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Export Diversification and Technological Improvement: Recent Trends in the Portuguese Economy

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EXPORT DIVERSIFICATION AND TECHNOLOGICAL IMPROVEMENT: RECENT TRENDS IN THE PORTUGUESE ECONOMY

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Abstract

This paper uses dynamic measures to study the changes in the Portuguese export pattern. We identify long run trends of change in the structure of the Portuguese exports, and also discuss that the recent years might be a turning point in what concerns the acceleration of the growth of the Portuguese exports, the increase of structural change in the export pattern and also of reversing the excessive concentration in the Portuguese export markets. We focus particularly on export based indicators that are related with the trade and growth literature, and in this way could reveal the contribution of the evolution of the exports to the convergence of the Portuguese economy with the European Union. We identify four important changes in former trends: First the recovery of the trend of increasing openness of the Portuguese economy (that was interrupted since the beginning of the 1990's); Second the recent evidence of export market diversification, that interrupts the trend of concentration of the exports in the EU market; Third the trend of structural change in the export pattern, that seems to have accelerated in recent years; Fourth the increase in the technological intensity of exports, which in recent years became the main driver of the increase in the exports, in a more marked way than in most European countries. We also find that the trend of convergence of the Portuguese export structure with that of the EU continued in recent years, with an important decrease in the distance between the Portuguese structure of exports and that of the European Union. As a result of this convergence there was a significant gain in the share of intra-industry trade. We argue that each of the five trends found here should be expected to be associated in a positive way with the prospects of income convergence between Portugal and the EU.

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1. Introduction

The ongoing process of trade liberalisation in the global economy has contributed to amplify the interest of studying the possible implications of the changes in the patterns of international specialisation for the perspectives of economic growth and convergence between economies with increasing levels of market integration. Policy-oriented studies on trade liberalisation often assume that the process of trade liberalization can either lead to an increase in the previous specialisation (inter-industry trade) or to matched trade expansion.[1] The first is the path predicted by the standard neo-classic trade model, the second is that suggested by the models of intra-industry trade.

In a recent paper[2] we introduce evidence that shows that an important part of the trade expansion does not fit either of these two alternatives. We named this as *specialisation shifts*, which consist of trade expansion such that net export decreases in net export sectors or net import decreases in import competing sectors. The evidence reported in Bastos and Cabral (2007) shows that *specialisation shifts* are very important in the OECD, being often the dominant form of trade expansion. There we reported that several countries present important periods in which the bulk of trade expansion, and particularly the expansion of exports, is not build on the expansion of sectors where the country had previously a revealed comparative advantage, but in sectors in which it was traditionally a net importer or did not had any significant export capability.

To further our understanding of why and when these *specialization shifts* occur, as well as to improve the discussion of what are the lasting consequences of these periods of intense change in a country's trade structure, growth one should focus on specific country case studies. The evidence offered by the evolution of the Portuguese exports in recent years offers a very interesting example of rapid change in the structure and nature of a country's specialization.

The present paper is focused on study the changes of the patterns and structure of the Portuguese exports in the period of 2000 to 2006. Nevertheless, we observe earlier periods to identify long run trends of change in the country pattern of exports, and also consider predictions for 2007, and 2008, to determine if the recent dynamic of export expansion and increase in the technology intensity of the Portuguese exports is sustainable.

The present study is build on the conclusions of our former trade dynamics study, which allowed us some general conclusions about the forces that determine the intensity of trade changes in each country, adopting an applied methodology to study the Portuguese case that focus on observing and comparing the intensity of the changes in the trade structure and their sustainability, as well as to question how the direction and nature of the changes can inform us about the path that the Portuguese economy is following.

In the present study we will also use the conclusions and stylized facts of several other authors, namely from those that work on determining how changes in the degree of openness, specialization, and in the structure of exports contribute for increasing the pace of growth and income convergence.

In section 2, we present a brief discussion about the state of the art of different lines of research that relate trade structures and specialization to economic growth and convergence. The literature suggests some stylised facts about the relationship between changes in trade patterns and economic growth and

[1] See, for example, Baldwin et al. (1997)
[2] Bastos and Cabral (2007)

convergence between middle income countries and higher income economies. Namely, that one should be particularly interested in determine if the changes that are occurring reinforce the competitiveness in the more technology demanding sectors, if the changes represent a convergence of the export structure of the country with those of the high income economies, and if the nature of trade flows are increasingly intra-industry and (eventually more intra-firm), suggesting a more deeply integrated economy, which benefits from economies of scale and agglomeration, rather than simply one based on the traditional low wage comparative advantage typical of the peripheral economies export base. These are some of the issues that we address in the present study, using descriptive data, trade indexes and shift share analysis to determine the extent and nature of the changes in the Portuguese pattern of exports, and discuss their contribute to define the evolution of the country's economy.

In section 3 we discuss the stagnation of the growth of the exports between 1992 and 2005 and argue that there are important signs that the forces behind the recent recovery started in 2005. This allows us to predict that in 2007 and 2008 the ratio of exports to GDP and the export/import ratio should continue to increase, which represents a return of Portugal to its long run trend of increase in its degree of internationalization. This also implies that, at least in the next years, the growth of the Portuguese economy will be lead by external demand and not by consumption, a more sustainable and desirable path given the situation of the Portuguese economy.

In section 4 we show evidence of the long run trend of concentration of the export markets of Portugal, in a single area of the World, the European Union. But we also show that since 2000 there has been a reversion of this excessive concentration of the country's exports in a single region, with a strong increase in the extra-EU exports leading to an increase in the diversification of the Portuguese export markets.

In section 5 we present evidence of the long run trend of change in the export structure of Portugal and also of the evidence that the high tech sectors are the main force behind the recent acceleration of the change in the Portuguese export pattern. In this section we show that there was a very important technological improvement in the Portuguese exports of goods and services, mainly in the last three years, in which the high and medium high technology industries became the most important export sectors replacing the traditional leading role of the low tech industries.

Section 6 compares the structure of the Portuguese exports with that of the other European countries and shows that the distance between these has diminished considerably in the last decade. The convergence of the export structures was the main driver of the increase in the levels of intra-industry trade that took place since the beginning of the 1990's and continued to increase in the last two years. Section 7 presents the main conclusions.

2. Change in Trade Patterns Growth and Convergence

Different trade theories present alternative causes to explain changes in the trade patterns and also different consequences of the changes in specialization in terms of the contribution of these to accelerate growth and convergence. In the context of the Heckscher-Ohlin model, changes in the pattern of trade may be explained by shifts in the underlying determinants of comparative advantage, that is, by unequal accumulation of factor

endowments among trade partners. In contrast to the traditional trade theory, the theoretical models of trade and growth (Krugman 1987; Lucas, 1988; Grossman and Helpman 1991; Redding 1999) and the models of the new economic geography (Krugman and Venables, 1995, Fujita et al. 1999) offer a dynamic approach to explain the evolution of international specialisation, providing interesting predictions about the consequences of different patterns of evolutions of trade and specialization to growth and convergence of the economies.

One important suggestion of the trade and growth literature is that industry-specific learning by doing or cross-country differences in R&D investments may produce self-reinforcing mechanisms that contribute to strengthen a country's export capability in technology demanding sectors. This might mean a reinforce of previous specialisation, if the country already had a comparative advantage in this industries but, these dynamic models are also consistent with the possibility that a country with a comparative disadvantage might reverse its previous specialisation, depending for example on the rate of innovation and technology transfer. This is of great importance since according to these models specialization in high technology industries is associated with higher levels of economic growth.

Starting from a different setting, in which the complex relationship between transport costs to the periphery, increasing returns to scale and relative factor prices, determines the patterns of trade and convergence (or divergence), the new economic geography models also conclude that increasing economic integration, between the periphery and the core countries, may lead to a reinforcement of the lead of the more central countries in terms of concentration of the increasing returns, more capital intensive, higher productivity industries or, if transaction costs became sufficiently low, might attenuate the disadvantages of locating such industries in the Periphery.

In the first case, trade between the periphery and the core countries will be based on comparative advantage, and maintaining lower factor rewards is essential for the competitiveness of the Peripheral countries. In the second case, there will be an increase in intra-industry trade between the periphery and the core countries, due to a convergence of the exports of the two regions. In this situation, the periphery will be able to compete even with factor rewards that are converging with those of the core countries. According to the new economic geography models, the convergence of export structures and the increase of matched trade are associated with the convergence of income per capita between the core and the Periphery.

The empirical literature does not allow for a confirmation of which of these effects will dominate. The evidence presented in Bastos and Cabral (2007), for 20 OECD countries over four periods, between 1980 and 2000, shows that for many countries changes in pattern of trade that contributed to attenuate former specialization were more important than changes that involved increase in former specialization. A conclusion that is in line with former empirical research on specialization dynamics (Amiti 1999; Proudman and Redding 2000; Redding 2002; Tingvall 2004), which found no evidence of a generalized increase in specialization among OECD countries. Nevertheless, in Bastos and Cabral we also revealed that the proportion of trade expansion that contributes to reverse former specialization varies widely between countries and different periods of time[3].

Even if there was no generalized increase or decrease in specialization, some patterns can be observed. In examining the importance of industry characteristics associated with the Hecksher-Ohlin and the 'new economic geography' models, to explain the evolution of U.S. regional specialisation, Kim (1995) found evidence that scale economies explain industry localisation over time, while resource intensity (which aims to

[3] And also between different type of industries. The econometric analysis for the OECD suggests that trade liberalisation contributed to increase the former specialisation in industries with increasing returns to scale, and to decrease the former specialisation in sectors that require a high proportion of intermediate inputs.

capture th e i mportance of the ne oclassical trade m odel) determi nes the pattern of local isation a cross industries. Ami ti (199 9) co nducts a re lated ana lysis fo r a set of E.U. economies. S he fin ds evidence o f increased concentration in industries with increasing returns to scale and mixed results for other industries. [4]

Tingvall (20 04), using d ata for 22 man ufacturing i ndustries in 1 0 Eur opean co untries, finds that scale economies, technology and factor endowments are important drivers of changes in trade patterns. [5] Unlike his study, ho wever, in B astos and Cabral (20 07) we c onsider a d ependent varia ble that indicates whether th e trade expansion contributed to reinforce or weaken the countries' previous specialisation. In addition, we use a sample that c overs a lar ger s et of OECD countries, thereby comprising a more ske wed distribution of f actor endowments and comparably larger divergence in productivity and market size of the countries included in the sample.

In Bastos and Cabral (2007), we consider simultaneously industry- and country-specific independent variables to expla in the observed ch anges in tra de p atterns an d us e a d ynamic d ependent varia ble. W e foun d that industry-specific changes in labour productivity and relative labour costs were important drivers of changes in trade patterns in the OECD. Our results also indicate that trade liberalisation contributed to an increase in the previous specialisation of larger OECD economies in industries with increasing returns to scale, a finding that is consistent with the new economic geography models. Lastly, we find some evidence that initial endowments of human capital contributed to explain the pattern of the trade expansion that followed trade liberalisation. By contrast, we found no evidence that chan ges in fact or endowments have contributed to expl ain the observed dynamics of trade patterns.

A different line of empirical research studies directly the relation between openness to trade and growth. Case studies as well as eco nometrical works po int to a p ositive impact of trad e openness on growth. Industry and firm-level research also s how that op enness contributes to growth owing to its positive impact on productivity (see Baldwin, 2003, or Hallaert (2006) for a survey of studies). The results obtained by Edwards (1997), using comparative data for ninety-three countries, also supports the view that total factor productivity growth is faster in more open economies.

Following the same line, but focusing on openness directly by measuring its results in expanding trade flows (rather than in measures of t he level of tar iffs or other barriers), Ben David and Kimhi (2004) shows that an increase in trade between major trade partners - and in particular, increased exports by poorer countries to their wealthier partners - is related to increases in the rate of co nvergence between the countries. This is an important statement for our study since it su ggests that inc reasing the rati o between exports and GDP migh t contribute to an increase in convergence with higher income countries.

There is some criticism a bout the rob ustness of some of the emp irical r esults. Ro driguez an d D ani R odrik (2001), altho ugh reco gnizing the imp ortant amount of evide nce su pporting the openness an d gro wth hypothesis, argue that ope nness simply in the s ense of liberal tra de policies se ems t o b e n o guarantee of faster growth. Other authors, lik e Hallaert (2006), emp hasize that the scope of the impa ct of trade reform on

[4] In a related strand of research, Davis and Weinstein (1999) analyse the relative importance of endowments and economic geography in explaining the pro duction structure of Japanese regions. Davis and Weinstein (2003) conduct a similar stu dy using data for a set of OECD countries. Both stu dies provide evidence that factor endow ments and economic geo graphy play an important role in explaining the pattern of specialisation. However, by focusing on the determinants of specialisation patterns in each moment of time, these papers do not provide direct evidence on the drivers of changes in specialisation.

[5] The importance of considering industry and country-specific forces based on the insights of different trade model to explain the dynamics of international spe cialisation is also highlighted by Forslid et al. (20 02). Using a la rge scale CGE-mo del to analyse the effe cts of European integration on the location of industrial production, the authors find that the d ynamics of specialisation that follows gradual reductions in tr ade costs is determined by comparative advantage (based on differences in endowments and technology across countries) and industrial characteristics such as scale economies and backward and forward linkages.

growth also depends on complementary policies. Baldwin nevertheless, insists on stating that *"the conclusion of most researchers involved in either country studies or multi-country statistical tests that lower trade barriers in combination with a stable and non-discriminatory exchange-rate system, prudent monetary and fiscal policies and corruption-free administration of economic policies promote economic growth still seems to remain valid"* - Baldwin (2003, page 1).

Recent studies also dedicated much attention to the role of sectoral composition of exports in influencing the effect of trade on income convergence. Some authors emphasize that increase in sophistication of the products exported expands economic growth (Lall, 2005; Haussman et. al. 2005; and Rodrik 2006). Haussman et. al. (2005) and Rodrik (2006) concluded that export sophistication had a positive contribute on GDP growth.

The quality of the exports might be determined by the production requirements of skilled labour and capital (per unit of labour), or by technology intensity indexes - namely those used by the OECD to classify industries, or by assuming that goods in which the advanced economies (countries with higher GDP per capita) present comparative advantage are those that are more sophisticated (see Kwan, 2002, Haussman et. al. 2005; Lall et al. 2005, and Rodrik 2006). Feenstra and Rose (2000) found a strong relation between having an advanced export structure and fast growth rates.

