COMPETITIVENESS AND THE EXTERNAL TRADE PERFORMANCE OF GREECE IN THE 1990s: A cross-sectoral investigation

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Abstract

We examine Greece's external trade following accession to the EU, placing particular emphasis on the 1990s. A large part of our analysis is based on unpublished, disaggregated data sets. Our main findings are: (i) in the 1990s Greece sustained heavy competitiveness losses in those sectors where she traditionally held a comparative advantage; (ii) Greek trade becomes increasingly intra-industry, especially in those sectors where Greece holds a comparative advantage; (iii) regarding imports, EU participation has caused mutually offsetting, stable over time, trade creation for the EU and trade diversion for third countries; (iv) EU participation has not boosted Greek exports. A negative structural break in exports to the Netherlands and Germany (Greece's most important exporting market) has occurred in the 1990s (v) Demand for Greek exports is highly sensitive to movements of the real exchange rate and presents high income-elasticity. Hence, the deterioration of Greece's trade deficit in the 1990s is related to the strong-drachma policy and unfavourable external conditions. Overall, our findings indicate that the real sector of the Greek economy has not yet closed the performance gap dividing it from the EMU's hard core.

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1. INTRODUCTION

This paper focuses on the external trade of Greece since the latter's accession to the EU placing particular emphasis on the 1990s[1]. Motivation for this study stems from earlier related work (see Arghyrou, 2000a) where we concluded that the 1980s saw a decline in Greek competitiveness; significant import penetration from EU countries; and stagnating exporting performance. Those results were consistent with two earlier studies by Giannitsis (1988) and Hassid and Katsos (1992) and the recent study by Baltas (1999). In the 1990s Greek authorities implemented a series of convergence programmes[2], which secured the country's accession to the EMU in 2001. This paper considers whether this progress is reflected in the external sector of the Greek economy by addressing a number of interrelated questions. First, have the competitiveness losses sustained in the 1980s been recovered in the 1990s? Second, has the improvement in the internal macroeconomic environment led to a discontinuation of import penetration from the EU countries observed in the 1980s? Third, has the same improvement allowed Greek exporters to reap the potential benefits of EU participation in the 1990s, following the stagnation of the previous decade? Answers to these questions can also provide tentative indications regarding the progress achieved by Greece in the field of real convergence. Of course, real convergence is a process directly related to factors like institutional reforms in labour and financial markets, public-sector restructuring and improvement in human capital, whose importance in the Greek context has been highlighted by Asteriou and Agiomirgianakis (2001). No definite conclusions related to real convergence can be drawn without taking these factors into account. However, developments in the

[1] Effective since 1 January 1981.
[2] For a detailed discussion of these programmes, see Arghyrou (2000b).

external sector of an economy, where the influence of real factors like productivity gains, competitiveness progress and relative prices movements is dominant, may, for that matter, be a useful indicator.

A large part of our analysis is based on unpublished, disaggregated data sets, constructed by the authors themselves based on material taken from the National Statistical Service of Greece (ESYE) and presenting Greek trade disaggregated by the 21 categories of the Greek Tariff Schedule (GTS). Compared to our previous study, (for which the data sets available extended up to 1992), we have now acquired access to data up to the year 2000. Apart from allowing us to update our analysis on sectoral competitiveness indicators, the extension of our sample period on disaggregated series also enables us to investigate, using more robust econometric techniques, the groups of commodities responsible for the trade effects appearing on the aggregate level. The crux of our findings is that the problems identified for the 1980s became even more acute in the 1990s. More specifically, over the last ten years Greece sustained heavy competitiveness losses in those sectors where she traditionally held a comparative advantage. Greek trade acquires an increasingly intra-industry character, especially in those sectors where Greece holds a comparative advantage. Regarding imports, there is no evidence that import penetration from EU countries was reduced in the 1990s. EU accession appears to have caused stable over time trade creation in imports for the EU area (mainly for agricultural products and products of labour intensive industries) and trade diversion for non-EU countries (mainly for agricultural and food products; machinery and electrical equipment; and vehicles, vessels and aircraft). Greek imports are found to be more dependent upon income rather than relative prices. On the other hand, EU participation does not appear to have boosted

Greek exports at any point in time. By contrast, we find a statistically significant negative structural break in the 1990s for exports to two countries, one of which is Germany, the single most important buyer of Greek exports. Demand for Greek exports is found to be highly sensitive to movements of the real exchange rate and presents high income-elasticity. These findings are related to Greece's deteriorating exporting performance of the last ten years. Overall, our findings indicate that in the past decade the real sector of the Greek economy did not close the performance gap dividing it from the EMU's hard core, a fact reflected in a widening trade deficit.

The remainder of the paper is structured as follows: Section 2 presents some prima-facie evidence. Section 3 discusses competitiveness developments. Sections 4 and 5 examine the effect EU participation has had on Greek imports and Greek exports respectively. Finally, Section 6 offers some concluding remarks.

2. PRIMA-FACIE EVIDENCE

We start by examining Greece's basic trade indicators. Figure 1 suggests that since 1981 the Greek economy has gradually become more open to imports, with figures in the late 1990s reaching the 25% of GDP threshold. By contrast, in the 1990s Greek exports have stagnated around 10%. Greece's trade deficit has been on an ascending long-term path, hovering around 15% in recent years.

Table 1, top part (commodity composition) suggests that excluding mineral products, the share of the various commodity categories in total imports has been relatively stable. C16 (machinery, mechanical appliances and electrical equipment) and C17 (vehicles, vessels and aircraft) have traditionally been the two most important categories, accounting for approximately a third of total imports. By contrast, since 1981 Greek exports have become less reliant on agricultural and food products (mainly C2 and C4) and base metals (C15), and more reliant on textiles (C11). In the 1990s, the latter accounted for approximately a quarter of total Greek exports. C11, combined with C2, C4 and C15, represent more than half of total exports in recent years.

Finally, Table 1, bottom part (geographical composition) shows that since 1981 Greek imports have been significantly re-oriented towards the EU11[3] area, especially in the cases of agricultural and food products (C1, C2, C3 and C4), some labour-intensive/low technology products (C8, C9, C10, C11 and C12) and, in the 1990s, vehicles, aircraft and vessels (C17). Regarding exports, the EU share has increased substantially for food and agricultural products (C1, C2, C3 and C4), but declined for others like chemical products (C6), footwear and leather products (C12). In terms of total exports, no major re-orientation towards the EU countries has taken place.

