

NOTAS ECONÓMICAS 13

FRANCISCO LOUÇÃ DANÇANDO COM OS LOBOS — INQUÉRITO NAS FRONTEIRAS DA ECONOMIA

ANTÓNIO MARTINS NOTAS SOBRE A TRIBUTAÇÃO DO RENDIMENTO DAS SOCIEDADES

JOÃO PAULO COSTA A FERRAMENTA INFORMÁTICA NO APOIO À DECISÃO

ANA MARIA ABRUNHOSA ACORDOS DE INTEGRAÇÃO REGIONAL: UM OBSTÁCULO OU UM COMPLEMENTO AO MULTILATERALISMO NO COMÉRCIO INTERNACIONAL?

HELENA MARQUES TRADE, INTEGRATION AND GROWTH: THE PORTUGUESE EXPERIENCE

HENRI GOVERDE MANAGING INTEGRATION AND MARGINALISATION FOR THE NEW EUROPE



Trade, Integration and Growth: the Portuguese Experience¹

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resumo

résumé / abstract

Neste artigo são estudadas as relações entre comércio internacional, integração e crescimento, à luz da experiência portuguesa de integração na União Europeia. Construindo modelos gravitacionais, investiga-se a influência da dimensão tanto dos países exportadores como importadores, bem como do seu processo de integração, sobre o volume do seu comércio, a dois níveis distintos. Por um lado, considera-se o comércio bilateral entre Portugal e a CE-12, nomeadamente as exportações portuguesas. Por outro lado, analisam-se blocos comerciais, ressaltando o carácter de bloco comercial por excelência da CE-12. O estudo empírico — painel com efeitos fixos — em geral confirma as previsões teóricas.

Dans cet article on met en rapport le commerce international, l'intégration et la croissance, à la lumière de l'expérience portugaise d'intégration dans l'Union Européenne. En utilisant des modèles gravitationaux, on recherche l'influence de la dimension des pays exportateurs et des pays importateurs, aussi que de sa intégration, sur le volume de son commerce, et ça selon deux perspectives. D'abord, on étudie le commerce bilatéral, c'est à dire, des exportations portugaises pour la CE-12. D'autre part, on analyse des blocs commerciaux, parmi lesquels la CE-12 apparaît comme le plus parfait. Les données empiriques son la confirmation des postulats théoriques.

This paper studies the links between trade, integration and growth through the mirror of the Portuguese experience of integration in the European Union. A gravity model framework is used to investigate the influence of both exporting and importing countries dimension and of their integration over the volume of trade at two different levels. First, the bilateral trade between Portugal and EC-12 is analised, namely Portuguese exporting performance. Then this work focuses on trade within regional trading blocs. Here EC-12 is compared with two other country groups and is proved to perform better as a natural trading bloc. The theoretical predictions are generally confirmed by the empirical study, carried out through pooled least squares with fixed effects.

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1. Introduction



It is not a coincidence that the smallest economies are also the most open. If we accept that demand determines supply, the lack of market dimension may work as a growth constraint. In this sense, small economies, with small internal markets, tend to turn to external markets as a complement of the dimension they need to expand their economies.

Portugal is no exception. The internal market scarcity has been felt at two levels: the number of potential consumers and their low purchasing power. The former would not increase much and the latter was expanding slowly. Therefore, greater openness was unavoidable and since 1960 Portugal engaged on an export-led growth strategy that evolved throughout the last (almost) four decades. Such strategy is assumed to have three main determinants we deal with in this paper.

First, the country's own potential. Portugal needed to find its comparative advantages and the factors in which it differentiated from its main competitors. It had to transform itself into a fully industrialised nation and make its way to European markets. This involved turning away from primary exports and promoting industries based on low cost labour (textiles, leather, electronics, cars) and abundant raw materials (food processing, cork, marbles).

Second, the growth of Portugal's main trading partners. When a country engages on export-led growth, the existence of sound markets is crucial for the strategy's success. This is moreover true in the Portuguese case, since external markets have served as a complement to the scarce internal market.

Third, the integration in trade blocs. From the very beginning Portugal participated in the process of European integration. It joined EFTA in 1960, signed a free trade agreement with EC in 1972 and became a full member in 1986. It is also a member of the former GATT and of OECD.

The objective of this paper is to study the links between trade, integration and growth through the mirror of the Portuguese experience of integration in EC. We use the gravity model framework to investigate if, when, and how the three factors previously mentioned have determined the volume of trade at two different levels. We first look into bilateral trade between Portugal and EC-12, namely Portuguese exporting performance. Then we deal with trade within regional trading blocs. Here EC-12 is compared with two other country groups² and is proved to perform better as a natural trading bloc.

The analysis of the empirical results presented in the paper is based upon Linnemann (1966) and Linder's (1961) gravity model. Tinbergen (1962) also set up such a model. The gravity model is motivated by the fact that in the presence of differentiated products and economies of scale the volume of trade depends on relative country size, as claimed by Krugman (1979; 1981), Lancaster (1980), Helpman (1981) and Helpman and Krugman (1985). Theoretical support for the gravity model can also be found in Leamer and Stern (1970), Cochrane (1975), Anderson (1979) and Bergstrand (1985; 1989).