The effect of exports with different technological intensities on economic growth is estimated by Crespo Cuaresma and Julia Wörz, (2005). This authors test the hypothesis that exports in technology-intensive industries have a higher potential for positive externalities coupled with higher productivity levels using a comprehensive and detailed data set, covering 45 industrialized and developing countries and including exports of 33 industries over the time period 1981 to 1997. The estimation results support the hypothesis of qualitative differences between high and low tech exports with respect to output growth. The superior performance of high tech exports stems from their positive productivity differential to the domestic sector, suggesting that the increase in the share of these industries will be associated with increases in the growth rate.

In a very recent paper Luca De Benedictis and Lucia Tajoli (Benedictis and Tajoli, 2007) consider how openness and similarity in export composition among countries can induce convergence in income levels among the same countries. They study the catching-up of income levels of Central and Eastern Europe Countries to the EU benchmark, explicitly considering the sectoral export patterns of the CEECs by comparing them to those of the 15 old members of the EU, focusing on countries' specialization as suppliers for the EU market. Their main result is that similarity in export composition has a positive, significant and nonlinear impact on catching-up. So convergence in export structures is related to convergence in per capita income.

Their work shows that the countries whose export composition is closer to the EU enjoyed a faster catching-up process (Benedictis and Tajoli, 2007, pp 20). This authors follow the line of work of Slaughter (1997) and Ben-David and Loewly (1998), Ben David and Kimhi (2000) and Feenstra and Rose (2000), among others, that suggest that more similar export patterns and intra-industry trade may increase convergence in productivity though spillovers, or may be used as indicators of factor, institutional and technological convergence between the countries.

Summary

At least five stylized facts can be extracted from the literature, representing a synthesis of the state of the art of both theory and the results of empirical studies:

1. Increase in trade openness, and particularly in the exports to GDP ratio, should be expected to be associated in a positive way to the increase in the rate of growth;

2. Changes in the export structures have a determinant effect on growth and convergence between trading partners;

3. Increase in the share of exports belonging to high technology sectors relative to those of low technology sectors, should also contribute to increase productivity and the rate of economic growth;

4. Convergence of the export structures is associated with convergence of productivity and income per capita of the trading partners;

5. Increase of the share of intra-industry trade should be associated with convergence between the periphery and the core countries, according with the new geography models, and might also be associated to higher levels of growth and productivity convergence through spillovers.

3. Export Expansion

In 2006, the Portuguese exports of goods and services experienced a strong growth, increasing at a rate of 13,6% in nominal terms. During the preceding five years (2000-2005), the average nominal growth rate of the Portuguese exports was only slightly above 3% (both for the exports of goods and for those of services).

The growth that occurred in 2006 interrupted the deterioration of the export-to-import ratio and gave way to an increase in the exports-to-GDP ratio, which was declining since the early 90's. The exports reached 31% of the GDP, the highest value since 1992. This suggests a return to the long run trend of increase in the openness that the Portuguese Economy experienced since the beginning of the 1960's until 1992, and which since then seemed to have reached a maximum. This growth reveals that there is still an important scope for the growth of the degree of internationalization of the Portuguese economy[6].

[6] In spite of the long run trend of increasing openness of the Portuguese economy, the degree of internationalization of the country is still much lower than that of the other medium size economies of the European Union. This suggests that there is still an important scope for increasing the internationalization and integration of the country.

Table 1 – Growth Rate of Exports of Goods and Services

	2001	2002	2003	2004	2005	2006
Growth rate of exports:						
Goods	2,05%	1,78%	2,53%	6,33%	2,62%	12,56%
Goods and Services	2,68%	1,39%	2,40%	5,76%	3,60%	13,65%

Growth rate of total nominal exports of goods and services. Source: GEE, Eurostat.

Table 2 – Annual Average Growth Rates of Exports of Goods and Services

	1985-90	1990-95	1995-2000	2000-05	2006-07 (e)
Growth rate of exports:					
Goods	17,99%	8,44%	8,59%	3,05%	10,78%
Goods and services	-	-	8,36%	3,15%	12,08%

Growth rate of total nominal exports. Source: GEE, Eurostat.. (e) Estimates based on data available in September/2007

Forecasts from the main national and international economic organizations suggest that exports are finally picking up and that the 2006 momentum will be sustained in the next years. These organisations have anticipated that for 2007 and 2008, Portuguese exports could effectively grow at a higher rate than both imports and the GDP [7]. This implies that the recovery of the exports-to-imports ratio (Figure 1) and the increase of the exports-to-GDP ratio (Figure 2) should continue in 2007 and 2008[8].

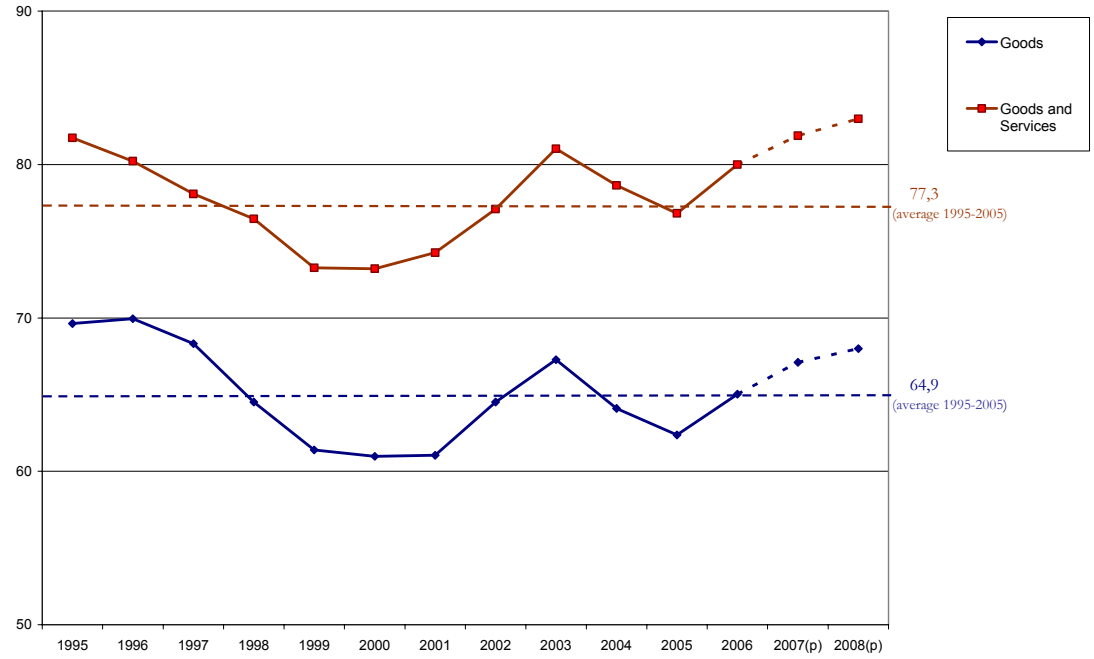
The export-to-import ratio for 2006 and its forecast for the next two years are above the average of the 1995-2005 period, a decade in which this ratio was similar to that of the 1985-1995 period, but clearly above the values observed in the 60', 70's and early 80's[9].

[7] Results from the first semester of 2007 also show a considerable growth in exports. Comparing the first semester of 2007 with the same period of the previous year the exports of goods grew above 10% and those of services close to 20%. The second semester presented a slow down in the path of increasing exports, nevertheless the total exports of the year should be well above those of 2006, and warranty the confirmation of the ongoing trend of recovery in the export performance of Portugal and increase in the exports/GDP ratio. Although the world growth prospects are being revised downward and the high value of the euro could pose some difficulties, the predictions for 2008 still consider that the Portuguese exports should continue to growth above the GDP.

[8] The forecasts for 2007 and 2008 (dashed line in Figures 1, 2 and 3) are based on the average predicted values for both export and GDP growth of the IMF, OECD, EC and Bank of Portugal, available in September of 2007.

[9] In the last energy prices crises, in the beginning of the 80's, the exports to imports ratio of the country was around 40%, taking a great deal of responsibility for the payment crisis that took place.

Figure 1 –Export to import ratio



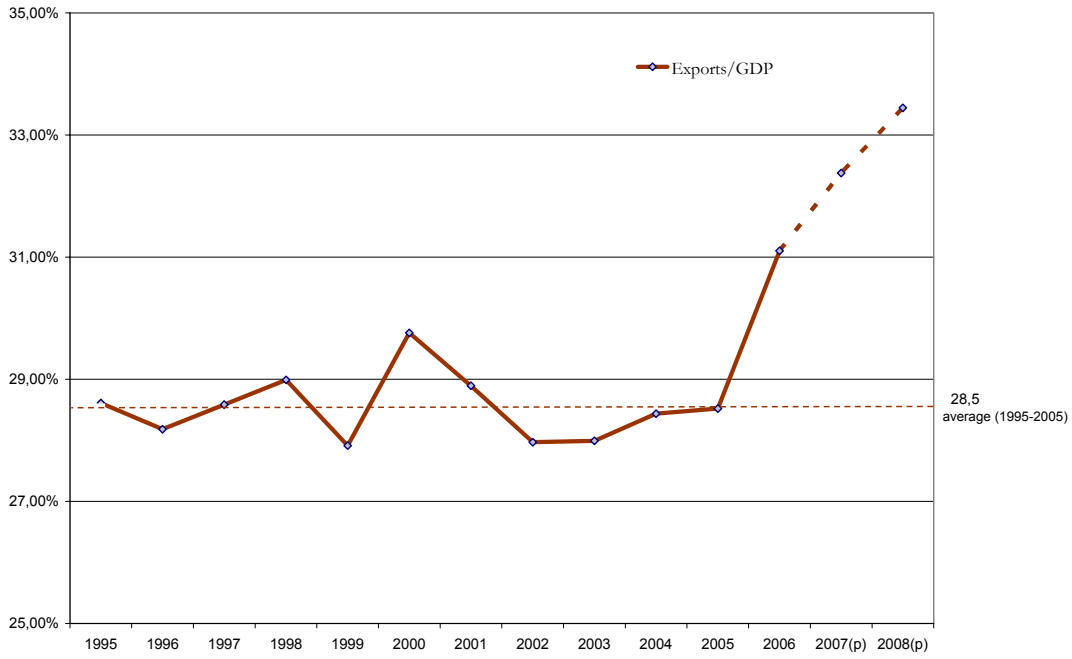
Source: INE, Bank of Portugal. (p)Projections – see footnote 8.

These numbers show that, despite the strong competitive pressure felt by Portuguese firms in maintaining current export markets, caused by the accession of new member states in the EU, the greater openness of European markets to the rest of the world[10] (and especially to China and India), the increase in the price of raw materials and energy (in which Portugal is highly dependent), and the increase in the value of the euro, Portugal was able to improve its ability to pay its imports with exports.[11]

From 2003 to 2006, there is evidence of an increase in the level of the economy's internationalisation, together with an increase in the degree of openness of around eight percentage points, thus reaching 70% of GDP[12].

[10] In particular with respect to textiles and clothing due to strong tariff changes that came out from the multi-fibre agreement.
[11] This situation contrasts with previous periods in which high energy prices (particularly after 1973 and 1979) led to a deterioration of the Portuguese export-to-import ratio.
[12] The degree of openness ((exports + imports)/GDP) of the Portuguese economy was 35% in 1960, 50% in 1973 and 46% in 1978. Only at the start of the 80's it surpassed 60%, reaching 69% in 1986. From then on, total trade values alternated between the maximum of 70,4% (observed in 2000, with the new GDP series) and the minimum of 62% (observed in 2003). If forecasts are fulfilled, then the degree of openness of the economy will peak in 2007 and reach a new historical maximum in 2008.

Figure 2 – Exports-to-GDP Ratio



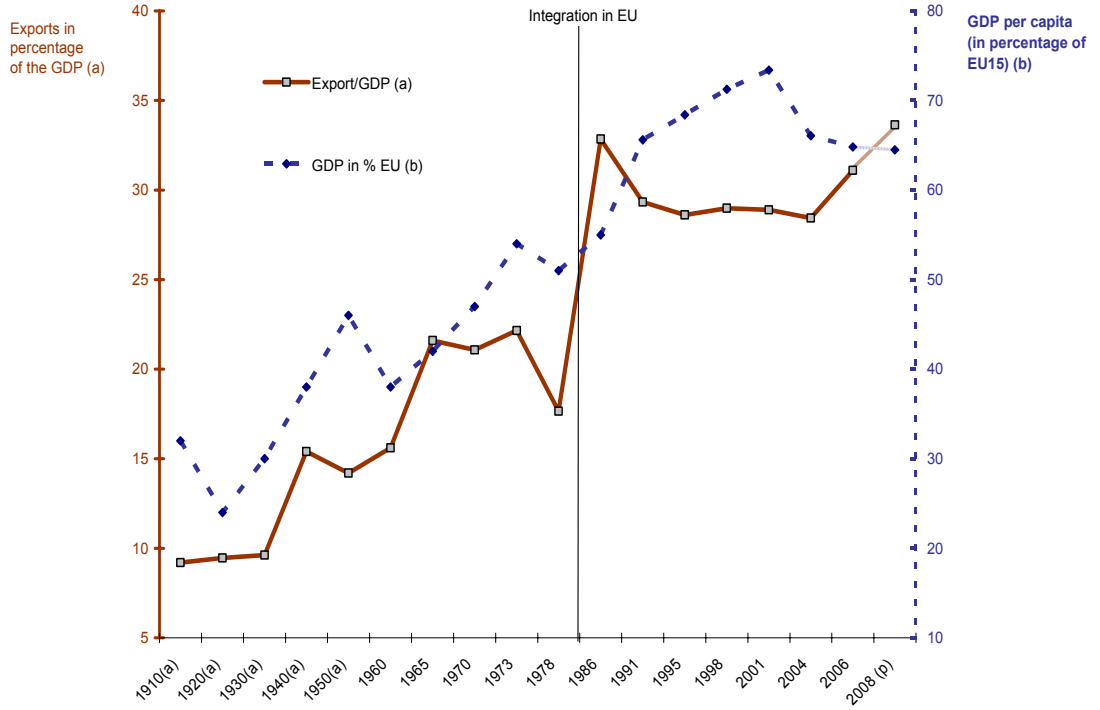
Source: INE. (p) Projections – see footnote 8.