3. COMPETITIVENESS INDICATORS

Balassa Trade Index

An index frequently used to examine competitiveness developments in the absence of data on domestic production[4] is the one proposed by Balassa (1965):

[3] The EU11 area includes the countries consisting the EU before its latest enlargement, i.e. all current EU members minus Austria, Finland and Sweden.
[4] Disaggregated data for Greek domestic production is reported in a form different than the one used for trade data. Specifically, ESYE reports production indexes for 20 industrial sectors non-directly

$$B = \frac{X_{kt} - M_{kt}}{X_{kt} + M_{kt}} \quad (1)$$

In (1) X_{kt} and M_{kt} denote exports to and imports of commodity k in time t respectively with $-1 \leq B \leq 1$. A highly positive (negative) value indicates a comparative advantage (disadvantage) for the domestic country relative to its trading partners. Table 2 (first part) presents Balassa's trade index for all individual categories of the GTS over the period 1970-2000[5]. Excluding C3 (fats, oils and waxes), we note that during the 1990s Greece sustained heavy competitiveness losses in three categories where she traditionally held a comparative advantage, namely C2 (vegetable products), C4 (prepared foodstuffs, spirit and tobacco), and C11 (textiles) and which, when combined, account for half of total Greek exports in recent years[6]. The same applies to C8 and C12. For the remaining thirteen categories, in five cases (C5, C7, C9, C16, C17 and C18) Greece recorded modest competitiveness gains both in the 1980s and the 1990s; in two cases (C1 and C20) it suffered losses in the 1980s but achieved gains in the 1990s. In three cases (C10, C13 and C14), Greece' gains of the 1980s were partially or fully offset in the 1990s. Finally, for C6 (chemicals) and C15 (base metals), Greece lost competitiveness both in the 1980s and the 1990s.

comparable to the 21 categories of the GTS and provides no disaggregated data for the production of agricultural products.

[5] C19 and C21 are excluded as their contribution to Greek external trade is infinitesimal (see Table 1).

Intra- and inter-industry specialisation

In the absence of data on domestic production, competitiveness and production efficiency developments can also be assessed using the Adjusted Grubel-Lloyd Index (see Neven, 1990) described by (2) below:

$$AGL_{ijk} = 1 - \frac{\left| \frac{X_{ijk}}{X_{ij}} - \frac{M_{ijk}}{M_{ij}} \right|}{\frac{X_{ijk}}{X_{ij}} + \frac{M_{ijk}}{M_{ij}}} \qquad (2)$$

In (2), X_{ijk} and M_{ijk} respectively denote exports of and imports from country *i* to/from country *j* for commodity *k*; X_{ij} and M_{ij} respectively denote total exports and imports of country *i* to/from country *j* and $0 \leq AGL_{ijk} \leq 1$. If AGL_{ijk} equals unity (zero), exports and imports of country *i* to and from country *j* for commodity *k*, expressed as percentage of total exports to and imports from country *i*, are equal (non-existent), in which case trade between the two countries is entirely intra (inter)-industry. An increase in AGL_{ijk} in the case of a deficit-creating category indicates that the domestic country achieves efficiency gains by increasing the degree of export penetration in the partner's market relative to the import penetration the partner achieves in the domestic one, in which case the competitive disadvantage of the domestic country declines. If AGL_{ijk} increases in the case of a surplus-creating category of commodities, the export penetration the domestic country achieves in the partner's home market increases relative to the import penetration the partner achieves in the domestic one. In this

[6] As far as C2 and C4 are concerned, our data sets show that since 1994 and 1995 respectively, Greece's comparative advantage has turned into a disadvantage.

case, the home country achieves efficiency gains relative to its partner and its competitive advantage increases.

Table 2 (second part) presents average values of the AGL index for all categories of the GTS over the period 1970-2000. A number of interesting insights emerge. First, Greece's external trade acquires an increasingly intra-industry character: In the 1970s, only seven out of nineteen categories presented an AGL index value higher than 0.5. In the 1980s this number increased to nine and in the 1990s to thirteen (with five out of the six remaining indexes moving towards unity too). Second, since 1981 and in particular in the 1990s, the trend towards intra-industry trade is more pronounced in the case of the six traditionally surplus-creating categories i.e. C2, C3, C4, C8, C11 and C12 where Greek domestic production is concentrated. Third, for the three categories which traditionally account for 60 to 65% of Greece's total trade deficit, namely C1 (live animals and animal products), C16 (machinery, mechanical appliances and electrical equipment) and C17 (vehicles and other transport equipment), Greece has achieved a higher degree of intra-industry trade since 1981. With the exception of C20 (miscellaneous manufactures), the same applies to the remaining traditionally deficit-creating non-mineral categories.

4. IMPORT DEMAND FUNCTIONS

In this section we estimate a number of import demand functions based on Balassa's (1974) methodology of ex-post income elasticities. The latter consists of examining the movements of the elasticity of imports to changes in national income. An increase for imports from partners (non-partners) in the post-integration period indicates the existence of gross internal (external) trade creation. A reduction for imports from non-partners would suggest external trade-diversion. Finally, an increase (reduction) for imports from all sources of supply indicates the existence of trade creation (diversion) proper[7]. This method is equivalent to the use of a regression of the form:

$$\log(M_t) = \alpha + \beta \log(Y_t) + \gamma D + \delta \log(Y_t) D + u_t \quad (3)$$

where M_t and Y_t respectively denote real imports and real income in the importing country; D is a dummy variable taking the value of zero (unity) for the pre- (post-) integration years; and β is the income elasticity of demand for imports during the pre-integration period. The integration effect is then given by the term $\gamma D + \delta \log(Y_t) D$. However, movements of imports may be a function of factors other than income, e.g. relative prices. Also, trade pattern changes may have occurred for reasons unrelated to EU participation, e.g. world-wide trade liberalisation. Finally, the real monetary value of total imports may be influenced by abrupt swings in the real price of certain vital commodities e.g. oil. Hence, a more robust specification for an import demand function might be an equation like (4) below:

$$log(M_t) = \alpha + \beta_1 \, log(Y_t) + \beta_2 \, log(Q_t) + \beta_3 \, log(G_t) + \beta_4 \, log(O_t) + \gamma D + \delta \, Dlog(Y_t) + \zeta \, log(Q_t) D + u_t \quad (4)$$

where Q_t is the real exchange rate between the home currency and the currency of the trading partner; G_t captures the effect of trade liberalization occurring independently

[7] The logic behind this suggestion is that the reduction in tariffs and other trade impediments against imports will lead to a reduction in the relative price of foreign products against domestic ones. As a

of EU accession, and is O_t the real price of oil[8]. Equation (4) includes a number of possibly endogenous variables calling for a VAR-based estimation method. However, the low frequency of our data (annual) and the relatively small number of observations (1960-2000 or 1970-2000 according to the application), suggest that the number of parameters one would need to estimate in a VAR estimation context rises significantly compared to the number of available observations. On the other hand, Campbell and Perron (1991, p. 153) show that "a data set containing fewer annual data over a long time period will lead to (cointegration) tests having higher power than data sets containing more observations over a short period of time". Hence, despite creating some problems in terms of a VAR estimation framework, our data sets are, in our view, sufficient to capture the long-run relationship between imports and the variables in the right-hand side of equation (4) because they extend over a span of time exceeding four decades. To tackle the estimation issue, we have decided to adopt a single-equation modelling framework, first by estimating an unrestricted ADL model of the form $A(L)y_t = B(L)x_t + u_t$, where $A(L)$ is the polynomial lag operator $1\text{-}\alpha_1 L\text{-}\alpha_2 L^2\text{-}\ldots\text{-}\alpha_p L^p$ and $B(L)$ is the polynomial lag operator $\gamma_0+\gamma_1 L+\gamma_2 L^2+\ldots+\gamma_q L^q$; and $L^r = x_{t-r}$, and then re-parametrising with respect to the long-run static solution. As Inder (1993, p.68) suggests, this approach produces precise estimates of long-run parameters and valid t-statistics, even in the presence of

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result, the demand for imports should rise by a percentage higher than the one implied by the percentage increase due to income expansion.