A great number of empirical studies has been done using the gravity model. We can point out Tinbergen (1962), Pollins (1989), and Summary (1989) in what concerns the influence of politics on trade variables. The effect of exchange rate variability is studied by Hooper and Kohlhaugen (1978), Abrams (1980), Cushman (1983) and Thursby and Thursby (1985). Hummels and Levinsohn (1993) provide empirical testing of the theory using a country-pair based approach. The importance of regional integration for trade flows is studied by Aitken (1973), Balassa (1975), Jacquemin and Sapir (1988), Bayoumi and Eichengreen (1995) and Abraham, Buyst and Geysens (1997). In addition, it is especially interesting to mention the work of Mendes (1986; 1987) on the effects of integration on economic growth, with a focus on the Portuguese economy (see Mendes *et al*,

² These two groups are Portugal's main trading partners and EC-15, plus USA, Canada and Japan. The samples build-up is described in more detail further in the paper.



1990), using Thirlwall's balance of payments constrained growth model (Thirlwall, 1979;1982) with an improved weighted share method (Verdoorn and Schwartz, 1972).

In Section II we provide an overview of the Portuguese economy since 1960, clarifying some aspects of the integration process. Section III presents the gravity equations and their theoretical motivation, both at a bilateral and at a trading bloc level. Data and econometric issues are mentioned in Section IV. The conclusions of an empirical study on the main features of Portuguese trade with EC are shown in Section V, whereas regional trading blocs are addressed in Section VI. Section VII presents the conclusions.

II. An Overview of the Portuguese Economy since 1960

During the 1960's Portugal started an export-led growth strategy. In what concerns the success of this strategy three factors played an important role. First, the country's own potential, its competitiveness and relative advantages. Second, the growth of its main trading partners, having as a consequence the expansion of foreign markets. Finally, the integration in trading blocs that was pursued since an early stage.

In this framework, we can consider three periods in the recent evolution of the Portuguese economy. In 1960/73 there was increasing openness, rapid economic growth and stability. In 1974/85, a slowdown in the growth of both Portugal and its main trading partners occurred. In addition, the country faced serious problems of inflation, unemployment and balance of payments disequilibrium. From 1986 onwards full membership of EC was accompanied by a trade boom with some swings.

1960/73

The development strategy of the Portuguese economy was based upon a model of industrialisation turned to the external market, both as a buyer and supplier.

First of all, the development of Portugal's advantages relative to its trading partners allowed the ratio of exports plus imports to GDP to rise from 18% in 1960 to 31% in 1973. In addition, exports grew 11.2% per year and imports 11.6% per year. Consequently, GDP grew at an annual average rate of 6.9%.

Second, the spectacular growth of Portuguese exports in the 1960s is no doubt due to a great extent to the previously unseen growth of richer Western European economies, also enjoying (almost) full employment and low inflation. Moreover, Portugal and other southern countries grew even more than northern economies.

The prosperity of the 1960s induced spillover effects through different channels, such as international trade, foreign direct investment, emigration, tourism. We will be concerned only with the first, although we should remark that the others were, and still are, very important determinants of the country's economic performance. Namely remittances and tourism revenues were traditionally major sources of improvement in the balance of payments.

Last but not the least, Portugal participated in the post-war movement of economic integration in Western Europe. It became a member of OECD in 1948 and was co-founder of EFTA in 1960³. The preference for EFTA instead of EC had to do with multiple factors. Besides traditional ties with the UK, EFTA was not concerned with political regimes, did not require common tariffs relatively to third countries⁴ and finally EFTA did not cover primary products⁵.

³ The organisation formed by «the other six plus Portugal», as Palmer (1968) called it. In fact, at first sight Portugal was a kind of outsider. The «other six» were far more industrialised and somewhat distant geographically.

⁴ This feature allowed for the maintenance of preferential trade with the colonies.

⁵ However, Portugal got advantages for some primary exports. In Appendix G of the EFTA Treaty, Portugal was allowed to be more protectionist and for a longer period than the other member countries, relatively to the goods produced domestically (protection of infant industries argument).

In addition, Portugal became a member of IMF and World Bank in 1960 and of GATT in 1961. The participation in these organisations led to an increase in trade liberalisation and consequently to a higher degree of openness.

Portuguese participation in the European movement of integration was deepened by its Free Trade Agreement with the EC in 1972, the year that brought UK and Denmark to EC. Other EFTA countries had signed bilateral agreements with EC, and so did Portugal, whose exports to EFTA had fallen from 35% of total exports to only 14% after UK and Denmark's «defection». The spirit of these agreements was to extend EFTA-type relationships to trade between EFTA-5 countries and EC-8 (now including UK and Denmark). However, 45% of Portuguese exports to EC got less favourable conditions on the part of EC, in some cases affecting sectors that were potentially competitive (textiles, processed food).

Colonial trade had been falling: exports to colonies decreased from 25% of total exports in 1960 to 15% in 1973. In fact, only in 1972 the «point of no-return» as far as the European option is concerned was reached. Some dissonant voices still sighed for greater integration with the colonies, but its momentum had passed. This duality of options reflects Portugal's status as a semi-periferic country in the world economy: in spite of being a colonial metropolis, it was periferic relatively to the more industrialised Europe.

1974/85

Generally speaking, the country's potential to compete in the international markets was rather weakened at this stage. Unlike in the previous period, GDP was growing at a yearly average rate of 2.5%. There were strong swings in business cycles. Inflation and unemployment boomed. Growth rates of imports and exports fell to 0.8% and 4.1% per year, respectively. Terms of trade decreased 25%, emigration stopped, the demand for Portuguese exports and tourism fell, resulting in a serious deterioration of the balance of payments. The then unbearable external disequilibrium forced two stabilisation agreements with the IMF in 1978 and 1983. Only after the second IMF agreement the situation was definitively controlled.