More important of all, was the considerable recovery of exports. These have grown at a higher rate than the GDP, which allowed the exports-to-GDP ratio to reach 31%, a value only achieved in the first years after integrating the EU[13]. If the forecasts are met, in 2007 and 2008, the exports-to-GDP ratio will reach a new historical maximum.

Figure 3 depicts the evolution of exports over GDP and of Portuguese output per capita relatively to that of the EU-countries[14], using historical time series.

[13] Only between 1986 and 1992 the ratio of exports/GDP reached values above 30%. After 1992, there was a drop of this ratio, to values close to 28%, which did not change much until 2005 (28.5%).
[14] EU15, or in the case of the historical series for the 6 European countries (Mata and Valério).

Figure 3 – Export Openness and Convergence



(a) Total e xports in percentage of GDP, avera ge va lues for the decades between 1910-19 50. Left Scale (b) Portuguese GDP in percentage of the EU15 avera ge. Right Scale: From 1910-1950, the decade average values were computed relatively to the 6 larger EU co untries. (p) Fore cast based on institutional predictions – see footnote 8.

The evidence presented in figure 3 suggests that perio ds where Portuguese exporting ability was reinforced preceded periods of gre ater conv ergence of the Portug uese GDP towards that of the EU-countri es[15]. T his phenomenon happened after integrating both EFTA and the EU. Figure 3 also shows that periods of de cline in the Portug uese e xport abil ity, which impl ies that gro wth was o nly b ased on the domestic dema nd, w ere followed of income divergence periods with respect to the European Countries. This happened in the first half of the 80's, and in the beginning of the 21st century.

In this c ontext, the picking up in the Portuguese ex port ability may suggest a turning point in the continued decline in per capita inc ome rel ative to the EU aver age, visib le s ince the beginning of the 21st century. Nevertheless, it is important to notice that the recovery of the export ability and the fact the exports are pulling up GDP gro wth (as an alt ernative to d omestic e xpenditure), a lthough givi ng a positive co ntribute to t he Portuguese growth, are only o ne fact or amongst seve ral oth ers that can co ntribute to the P ortuguese convergence with the EU incomes. Other factors, such as institutional improvements, private investment, and education of the working force should not be forgotten, since these have an important influence in the growth of productivity both in the tradable and non-tradable parts of the economy, affecting the GDP growth and also the future export performance and ability of attracting FDI and continuing the process of structural change.

[15] This fact is co nsistent w ith bo th trade a nd int egration theories w hich admit t hat the streng thening of interna tional integration of a country will contribute to income convergence to wards the levels of the markets it integrates. It i s also consistent with the empirical evidence in which trade openness is an importa nt factor to foster growth, especially when we are referring to small economies. See discussion in section 2.

4. Diversification of the Export Markets

The recovery of the growth of exports in 2006 allowed Portugal to invert the trend of falling market shares in European markets. In 2006, the rate of increase in the Portuguese exports to European markets was above the growth rate of the European GDP and consumption for the first time since 2000. The share of the Portuguese exports of manufactured goods in total imports of manufacturing products of the European Union increased for the first time since 2000. Nevertheless these gains were not enough, and there was still a small decrease in the country's share of total European imports.

The gains obtained in import shares of manufactured goods contributed to the upturn of the decline verified since 2000. These gains are more significant, when one considers that in 2006 most of the EU12 countries suffered losses in their market shares due both to the ongoing effects of the enlargement and to the increase in the import shares of extra-European countries (in particular China, and resource rich countries) [16].

Table 3 shows the evolution of the share of Portuguese exports to different destination markets and also the share in total imports of its main trading partners. The data suggests that in 2006 there was a substantial recovery of product market shares in Germany, where additional gains in import shares were also achieved, reversing the diminishing weight of Portuguese products in German markets that started in 1995. The less favourable export performance in what was then the country's main export market (Germany) clearly reflects the negative impact taken by Portuguese exports with the accession of 10 new members states, which had an export structure that competes closely with that of Portugal[17], and benefit from a closer geographical proximity to German market.

The evolution registered in 2005, and in the preceding years, could support the view that, in the German market, the substitution of Portuguese exports by goods from new trading partners was difficult to reverse. The 2006 data seems to contradict this view, revealing a recovery of the Portuguese exports, sustained by the emergence of new sectors, which are expanding at a fast rate in the enlarged European market – see table 3. The data available for the first semester of 2007, suggests a continuation of a good performance of the Portuguese exports to the German market, with a nominal growth close to 10%, a value above the average growth for the Portuguese exports to the EU, which lead us to predict that there will be market share gains in the German in 2007.

[16] Losses in import market shares from EU countries with respect to extra-EU countries are even more visible when one considers imports from extracting industries and energy, in which the EU has a strong dependence. The increase in the prices of oil and other commodities were an important factor in fostering imports from extra EU countries in several European markets. In parallel to this, the increase in the exports of China meant that this country conquered important market shares in all European markets.
[17] Between 2000 and 2005 the Portuguese exports market share in total German imports fell by almost one third. Between 1995 and 2005, Germany changed its position as destination for Portuguese exports in the ranking from the first to the third place (Annex 1).

Table 3 – Rate of Change of the Portuguese market and import shares in EU countries.

PARTNER \ PERIOD	Growth Rate of Market Shares (a) 2005-06	2004-05	Yearly Growth Rate of Import Shares (c) 2005-06	2004-05	2000-04	Import Shares (b) 2006	2000
Spain 6,77%		2,66%	5,97%	-0,89%	3,50%	3,80%	3,16%
Germany 17,15	%	-7,67%	5,08%	-12,92%	-6,62%	0,65%	0,93%
France -1,14%		-3,04%	-1,54%	-6,72%	3,87%	1,02%	0,96%
United. Kingdom	-11,95%	-16,29%	-19,68%	-18,44	% -1,39%	0,50%	0,81%
Italy 0,54%		1,94%	-7,07%	-2,43%	1,43%	0,41%	0,42%
Netherlands 1,05%		-0,47%	-6,99%	-9,02%	-1,34%	0,40%	0,50%
UE 12	**4,68%**	**-2,03%**	**-2,05%**	**-7,03%**	0,48%	**0,79%**	**0,85 %**
UE 25	**3,70%**	**-2,63%**	**-2,94%**	**-7,11%**	-0,84%	**0,73%**	**0,83 %**
10 Enlargement Countries	16,93%	12,90%	0,16%	-7,24%	-4,98%	0,20%	0,20%
Poland	21,09%	9,54%	10,60%	10,27%	-1,72%	0,24%	0,21%
Czech Rep.	28,47%	9,45%	20,69%	13,80%	0,88%	0,18%	0,13%
Slovakia	22,70%	-0,23%	14,38%	-7,06%	15,68%	0,13%	0,07%
Hungary	27,72%	18,65%	15,03%	15,08%	-15,49%	0,24%	0,36%

Source GEE and Eurostat. a) A crude measure of evolution of market share was used, based on the difference between the growth rate of Portuguese exports for that market and the evolution of domestic demand of the country; b) Portuguese exports for each market divided by the total imports of that country (adjusted for CIF/FOB differences); c) Yearly rate of change in the import shares (b).

Table 4 presents the growth rates and the share of each destiny market in the total Portuguese exports. Data in tables 3 and 4 show that, in 2005 and 2006, the exports to Spain grew above average, and also that there were increases in the Portuguese market and import shares in this country. The increase of market shares in Spain was accompanied by the increase of the weight of this country as a destination market for exports, a phenomenon that has been a trend since the mid 80's (see Figure 4).

Table 4 – Growth Rates of Exports and weight of each market for the Portuguese Exports

	Annual Growth Rate of Portuguese exports to each market			Weight of each market in total Portuguese exports		
PARTNER \ PERIOD	2004-06	2000-04	2000-06	2006	2004	2000
Spain 13%		9%	10%	26,52%	24,95%	19,30%
Germany	7%	-5%	-1%	12,92%	13,46%	18,06%
France	2%	5%	4%	12,02%	13,97%	12,68%
United Kingdom	-9%	-1%	-4%	6,69%	9,59%	10,88%
Italy	5%	4%	4%	3,93%	4,26%	3,97%
Netherlands	4%	1%	2%	3,64%	4,00%	4,24%
UE 12	6%	2%	4%	67,27%	72,05%	71,28%
UE 25	6%	2%	3%	76,46%	80,37%	81,46%
Enlargement Countries	29%	4%	12%	1,85%	1,33%	1,23%
Poland	30%	6%	13%	0,65%	0,46%	0,40%
Check Rep.	35%	14%	20%	0,37%	0,24%	0,16%
Slovakia	28%	32%	31%	0,14%	0,10%	0,04%
Hungry	29%	-8%	3%	0,41%	0,29%	0,45%
Rest of the World	23%	4%	10%	25,22%	19,99%	18,46%
USA	10%	3%	6%	6,11%	6,07%	5,79%
Brazil		-6%	4%	0,74%	0,54%	0,75%
Angola	34%	16%	22%	3,51%	2,33%	1,41%
PALOPS	30%	8%	15%	4,43%	3,16%	2,49%
Africa	21%	9%	13%	5,92%	4,88%	3,81%
South America	30%	-5%	6%	1,75%	1,23%	1,62%
Asia	34%	12%	19%	3,92%	2,64%	1,80%

The reinforcement of Spain's weight in the total exports of Portugal accelerated since the mid 1980's, when both countries integrated the European Communities. It follows a trend of increasing weight of continental countries as markets for the Portuguese Exports that started a decade earlier. Since the early 1970's the share of our exports directed towards the markets of Spain, France, Germany and other continental countries[18] increased sharply until the year 2000. The first decade of European integration accelerated this trend. This is illustrated in Figure 5, which shows that during the 1960´s, Portuguese exports were evenly spread among Africa, Atlantic Countries and Continental Europe. The evolution determined that these become progressively more concentrated in the European market, in particular in the continental countries (such as Spain, Germany and France). After 1980, there is string trend of concentration of the Portuguese exports in a smaller amount of markets, shown by an increase of the weight of the four largest trading partners (until 2003), and the EU as a whole until 1999 (by then absorbing 84% of Portuguese exports)[19].

The indexes reported in table 5 and figures 6 and 8 present a long run trade concentration trend, observed through a decreasing number of partners (a drop in the equivalent number), an increase in the share of the 4 and 8 larger trade partners and an increase in the weight of the EU as a market for the Portuguese exports.

[18] Which include Italy, Belgium, the Netherlands, Austria, Switzerland, Russia, former USSR countries and other Eastern countries. The Scandinavian countries, the United Kingdom and Ireland were gathered with the Americas in the group of Atlantic countries.
[19] Table 5 and Figures 5 and 6 present data from 1961 onwards and clearly illustrate this phenomenon.

The degree of EU dependence increased with the Portuguese integration in the European Community in 1986. Non-European markets, to which more than half of our exports were sent until 1970, reduced their weight to less than 20% of the Portuguese exports during all the 1990's. In 1999, exports for non EU countries represented only 15,84% of total Portuguese exports. Data from the last seven years seems to indicate that a rebound is underway. Portuguese exports show a higher growth rate for non-EU markets than for EU-markets since 2000. This suggests that there is an ongoing new trend of market diversification that is reversing the effects of decades of concentration more and more only in the EU market. In 2005 and 2006 this new trend gained momentum, stimulated by an acceleration of export growth to non-EU areas, a phenomena that continues in 2007, with exports to extra-EU growing at a rate 70% higher than the increase experienced by Portuguese exports to the EU markets.

Table 5 – Concentration of Foreign Trade

	1961	1970	1980	1990	1995	2000	2003	2006
Equivalent number (a)	13,6	11,4	14,2	10,3	9,0	9,2	8,6	8,2
EU (b)	44,51%	53,18 %	66,15 %	80,84%	81,31 %	81,46%	80,76%	76,46%
4 Largest partners (c)	47,91%	50,69%	44,76%	49,05 %	61,95%	60,87%	62,04 %	59,59%
8 Largest partners (c)	66,72%	69,99%	64,14%	76,38 %	78,21%	80,79%	80,68 %	77,20%

(a) The equivalent number (Herfindahl) registers the number of trading partners with equal proportion that would reach the same trade concentration value. (b) The weight of the trade with the EU25 countries (Estonia, Latvia, Lithuania e Slovenia are not included until 2000). (c) Weight of Portuguese exports absorbed by its larger four (or eight) trading partners every year.

