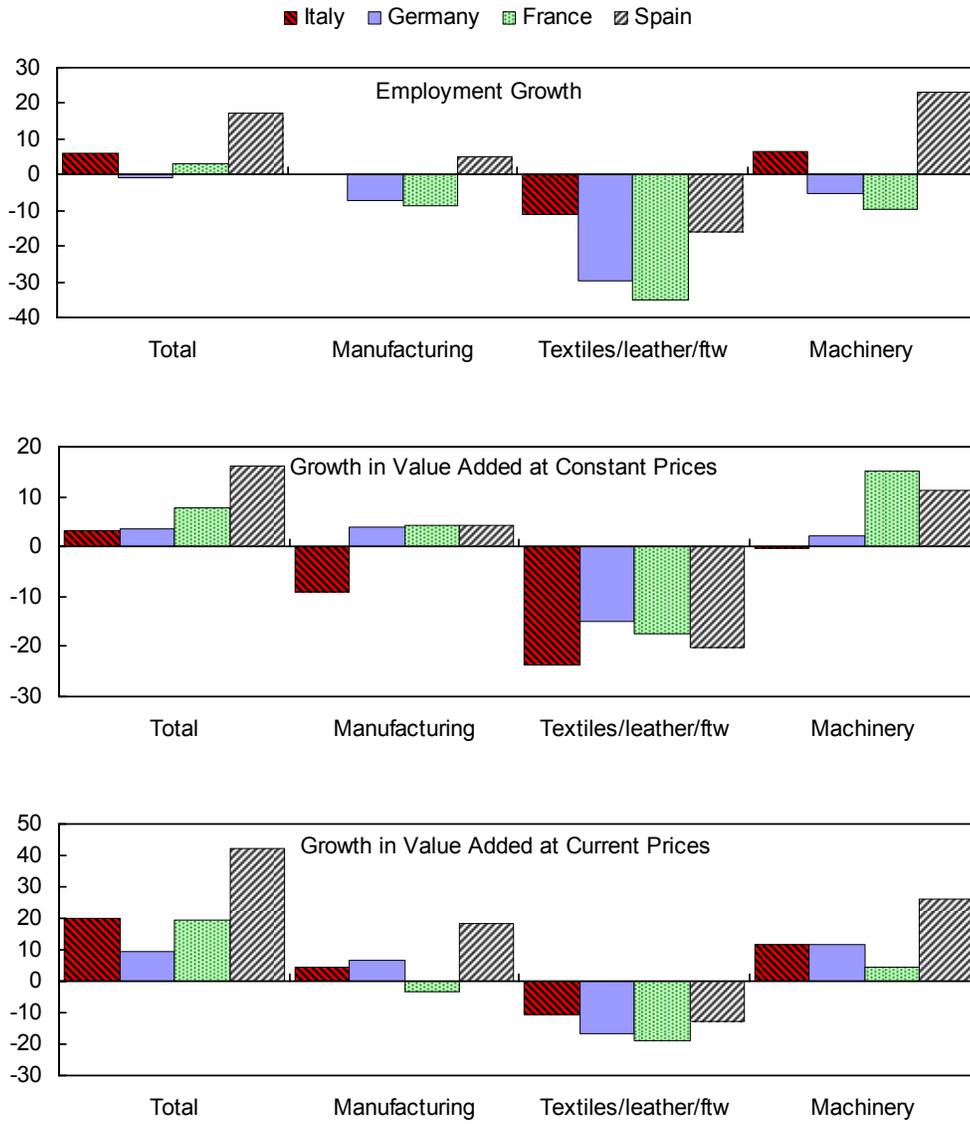
Figure 18. Manufacturing Exports in SEA-5 and Germany: 1995–2005 1/  
 (Size of bubbles proportional to share in total goods exports of each country, largest 15 SITC-3 sectors for each country)



Source: UN Comtrade database; and Lissovliik, 2008.

1/ Excluding food and chemicals.

Figure 19. Large Euro-Area Countries: Employment and Value Added, 2000–05  
(Cumulative, in percent)

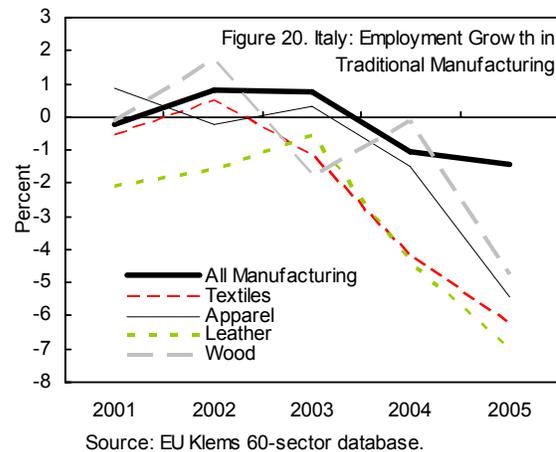


Source: EU Klems 60-sector database.