Once again, we can invoke important external factors that influenced the economic performance, like the oil shocks of 1973/74 and 1979. The decolonisation process and the revolutionary instability were also crucial. Nevertheless, they gave rise to the political environment that was required for greater integration with EC.

While Portugal's main trading partners were also facing difficulties, the deepening of Portuguese integration in the European context was postponed throughout the period.

1986/93

The process of integration in regional trading blocs culminated with membership of EC. This step was a necessity, expected to promote democracy and to complement the internal market, having into account its limited dimension. The integration within Europe corresponded to the fact that it was Portugal's main market for goods (75% of both imports and exports), labour and capital. In fact, EC had always been a more important partner than EFTA, even in the 1960s.

It was through joint membership of EC that Portugal and Spain first liberalised their bilateral trade, whose growth has been enormous ever since. Trade with EC never stopped rising, although mainly on the import side: exports increased 8.8% per year, while imports rose 14% per year.

Membership of EC in 1986 helped to promote Portugal's endogenous potential and competitiveness. Terms of trade increased and the balance of payments improved following membership of EC in 1986. Trade barriers were completely eliminated until 1992. After 1986 foreign direct investment jumped to levels that had never been seen before. Transfers from EC's structural funds contributed to infrastructural development and allowed for a high increase in consumption without causing a fall in domestic investment or problems in the balance of payments.

Like other small economies, the openness of the Portuguese economy was in 1990 one of the highest in EC and had increased with the development process that had taken place since the





1960s, when export promotion replaced the import substitution of the 1950s (Lopes, 1960). Generally speaking, since 1960 the sectoral structure of foreign trade has known a substitution of manufactures for primary products, caused by the increase of income and the installation of multinational companies who reexport goods produced in Portuguese plants (for instance, in the electronics and automobile sectors).

In fact, having into account the low dimension of the internal market, both in number of consumers and in their purchasing power, the commitment to internationalisation was tantamount to the development process. The «dark side» of such strategy was the specialisation in «cheap labour» industries (textiles, leather) and in ones based upon the transformation of natural resources (wood, paper, cork, marbles, ceramic). Productivity was low and in the nineties the growing competition of even cheaper labour countries created enormous difficulties for such industries. Nevertheless, openness would always have been the best option.

III. Gravity Equations

In this section we present the gravity equations that are the basis of the empirical study in the remaining sections of the paper. Based upon Linnemann (1966) and Linder (1961), we depart from two main hypothesis. On one hand, the volume of trade is directly related to trading partners income, here measured by GDP per capita as a proxy. On the other hand, the volume of trade is a function of income differences. This means that in a world of intra-industry trade we expect more similar countries to trade more.

First we refer to bilateral trade, more specifically to Portuguese exports to EC-12. In the second part of the section we look into trade among regional trading blocs, again using EC-12 as our benchmark.

3.1. Bilateral trade

We try to explain Portugal's export led growth by means of a gravity equation. This dependent variable is given by Portuguese exports to EC during the 1960/93 period. The three determinants of export led growth mentioned in Section I are present as explanatory variables in our equation. Portugal's own potential, the growth of its trading partners and its integration in EC are accounted for below.

We now present the derivation of our empirical model departing from a small open economy with imperfect competition and product differentiation.

In this context, the consumption of product i in country k is given by:

$$C_i^k = S^k C_i^w \quad (1)$$

with s^k the share of country k 's GDP per capita in world GDP per capita (GDP^k/GDP^w) and C_i^w the world consumption of product i .

The world consumption of i equals its world production:

$$C_i^w = X_i^w \quad (2)$$

It is assumed that, due to the existence of scale economies, each variety is produced by only one firm located in one country, so that countries trade different varieties of the same product. This situation is translated into the existence of intra-industry trade between countries. According to the previous assumption, if the whole production of i will be located in one country (say j), world production of i equals country j 's production of i :

$$X_i^w = X_i^j \quad (3)$$

Exports of i from country j to country k are given by:

$$C_i^k = s^k X_i^j \Leftrightarrow EX_i^{jk} = s^k X_i^j \quad (4)$$

Total exports of country j to country k will thus be:

$$EX_i^{jk} = \sum_{i=1}^{m_j} EX_i^{jk} = \sum_{i=1}^{m_j} s^k X_i^j = s^k \sum_{i=1}^{m_j} X_i^j \quad (5)$$

with m_j the varieties produced in country j .

The total domestic product equals the sum of each variety's exports:

$$\sum_{i=1}^{m_j} X_i^j = GDP^j \quad (6)$$

Using the definition of s^k we can write:

$$EX_i^{jk} = \frac{GDP^k}{GDP^w} GDP^j \quad (7)$$

In log terms:

$$\ln EX_{it} = -\ln GDP^w + \ln GDP^j + \ln GDP^k \quad (8)$$

Let GDP^j vary only over time.

After replacing GDP^w with a constant and adding a dummy variable, Portuguese trade with EC-12 is analysed through the equation given below:

$$\ln EX_{it} = \alpha_i + \beta \ln GDP_t + \gamma \ln GDP_{it} + \delta D_t + \varepsilon_{it} \quad (9)$$

In growth rates:

$$d \ln EX_{it} = \alpha_i + \beta d \ln GDP_t + \gamma d \ln GDP_{it} + \delta D_t + \varepsilon_{it} \quad (10)$$

Portuguese exports to EC-12 are regressed on Portuguese GDP per capita, on EC-12 GDP per capita and on a time dummy controlling for Portugal's membership of EC since 1986.