[8] The specification of equation (4) would have been more robust in case an extra real exchange rate variable, namely the real effective exchange rate of each individual supplier against a basket of currencies was included to account for competitiveness gains or losses against competing suppliers. However, both the IMF and the OECD data series available in Datastream provide data on real effective exchange rate against a basket of currencies for the post-1978 period only. Hence, adding this term into equation (5) would have implied a substantial reduction in our sample size (see below). Alternatively, one could add a number of bilateral exchange rate terms, representing the real exchange rates between various foreign suppliers. However, with a sample period of 41 annual observations (1960-2000), such an approach would reduce the degrees of freedom substantially. Having said that, it is important to say that we did include in the imports' demand equation referring to the EU11 as a

endogenous explanatory variables and, also, forms the basis for single-equation cointegration tests, superior to those proposed by the standard Engle and Granger methodology[9].

Our estimation strategy is a general-to-specific one involving the following steps: First, we estimate an ADL equation where all variables in equation (4) enter the model with their contemporaneous value and their first two lags[10]. Following elimination of insignificant terms, the remaining, parsimonious ADL model is subjected to mispecification and three recursively estimated structural stability tests (1-step Chow, Break point Chow and Forecast Chow). The well-specified and structurally stable ADL equations are reparametrized to yield the long-run equations reported in Tables 3 and 4. For those for which mispecification of some form was present, the most frequently one encountered was non-normally distributed residuals. In such cases, we identify outliers using the 1-step residuals plus/minus two standard errors diagramme and include dummy variables taking the value of one for identified

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whole, the USA and Japan which appear in Table 3, the real exchange rate of the DM against the US dollar and the Japanese Yen. Both variables were statistically insignificant.

[9] Since the sum of the estimated α_i coefficients (i=1,…,p) in the ADL model must be less than one for the model to converge to a long-run solution, by dividing (1-$\Sigma\alpha_i$) by the sum of their estimated standard errors one arrives at a t-type test statistic which can then be compared against the critical values provided by Banerjee, Dolado and Mestre (1993) in order to test the null hypothesis of no-cointegration (see also Hendry and Doornik 1996, p. 140 and pp. 234-236). This kind of cointegration analysis may be superior to the standard Engle and Granger cointegration methodology as the latter implies an arbitrary distinction between endogenous and exogenous variables; it is based on a low-power ADF test; and imposes implicitly a possibly invalid common factor restriction, namely a short-run reaction of the dependent variable to changes in the right hand-side terms identical to the long-run effect that would occur if the model were in equilibrium. The cointegration tests described above address both the common factor as well as the low-power problems (see Harris, 1995, pp. 55-56).

[10] Before this, we tested for the order of integration of the variables involved in equations (4) and (5) and Tables 3, 4 and 5. The estimated ADF statistics (not reported here due to space constraints) showed that all series are integrated of order (1). The results are available upon request. Given the well-known controversy regarding the mean-reverting behaviour of real exchange rates, we acknowledge that our findings related to the real exchange rate terms may reflect a sample rather than a population property (i.e. we do not claim that Purchasing Power Parity is invalid in the case of Greece). However, as far as our econometric approach is concerned, even if the Q terms were shown to be I(0), the theoretically expected, and verified by our unit root tests, non-stationary nature of variables like imports and income, imply that one has to undertake cointegration tests on the residuals of equations (4) and (5) to draw inference regarding the existence of long-run relationships among the variables.

outlier(s) and zero otherwise. In Tables 3 and 4, these dummies are denoted as D(year). If the underlying ADL model presents structural instability despite the addition of outliers' dummies, we add further dummies, on the basis of the results of the three recursive Chow-tests diagrammes, to account for the existence of the identified structural breaks. These dummies are denoted as D(yearA-yearB).

Partner-based analysis

We estimate import demand functions for the six founding members of the European Union[11] (which traditionally account for 80% of imports from the EU11 area) and the two most important non-mineral extra-EU suppliers, namely USA and Japan. When combined, these eight countries account for approximately 55% of total Greek imports. We also estimate import demand equations for the EU11 area as a whole, the Rest of the World (ROW) and total imports. Our sample covers the period 1960-2000. Data on imports has been taken from ESYE; for the rest of the variables from the IMF databank provided by Datastream. Real exchange rates are calculated by multiplying average spot exchange rates by the ratio of foreign to Greek producer price index[12]. As a proxy for G_t, we experimented with the value of real aggregate imports of both developing and industrialised countries[13]. The theoretically expected sign for G_t is positive, as both sets of countries have been gradually relaxing import restrictions over time. However, in all cases both variables proved statistically insignificant. The real price of oil was calculated using data from the UK Brent market[14]. Table 3 presents the results. In most cases the real exchange rate term was statistically

[11] Greek Trade Statistics publications treat Belgium and Luxembourg as a single country.
[12] For France and Belgium real exchange rates have been calculated using Consumer Price Indexes as the producer price index series provided by the IMF is discontinued.
[13] Datastream codes DCI71..DA and TCI71..DA respectively, deflated using the USA CPI.

insignificant[15]. In all but one case, the reported unit-root tests reject the hypothesis of no cointegration at the 5% level of statistical significance. Notice the similarity in the estimated values of income elasticities for imports from European countries (but also imports from the ROW and total imports), all above but relatively close to unity, suggesting that European countries supply both necessities as well as "luxury" goods to the Greek market. By contrast, the equation referring to the USA, Greece's almost exclusive supplier for (income-insensitive) military purchases, presents a rather low income elasticity, whereas the equation referring to Japan, imports from which can be termed "luxury goods" presents a much higher income elasticity. The dummy variables referring to the real exchange rate were statistically insignificant, so integration effects are captured by the income dummy. Stable-over-time trade creation has taken place in the cases of Italy, France, Belgium and the Netherlands. Stable trade diverting effects are present in the cases of Japan and the USA. Regarding Germany, our analysis identified two structural breaks, one in the mid-1980s and another in the early 1990s. After various experiments, we concluded that these are best represented by adding into equation (4) two intercept dummies, taking the value of unity for the periods 1985-87 (D1985-87) and 1993-2000 (D1993-00) respectively, and zero otherwise. Trade creating effects exist for the whole of the post-1981 period, being particularly pronounced between 1985 and 1987, but seem to have been partially reversed after 1993. This may be the result of a number of factors, including the re-orientation of Germany's external trade towards the transition economies and the various conflicts in the Balkan peninsula in the 1990s which may have disturbed land commercial transports. These structural breaks are also reflected in the equation

[14] Datastream code UKI76AAZA, expressed in 1995 US dollars using the USA CPI index.
[15] The real exchange rate term used in the equations referring to EU11 and the ROW is the drachma's real exchange rate against the German mark. Obviously, this is an imperfect approximation. It would

referring to the EU11 area as a whole, a non-surprising result given that Germany, along with Italy, is one the two most important individual suppliers of Greece's imports. EU accession appears to have caused trade-creating effects in imports from the EU11 as a whole throughout the 1981-2000 period, whereas trade-diverting effects are observed in imports from the ROW. The two effects cancel each other out, so that the net EU effect on total imports appears statistically insignificant.