Figure 4 – Weight of destination markets in total exports

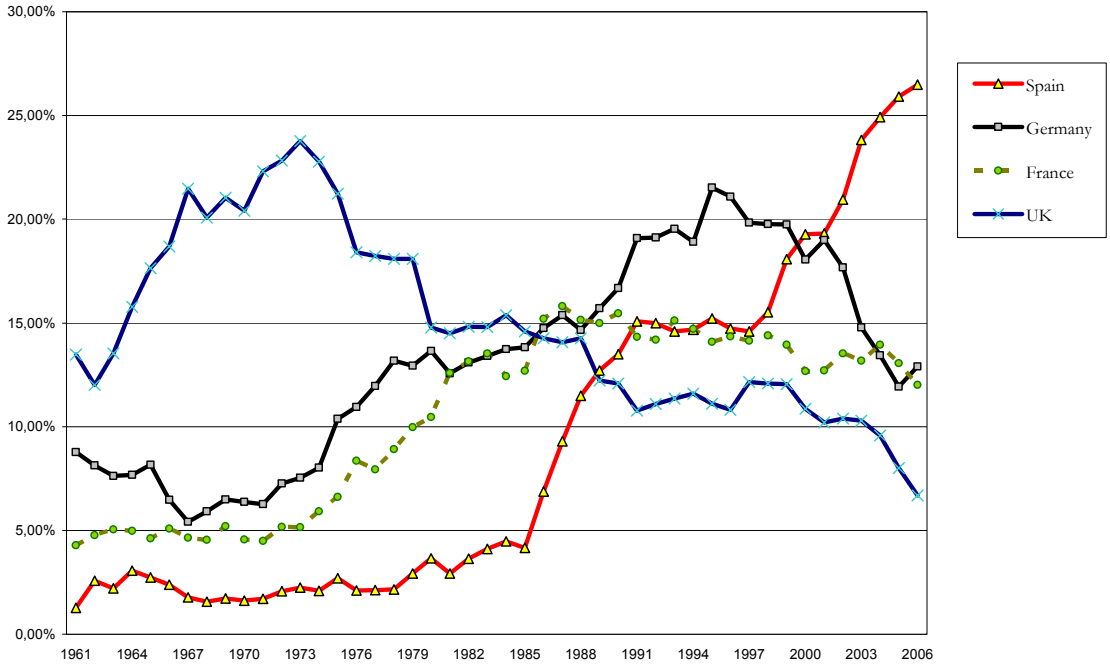
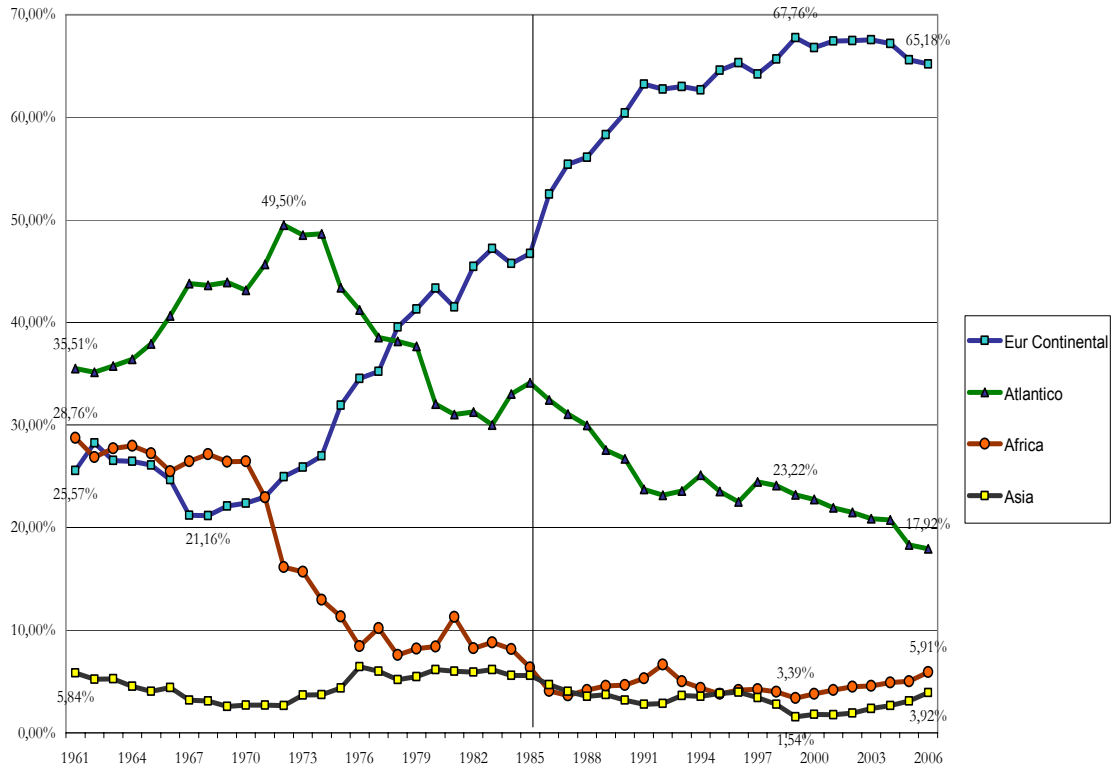


Figure 5 – Weight in total exports by groups of Countries



Within the EU25 there was a strong surge in the growth of exports to the new member states´ markets. Even though exports to the 10 new member states are still modest, representing only 1,85% of Portuguese exports, the rate of growth between 2004 and 2006 shows that these countries could represent new opportunities as destination markets for the Portuguese exports.

From 1999 to 2006, the weight of non-EU markets increased from 16% to 24%, reversing the trend of continuous concentration in the European market. Portuguese exports to extra European countries did not limit to mimic the average growth of the EU countries to non-EU markets (see Table 6). Since 2000, the Portuguese exports to third parties increased at a higher rate than the EU countries exports to these markets. This resulted in an increase in the share of exports from Portugal in the total EU25 exports to non-EU space. Moreover, the increase in the penetration in world markets accelerated in the last two years, in which Portugal was among the European countries that presented more dynamic export performance to the external markets. In 2006, Portugal was the EU15 country that registered the larger growth of exports to non-EU markets[20]. The first signs of 2007 seem to indicate that this trend will be kept. This implies a reduction of the dependence of the European countries as the destiny market of our exports.

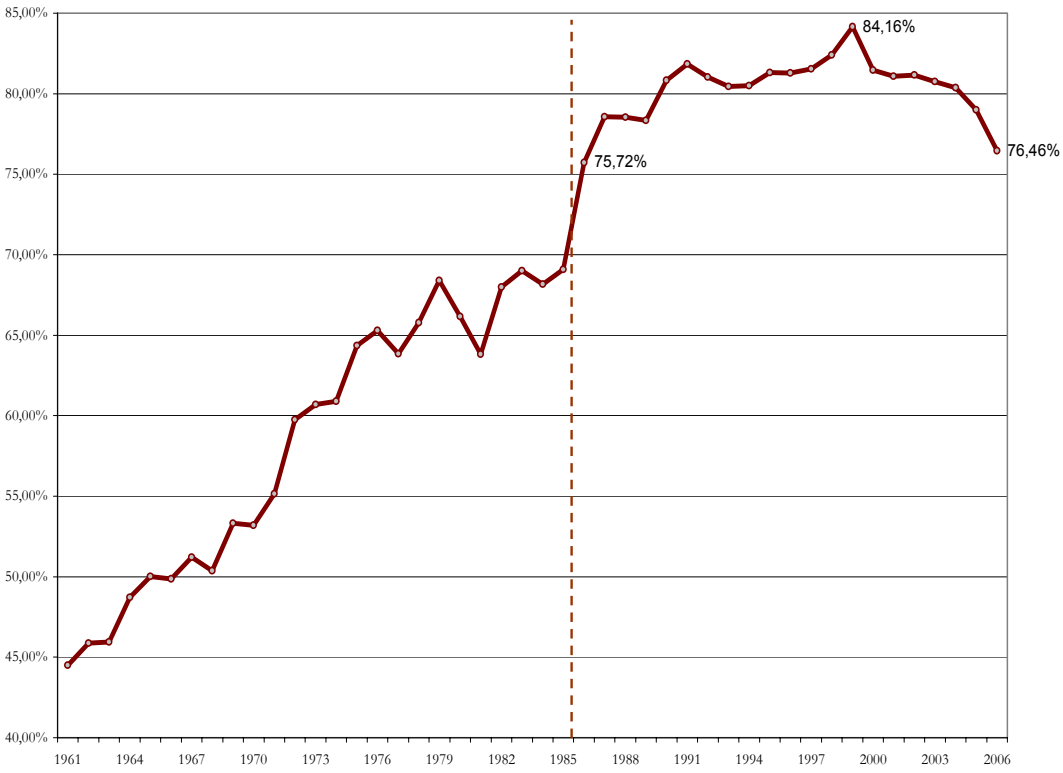
[20] In 2006, Portuguese exports to non-EU members grew 26,8%, clearly a value above the 10% of average exports growth registered in EU25 for the same markets. Only four EU25 countries had growth rates of exports to non-EU markets above those registered for Portugal (Estonia, Latvia, Slovakia and Hungary - all belonging to the new enlargement group). Nevertheless, the exports of Portugal to the non-EU markets still represent less than one percent of the total of the EU12

In 2006 we have observed the smallest share of dependence form the EU countries since 1986 (see figures 6 and 7), a positive fact that suggests that Portugal is diminishing the risks associated with excessive concentration in just one market. It also suggests a moving towards more dynamic markets and away from the slow growth European countries. It is important to note that this diversification was achieved despite having registered a satisfactory growth rate to the EU market, in a period where Portugal gain market share in Europe.

Table 6 – Weight of Portuguese exports in total non-EU exports

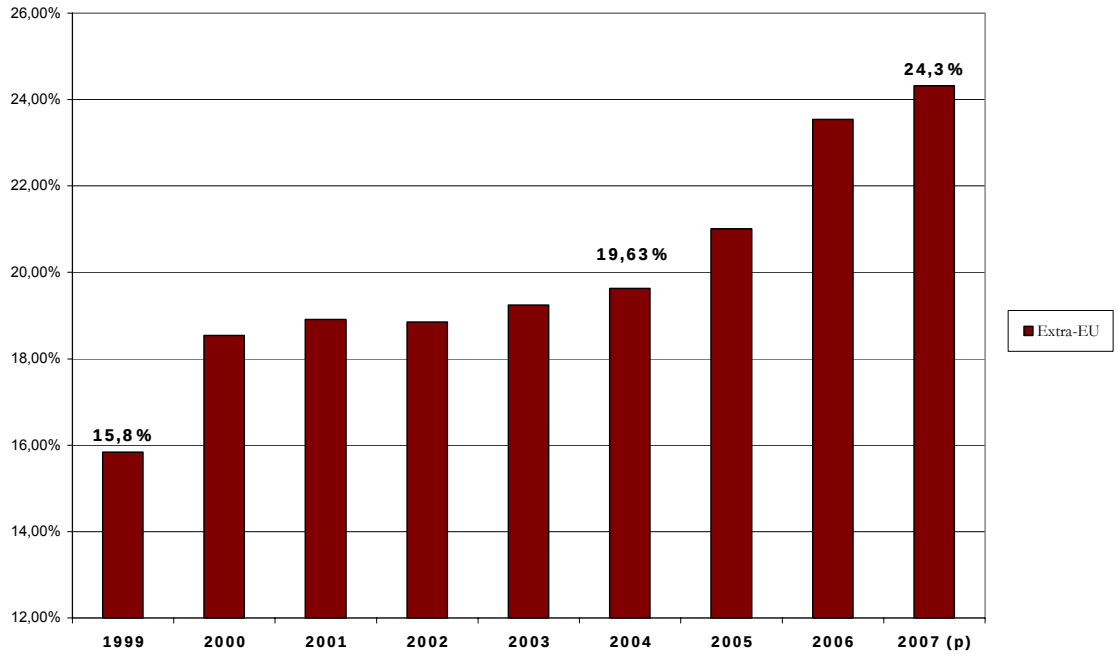
	1994	2000	2003	2006
Weight of Portuguese exports in total exports on non-EU countries:				
EU12	0,69 0,61		0,65 0,78	
Rate of Change		*-10,88%*	*6,85%*	*19,83%*
EU25		0,53	0,56	0,67
Rate of Change			*5,33%*	*19,85%*

Figure 6 – The long run trend of concentration in the EU markets.



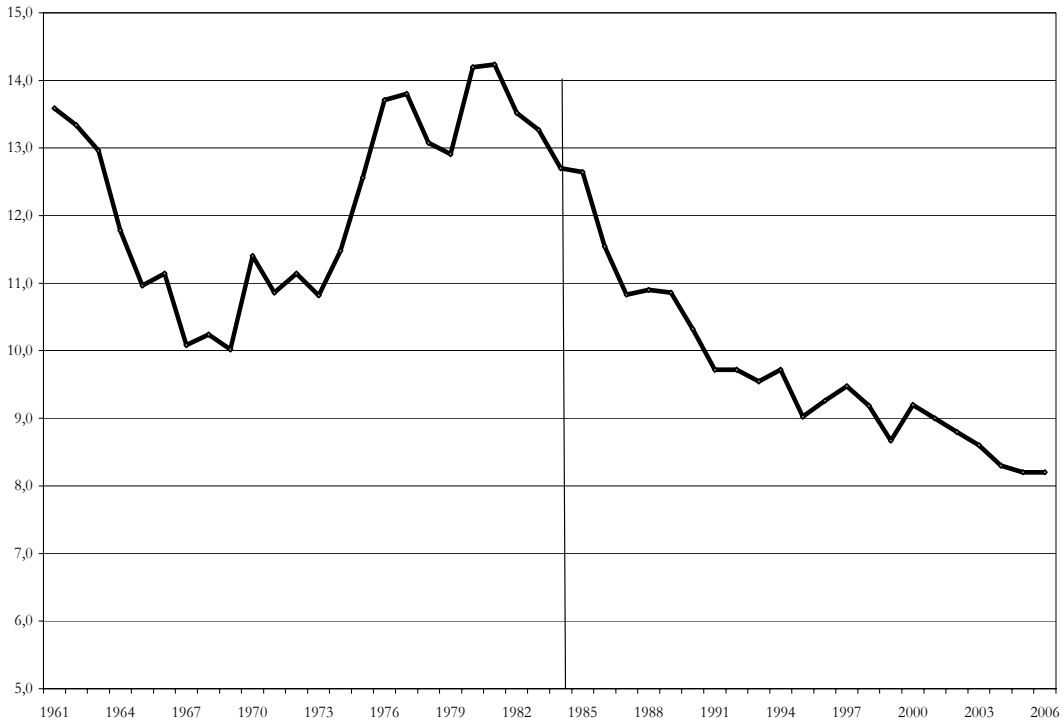
Percentage of the Portuguese exports destined to the EU25 market. Values before 1999 do not include Estonia, Latvia, Lithuania and Slovenia.

Figure 7 – The recent increase in extra EU markets



Percentage of the Portuguese exports destined to non EU25 countries.

Figure 8 – Exports concentration – Equivalent number of trade partners



The index considered here is the Herfindahl-Hirschman equivalent number, which measures concentration through the sum of the squares of the percentages of each destination market in the total Portuguese exports. The equivalent number is the inverse of the sum of squares of the shares of each market in the total exports, which indicates the number of countries with an identical share that would have resulted in a similar index.

5. Change in the structure of the exports and technological specialization

The first years of Portuguese integration in the EU were characterized by strong growth of the exports, predominantly in the traditional sectors. In 1991, the exports exceeded 32% of the GDP, the maximum value ever attained. Nevertheless, this increase in the Portuguese export capacity was achieved essentially trough the reinforcement of the previous specialization, based in sectors intensive in low qualified low tech manpower[21], which achieved their maximum weight in the Portuguese exports in the beginning of the 90s. So, the first impact of European integration was a strong increase in the exports, based in increasing further the traditional specialization of the country.