First, Portugal has country-specific characteristics that make up its endogenous potential, here represented by Portuguese GDP per capita. This variable is a proxy for country size. In turn, country size is an indicator of the capacity to invest, innovate and therefore compete in the international market. Therefore, exports from j (Portugal) to k (EC-12) grow as the exporting country j grows. In other words, β is expected to be positive.





Second, the size of Portugal's main trading partners is an important variable in explaining Portuguese exports. The greater the dimension of foreign markets the more a country can expand its international trade. Exports increase with the size of trade partners, this is, exports from j to k grow as the importing country k grows. Hence, γ is expected positive.

Third, Portuguese integration within regional trade blocs, namely EC, is accounted for by means of a dummy variable. It is defined as taking a unit value for 1986 onwards, corresponding to the period of EC membership. The time dummy for EC membership is expected to affect Portuguese exports positively.

3.2. Regional trading blocs

We now focus on the integration component of Portugal's export led growth. Here we consider two major factors. First, as already seen, the size of Portugal's foreign markets, which is taken both in absolute and relative terms. Second, a convergence term referring to differences in initial conditions in the countries that integrate their economies in the regional trading bloc.

We take three samples, one being the EC-12 countries, another formed by the EC-15 countries plus Canada, USA and Japan and a third one that groups Portugal and its main trading partners (EC-6 plus Canada, USA, Japan, UK and Spain).

VT^A includes all bilateral flows between countries belonging to group A. For each time period each observation is defined as the sum of exports of one country to all the other countries. Only exports were taken to avoid double-counting:

$$VT^A = \sum_{j \in A} \sum_{k \in A} EX^{jk}, j \neq k \quad (11)$$

Knowing that

$$EX^{jk} = s^j s^k GDP^w \quad (12)$$

we can rewrite:

$$VT^A = \sum_{j \in A} \sum_{k \in A} s^j s^k GDP^w, j \neq k \quad (13)$$

Defining GDP per capita shares as below:

$$s^j = s_A^j \frac{GDP^A}{GDP^w} \text{ and } s^k = s_A^k \frac{GDP^A}{GDP^w} \quad (14)$$

the volume of trade between group A countries is now given by:

$$VT^A = \frac{(GDP^A)^2}{GDP^w} \sum_{j \in A} s_A^j \sum_{k \in A} s_A^k, j \neq k \quad (15)$$

The summation of the world GDP per capita shares of all countries other than j can be written as $1 - s_A^j$ and multiplying this term by country j 's share in world GDP per capita we obtain. $\sum_{j \in A} s_A^j - \sum_{j \in A} (s_A^j)^2$.

Obviously a summation of shares is equal to one. Having into account that $s^A = \text{GDP}^A / \text{GDP}^W$ we finally obtain:

$$VT^A = s^A \text{GDP}^A [1 - \sum_{j \in A} (s_j^A)^2] \quad (16)$$

The convergence term in brackets measures the GDP per capita dispersion among the group's member countries. Consider n countries. In the case of complete convergence each share takes the value $1/n$ and the convergence term is given by $1 - 1/n$. At the other extreme, if one single country holds all the group's income, the convergence term equals zero. Hence convergence translates into an increase of the term in brackets.

In terms of observables:

$$\ln VT_{it} = \alpha_i + \beta \ln s_{it} + \gamma \ln \text{GDP}_{it} + \delta \ln [1 - \sum (s_j^A)^2]_{it} + \varepsilon_{it} \quad (17)$$

A fixed effects model is used that captures country-specific characteristics, as given by the country-specific intercept α_i . The country group volume of trade is regressed on variables connected to the size of trading partners. These are the share of group's GDP per capita in world's GDP per capita, approximated by OECD's GDP per capita, and the value of group's GDP per capita. The β and γ coefficients of the dependent variables are expected to be positive. As the group grows bigger relative to the world economy its trade is expected to increase. The same effect applies in what concerns growth in absolute size.

In addition, a convergence term is included which is a function of the shares of the countries' quotas in the whole group GDP per capita. This is to say that trade within a country group depends on the initial relative position of each member country. In what concerns the convergence coefficient, the summation is positive but not higher than one. Thus, its logarithm is not positive, which is equivalent to having a minus sign before δ . The coefficient δ is then considered in absolute value and expected positive. As countries grow similar, this is, as the dispersion of their GDP per capita decreases and the value of the convergence term increases, they will trade more.

Furthermore, the previous equation can be written in growth rate terms using logarithmic differentials:

$$d(\ln VT)_{it} = \alpha_i + \beta d(\ln s)_{it} + \gamma d(\ln \text{GDP})_{it} + \delta d(\ln [1 - \sum (s_j^A)^2])_{it} + \varepsilon_{it} \quad (18)$$

The coefficients are again expected to be positive. In fact, we expect a positive relationship between the country group's share in world's GDP per capita (s^A) and trade between a group of countries. Countries who grow fast have a growing trade. In addition, in a group whose GDP per capita (GDP^A) is growing rapidly, even if its share does not change, trade volume grows. Finally, the last term on the right hand side relates to the standard deviations in different countries' shares. It is larger the more different countries are. With a negative sign, a positive coefficient tells us that as countries grow similar in size they also trade more.

The convergence term is of special relevance to Portugal, as it joined EC as one of the four poorest — the other three being Ireland, Spain and Greece. We will take a deeper look into the importance of disparities as far as trade between Portugal and EC is concerned.





IV. Data and econometric issues

The data used in the econometric regressions was found in the OECD National Accounts, Main Aggregates, Vol. I, 1960-93. References are also made to the OECD Economic Surveys.