Commodity-based analysis

We now estimate import demand functions in a cross-sectoral context. Due to space constraints, we restrict our analysis to the presentation of equations referring to imports from the two main trading blocks, EU11 and the ROW and total imports. We distinguish between seven categories (defined on the basis of nature of products) of non-mineral imports represented in Table 4. Time series for these categories were constructed by the authors themselves, on the basis of material taken by ESYE, and cover the period 1970-2000 (earlier material was not available). We follow the same modelling/estimation methodology employed above. With one exception, namely products of labour intensive and low technology industries (where the bulk of the Greek industrial sector is concentrated), real exchange rates were statistically insignificant. Note that estimated income elasticities for those groups of commodities which can be termed "luxury" goods (e.g. C17 and C18) are higher compared to those referring to non-luxury goods (e.g. base metals, agricultural and food products and products of labour intensive industries). Regarding the EU11 area, in four out of seven commodities groups, (agricultural and food products, products of labour-

have been better to use the real effective exchange of the drachma against a basket of currencies. However, data for such series provided by the IMF and OECD databases is discontinued (see above).

intensive industries, base metals and machinery, mechanical appliances and electrical equipment) trade creation has taken place. Gross trade diversion is only identified in the case of vehicles, vessels and aircraft. For the ROW, gross trade diversion has occurred in agricultural and food products[16], base metals, machinery, mechanical appliances and electrical equipment and vehicles, aircraft and vessels. Net trade creation has taken place in agricultural and food products and products of the labour intensive/low technology industries where Greece historically possessed comparative advantage and, as we have seen in Section 2, has suffered competitiveness losses since 1981. By contrast, net trade diversion seems to have occurred in the cases of machinery, mechanical appliances and electrical equipment (C16) and vehicles, aircraft and vessels (C17), categories for which Greece has achieved a higher degree of intra-industry trade since 1981[17]. Neutral trade effects are identified in the cases of C15 (base metals); C18 (various electronic products); and C6 and C7 (chemical, plastic and rubber products).

5. EXPORT DEMAND FUNCTIONS

We end our analysis by estimating a number of export demand functions. Due to space constraints, our exports' analysis is restricted to examining integration effects on a partner-basis only[18]. Our starting point is an export demand function similar to equation (5), namely:

[16] Following some problems with the RESET function form test, we concluded that the trade diverting effects for imports of agricultural products from the ROW are best represented by the intercept integration dummy (*D*) rather than the slope one (*D log Y*).

[17] Regarding C17, following the identification of some form of structural instability problems in the ADL equation initially estimated for total imports and imports from the ROW, we added a dummy variable covering the period 1994-97 (D1994-97), which proved statistically significant with negative sign. This suggests that trade diverting effects were stronger in the second part of the 1990s.

[18] Commodity-based analysis would necessitate estimation of seven equations (one for each of the seven groups of commodities earlier discussed) for each country examined in this section, a total of

$$\log(X_t) = \alpha + \beta_1 \log(Y^*_t) + \beta_2 \log(Q_t) + \beta_3 \log(G_t) + \beta_4 \log(O_t) + \gamma D + \delta D \log(Y^*_t) + \zeta \log(Q_t) D + u_t \quad (5)$$

In (5), X_t and Y^*_t respectively denote real exports and real income in the importing (foreign) country. The rest of the variables are defined as in equations (3) and (4)[19]. We present equations referring to six individual countries, namely the founding members of the EU (accounting for 80% of exports to the EU11 area) plus the USA which, when combined, account for more than half of total Greek exports. Our sample coves the period 1960-2000 (1960-1999 for Germany). Data for exports has been taken from ESYE. Data for foreign income has been taken from the IMF database with Y^* defined as the index of real GDP (1995=100)[20]. As a proxy for G_t, we used the volume of real aggregate exports of developing countries provided by the IMF databank[21]. Unlike the case of imports, there exist no a priori expectation with regards to the sign of this variable. This is so because G_t may reflect not just the influence of international trade liberalisation (whose effect on exports is expected to be positive) but also exporting performance of countries whose products are competitive to those of Greece (making a case for a negative sign). In any case, with one exception G_t was insignificant. For estimation purposes, we follow the modelling strategy earlier described. The results appear in Table 5. All real exchange rate terms are statistically

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forty-nine equations. Space constraints do not allow presentation of these results here. We restrict ourselves in mentioning that as far as the two main destinations of Greek exports are concerned, Germany and Italy, commodity based analysis (not reported here) did not yield any statistically significant integration dummies for any commodities group. These results are available upon request.

[19] Once again, the specification of equation (5) would have been more robust in case we had included the real effective exchange rate of the Greek drachma against a basket of currencies to account for competitiveness gains or losses against competing suppliers in foreign markets. However, both the IMF and the OECD data series available in Datastream provide data on real effective exchange rate against a basket of currencies for the post-1978 period (see above). Hence, adding this term into equation (6) would have implied loss of almost half of our observations.

[20] For Belgium, France and the Netherlands, the index of real GDP series provided by the IFS covers the post-1978 period only. For these countries, we use the volume of industrial production as a proxy for Y^*.

significant with the theoretically expected positive sign, and with estimated coefficients well above unity, suggesting that Greece's exporters face strong competition by the destination's country internal (and, in all probability, other external) suppliers. Notice also the high values of the estimated income elasticities for exports' demand[22]. The price of oil enters three equations with a positive sign, a fact not too-surprising, given that exports of mineral products account for approximately 15% of total Greek exports[23]. In the cases of Germany and the Netherlands, we achieved structural stability for our estimated equations only after adding an intercept dummy taking the value of unity for the period 1990-2000, and zero otherwise (D1990s). For both countries, this is statistically significant with a negative sign and possibly reflects the negative impact of the previously mentioned re-orientation of German trade towards the economies of transition and the adverse effect of the numerous conflicts in the Balkan peninsula during the 1990s. With the exception of Netherlands, all dummy variables (real exchange rate and income) capturing the EU participation effect appear statistically insignificant. All in all, Table 5 presents no statistical evidence suggesting that Greek exports have experienced any boost at any time since 1981. By contrast, there is evidence of a negative structural shift in demand for Greek exports in two countries, one of which is Greece's main export destination (Germany), in the 1990s.