With respect to changing its *sectoral* export structure, Italy's adjustment has been comparatively less dynamic, as it tended to remain specialized in traditional sectors (Faini and Sapir, 2006). Also, Italy, along with France and Portugal, has seen its share of world exports decline particularly in some of their largest manufacturing export sectors that had robust (global) growth, and in contrast to Germany and Spain (Figure 18) who managed to increase market share in a number of high-growing sectors.

Thus, Italy's export reorientation has been comparatively more pronounced in its "geographical" than "sectoral" aspect. This may explain the paradox whereby growth of Italy's trading partners remains comparatively high, but its actual export growth (in real terms) has remained subpar.

The "limited" extent of sectoral resource reallocation between sectors can also be seen at a more aggregated level, in conjunction with shifts in employment. Figure 19 suggests that Italy experienced relatively less "labor shedding" in the key "traditional" textile/leather/footwear sector in the first half of this decade relative to other large euro area countries. Thus, comparing the top and middle panels of the same figure, it seems that there was an "insufficient" release of labor in a "declining" sector, especially as the fall in real value added there was particularly steep in Italy. Interestingly, the reduction in employment in the traditional sectors intensified in 2005 for Italy (Figure 20) but not in other large euro area countries, lending more credence to a view that Italy may have simply exhibited more inertia in resource reallocation away from traditional sectors.



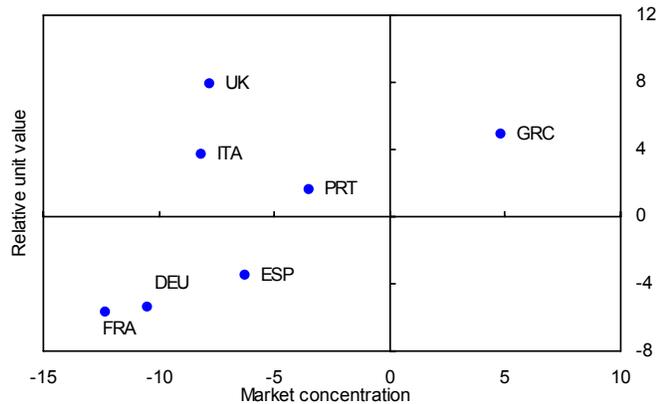
On the other hand, comparing the top and bottom panels of Figure 19 suggests that Italy's relative employment dynamics are actually more in line with *nominal* growth in value added, including in the textile/leather/footwear sector, where thus-measured output loss was more contained than in other countries. To the extent the difference between measured nominal and real value added reflects quality improvements, these employment dynamics may well be consistent with the experiences of other countries, perhaps suggesting within-sector restructuring in the face of higher competition.<sup>13</sup> Another positive conclusion from Figure 19 for Italy's competitiveness can be made from the fact that its important machinery sector has

<sup>13</sup> However, it should be noted that these aggregate value added figures include not only exports but also domestic value added that may be also influenced by domestic price developments. Thus they are not fully reflective of trends in exportables, especially in sectors that are relatively less export-oriented.

seen perceptible hiring, against the background of a higher growth in nominal value added than in France and Germany.

The potential role of competition-related export quality upgrading in Italy emerges from a disaggregated investigation of export data. In particular, Moreno-Badia, 2008 using the six-digit (harmonized system) data broken down by destination market, specifically aims to identify performance of UVs relative to actual direct competitors. Her results point to positive relative export unit value growth for Italy, and negative in Germany, Spain, and France, against the background of higher competition in all four countries (Figure 21). Also, unlike in other countries, the increase in Italy's unit values has tended to be

Figure 21. Market Concentration and Relative Unit Value, 1995 and 2004 (Changes in percent)  
*...Italy increased export unit values despite higher competition*



Sources: COMTRADE; and IMF staff calculations (Moreno-Badia, 2008).