We cover the period 1960-93, since it was in 1960 that Portugal engaged on an export-led growth. Furthermore, it is divided into three subperiods: 1960-73, 1974-85 and 1986-93. The motivation for such disaggregation is driven by both international and Portuguese-specific factors. In 1974 political changes and the first oil shock provoked radical changes both in Portugal and in its main trading partners. In 1986 EC membership deepened integration within Europe, the third factor to consider as determinant of Portugal's export-led growth.

In addition, three different samples are considered. The first is formed by the EC-12 countries. The other two are presented for comparison purposes. One is formed by Portugal and its main trading partners, as given by the OECD Economic Survey 1996 on Portugal (EC-6, United Kingdom, Spain, Canada, USA and Japan). Finally, an enlarged sample containing the EC-15 countries plus Canada, USA and Japan.

We firstly focus on Portuguese exports to EC-12 during the time periods mentioned above.

Country income is proxied by GDP per head, more easily accessible than GNP per head, given the number of countries and years involved. In addition, GDP per head was used instead of GDP because the former is a more significant indicator of convergence within a group of countries. GDP per head and exports are given in USD at 1990 prices and exchange rates. In this way we tried to capture the real effects underlying the evolution of external trade among the country groups considered. Prices and exchange rates fluctuations that account for a certain percentage of change in the value of exports and GDP were left out.

Regressions were performed using OLS with fixed effects. These are intended to control for country-specific factors that may influence the volume of trade and are time-invariant, such as geography, historical and cultural links, institutional factors, etc. Therefore, the intercept is time-series invariant but cross-section specific.

To be able to use fixed effects the data had to be handled as a panel. Therefore, the volume of trade term is in fact a vector in which each element is the sum of all exports from each group member country to all the others. This way every possible bilateral flow is taken into account.

We are aware of the simultaneity problem between exports and GDP. Despite this fact, it is not possible to find out to which extent there is really causality, since the use of panel data biases tests like the Granger causality test. We have tried to overcome the trend problem by performing both levels and growth rates regressions. First differencing removes a great deal of spurious correlation, thereby explaining the lower R^2 usually verified for growth rates regressions.

V. Portuguese trade flows to EC

In this section we present the empirical results relative to Portugal's relationship with EC. The country's export growth is dependent on three major factors. First, its own potential expressed by GDP per capita. Second, the size of foreign markets, as given by EC partners GDP per capita. Third, the integration effect, measured by a time dummy that takes the value zero before 1986 and is unity from 1986 onwards, as this was the year in which Portugal joined EC. It is also the EC-12 group that is used in the following regressions due to the fact that Portuguese integration within regional trading blocs reached its peak with EC membership. At the same time, Austria, Sweden and Finland are recent EC members and their trading relations with Portugal are not so important that justify their inclusion in the sample.

We will now focus on Portuguese trade with EC-12 during the period 1960/93, as 1960 was the birth date of export-led growth, with participation in EFTA. Portuguese exports were regressed on Portuguese GDP, EC's GDP and a time dummy for the period of EC's membership. Regression results can be seen in Table V.1, both in levels and in growth rates. From them we draw several conclusions.

Table V.1

	1960/93		1960/73		1974/85		1986/93	
	Eq. (9)	Eq. (10)	Eq. (9)	Eq. (10)	Eq. (9)	Eq. (10)	Eq. (9)	Eq. (10)
GDPPT	1.49 (0.46)**	0.35 (0.34)	1.77 (0.59)**	-0.30 (0.71)	1.61 (0.66)**	0.84 (0.62)	2.86 (0.70)**	3.54 (0.94)**
GDPEC	3.81 (0.65)**	1.85 (0.51)**	0.13 (0.93)	3.55 (0.92)**	2.47 (1.00)**	1.79 (1.03)*	0.30 (0.79)	1.22 (1.16)
DUM	0.18 (0.09)**	0.01 (0.03)	—	—	—	—	—	—
AR(1)	0.83 (0.03)**	—	0.38 (0.09)**	—	0.78 (0.06)**	—	0.59 (0.08)**	—
ADJ R ²	0.98	0.04	0.93	0.07	0.97	0.00	0.99	0.29
MEANEX	1.81	0.14	0.28	0.15	2.20	0.13	3.72	0.13
SE REG	0.27	0.20	0.33	0.19	0.21	0.22	0.13	0.16
DW	1.81	1.94	1.71	2.22	1.89	2.33	1.95	2.01
N	408	396	168	156	144	132	96	84

Note: Standard errors are in parenthesis. In the levels regression an AR (1) term was included to correct for autocorrelation of errors.

* means significance at the 10% level. (The same applies to the remaining tables).

** means significance at the 5% level.

First, as expected, the size of the economy itself was an important factor in export-led growth. As Portugal grew, its capacity to compete in the international market also increased. In Table V.1 we see that Portuguese GDP per capita bears an overall positive coefficient both in level and in growth terms, in the first case significant at the 5% level. As the economy grows in size, it is able to produce more different varieties and gains export potential.

A second result has to do with the fact that growth of trading partners positively influenced Portuguese exports. Moreover, foreign markets elasticities are significantly higher than one, indicating the presence of scale economies when producing for growing markets.

Finally, we find that the impact of EC membership, as measured by the time dummy, was significant for Portuguese exports promotion when considering the levels regression.

In order to gain more insights into the determinants of Portuguese export-led growth the 1960/93 time period was split up in the three previously mentioned subperiods: 1960/73, 1974/85 and 1986/93. The fit of the growth rates regressions is substantially higher after 1986, although in any case much lower than for levels. This may be due to the detrending when growth rates are used.