In 1992, the low technology sectors represented almost two thirds of the Portuguese exports, with the textiles, apparel and footwear exceeding 40% of the total exports of the country. After 1992, these sectors started to show a decline of their relative weight on the exports of Portugal. This declining trend was accentuated between 2000 and 2005, period in which there was a decrease not only of the weight but also of the value of exports of these traditional sectors. In 2006, the exports of textiles, apparel and footwear inverted the downward tendency, showing increases in value and even gaining quota in some markets. However, the growth in these sectors was slower than the average and its weight in total exports continued to fall.

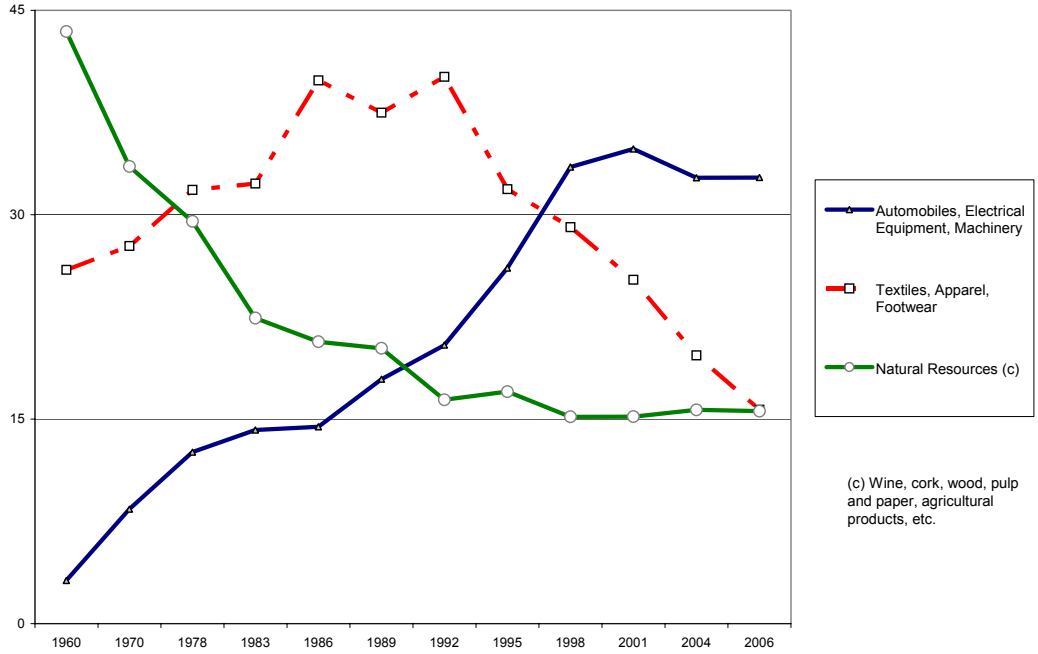
After the first years of integration, there was a period, between 1992 and 2004, in which strong changes in the structure of the exports coexisted with a stagnation of the volume of the exports, which grew at a pace slower than the GDP. In these years, the decline of the traditional sectors gave place to the emergence of the cars, electric equipment and machinery industries, as the major exporting axis of Portugal (see Figure 9). These sectors, mostly classified as medium-high tech, are very different from the sectors that used to dominate the Portuguese exports. Both the vehicles and the electric equipment sectors are based in large companies, with multinational operations, demanding access to good infrastructures and require a larger proportion of medium and medium-high tech manpower, than the textiles and cloths sectors.

The change in the structure of exports and the emergence of these *new* exporting sectors was a very important feature of the last fifteen years. The automotive, electric equipment and machinery sectors continued to grow in the last two years; nevertheless, these were not the sectors which registered the higher growth rates in recent years.

In 2005 and 2006, there were important differences in the behaviour of the different sectors of medium and high tech. In the last two years the Portuguese sector of mechanical machinery more than doubled its export quota in the European market, while the exports of vehicles increased 20% its quota in the European market, more than recovering the losses of quota registered between 1999 and 2004[22]. In the case of electrical equipment, the evidence points to a technological improvement of this industry, which achieved a moderate recovery of the market share in the segment of medium high tech products and a severe increase of the exports and market share of the technologically more sophisticated equipments[23].

[21] In particular the textiles, apparel and footwear, which had a strong growth from the beginning of the 60s until 1991, exceeding the weight of the traditional sectors based in natural resources (wine, cork, woods).
[22] Between 1999 and 2004 the Portuguese automotive sector (including the components) had a 14% decrease in its quota of the European market. This decrease was motivated by the expansion in the enlargement countries, which started to occur in anticipation of their entry in the EU, and changed the 90s trend of strong growth of the Portuguese export quota of automobiles, which seems to have been recovered in the last two years.
[23] Such as communications, television and radio equipments, informatics material and computers.

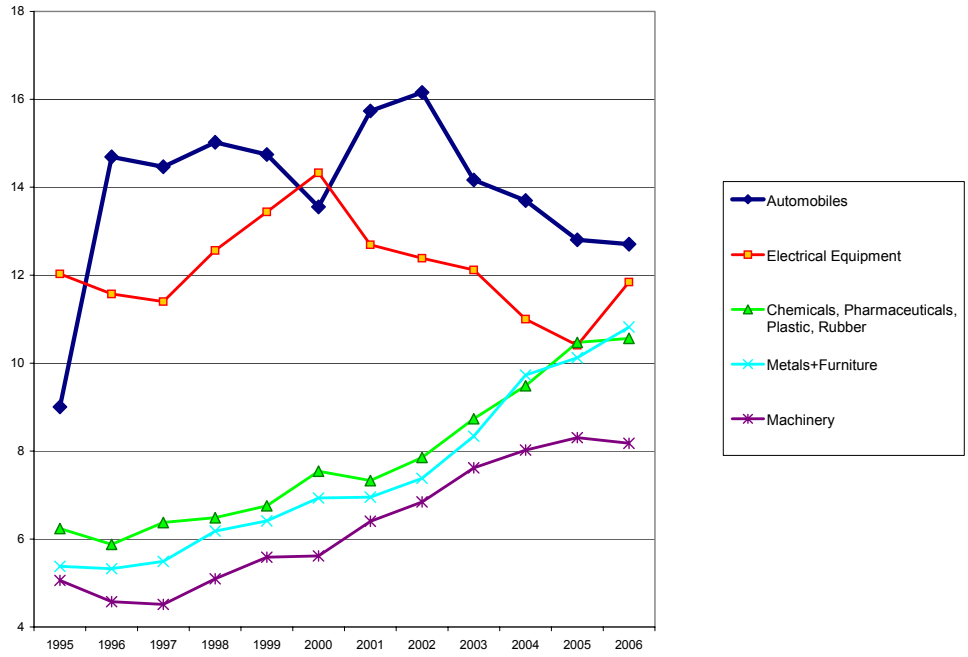
Figure 9 – Weight of different group of products in total exports



The evolution of the electrical equipment sector corresponds to a more general trend in the Portuguese exports. In the last two years, the pick up of the internationalization of the Portuguese economy takes place simultaneously with a new change in the structure of the exports, characterized by an expansion of a more diversified group of sectors and by a stronger role of the high tech products.

The current growth of the Portuguese exports is not found in the recovery of the traditional sectors or just in an enhancement of the car industry, as happened in previous years. It is based in the dynamism of a diversified set of sectors, such as chemical, pharmaceutical, plastic, rubber products, machinery, metals, furniture and also fuels and oil derivatives. In the last 5 years, the exports of these industries more than doubled – see Figure 10. The weight of some of these groups of products has already risen above that of the electrical equipment and may even exceed the automotive industry in 2007.

Figure 10 – Weight of different products in total exports



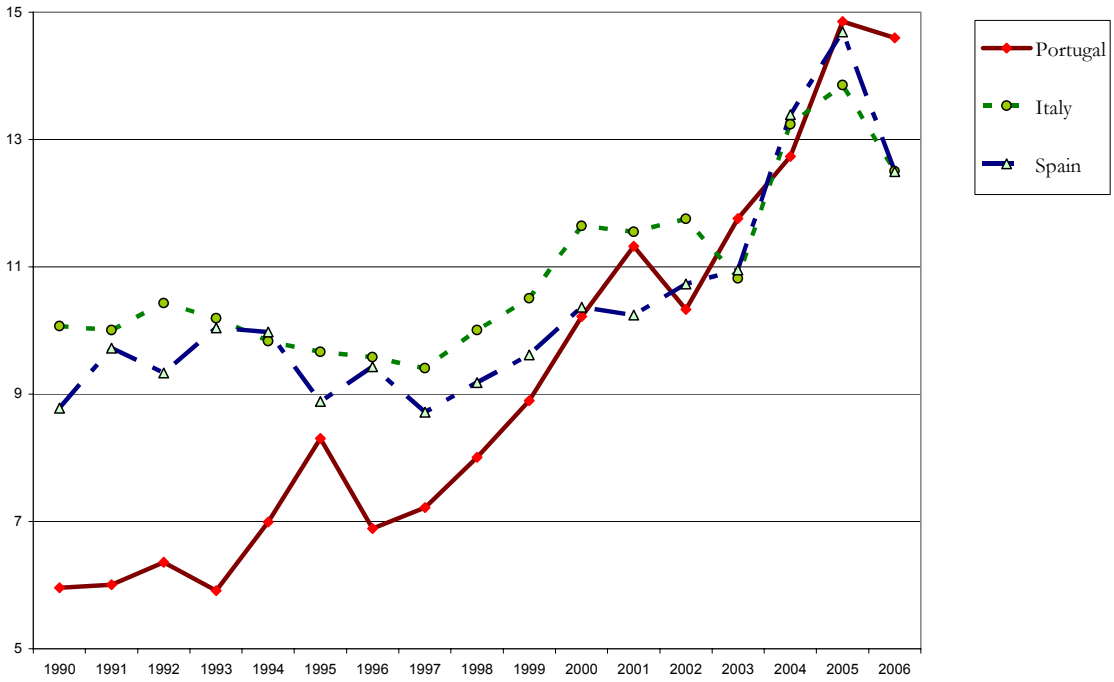
It is important to note that the groups of industries that are emerging are very heterogeneous, including different high tech, medium high tech and medium low tech products, implying different labour requirements and using different raw materials. This means a diversification of the sectoral mix of exports that changes the reality of the Portuguese exports in important ways. First the economy is less dependent of a limited number of sectors. Second the sectors involved in exports require a broader spectrum of factors, contrary to the former tradition of exports based mostly in the low cost of unskilled labour. Both of these are good news for the country implying less exposure to sectoral shocks and to the increase of the globalization process.

Technological Improvement of the Portuguese Exports

The high tech products had a very important role in the recent increase of the Portuguese exports, and were responsible for an important part of the structural change in the recent years. Until recently, Portugal was mainly an importing country of high tech products, which represented only a small weight in the total exports of the country. The share of Portuguese in the European market was well below the average of that of the Portuguese exports of other products, especially those of low tech products. In 2005 and 2006 this situation changed substantially.

Figure 11 shows that the weight of high tech products in the total exports of transformed industrial products has strongly increased, departing from slightly more than 5% (in 1990) to more than 14%[24].

Figure 11 – High tech exports in percentage of exports of manufacturing



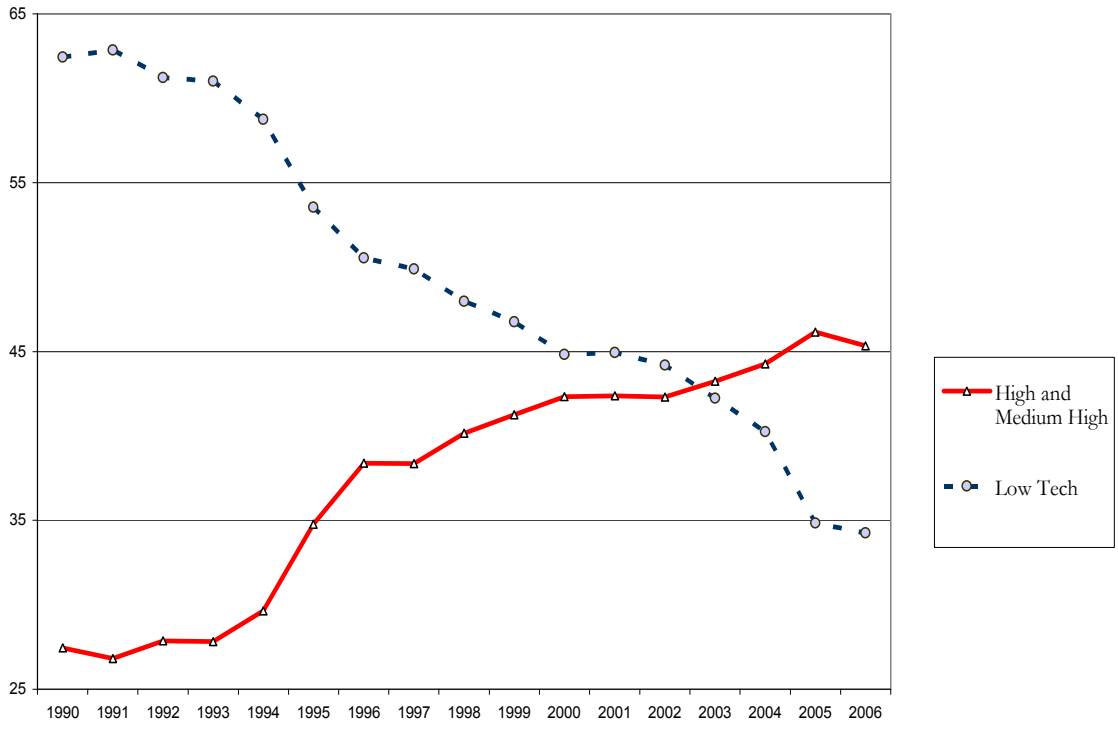
Share of products classified as high tech in total exports of manufactured products (see footnote 24)

The evolution of the high tech sectors was not only very strong but also stronger than the average of the European countries and particularly stronger than the southern European countries, with which Portugal can be compared (Spain and Italy). Like these two countries, Portugal presented a low weight of high-tech products in its total exports when compared with the Northern European Countries. Figure 11 shows that there The evolution of the high tech sectors was not only very strong but also stronger than the average of was an important recovery of this lag and also that this recovery was stronger that that observed in the other southern European countries, resulting in the weight of the Portuguese exports of high tech products surpassing those of Spain and Italy in 2005 and 2006.