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[21] Datastream code DCI70..DA.

[22] The only exception to this rule is the USA whose military forces stationed in the Mediterranean sea buy a large part of Greece's exports of mineral products (see the next footnote).

[23] A large part of Greece's production of mineral products are directed to USA military forces serving in Europe. These sales are recorded as exports to the USA. We would like to thank ESYE officials for clarifying this point.

6. CONCLUDING REMARKS

This paper focused on the external trade of Greece since the latter's accession to the EU placing particular emphasis on trade developments observed in the 1990s. We found mutually offsetting, stable-over-time, trade creation and trade diversion effects in imports from the EU and third countries respectively. We also found that in the 1990s Greece sustained substantial competitiveness losses in those sectors where she traditionally held a comparative advantage, a fact reflected in a deteriorating trade deficit. Two explanations can be provided for this development:

The first is related to our finding that demand for Greek exports in Greece's main exporting markets presents high income elasticity, which makes Greek exports vulnerable to downwards cyclical fluctuations abroad. In the 1990s two periods of economic slowdown were observed in Europe. These, combined with the opening of transition economies to foreign trade, i.e. countries producing products highly competitive to the Greek ones (e.g. textiles and agricultural products), and the conflicts which took place in the Balkans, which disturbed land transport routes, may be partially responsible for the observed stagnation in Greek exports in the past decade.

The second is related to our finding that Greek exports are highly sensitive to movements of the real exchange rate. In the 1990s, Greece pursued a reduction in inflation through an increasingly closer shadowing of the German mark. To the extend that changes in the nominal exchange rate were not fully compensating for the declining, yet still positive, inflation differential against the EU average, this policy was bound to lead to a real appreciation of the Greek drachma. The only way to avoid such a scenario was for Greek producers to achieve efficiency/productivity gains against foreign competitors. Our finding that the degree of intra-industry trade increased substantially in those very sectors where Greek domestic production is concentrated, suggests that exactly the opposite has happened. Under such circumstances, and as we argue in detail elsewhere[24], the strong-drachma policy put a strain on Greek exporting performance and trade deficit, contributing to the eventual collapse of the policy in March 1998. In fact, the high sensitivity of Greek exports to changes in real exchange rates is itself a reflection of the fact that Greek production remains concentrated in low-technology, high-competition sectors, where increases in relative prices, or the emergence of cheaper close substitutes (like those produced by transition economies) lead to substantial market-share losses. In the same spirit, the relative unimportance of the real exchange rate terms in the estimated imports-demand equations is an indication that for a substantial portion of Greece's imports, there is no-worth mentioning domestic production to compete with foreign suppliers. In both cases, the lack of statistical significance of the real exchange rate dummy variables in the estimated export and import demand equations suggest that neither state of affairs has changed as a result of Greece's stabilisation effort in the 1990s.

All in all, our findings are consistent with those of authors like Bosworth and Kollintzas (2001) who argue that despite securing nominal convergence in the 1990s, Greece has yet not closed the gap which divides her real economy from the hard-core of the EMU. This is a particularly worrying element, given that in the context of the EMU the "emergency exit" from a trade deficit crisis, the option of a nominal

[24] See Mourmouras and Arghyrou (2000).

devaluation, does not exist. If the present trends continue, Greece may face in the future serious tensions in its external sector without obvious escape options. To avoid such developments, Greece needs to boost its productivity in the lines suggested by Alogoskoufis (1995), Bosworth and Kollintzas (2001), Christodoulakis (2000) and Asteriou and Agiomirgianakis (2001). More specifically, in the macroeconomic level, Greek competitiveness might benefit from a speedily completion of the structural changes now in the stage of planning, introduction or implementation. These include reforms in labour market legislation, the pension and taxation system, abolition of monopolies in fields like the one of energy, streamlining of state-owned failing firms and completion of public infrastructure projects of large scale. In the microeconomic level, Greek firms might benefit from following the example of countries like Ireland, where revision of production procedures and marketing strategies, higher spending on R&D projects and human capital and the introduction of performance-related incentive schemes have all contributed to higher production efficiency.

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DEFINITION OF THE CATEGORIES OF THE GREEK TARIFF SCHEDULE

C1 = Live animals and animal products

C2 = Vegetable products

C3 = Animal and vegetable fats and oils and their cleavage products. Prepared edible fats. Animal and vegetable waxes.

C4 = Prepared foodstuffs. Beverages, spirits and vinegar. Tobacco

C5 = Mineral products

C6 = Products of the chemical and allied industries

C7 = Artifice resins and plastic materials, cellulose esters and ethers. Rubber, synthetic rubber, factice

C8 = Raw hides and skins, leather, furskins. Saddlery and harness. Travel goods, handbags. Articles of gut

C9 = Wood and articles of wood. Wood charcoal. Cork and articles of cork. Manufactures of straw, of esparto and of other plaiting materials. Basketware and wickerwork

C10 = Paper-making material. Paper and paperboard

C11 = Textiles and textile articles

C12 = Footwear, headgear, umbrellas, sunshades, whips, riding-crops Prepared feathers and articles made therewith. Artificial flowers. Articles of human hair. Fans.

C13 = Articles of stones, of plaster, of cement, of asbestos, of mica. Ceramic products. Glass and glassware.

C14 = Pearls, precious and semi-precious stones, precious metals, rolled precious metals. Imitation jewelry. Coins.

C15 = Base metals and articles of base metals.

C16 = Machinery and mechanical appliances. Electrical equipment.

C17 = Vehicles, aircraft and parts thereof. Vessels and certain associated transport equipment

C18 = Optical, photographic, cinematographic, measuring, checking, precision, medical and surgical instruments. Clocks and watches. Musical instruments, sound recorders and reproducers. Videos, video-cameras and TV sets.

C19 = Arms and ammunition

C20 = Miscellaneous manufactured articles

C21 = Works of art, collectors' pieces and antiques.