A first conclusion is that Portuguese trade with EC follows an upward trend, as given by the mean of the dependent variable.

Secondly, the role of Portuguese structural specificities suffered some change after 1986, as can be seen by the evolution of the coefficient of Portuguese GDP per capita. The country's own potential to compete in the external market registered a great improvement after 1986, with the rise in the values of the internal market elasticities. Apparently the integration with EC strengthened Portugal's comparative advantages and reduced the weaknesses.



Thirdly, disaggregating the effect of Portuguese GDP per capita on its exporting potential by time periods, we can observe that the *growth rate* of the economy only influenced export growth after 1986. This is, in the 1986/93 period a 1% increase in the *growth* of Portuguese GDP per capita was translated into a 3.54% increase in export *growth*. Again, the policy of integration in regional trade blocs mattered for a greater efficiency in the use of increased resources.

Finally, EC was the right regional trading bloc with which to integrate. The approximation between Portugal and EC-12 started in 1972 with a free trade agreement and this step is accounted for by the data. In fact, we should remark that until 1985 EC growth positively influenced Portuguese exports growth. Furthermore, this effect is strengthened when growth rates are taken into account, as shown by the EC-12 GDP per capita coefficient in Table V.1.

The point of view stated here reconfirms the finding that «integration has had a large effect on trade and that the benefits of integration have mainly arisen from export growth» (cf. Mendes, 1987). Furthermore, according to Mendes *et al* (1990), the consequences of EC membership on Portuguese foreign trade were largely positive, since export growth surpassed import growth in the two first years of membership⁶.

VI. Country groups results

In this section we take country groups that are Portugal's main trading partners. We then look into the influence of the group's size and disparities between members on the volume of trade within the group.

The tables below show the results of the regressions performed, both in level terms and in growth rates. Table VI.1.1 shows our benchmark regression, which refers to the EC-12 sample⁷, covering the whole 1960-93 time period. The volume of trade between the EC-12 member countries is regressed on the EC-12 per capita GDP (GDP^A), on its share relative to OECD per capita GDP (S^A) and on the convergence term (SJ). The data was handled as a panel and the regressions performed with fixed effects. For that reason, the volume of trade in the group is defined as a set of bilateral flows. For each time period each observation is defined as the sum of a country's exports to all the other countries in the group in a given year.

We explore the results obtained using other samples. Table VI.1.1 also shows the results of an enlarged sample in levels and growth rate terms, respectively. This sample is formed by EC-15⁸ plus Canada, USA and Japan. The last three countries are important world economies and major trading partners not only of Portugal, but of EC-15 in general. The third sample used is also shown in Table VI.1.1 and represents Portugal's main trading partners. Such countries are EC-6⁹ plus Canada, USA, Japan, Portugal, Spain and the UK.

In Table VI.2.1 the first sample is split into three different subsamples, each one corresponding to three different subperiods: 1960-73, 1974-85 and 1986-93. These subperiods follow from our previous discussion. They have as underlying events firstly a change in the Portuguese political regime and, at the international level, the first oil shock and secondly Portuguese and Spanish EC membership. In general, the second subperiod represents worldwide instability and the end of the «thirty glorious years».

The second sample subperiods regressions are shown in Table VI.3.1 and Table VI.3.2 concerns the third sample subperiods.

⁶The study covers the period 1981/87.

⁷Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain and UK.

⁸Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and UK.

⁹Belgium, France, Germany, Italy and Netherlands.

6.1. Benchmark case: EU-12, whole time period

The benchmark regression results are shown in Table VI.1.1. Clearly its fit is much higher when log levels are used than when the equation is estimated in growth rate terms. While in the former case 99% of the volume of trade among EC-12 member countries is explained by the variables included in the regression, in the latter only 28% of trade *growth* is explained. Nevertheless, some conclusions can be drawn.

Table VI.1.1

1960/93	EC		PARTNERS		WHOLE	
	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)
	5.17	4.29	4.60	3.65	5.08	3.80
GDP ^A	(0.48)**	(0.40)**	(0.40)**	(0.34)**	(0.35)**	(0.28)**
	1.75	2.07	3.77	3.11	-0.07	-0.48
S ^A	(0.85)**	(0.86)**	(1.49)**	(1.51)**	(0.68)	(0.69)
	0.09	0.04	-0.11	-0.11	0.23	0.14
SJ	(0.16)	(0.16)	(0.15)	(0.15)	(0.11)**	(0.11)
	0.97	—	0.96	—	0.96	—
AR(1)	(0.01)**		(0.01)**		(0.01)**	
ADJ R ²	0.99	0.28	0.99	0.33	0.99	0.28
MEANVT	5.23	0.06	5.93	0.07	5.50	0.06
SE REG	0.11	0.12	0.09	0.10	0.10	0.10
DW	1.77	1.67	1.75	1.65	1.73	1.65
N	408	396	396	340	612	578

In what concerns the size effect on trade, GDP and GDP growth matter. The EC-12 group trades more the more it grows in size, independently of its world position. On the other hand, as EC gets a higher share of world GDP its members also trade more. In fact, in Table VI.1.1 we see that the coefficients of group absolute and relative size have the expected positive sign and are significant at the 5% level. This means that an increase in EC-12 GDP per capita, either as an absolute value (GDP^A) or as a share relative to OECD (S^A) makes member countries trade more. These coefficients are greater than unity, implying that the repercussion of a GDP per capita increase in trade occurs with multiplier effects.