[24] In the classification of the products by technological level we followed the method proposed by Ramon, adopted by the OECD, the data given by GEE was obtained using the conversion table from ISIC-version 3 to CTCI – Rev.3, and then aggregated according to the technological classification of each product. There are some discrepancies between this method and the data presented by GEE, which classifies the oil products differently and considers the weight of each type in total exports, instead of, as we do here, calculating only the weight in the total exports of the transformed products (that are those which are classified technologically). The important increases of oil and other natural resources registered in the last years justify the discrepancy verified. The original classification adopted by the OECD (instead of the adapted to the Portuguese case used by the GEE) was here chosen because it allows the direct comparison of the evolution of Portugal with the other European countries, makes it possible to compare with other international studies and reports from international organizations.

The increase in the technological level of the Portuguese exports emerges also at a more general level, with a downward tendency of the relative weight of the low tech exports, verified since 1991 and accelerated in recent years, and the progressive rise of the share of the medium-high tech exports and, more recently, the growth of the high tech exports. These trends are presented in Figure 12, where we can verify that only in 2003 the high and medium-high tech exports exceeded those of low tech products. In 2005 and 2006, the gap between these two types of sectors has strongly increased, resulting in a difference of more than 12%, a situation which completely reversed the pattern of specialization that was still observed in the early 90s.

Figure 12 – High tech and Low tech in the Portuguese exports



The weight of each group of sectors in the Portuguese exports manufactured products is presented in Table 7. We can observe not only the recent increase of the high tech sectors, and the long run progress of increase in the share of medium-high tech sectors, but also the important increase in the relative weight of the medium-low tech sectors. The growth in the relative weight of all of these groups of sectors happened due to the decrease of the share of the low tech sectors in the Portuguese exports.

The data in Figure 12 and table 7 shows that the Portuguese specialization has radically changed. The core of the Portuguese exports has moved from unskilled labour intensive sectors, with small and low tech industries to new sectors and products that are more high tech and tend to be produced by larger and more internationalised companies which are very different from those responsible for most of the exports of the country in the early 90s. This change has pushed the country to sectors with higher productivity, which create more qualified jobs (even if employing less people) and in which the competitiveness does not depend

primarily on the low cost of labour, but on a complex group of factors, where infrastructures, institutional conditions and the availability of qualified manpower are determinant.

Table 7 – Weight of each sector in the total exports of transformed industrial products

	1990	1994	1997	2000	2003	2006
HIGH TECH	5,56	6,38	6,76	9,19	10,63	14,60
Pharmaceutical products	0,63	0,59	0,80	1,25	1,22	2,28
Clerical equipment and computers	0,64	0,26	0,47	0,36	1,83	3,76
Radio, TV and communications equipment	3,68	4,47	4,38	6,77	6,40	7,87
Medical, optical and precision instruments	0,61	1,07	1,11	0,81	1,18	0,70
MEDIUM-HIGH TECH	21,50	22,65	31,15	32,12	31,47	30,73
Machinery and electrical equipment, n.e.	4,07	6,55	6,84	7,17	5,42	3,47
Motor vehicles, tows and semi-trailers	7,44	6,47	14,99	14,43	14,98	15,05
Chemical products, except pharmaceuticals	5,61	4,81	4,27	4,58	4,64	6,29
Railroad equipment and transport equip. n.e.	0,20	0,38	0,49	0,38	0,40	0,52
Machinery and equipment (non electrical)	4,18	4,44	4,56	5,56	6,02	5,40
MEDIUM-LOW TECH	10,10	11,62	11,74	12,84	14,54	20,41
Construction and naval repair	0,55	0,26	0,68	0,26	0,17	0,24
Rubber and plastic products	1,39	1,84	2,09	2,79	3,68	4,23
Oil refining, petrochemical and nuclear fuels	0,08	0,65	0,99	0,80	1,14	2,58
Non metallic mineral products	4,48	5,08	4,15	3,66	3,86	5,11
Metallurgy	1,26	1,06	1,15	2,53	2,40	4,42
Production of metallic products (except machinery and equipment)	2,35	2,74	2,69	2,80	3,28	3,83
LOW TECH	62,44	58,74	49,89	44,82	42,23	34,26
Manufactures n.e. and recycling	2,16	2,43	2,27	2,15	3,26	2,97
Paper pulp, paper, paperboard and printing industry	6,40	5,96	5,07	5,60	5,12	2,51
Foodstuffs, beverages and tobacco	6,61	6,79	6,55	6,23	6,73	8,21
Textiles, apparel, leather and footwear	40,61	38,08	31,16	25,94	22,55	16,37
Wood and cork and wood products	6,67	5,49	4,83	4,91	4,57	4,20
Total Transformed Industrial Products	100	100	100	100	100	100

(*) Excluding aeronautic and aerospace[25].

Table 8 shows the contribution of the high-tech sectors for the growth of total exports in Portugal, the EU25, the enlargement countries, Spain and Italy. The data reveals that the contribution of the high-tech sectors explains 63,7% of the growth of the Portuguese exports between 2003 and 2006. This proportion is higher than the EU average and much higher than that the registered by the enlargement countries, Spain and Italy.

Table 9 presents the same data only for Portugal, in different periods, revealing that the contribution of high-tech sectors for the export growth was much higher in the last three years than in the previous periods.

[25]The way in which the exports of aeronautic and aerospace are recorded changed during the period, leading to a drastic reduction in the amounts registered from 2003 to 2006 in all the EU25. This change is due to the modification of the statistical criteria introducing noise in the analysis. The effect of this change in the weight of the exports was very similar in Portugal and in the EU25. The exclusion of this sector improves the quality of the analysis and does not affect any of the conclusions of the present study.

Indeed, between 2000 and 2003, these products were the responsible for about a third of the Portuguese exports increase and in the six previous years their contribution for the export growth was only 12,7% of the total increase. This is an important change, even more relevant because it is happening in a context of strong growth of exports.

Table 8 – Contribution of each sector for the total growth of exports (2003-2006)

	Portugal	Spain	Italy	New	EU-25
TOTAL HIGH TECH (*)	63,7%	29,3%	29,9%	19,3%	47,8%
Pharmaceutical products	15,4%	32,1%	30,1%	9,3%	42,2%
Clerical equipment and computers	27,5%	-1,2%	-0,8%	-0,6%	6,5%
Radio, TV and communications equipment	26,0%	-0,7%	-1,1%	10,4%	-1,7%
Medical, optical and precision instruments	-5,3%	-0,9%	1,7%	0,2%	0,9%

(*) Excluding aeronautic and aerospace

Table 9 – Contribution of each sector do the Portuguese Exports' Growth

	Portugal 2003 to 2006	Portugal 2000 to 2003	Portugal 1994 to 2000
HIGH TECHNOLOGY (*)	63,7%	33,5%	12,7%
Pharmaceutical Goods 15,4%		0,7%	2,1%
Office and Computer Equipment 27,5%		25,3%	0,5%
Communication, radio and TV Equipment	26,0%	0,5%	9,7%
Medical, optical and precision Instruments -5,3%		7,1%	0,5%
MEDIUM-HIGH TECHNOLOGY	21,6%	21,2%	44,2%
Machines and Electric Devices	-20,7%	-22,5%	8,0%
Motor Vehicles and derivatives	15,9%	23,9%	24,5%
Chemical products, except pharmaceuticals 26,8%		5,6%	4,3%
Railroad Equipment and other transport equipment	1,9%	0,8%	0,4%
Other machines and equipment (mainly not electric)	-2,3%	13,4%	7,0%
MEDIUM-LOW TECHNOLOGY	93,0%	41,7%	14,4%
Construction and naval repairs	1,0%	-1,3%	0,3%
Rubber and plastic goods	11,0%	18,0%	4,0%
Oil Refineries, petrochemicals and nuclear fuels	20,4%	6,5%	1,0%
Mineral non-metallic products	20,6%	7,2%	1,8%
Base metallurgical products	29,4%	0,3%	4,4%
Creation of metallic goods (except machines and equipment)	10,6%	11,0%	2,9%
LOW TECHNOLOGY	-64,3%	0,8%	27,1%
Manufactures and recycling	-0,6%	21,0%	1,8%
Paper products and derivatives -29,8%		-2,4%	5,1%
Food, drinks and tobacco 26,6%		14,7%	5,5%
Textiles, clothes, leather and shoes	-60,1%	-31,5%	10,5%
Wood and derivatives	-0,3%	-0,9%	4,2%

Table 9 also presents the contribution of the other sectors to the growth of the Portuguese exports. We observe that the medium-high tech sectors continued to give a positive and important contribution for the growth of the Portuguese exports in the last three years, although not as high as in the second half of the 90s. The expansion of the chemical industry in the last three years also gave a very important contribution; and the automotive industry, even with some of its projects in end of cycle, has continued to give a positive contribution to the increase of the Portuguese exports.

It is also important to notice the data presented for medium-low and low technology. The fall in exports of the low-tech sectors between 2003 and 2006 is the most relevant fact. If exports in these sectors would have been kept the same, the overall exports would have grown more 64% than the registered number.

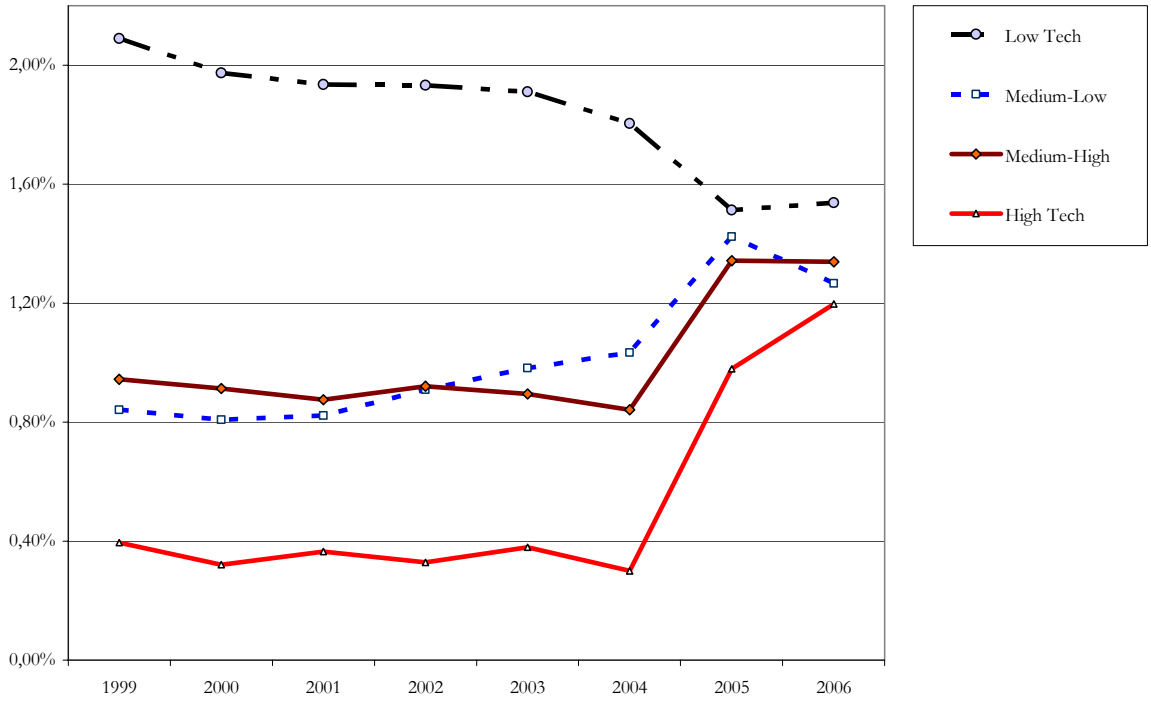
The evolution of these sectors exemplifies the impact of increase in trade openness of the EU towards the rest of the world in both textiles and clothes (due to the multi-fibre agreement) and the subsequent increase in the exports of Asian countries to the EU. Data for the evolution of total exports shows that Portugal is reacting positively to this shock and in fact, it was able in 2006 not only to reverse the losses in traditional sectors but also to expand exports in new sectors that compensate these losses. The traditional low sectors have manage to increase their exports after a decade of decline, and the other sectors managed to sustain a strong growth in 2005, 2006 and 2007.

The new sectors are composed not only by high-tech ones but also sectors classified as medium-low tech. The high expansion of metallurgic sectors and metallic, plastic, rubber and construction products, have contributed sufficiently so that more than compensated losses verified in low-tech sectors until 2005. Even inside low-tech sectors one can stand out the good performance of food and drinks. It is important to note that despite not being highly technological demanding sectors, these industries have different characteristics from the Portuguese traditional export sectors. In fact, these are, in general, more capital intensive and produce goods with a higher transport costs (like food or construction materials), a characteristic that protect them against direct competition from Asian countries[26].

The high growth in the exports of high-tech goods resulted in a strong increase in Portugal's market shares and import shares of high-tech products in Europe. The share of the Portuguese exports in the total imports of high-tech goods of the EU increased from 0.39% to 1.2%, between 1999 and 2006. Figure 13 shows that the most important changes took place in the last two years, in which Portugal registered important increases in the import shares of pharmaceutical goods, electronics and also in the production of radio, TV and communication products and even in the production and export of medical, optical and precision devices. Several of these improvements are linked to the beginning or expansion of new FDI projects.

[26] It is interesting to remind that food and drinks are a very important sector in the exports of several high income developed countries, such as France or Denmark, and that important safety and regulation changes imply a increasing degree of sophistication in these traditional sectors.

Figure 13 – Import Shares of Portuguese Exports in the EU25 market



Evolution of Portuguese import shares in different groups of goods (classified according to the technological level, following OECD's classification – see footnote 24). Values in percentage are computed dividing Portuguese exports for each group of products by total EU25 imports of the same group of products.