Figure 1: Merchandise imports, exports and trade deficit in Greece, 1960-2000 (% in GDP)

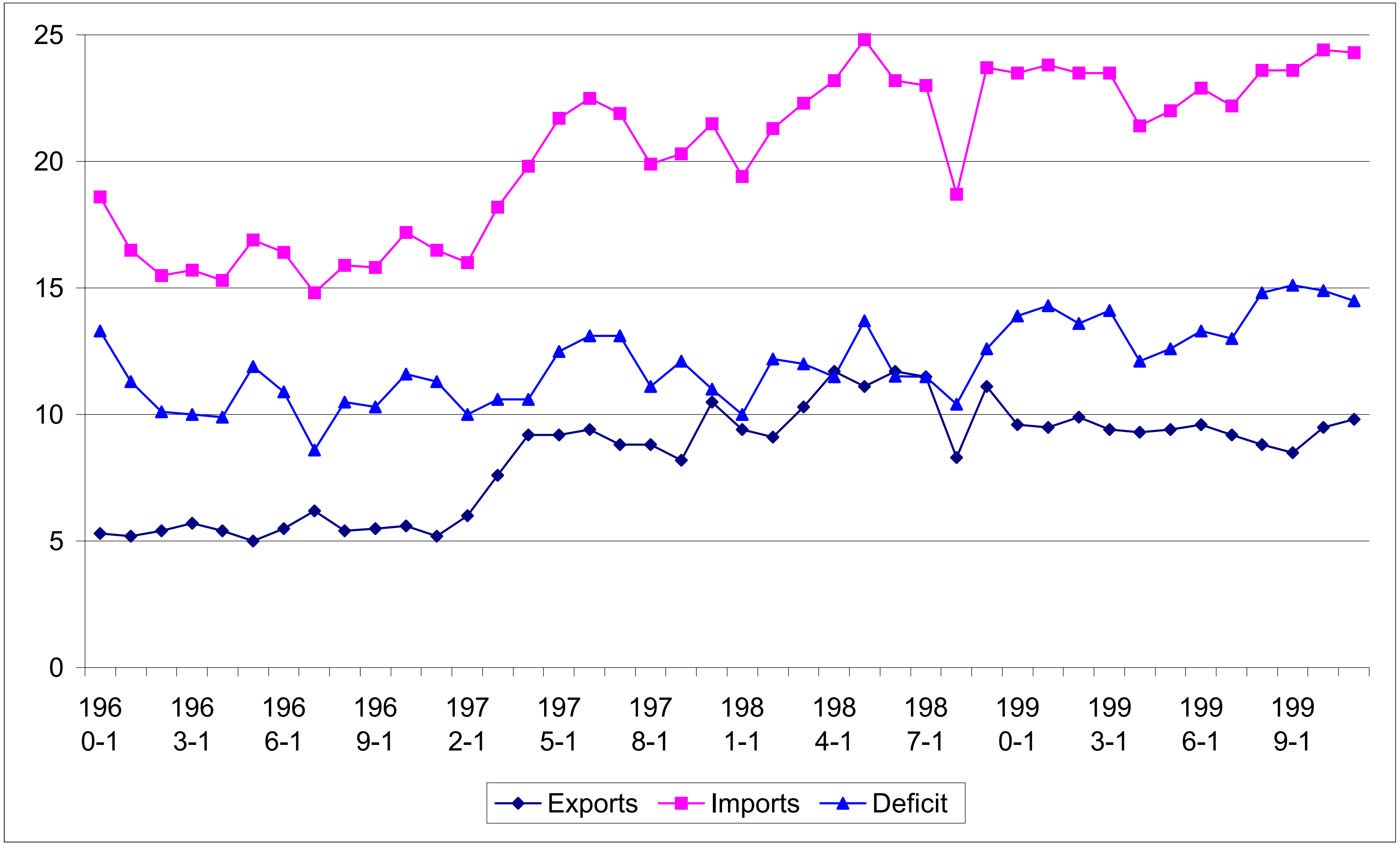

Table 1: Commodity and geographical composition of the external trade of Greece

Commodity composition (% in total)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
Imports																					
1970-80	5.0	3.1	0.3	2.3	17.4	6.7	3.1	1.3	2.0	2.6	5.2	0.1	1.1	0.2	8.2	16.4	22.9	1.7	0.1	0.4	0.0
1981-89	8.2	2.9	0.4	3.5	20.5	7.5	3.8	3.2	1.5	2.7	6.8	0.4	1.3	0.4	7.7	13.2	13.0	2.1	0.1	0.7	0.3
1990-2000	6.4	2.9	0.4	5.1	9.4	9.6	4.3	1.4	1.4	3.2	7.6	0.9	1.8	0.4	7.3	17.9	15.1	2.7	0.1	2.0	0.1
Exports																					
1970-80	1.2	13.6	1.2	18.4	16.0	5.1	1.4	4.7	0.5	0.6	16.9	1.8	1.0	0.2	13.7	2.2	0.9	0.2	0.0	0.3	0.0
1981-89	1.0	12.3	3.0	13.3	15.2	3.9	1.5	5.9	0.4	1.0	23.0	1.3	1.5	0.4	11.0	2.7	0.7	0.2	0.5	0.2	1.0
1990-2000	3.0	8.4	4.0	13.3	13.0	5.3	2.4	3.3	0.5	1.2	22.9	0.5	1.7	0.3	10.2	7.1	1.3	0.5	0.1	0.8	0.3

Geographical composition: share of EU11 countries in Greek imports and exports (% in total)

	Total	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
Imports																						
1970-80	47.0	34.4	10.3	69.9	57.4	11.8	74.3	80.0	53.7	5.5	34.5	53.4	45.5	78.4	71.3	60.1	75.2	45.1	59.1	72.6	69.9	n.a.
1981-89	54.0	84.0	47.4	89.5	77.8	6.0	75.3	81.1	78.9	10.8	42.0	69.8	55.8	80.4	39.2	66.9	72.7	46.4	59.4	74.7	73.2	n.a.
1990-2000	61.6	85.1	57.4	75.7	83.4	7.3	76.2	75.5	66.2	25.1	55.7	73.0	57.6	75.1	71.8	55.0	70.0	52.5	63.1	64.7	66.7	n.a
Exports																						
1970-80	52.3	52.7	54.4	59.6	46.5	45.8	51.7	33.7	55.2	37.4	14.5	72.0	40.3	16.5	47.0	50.9	37.3	19.7	9.8	36.6	48.5	n.a.
1981-89	56.9	65.6	71.9	74.6	51.3	33.4	41.4	37.2	67.9	26.2	15.4	80.9	46.0	20.2	38.7	46.4	46.4	22.2	34.6	37.4	36.2	n.a.
1990-2000	54.1	75.5	68.9	84.8	49.3	25.3	38.0	43.6	48.9	35.8	18.8	73.4	26.9	32.4	42.8	50.5	41.2	26.2	44.7	50.4	40.2	n.a