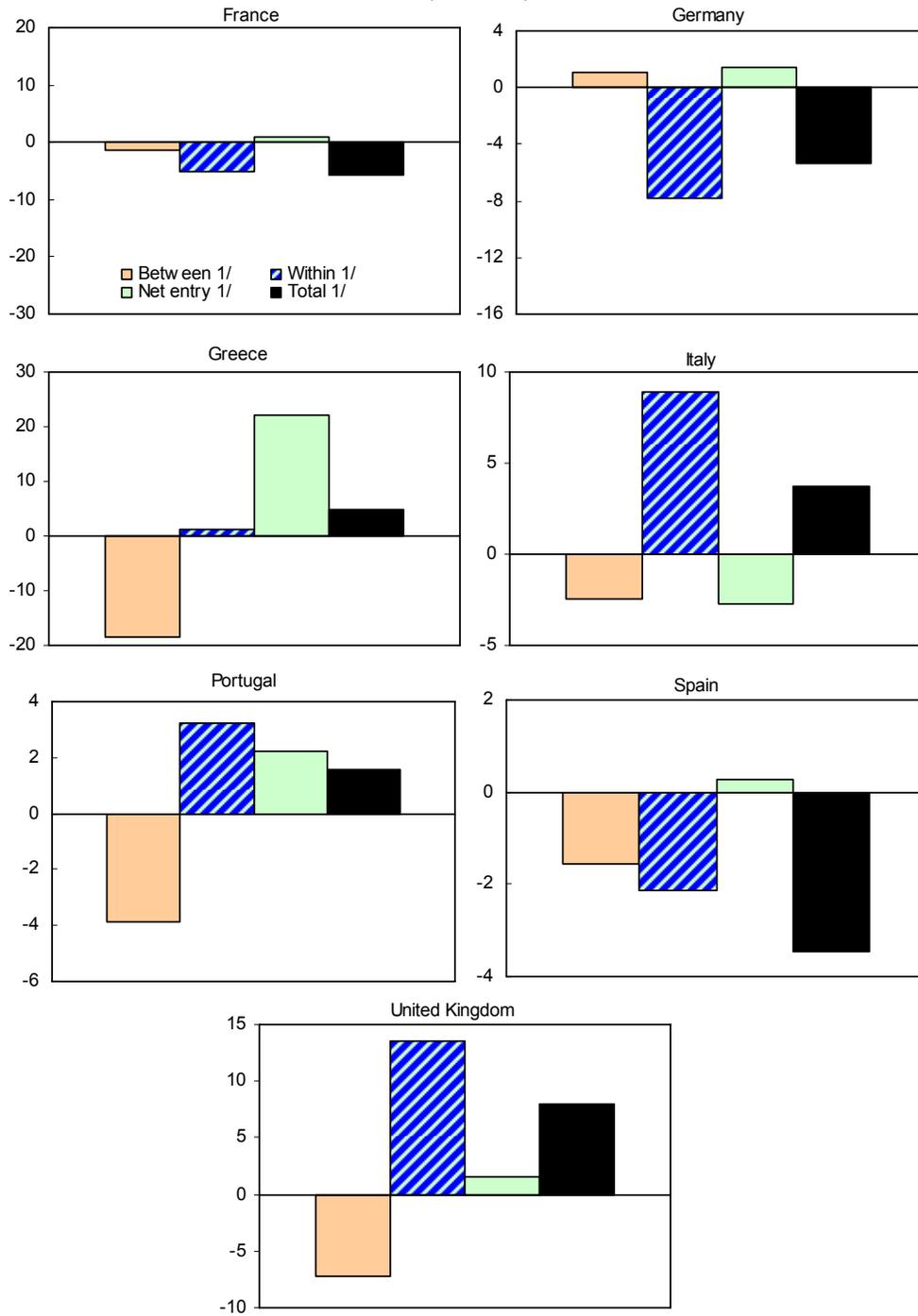
concentrated in “traditional” export markets (where there was no entry or exit in the period between 1995–2004), while the entry or exit markets contributed negatively (see Figure 22).

On balance, Italy's specificities suggest that the environment it had to face was distinctly more challenging than for other countries (lower growth in sectors of its specialization and higher competition). These challenges may have played a role in the weaker past export performance, but also must have spurred a stronger “bottom-up” response from the economy to counteract those pressures. This response is visible in several areas, but it has been uneven, and at times mixed, amid continued overall weakness in traditional exports and possible rigidities in the specialization pattern. In particular, while the restructuring may have helped some of Italy's exporters gain lucrative niche markets in traditional sectors, the opportunities for *total* export growth in these traditional sectors seem not as sustainable as in other export markets – over the medium term traditional sectors tended to grow more slowly than other sectors, both globally and for Italy's producers/exporters.