Between 2004 and 2006 the Portuguese exports also managed to obtain important import share's gains in the EU market for the medium high and medium low tech sectors. These more than compensated the losses in the import shares of the low tech sector from 1999 to 2005. The low tech sectors had a small recover in 2006, putting an end to more than a decade of decline, but this did not inverted the losses of recent years. In the case of textiles, clothes and shoes (the most important sectors included in the low tech group), Portugal had a 4% share in total European imports in 1999, a value that has dropped now to only 2%. Nevertheless, in other low-tech sectors there was a positive evolution, in particular in the food and drinks industries where Portugal increased its relative share in the EU25 imports.

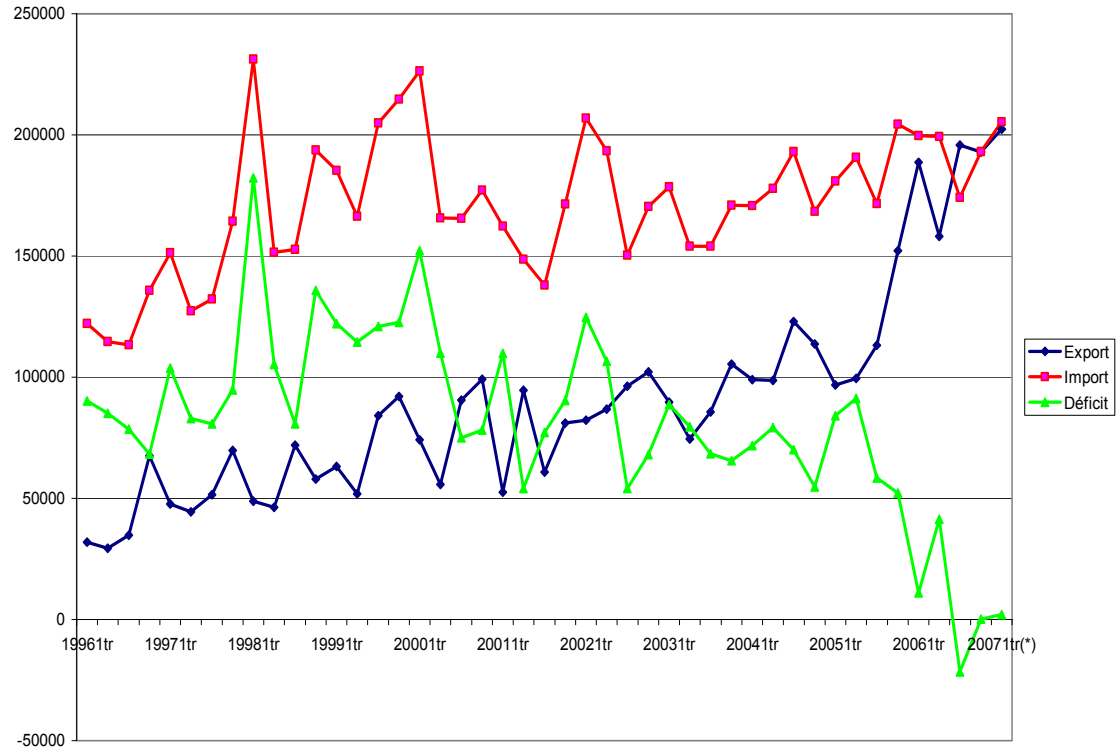
Figure 13 also illustrates another important change in the Portuguese export structure: the convergence of the structure of the exports of the country with the import and export structure of the EU. In fact, in 1999 one can notice a very significant difference in the Portuguese ability to penetrate the international markets in the different type of sectors. Portugal presented then a highly above average share in low-tech products (more than 2%) and in all other sectors it was situated below its relative share in the total exports. In 2006, Portugal presents a more balanced presence in the European market, with the import shares of manufactured products ranging between 1,2% and 1,6% of the EU25 market, instead of 0,39% and 2,1%, the range registered in 1999.

Behind this evolution we have a clear change in the structure of Portuguese exports and their convergence to the EU average that we will discuss in the next section. Before that, we will just add a note about the exports of technological services in which there is a parallel to the situation of the export of goods. Figure 14 shows

the values for imports and exports of services included in the Portuguese technological account, with quarterly data from 1 996 to 20 07 (firs t trimester). Durin g th is p eriod ther e was an i ncrease of both the exports and imports of technological services, but the former increased more than the later.

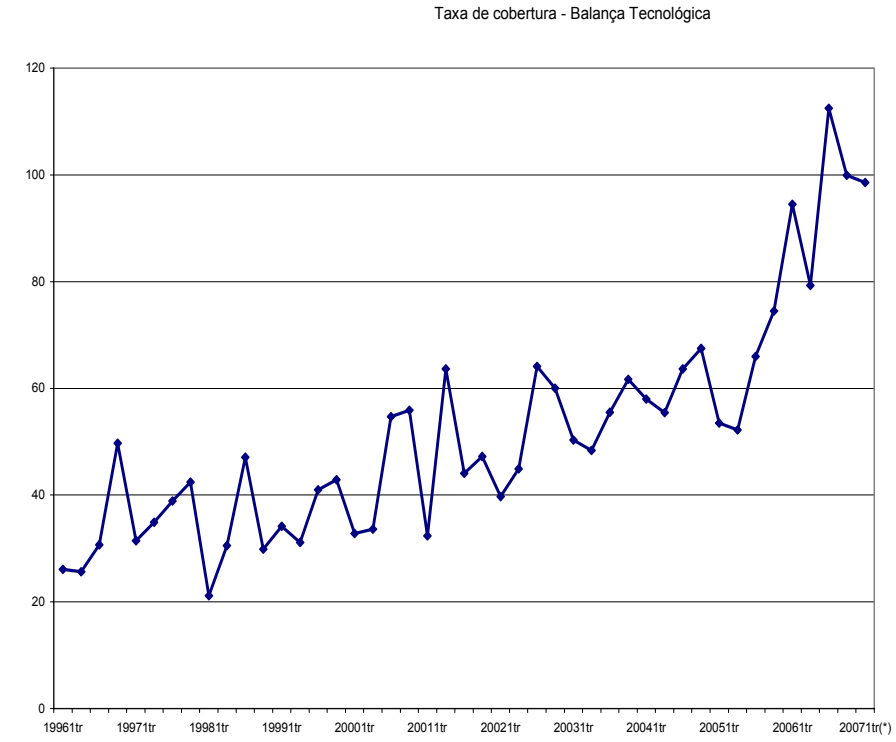
Since 1996, one observes an improvement in the coverage rate (see F igure 14) that resulted essentially from the rei nforcement of the P ortuguese a bility to e xport th is t ype of servi ces. T he exp orts of technol ogical services grew at a higher rate than that of imports, contrib uting to an im provement of the coverage rate of the technological services. Until 2005, this improvement was done at a slow rate. Since 2005 there is a noticeable strong increase in the export value of technological services that in the first trimester of 2007 reach the double of the value attained two years before. This lead the co untry to a pos itive surplus and co verage rates a round 100%, or even above (in the third trimester of 2006).

Figure 14 – Portuguese Technological Account



Source: Bank de Portugal

Figure 15 – Coverage Rate of the Portuguese Technological Account



Source: Bank of Portugal

6. Convergence of the exports and intra-industry trade

Data presented in Table 10 relates the increase in each sector weight with the relative weight of that sector with respect to EU25 benchmark. Sectors are divided according to whether the export's weight have increased or not and in the ones in which Portugal is relatively more specialized as an exporter (where the weight of the product in the Portuguese exports is bigger than the EU average).

From the data computed for table 10 one notices that between 2000 and 2006 Portugal faced a strong increase in the weight of sectors in which the country presented a smaller weight in exports. Moreover, there was a simultaneous decrease in the weight of sectors in which our country was (and it still is) specialized as an exporter (sectors in which the relative share in the Portuguese exports is higher than the EU25 average for that group of products).

Table 10 – Increase in the weight of each sector and specialization (2000-06)

Change in the weight of Portuguese Exports	Weight of Portuguese Exports relatively to UE25 (in 2000)	
	Less than EU25	Larger than EU25
Increase	+11,92	+3,94
Decrease	-1,19	-14,67

This table is based on the Balassa specialization index. Columns include goods with a weight in Portuguese exports smaller and higher than the one registered for the EU25 countries.

The above table shows the contribution of each type of inter-sector transferences to the changes that occurred in the Portuguese exports over the past six years. Exports presented decreasing shares in sectors in which Portugal was over specialized and increased in sectors in which Portugal had a weight below the European average. The quadrants marked in yellow show that this was the dominant trend.

In Table 10 one can see the changes in trade by gathering each of the 99 chapters in four categories with respect to specialization characteristics and trade evolution. Firstly, we divide all sectors in net exporting and net importing sectors. Secondly, we divide sectors into ones that expand the net exports and sectors in which the net exports decreased.

The export increase in sectors in which Portugal is a net importer contributes to reverse the specialization pattern. By the same token, the reduction of net exports in net exporting sectors also contributes to the change of the initial specialization pattern. On the contrary, the increase in exports in sectors in which Portugal was at the start a net exporter, contributes to reinforce its previous specialization, and so does the decrease in net exports in the importing industries.

Starting for this approach we computed for the EU 25 countries the movements that contribute to the reinforcement of the specialization pattern and the ones that on the contrary contribute to reverse the specialization pattern of that country. The results for Portugal are presented in Table 11. The results for the other countries are in Table 11-A (in Appendix 2).

The results of this analysis for Portugal are very clear. The increase in exports between 2003 and 2006 was mainly due to expansion in sectors in which the country is a net importer. The increase of exports in the net importing sectors represented more 101,8% of the total increase in exports of the country. This is the main fact explaining the performance of the Portuguese exports. These increase in sectors where the country had a net importing position meant that most of export expansion contributed to reverse our former specialization pattern.

In what concerns the traditional exporting sectors of Portugal, there was almost an equal amount of movements of increasing specialization, with a reinforce of exports in the net exporting sectors equivalent to 16% of the total expansion of exports, but there was also a contraction equivalent to 13% of total export expansion affecting other net export sectors. Overall the evolution of the exports in net exporting sectors had only a modest contribute for the export increase (3%) and did not contribute to reinforce the former pattern of trade nor to reverse it in a significant way.

The increase in exports in the net importing sectors and the cases in which there was a decrease in exports in exporting sectors (movements presented in line 1 and 4 of table 11) contribute to the reverse in specialization, while the reminiscent (presented in lines 2 and 3) contribute to the reinforcement of previous specialization.

In line 6 of Table 11 one can read that the 85% of the movement's volume (expansion or absolute value of contraction of exports) contributed to the change in the export structure, while only 15% contributed to the reinforcement of the previous Portuguese specialization pattern. This reality reflects a period in which the evolution of exports contributed intensively to change the Portuguese export pattern. It also shows that the way in which change was brought was mostly by the increase ability of the country to export in sectors where it used to have a comparative disadvantage, and not mostly by the decline of the export capability in its traditional exporting sectors, which although presenting some cases of important decreases in the exports manage on average to maintain their volume of exports.

Comparing these results with those obtained from applying a similar analysis to other EU25 countries analysis (see table 11A in appendix) one observes that Portugal is placed amongst the three countries in which the evolution of the exports contributed more to change the pattern of specialization, being the country of the UE-15 in which export expansion was more oriented to change the pattern of specialization, with only two of the ten new EU countries (Cyprus and Estonia) presenting an evolution of exports more directed to change their specialization pattern. Among the Southern European countries, Greece presented a degree of change close to that of Portugal, while the evolution of the exports of Spain contributed in a more moderate way to change the pattern of specialization of this country. In the case of Italy the evolution of exports in the last three years contributed instead to a reinforcement of its specialization.

Table 11 – Export expansion, Change and reinforcement of Portuguese Specialization

	2003-2006
1 – Increase in Exports of Importing Sectors	101,82% (a)
2 – Increase in Exports of Exporting Sectors	15,98%(a)
3 – Decrease in Exports of Importing Sectors	-4,62%(a)
4 – Decrease in Exports of Exporting Sectors	-13,19%(a)
5 - Movements that contribute to change in specialization	84,81%(b)
6 – Movements that contribute to the reinforce of specialization	15,19%(b)
7 – Change – Increase (5-6)	69,62%(b)

(a) in proportion of the total increase in exports.
(b) in proportion to the sum of the absolute values of the movements.

The evolution described in Tables 10 and 11, with a strong increase in exports of the sectors in which Portugal had an export's weight below EU25 average and a concentration of export increase in importing sectors, contributed to narrow the gap between the Portuguese export structure and that of the European countries.

Table 12 presents the evolution of two distance indicators between the structure of Portuguese exports and the one for the countries of the Euro Zone In both cases there is a progressively decrease in the distance between the Portuguese export structure and that of the average European country. This convergence of the export structure was verified in all periods.

Table 12 – Average Distance between Portugal and Euro Zone

	Average Distance of Portugal to Euro Zone				
	1994	1997	2000	2003	2006
Indicator (a)	46,88	38,85	34,61	31,94	28,64
Variation		-17,14%	-10,90%	-7,74%	-10,30%
Indicator (b)	0,21	0,18	0,16	0,14	0,12
Variation		-11,56%	-12,66%	-13,99 %	-13,24 %

(a) Sum of the absolute values of the difference between the share of each sector in the Portuguese exports and the average share of the exports of the same sector in the euro Zone. (b) Sum of the squares of the differences in shares of exports between Portugal and the Euro zone for each sector.