Table 2: Competitiveness developments: Balassa and Adjusted Grubel-Loyed Index

	Balassa Index					*Adjusted Grubel-Lloyd Index*				
	Average observed values			Difference with previous period		Average observed values			Difference with previous period	
	1970-80	1981-89	1990-2000	1981-89	1990-2000	1970-80	1981-89	1990-2000	1981-89	1990-2000
C1	-0.83	-0.89	-0.68	-0.06	0.21	0.37	0.19	0.55	-0.18	0.35
C2	0.30	0.34	0.06	0.04	-0.27	0.37	0.35	0.51	-0.02	0.16
C3	0.18	0.53	0.52	0.35	-0.01	0.46	0.29	0.27	-0.17	-0.02
C4	0.53	0.30	0.02	-0.23	-0.28	0.22	0.35	0.55	0.13	0.20
C5	-0.45	-0.43	-0.28	0.03	0.14	0.92	0.84	0.83	-0.08	-0.01
C6	-0.53	-0.61	-0.64	-0.07	-0.04	0.86	0.73	0.68	-0.13	-0.06
C7	-0.69	-0.68	-0.64	0.01	0.05	0.61	0.60	0.64	-0.01	0.04
C8	0.19	-0.08	-0.04	-0.26	0.03	0.43	0.72	0.61	0.28	-0.11
C9	-0.80	-0.78	-0.76	0.02	0.02	0.41	0.41	0.51	0.01	0.09
C10	-0.81	-0.72	-0.73	0.09	-0.01	0.40	0.54	0.53	0.15	-0.01
C11	0.14	0.23	0.10	0.10	-0.14	0.47	0.44	0.49	-0.03	0.05
C12	0.80	0.23	-0.63	-0.57	-0.87	0.08	0.32	0.77	0.24	0.45
C13	-0.45	-0.27	-0.43	0.17	-0.16	0.79	0.90	0.93	0.11	0.03
C14	-0.46	-0.31	-0.60	0.15	-0.29	0.82	0.87	0.72	0.05	-0.15

Table 3: Import demand functions - Partner-based analysis

	Long-run equation										Mispecification tests on underlying ADL model (p-values)				
	constant	$\log(Y)_t$	$\log(Q)_t$	$\log(O)_t$	D $\log(Y)_t$	Other Dummies				unit-root t-test[1]	AR	ARCH	Normality	X_i^2	RESET
Belgium-Lu	-2.210	1.188	-0.814		0.0167					-5.197 **	0.97	0.95	0.21	0.34	0.44
	0.388	*0.122*	*0.338*		*0.010*										
						D1963	D1965	D1986	D1987	-7.308 **	0.99	0.46	0.27	0.72	0.53
France	-1.965	1.217	-0.436		0.0095	-0.113	0.162	0.106	0.1023						
	0.330	*0.047*	*0.188*		*0.0040*	*0.043*	*0.041*	*0.035*	*0.036*						
						D1985-87	D1988	D1993-00	D1998	-9.737 **	0.85	0.98	0.44	0.92	0.29
Germany	-2.135	1.172			0.0181	0.1072	-0.153	-0.172	0.148						
	0.176	*0.043*			*0.004*	*0.022*	*0.040*	*0.018*	*0.035*						
Italy	-3.205	1.374			0.0234					-3.230 +	0.51	0.80	0.44	0.89	0.93
	0.595	*0.140*			*0.010*										
						D1999									
Netherland	-2.546	1.122			0.0584	-0.502				-4.252 *	0.46	0.86	0.10	0.40	0.49
	0.535	*0.137*			*0.013*	*0.167*									
						D1994									
USA	0.459	0.444			-0.0250	-0.794				-4.314 *	0.90	0.54	0.31	0.70	0.65
	0.509	*0.122*			*0.014*	*0.244*									
Japan	-12.660	3.657	-1.908		-0.0724					-4.935 *	0.20	0.30	0.32	0.77	0.31
	2.738	*0.671*	*0.873*		*0.041*										
						D1985-87	D1988	D1993-00	D1998						
EU11	-1.734	1.184			0.0203	0.080	-0.102	-0.028	0.058	-7.820 **	0.53	0.38	0.78	0.57	0.18
	0.147	*0.035*			*0.003*	*0.017*	*0.031*	*0.015*	*0.030*						
ROW	0.295	1.310	-1.403	0.365	-0.0225					-5.677 **	0.11	0.30	0.66	0.54	0.89
	0.805	*0.133*	*0.474*	*0.053*	*0.010*										
						D1985-87	D1988								
Total Impo	-1.639	1.170		0.196	-0.0004	0.011	-0.205			-6.371 **	0.87	0.12	0.80	0.71	0.24
	0.180	*0.045*		*0.027*	*0.004*	*0.020*	*0.004*								

standard errors in italics

AR = Langrange Multiplier F-test for autocorrelation ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity

Normality = Chi^2 test for the normal distribution of the residuals Xi^2 = White test for heteroscedasticity

RESET= Reset F-test for functional form

+ , * , ** indicates significance at the 10%, 5% and 1% level respectively [1]: Critical values provided by PC-Give. They can also be found at Banerjee, Dolado and Mestre (1992), reprinted in Harris (1995), pp. 160-161.

Table 4: Import demand functions - Commodity-based analysis

	Long-run equation										**Mispecification tests on underlying ADL model (p-values)**				
	constant	**$log(Y)_t$**	**$log(Q)_t$**	**$D\ log(Y)_t$**	**Other Dummies**				**unit-root t-test[1]**		**AR**	**ARCH**	**Normality**	**X_i^2**	**RESET**
Agricultural and food products (C1, C2, C3 and C4)															
						D1973	D1987	D1989							
EU11	-3.156	1.267		0.834		0.241	0.257	0.402	-5.88 **						
	1.171	*0.275*		*0.1030*		*0.129*	*0.119*	*0.125*							
					D	D1989	D1993	D1994	-6.75 **		0.39	0.96	0.19	0.84	0.17
ROW	0.080	0.560			-0.241	0.110	-0.118	-0.098							
	0.547	*0.130*			*0.029*	*0.056*	*0.056*	*0.053*							
						D1973	D1987	D1989							
Total	-0.749	0.801		0.354		0.362	0.223	0.309	-4.19 *		0.37	0.74	0.15	0.79	0.74
	0.897	*0.212*		*0.084*		*0.138*	*0.088*	*0.108*							
Chemical, rubber and plastic products (C6 and C7)															
						D1982									
EU11	-2.548	1.207		0.120		-0.297			-3.37		0.32	0.40	0.61	0.65	0.96
	0.845	*0.195*		*0.068*		*0.122*									
ROW	-4.194	1.469		0.053					-2.87		0.30	0.13	0.46	0.62	0.58
	0.607	*0.143*		*0.056*											
						D1982									
Total	-2.640	1.257		0.107		-0.263			-3.03		0.18	0.18	0.14	0.47	0.90
	0.805	*0.187*		*0.067*		*0.121*									
Products of labour intensive and low-tech industries (C8, C9, C10, C11, C12, C13, C14 and C20)															
EU11	-7.395	1.154	-2.263	0.474					-5.595 **		0.56	0.62	0.86	0.33	0.62
	1.088	*0.179*	*0.520*	*0.065*											
						D1993									
ROW	-1.651	0.972		-0.015		-0.136			-3.61 +		0.47	0.51	0.90	0.85	0.91
	0.537	*0.127*		*0.048*		*0.070*									
						D1993									
Total	-4.742	1.013	-1.474	0.278		-0.161			-4.25 *		0.68	0.48	0.72	0.55	0.90
	0.969	*0.155*	*0.480*	*0.056*		*0.078*									

standard errors in italics

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Table 4: Import demand functions - Commodity-based analysis (continued)