It matters for Portugal to be integrated with a growing group, since the group's growth tends to promote trade. In this way the markets for Portuguese exports will expand as trade partners grow.

A second interesting result has to do with the role of the convergence coefficient (SJ). It is not so clear whether convergence of member countries' GDP per capita has significantly influenced trade. The convergence coefficient is statistically zero with 60% of probability in levels and 80% in growth rates. This would imply that it does not matter so much if a country like Portugal was somewhat poorer than its trading partners. Export led growth was possible even if Portugal integrated with richer economies. In any case, had the convergence coefficient mattered, its influence would have been positive.

Finally, structural country-specific factors seem to decrease trade in absolute terms and also to decrease its growth rate, although much less markedly. In fact, the fixed effects are all negative in





the former case and approximately neutral in the latter case¹⁰. In the levels regression they are more negative for Denmark, Greece, Ireland and Portugal. This can be explained by traditional accessibility difficulties inherent to their periphery condition, especially as far as the last three countries are concerned. When growth rates are considered, Italy and the UK join the group of the most negative country-specific effects. In fact, these two economies are not among the most open of Europe, particularly Italy¹¹.

6.2. Time variation

The variables considered in the regressions of Table VI.1.1 do not show a uniform behaviour along 1960/93. In order to differentiate among subperiods, the 1960/93 period is now disaggregated into the same three subperiods already used in Section V (1960/73, 1974/85 and 1986/93). The regression results are shown in Table VI.2.1.

Exports follow an upward trend that can be seen through the mean of the dependent variable. It averaged a 11% growth rate in the first period, a slightly negative growth in the second and 9% in the most recent time period. Portugal followed the European tendency, although with an even more negative growth of exports in 1974/85, which can be explained by internal factors that aggravated the international events of this period.

The first result obtained is that the relative position of EC does not matter for trade when subperiods are taken into account. This is, the share of EC-12 in OECD income did not statistically influence the volume of trade in any subperiod¹². In addition, the S^A coefficient in levels terms bears the wrong sign except during 1974/85.

A second insight relates to the loss of importance of income differences in the more recent years. Being poorer mattered more in the 1960s, while since the 1970s a country laying behind its partners is no handicap. In the 1960s the SJ coefficient is significant but negative. There is a surprisingly inverse relationship between convergence in member countries' per capita incomes and trade. However, in 1973 three of the four lowest-GDP countries (Portugal, Spain and Greece)¹³ were not yet EC members, so that other factors acted as obstacles to trade. In addition, UK, Denmark and Ireland were newcomers.

Finally, the relevance of group GDP is confirmed in each subperiod. The main determinant of trade within EC is its total GDP and its GDP growth, independently of EC's relative position within OECD or even of income and growth differences between member countries. During 1986/93 the elasticity of trade growth relative to EC-12 GDP per capita growth increased to 6.23, taking a much higher value than in any of the previous periods. On the contrary, the very close to zero values of the S^A and SJ coefficients translate a certain irresponsiveness of trade to the share of EC-12 GDP per capita relative to OECD's (in level terms), as well as to the convergence coefficient (in growth terms).

¹⁰ Fixed effects values can be obtained from the author upon request.

¹¹ See OECD Economic Surveys 1996 (Italy, UK). In what concerns EC-12 countries openness Italy was ranked sixth, while UK was fourth. The remaining European Economic Area countries are all more open than the former two, pushing them down below «top ten».

¹² The exception being 1974/85 for growth rates.

¹³ The fourth one being Ireland.

Table VI.2.1

EC	1960/73		1974/85		1986/93	
	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)
GDP ^A	4.19 (0.63)**	2.99 (0.92)**	4.90 (0.71)**	4.74 (0.72)**	3.43 (0.61)**	6.23 (1.39)**
S ^A	-1.03 (1.16)	0.01 (1.20)	2.10 (1.20)**	2.49 (1.13)**	-0.64 (2.61)	3.64 (3.08)
SJ	0.49 (0.20)**	-0.73 (0.21)**	0.22 (0.27)	0.22 (0.28)	0.58 (0.20)**	-0.00 (0.50)
AR(1)	0.90 (0.03)**	—	1.03 (0.03)**	—	—	—
ADJ R ²	0.99	0.17	0.99	0.28	0.99	0.23
MEANVT	4.67	0.11	5.43	-0.02	5.84	0.09
SE REG	0.08	0.08	0.11	0.11	0.12	0.14
DW	1.64	1.55	2.04	1.94	1.29	1.86
N	168	156	144	132	96	84

Accompanying increased integration and openness, in more recent years structural factors have become more favourable to trade, as shown by less negative fixed effects.

In the next section we delve into the robustness of the results when other country groups are considered.

6.3. Country groups variation

In this section the results obtained for the EC regressions are compared with the ones for the other two samples. On the one hand, an enlarged sample including EC-15 plus Canada, United States and Japan. On the other hand, one formed by Portugal's main trading partners¹⁴. The results for the whole time period are represented in Table VI.1.1 above, while subperiods are given in Table VI.3.1 for the first sample and in Table VI.3.2 for the latter.

¹⁴Canada, USA, Japan, EC-6, Portugal, Spain and UK.