## VI. CONCLUDING REMARKS

This paper—while not taking full stock of Italy's *level* competitiveness—presents evidence of a moderate improvement in some of its nonprice aspects. Several encouraging structural developments can be detected during 1995–2005, and, more recently, “residual” factors proxying restructuring appear to have supported the trade balance. This evidence complements insights from existing, mostly sectoral, studies on Italy's gaining

Figure 22. Contributions to Changes in Relative Unit Values, 1995 and 2004 (Percent)



Sources: COMTRADE; and IMF staff calculations (Moreno-Badia, 2008).

1/ Legend applies to all charts.

competitiveness by restructuring. In contrast to these studies, some conclusions are drawn from *real* export performance. The latter, being very weak, arguably offers a more demanding “litmus test” for signs of competitiveness gains than that based on Italy’s (robust) nominal exports. The revision of export volumes is not surprising in the light of these results.

From a comparative perspective, Italy’s recent short-term “nonstandard” competitiveness trends have been similar to those of Germany, and look favorable relative to other large euro area countries. Some of Italy’s structural trade developments—buoyancy in nominal goods exports, geographical diversification, and some outsourcing—also parallel Germany’s. The relative weakness of domestic demand in both these countries may have been additionally pushing firms to restructure and succeed in foreign markets. Also, in Italy and Germany (unlike in France and Spain) export deflators are in a positive long-run relationship with real exports. Subject to some qualifications, this may suggest a greater role of export quality upgrading as underlying the observed rise in export prices. Moreover, Italy’s particularly high level of export competition appears to be associated with rising unit values, possibly indicating a greater role of competition-related quality upgrading.

But Italy significantly lags the rest of the euro area on other important aspects of competitiveness. This concerns standard indicators such as the cumulative rise in ULCs (which may also be driving higher export unit values), but also several nonprice-based structural weaknesses in technology upgrading, services, and foreign direct investment. The lagging behind in these areas is costly for Italy. These weaknesses, mutually reinforcing, may be blunting the benefits from restructuring. For example, lack of services limits “maintenance-intensive” goods exports, while insufficient technological progress and FDI should eventually undercut quality upgrading compared to the counterfactual.

A trickier question is whether the incipient restructuring trend is substantially offsetting Italy’s other competitiveness weaknesses. For this, a more extensive analysis of the interaction of nonprice competitiveness with standard indicators is needed, and it is unclear whether sufficient data exist to gauge this. Still, with respect to real exports, and subject to the caveats that residuals are very imperfect proxies for restructuring, for Italy the cumulative loss in standard competitiveness seems to far outweigh the support Italy’s *real* exports have so far gotten from restructuring, as the residuals have only modestly improved its still-sluggish real export performance.

But beyond supporting real exports, the uptrend in export UVs may offer an additional long-term contribution to Italy’s competitiveness, by securing viable growth in niche “value” markets. A proper assessment of this would however depend on the relative dynamics of competition from emerging markets, which may accelerate their own quality upgrading, as well as Italy’s ability to respond to it by redirecting own resources to the most promising sectors. The picture in these respects looks mixed so far, but, as these dynamics have yet to play out, their evaluation would be subject to future research.

## Appendix I. Data and Methodology for Time Series Empirical Results of Chapter III

### Data variables and sources:

Data for the time series export and import equations, quarterly, starting from 1991/2 through 2007 (3). Earlier data are also available (extending back to 1980), and were checked to gauge robustness.

#### From Eurostat:

Exports and imports in volume for goods, seasonally adjusted and corrected for working days;

Total domestic demand (for all goods) seasonally and working day adjusted (for the import equation).

#### From the IMF WEO database:

Imports volume of goods, 2000=100, weighted by trade exports to all partner countries (a measure of real export demand), denoted by *Gdem*;

Export, import, and domestic demand deflators.

#### From the IMF IFS database:

Real effective exchange rates (*REER*) based on ULCs in the manufacturing sector.

### Methodology

The specific algorithm and tests used follow De Brouwer and Ericsson, 1998. First, the individual variables' levels of integration are tested through ADF tests to check that integration is of order 1. Second, the variables are tested jointly in levels for existence of cointegrating relationships via a Johansen VAR procedure, initially with four lags but sequentially simplified to fewer lags if allowed on the basis of the Schwarz Criterion test. Then a static long-run solution of the auto-regressive distributed lag fitting the theoretical relationship is estimated by OLS (starting from 4 lags), again sequentially simplified and then compared with the results of the Johansen VAR procedure. (Encouragingly, the coefficients in the long-run solution were very similar to those derived from the VAR procedure, which indirectly confirms robustness. But weak exogeneity is rejected in some equations). Third, an equilibrium correction model is derived (Equation (2)), with Hendry's general-to-specific methodology being applied to the dynamics by sequential elimination of the least significant lags and variables. Detailed results are available from the author on request.

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