	Long-run equation									Mispecification tests on underlying ADL model (p-values)				
	constant	$\log(Y)_t$	$\log(Q)_t$	$\log(O)_t$	$D\log(Y)_t$	Other Dummies			unit-root t-test[1]	AR	ARCH	Normality	X_i^2	RESET
Base metals (C15)														
							D1998							
EU11	0.255	0.482			0.139		-0.457		-3.95 +	0.63	0.77	0.58	0.78	0.65
	0.925	*0.217*			*0.078*		*0.149*							
						D1992-94								
ROW	-4.263	1.514			-0.162	-0.187			-7.4 **	0.38	0.47	0.30	0.89	0.92
	0.515	*0.122*			*0.044*	*0.038*								
						D1990s	D1998							
Total	-1.671	0.995			0.0001	-0.013	-0.196		-5.16 **	0.61	0.60	0.83	0.54	0.22
	0.619	*0.147*			*0.050*	*0.045*	*0.079*							
Machinery, mechanical appliances and electrical equipment (C16)														
								D1998						
EU11	-0.458	0.827		-0.257	0.037			0.114	-10.63 **	0.60	0.92	0.67	0.80	0.27
	0.232	*0.509*		*0.021*	*0.018*			*0.022*						
						D1978	D1994							
ROW	-5.082	1.790		-0.153	-0.180	-0.220	-0.267		-4.60 *	0.88	0.62	0.81	0.95	0.30
	0.728	*0.167*		*0.074*	*0.061*	*0.082*	*0.098*							
						D1978		D1998						
Total	-1.738	1.139		-0.171	-0.079	-0.086		0.125	-4.71 *	0.64	0.38	0.18	0.88	0.88
	0.483	*0.107*		*0.047*	*0.036*	*0.047*		*0.056*						
Vehicles, aircrafts and vessels (C17)														
						D1974	D1988							
EU11	-4.178	1.482		0.353	-0.338	-0.223	-0.326		-7.32 **	0.34	0.57	0.30	0.43	0.08
	0.961	*0.207*		*0.083*	*0.066*	*0.088*	*0.078*							
							D1988	D1994-97						
ROW	-5.21	1.766		0.367	-0.574		-0.341	-0.257	-5.53 **	0.64	0.73	0.35	0.86	0.82
	1.654	*0.372*		*0.144*	*0.147*		*0.158*	*0.092*						
Total						D1974	D1988	D1994-97						
	-4.066	1.522		0.398	-0.378	-0.267	-0.279	-0.119	-9.77 **	0.83	0.37	0.76	0.89	0.34
	0.850	*0.185*		*0.071*	*0.057*	*0.075*	*0.065*	*0.038*						

standard errors in italics

AR = Langrange Multiplier F-test for autocorrelation ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity

Normality = Chi^2 test for the normal distribution of the residual Xi^2 = White test for heteroscedasticity

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Table 4: Import demand functions - Commodity-based analysis (continued)

	Long-run equation									Mispecification tests on underlying ADL model (p-values)				
	constant	$\log(Y)_t$	$\log(Q)_t$	$\log(O)_t$	$D \log(Y)_t$	Other Dummies			unit-root t-test[1]	AR	ARCH	Normality	X_i^2	RESET
Various electronic products (C18)														
						D1985-87	D1988							
EU11	-7.187	2.084			-0.066	0.278	-0.163		-6.99 **	0.89	0.59	0.73	0.94	0.33
	0.414	*0.097*			*0.037*	*0.031*	*0.057*							
						D1985-87	D1988	D1998						
ROW	-5.133	1.558			0.035	0.149	-0.129	0.086	-7.85 **	0.54	0.85	0.39	0.76	0.65
	0.310	*0.072*			*0.026*	*0.021*	*0.041*	*0.037*						
						D1985-87	D1988	D1998						
Total	-5.939	1.842			-0.021	0.227	-1.437	0.096	-9.45 **	0.28	0.86	0.11	0.65	0.60
	0.277	*0.065*			*0.023*	*0.019*	*0.037*	*0.033*						

standard errors in italics

AR = Langrange Multiplier F-test for autocorrelation

ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity

Normality = Chi^2 test for the normal distribution of the residua

Xi^2 = White test for heteroscedasticity

RESET= Reset F-test for functional form

+ , * , ** indicates significance at the 10%, 5% and 1% level respectively

[1]: Critical values provided by PC-Give. They can also be found at Banerjee, Dolado and Mestre (1992), reprinted in Harris (1995), pp. 160-161.

Table 5: Export demand functions

	Long-run equation										Mispecification tests on underlying ADL model (p-values)				
	constant	$\log(Y^*)_t$	$\log(Q)_t$	$\log(DCX)_t$	$\log(O)_t$	$D\log(Y^*)_t$	Other Dummies			unit-root t-test[1]	AR	ARCH	Normality	X_i^2	RESET
							D1988								
Belgium-Lu	-6.889	4.929	3.339	-1.348		0.0300	-0.484			-3.89 +	0.52	0.39	0.34	0.41	0.18
	1.377	*1.174*	*1.079*	*0.466*		*0.067*	*0.286*								
										-3.97 *	0.58	0.49	0.18	0.74	0.25
France	-7.946	1.818	3.869			0.0400									
	1.173	*0.331*	*0.765*			*0.0370*									
							D1979	D1988	D1990s						
Germany	-6.871	2.831	2.048			-0.015	-0.411	-0.682	-0.602	-3.87 +	0.82	0.66	0.68	0.63	0.32
	1.565	*0.458*	*0.866*			*0.045*	*0.195*	*0.244*	*0.114*						
Italy	-3.062	1.250	2.146		0.446	-0.0110				-3.32	0.21	0.10	0.32	0.31	0.22
	0.987	*0.283*	*0.862*		*0.182*	*0.050*									
							D1988	D1995	D1990-2000						
Netherland	-4.397	2.527	0.619		0.219	-0.048	-0.239	-1.008	-0.296	-14.40 **	0.58	0.58	0.75	0.97	0.52
	0.676	*0.138*	*0.346*		*0.059*	*0.020*	*0.084*	*0.100*	*0.043*						
USA	-5.149	1.007	2.009		0.371	-0.0120				-6.36 **	0.37	0.77	0.11	0.50	0.24
	1.464	*0.275*	*0.465*		*0.064*	*0.042*									

standard errors in italics

AR = Langrange Multiplier F-test for autocorrelation
Normality = Chi^2 test for the normal distribution of the residuals
RESET= Reset F-test for functional form
ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity
Xi^2 = White test for heteroscedasticity

+ , * , ** indicates significance at the 10%, 5% and 1% level respectively [1]: Critical values provided by PC-Give. They can also be found at Banerjee, Dolado and Mestre (1992), reprinted in Harris (1995), pp. 160-161.