Table VI.3.1

WHOLE	1960/73		1974/85		1986/93	
	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)
GDP ^A	3.86 (0.39)**	2.76 (0.65)**	7.15 (0.58)**	6.99 (0.60)**	1.09 (1.05)	0.99 (1.52)
S ^A	-1.68 (0.88)*	-0.66 (0.92)	2.78 (0.93)**	3.18 (0.92)**	5.48 (2.94)*	14.21 (5.20)**
SJ	-0.13 (0.14)	-0.34 (0.15)*	0.23 (0.17)	0.27 (0.18)	0.50 (0.18)**	0.13 (0.32)
AR(1)	0.88 (0.03)**	—	1.03 (0.01)**	—	0.56 (0.09)**	—
ADJ R ²	0.99	0.15	0.99	0.46	0.99	0.24
MEANVT	4.91	0.10	5.68	-0.00	6.19	0.08
SE REG	0.07	0.07	0.09	0.09	0.09	0.12
DW	1.95	1.82	2.25	2.09	2.03	1.89
N	252	234	216	198	144	126

The behaviour of the coefficients keeps on along the same lines.

Firstly, the group GDP is highly significant for trade in all samples, independently of the group's relative position. This conclusion is robust to all time periods and samples, except after 1986, when the group's income only matters for EC-12.

In fact, one important finding we should point out is that after 1986 EC-12 GDP per capita growth is far more determinant of member countries trade than when we include non European countries. This finding shows that Europe, and more concretely EU, is a natural trading bloc in the world economy. Such result was not obtained for the other two samples that include non-European countries.

On the other hand, the group's GDP share matters more in the partners sample. The S^A coefficient in the extended sample is overall insignificant and negative, although it matters in 1974/85. On the contrary, for the partners sample in Table VI.3.2 the share of this group's income in OECD income proved relevant after 1986.

Thirdly, income differences between countries in the group are not an obstacle to the deepening of trade flows. The convergence coefficient behaves similarly for all samples, this is, it is generally not significant. Once again, being poorer is no disadvantage in trade. For EC-12 convergence matters after 1986, while for the Table VI.3.2 sample it is still not significant.

Finally, it is interesting to note that in the regressions of Tables VI.3.1 and VI.3.2, and after 1986, fixed effects are far higher relative to the benchmark. The most negative value belongs to Portugal, the partner with more structural fragilities, in which it is followed by Spain.

Table VI.3.2

PARTNERS	1960/73		1974/85		1986/93	
	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)	Eq. (17)	Eq. (18)
GDPA	4.18 (0.55)**	3.03 (0.88)**	4.42 (0.60)**	4.48 (0.59)**	1.52 (0.82)*	2.02 (1.41)
SA	-3.02 (2.45)	-0.06 (2.35)	3.82 (2.33)*	3.17 (2.04)**	11.68 (5.12)**	16.25 (5.64)**
SJ	-0.27 (0.19)	-0.50 (0.20)**	-0.10 (0.27)	-0.11 (0.26)	0.04 (0.22)	0.04 (0.44)
AR(1)	0.88 (0.04)**	—	0.98 (0.03)**	—	0.34 (0.11)**	—
ADJ R ²	0.99	0.16	0.98	0.41	0.99	0.28
MEANVT	5.29	0.11	6.11	0.00	6.69	0.08
SE REG	0.07	0.08	0.09	0.09	0.08	0.10
DW	1.96	1.86	2.00	2.04	1.76	1.83
N	154	143	132	110	88	77

VII. Conclusions

In this paper we have accounted for the process of export-led growth that has occurred in Portugal since 1960. The theoretical framework used was a simple gravity model. A first level of analysis concerned the bilateral trade flows between Portugal and EC-12. The variables included in these regressions stand for the size of both partners, as well as for Portuguese membership of EC-12, through the inclusion of a dummy variable.

Secondly, we turned to regional trading blocs, studying the importance of the absolute and relative size of the destinations of Portuguese exports. In addition, a convergence coefficient was considered in order to investigate the importance of initial income disparities. The benchmark EC-12 was compared with both the group of Portugal's main trading partners and another sample formed by EC-15 plus USA, Canada and Japan.

In this empirical study, three major factors were seen as determinants of the Portuguese export-led growth.

First of all, Portugal's endogenous potential allows it to differentiate from its competitors. From the empirical results we conclude that the country's endogenous potential is highly determinant of exporting success.

A second factor studied was the importance of Portugal's main trading partners growth in promoting Portuguese exports. Its trading partners economic performance overall matters in what concerns the evolution of trade flows.

As far as EC-12 is concerned, both absolute and relative size matter. However, this result is not robust either to subperiods disaggregation or to sample variation. It should be pointed out that after 1986 the EC-12 GDP per capita growth is far more relevant to the growth of trade between member countries than when non-European countries are included in the group. In other words, EU can be seen as a natural regional trading bloc.



A third factor that determined the expansion of Portuguese trade was the deepening of integration within the European economy. In other words, EC membership incremented export growth.

Furthermore, our results show that countries which integrated their economies in regional trading blocs will trade more with the group even if they were poorer at the start. That is, we found that Portugal having a GDP per capita lower than the European average has not been an obstacle to an increasing presence in foreign markets. However, by disaggregating the whole 1960/93 time period we see that this result is not robust for 1960/73. By then income differences mattered and were an obstacle to trade.

The existence of a trend in exports and GDP and autocorrelation of errors were dealt with by respectively first differencing and including an AR(1) term in the regressions whenever necessary. Still, the results should be interpreted with due caution. In general, we prove the existence of strong links between trade, integration and growth through the mirror of the Portuguese experience of integration in EC. It is a fact that markets have been expanded and trade has been promoted as both Portugal and its EC partners grew and integration progressed. Furthermore, in the last two decades this process occurred independently of initial disparities of income. We believe these to be good reasons for the deepening of integration in the dawn of the 21st century.

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