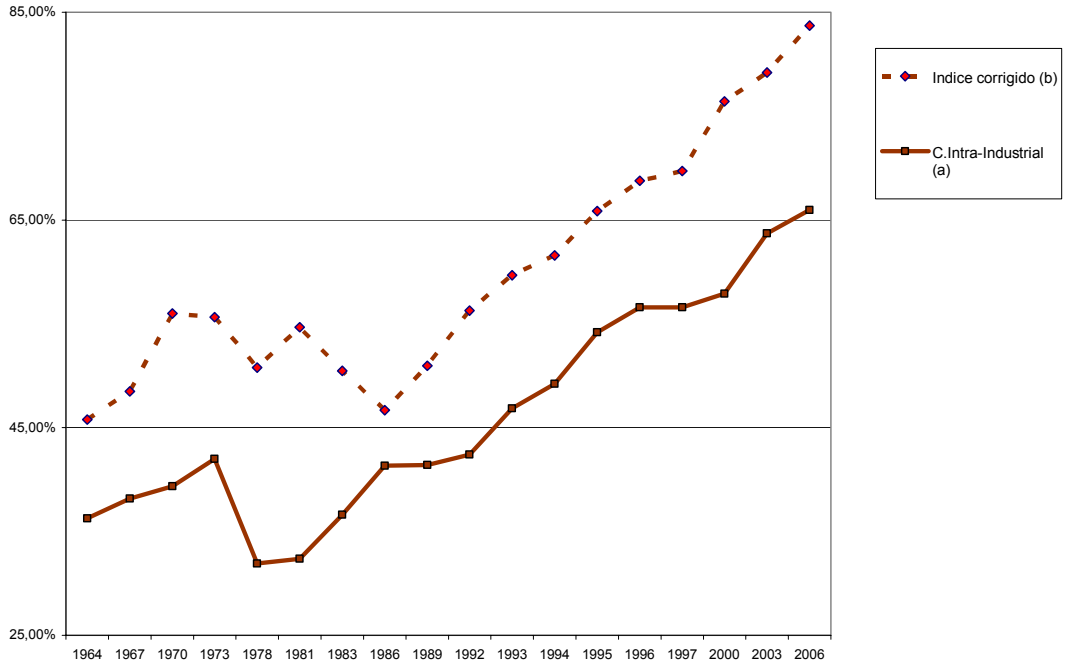
The changes in the export patterns and the reduction of the distance between the export pattern of Portugal and the European countries resulted in a decrease in inter-industry specialization. Figure 16 shows the evolution of Portuguese intra-industry trade in the last 42 years, revealing a long run trend of increasing in the share of matched exchanges in the Portuguese trade. The share of intra-industry trade increased from a level that was much lower than those of the rest of EU countries to a share closer to the European average.

The increase in the share of intra-industry trade in Portuguese exchanges experienced a strong impulse in the mid 90's and afterwards it maintained a higher level than before. Between 2003 and 2006 the intra-industry trade index recovered again and it reached the highest values ever. In 2006 two thirds of Portuguese exchanges are intra-industry trade. Matched trade indexes for all EU25 countries and their evolution are presented in the tables A2 and A3 in the Appendix.

The values presented there show that the share of intra- industry trade experienced a stronger increase in Portugal than that of any of the other EU-12 countries both in the last 12 years and in the last six years. This evolution also presents a convergence with the trade patterns of the more developed European countries. A similar pattern is taking place in most of the enlargement countries, in which the shares of intra-industry trade increased sharply with their increasing levels of integration in the EU market.

The increase of matched trade flows is a result of a closer structure of trade. It also indicates a convergence with the European trade partners, implying an increasing level of integration, suggesting closer ties between firms at different levels of production, or even an increase in intra-firm trade. It also suggests that a larger proportion of the production of the country is concentrated in differentiated products, benefiting from economies of scale.

Figure 15 – Intra-industry trade index (*)



*Grubel and Lloyd (1975) intra-industry trade index. The dotted line presents the G-L index corrected of trade imbalance

7. Conclusions

In the present study we focus on the evolution of the Portuguese exports between 2000 and 2006. We identify five important long run trends of the Portuguese exports and investigate the way in which the pattern of recent years reflects reinforcement or a reversal in the former trends, or a return to lung run path that had been interrupted.

We argue that the evidence of recent years suggests:

First, that there was a return to the long run trend of export lead growth, a trend which was interrupted in the begging of the 1990´s. This can be seen in the record values of the exports/GDP ratio that the country should attain in 2007 and 2008;

Second, that their was a reversal of the trend of increasing the concentration of the exports in the EU markets, with an increase diversification of the country's export markets;

Third, that the long run trend of change in the structure of the Portuguese exports, with the decrease of the weight of traditional sectors and the emergence of new export products, continued in the last six years, and even accelerated in the last two years;

Fourth, that their was and important upgrade in the technological content of the Portuguese exports, with the exports of high technology products contributing for 63,7% of the growth in the volume of

exports between 2003 and 2006, and a strong increase in the exports of technological services that resulted in the country obtaining an export position in the technological balance for the first time since this data is recorded;

Fifth, we also identify a continuation of the process of convergence of the structure of the Portuguese exports with that of the most developed European countries and an increase in intra-industry trade.

In 2006, the Portuguese exports experienced a strong increase, reaching 31% of the GDP, the highest value since the beginning of the 1990´s. The first months of 2007 suggest that this dynamism is sustained. This suggests a return to the long run trend of increase in the export capability of the Portuguese economy, a trend that started in the early 1960´s, which seemed to have been interrupted in the beginning of the 1990´s. In 2007 and 2008 the country will probably reach record values for the exports/GDP ratio.

Exports are growing across a large range of sectors, including the traditional sectors (textiles, clothing and shoe-making), that manage to interrupt the decline started in the beginning of the 1990's and obtained a modest recover, and the sectors that emerged during the early 90's (automobile industry and electric components), which regained dynamism in 2006, after three years in which these experienced a growth rate below the Portuguese average.

But the strong dynamic of the exports in the last years resulted mainly from the dynamism of a diversified number of sectors, which includes machinery, furniture, plastic, chemical, electronic, pharmaceutical and metal products. Since the beginning of the new century the loss in weight of the traditional exports of the country is being compensated not by the emergence of a reduced number of sectors (as in the 1990's) but by the dynamism of a broader group of sectors, in which Portugal was traditionally a net importer.

The dynamism of the exports in 2006 and 2007, allowed the country to recover losses in market share in some of the traditional European markets, while at the same time diversifying, with a strong increase in exports to non-EU countries. In 2006 there were important increases in market shares in both Germany and Spain, and an increase of more than 26% in the exports to non-EU markets, in only one year, mainly driven by the accelerated expansion of exports to the USA, Angola, Brazil and Asian Countries. The country seems to be reversing the past trend of excessive concentration of exports in the European markets. In 2006, Portugal registered the lowest dependence level of the European market since its accession in 1986. In 2007 the exports to non-EU markets continue to grow at a faster rate than those destined to the European countries, confirming a continuation of the diversification process.

Relatively to past periods, Portugal is now facing simultaneously a strong increase in exports and a strong change in the structure of exported products, while at the same time is experiencing an increase in market diversification. In the past, periods of high growth of exports were accompanied by a specialization in labour intensive goods, with low technological content, as well as an increase in the geographical concentration of exports in the European area. This pattern was observed both in the periods that followed Portuguese accession to EFTA and European Union (EEC-EU). After these periods of growth in which this specialization pattern was maintained or reinforced, and exports concentrated in fewer markets, there were periods with a slower growth of total exports but strong evidence of structural changes, namely in the 1990´s.

The strong change in the pattern of exports registered in the last three years is only comparable to the fast changes that are occurring in some of the new countries of the EU. Between 2003 and 2006, Portugal was among the three economies of the EU 25 to show a faster rate of change in the structure of exports.

But even more important than the rate of change is the direction of change. The changes in the Portuguese pattern of exports implied an increase in the technological intensity of the exports that was above the average of the European countries. The increase of high technology exports represented more than 60 per cent of the total growth of exports of the country between 2003 and 2006, a percentage that is above the European average and is twice as big as that registered by other southern European countries (namely Spain and Italy). In the last three years, the exports of High and medium High Technology products surpassed those of low tech goods. The same happened with the exports of technological services, registered in the technological services balance, which surpassed the value of import of technological services for the first time in 2006 and in the first semester of 2007.

The changes in the Portuguese pattern of exports also implied further convergence of the country export structure with that of the European Union and an important increase in the share of intra-industry trade.

The evolution of the five trends described suggest that the evolution of the internationalization of the Portuguese firms is following a direction that is favourable to increase the rate of growth of productivity and income, a path that contributes to improve the prospects of income convergence between the Portuguese economy and those of the European Union.

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A.1. APPENDIX

Table A1 - Contribution of the export's evolution to the change in trade structure

Country	7. Change– Increase (5-6)	5 - Change in former Specializ. (1+4)	6-Increase in former Specializ. (2+3)	1. –Export Increase in Net Import Sectors	2. –Export Increase in Net Export Sectors	1. –Export Decrease in Net Import Sectors	2. –Export Decrease in Net Export Sectors
Cyprus 89,30%		94,65%	5,35%	102,18%	1,93%	-3,88%	-0,75%
Estonia	76,60%	88,30%	11,70%	90,69%	11,20%	-0,94%	-0,94%
Portugal 69,62	**%**	**84,81%**	**15,19%**	**101,82%**	**15,98%**	**-4,62%**	**-13,19%**
Greece	65,24%	82,62%	17,38%	97,46%	21,12%	-2,72%	-15,86%
Lithuania	65,10%	82,55%	17,45%	88,43%	18,86%	-1,13%	-6,16%
United Kingdom	49,47%	74,74%	25,26%	77,25%	25,82%	-1,00%	-2,08%
Malta 44,10%		72,05%	27,95%	161,37%	59,76%	-35,91%	-85,22%
Poland	40,03%	70,02%	29,98%	70,22%	30,28%	0,00%	-0,50%
Látvia	39,54%	69,77%	30,23%	71,36%	31,35%	-0,52%	-2,19%
Spain	39,34%	69,67%	30,33%	74,27%	32,22%	-2,05%	-4,44%
Slovakia	37,27%	68,64%	31,36%	69,25%	31,81%	-0,27%	-0,94%
France	26,30%	63,15%	36,85%	70,70%	54,32%	-0,97%	-24,04%
Slovenia	25,24%	62,62%	37,38%	63,42%	38,04%	-0,44%	-1,05%
Áustria	3,04%	51,52%	48,48%	54,41%	50,68%	-2,74%	-2,35%
Italy	-7,72%	46,14%	53,86%	55,14%	55,37%	-9,81%	-0,70%
Hungary	-13,93%	43,04%	56,96%	45,16%	59,44%	-2,77%	-1,84%
Belgium	-19,51%	40,25%	59,75%	40,06%	62,51%	-0,32%	-2,25%
Czech Republic	-23,66%	38,17%	61,83%	38,15%	61,98%	-0,03%	-0,13%
Netherlands	-24,85%	37,57%	62,43%	37,50%	63,20%	-0,10%	-0,60%
Finland	-30,54%	34,73%	65,27%	36,54%	69,41%	-3,63%	-2,32%
Denmark	-34,10%	32,95%	67,05%	31,96%	74,87%	-1,34%	-5,49%
EU	-44,79%	27,61%	72,39%	28,35%	73,38%	-1,52%	-0,21%
Euro Zone	-46,98%	26,51%	73,49%	27,69%	75,84%	-2,84%	-0,69%
Sweden	-51,04%	24,48%	75,52%	26,44%	78,39%	-4,43%	-0,40%
Ireland -55,30	%	22,35%	77,65%	15,55%	108,21%	-6,34%	-17,41%
Luxembourg	-72,10%	13,95%	86,05%	12,87%	90,51%	-1,36%	-2,02%
Germany	-73,77%	13,11%	86,89%	13,83%	90,48%	-3,89%	-0,42%

2003-2006 – Data from Eurostat

Table A2 – Indexes of Intra-Industry Trade – EU15 Countries

	Indexes of Intra-Industry Trade (Grubel e Lloyd)					Variation	Variation
	1994	1997	2000	2003	2006	2000-06	1994-06
001:France 83,6%		83,4%	83,6%	82,5%	81,4%	-2,2%	-2,2%
003:Netherlands 82,0%		85,6%	87,0%	87,2%	88,2%	1,1%	6,2%
004:Fr Germany	73,5%	72,7%	76,3%	75,4%	75,4%	-0,9%	1,9%
005:Italy 67,9%		69,2%	71,6%	71,8%	70,4%	-1,3%	2,5%
006:Utd. Kingdom	83,2%	84,3%	83,3%	80,0%	78,9%	-4,4%	-4,3%
007:Ireland 63,0%		62,9%	60,5%	55,1%	53,1%	-7,4%	-9,9%
008:Denmark 69,7%		73,7%	75,5%	77,2%	77,6%	2,1%	7,9%
009:Greece 39,3%		42,4%	40,4%	36,3%	42,7%	2,3%	3,3%
010:Portugal 49,2	**%**	**56,6%**	**57,9%**	**63,7%**	**66,0%**	**8,1% 16,7**	**%**
011:Spain 70,1%		70,6%	72,8%	73,9%	71,3%	-1,5%	1,2%
017:Belgium 82,1%		84,1%	87,4%	88,3%	87,8%	0,4%	5,7%
030:Sweden -		-	74,1%	73,8%	77,0%	2,9%	
032:Finland -		-	62,5%	63,3%	67,6%	5,2%	
038:Áustria -		-	84,4%	84,5%	82,7%	-1,6%	

Trade I ntra-industry inde x from Gru bel and LI oyd compute d f or total multilateral data fo r e ach countr y – disaggregated by chapter (98 sectors).

Table A3

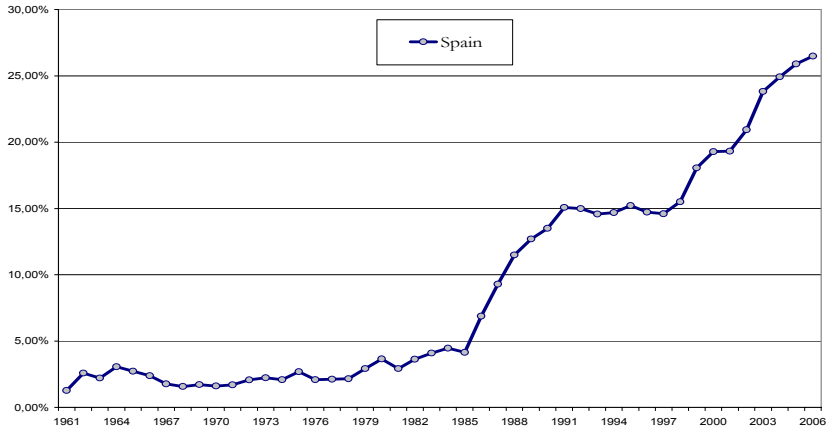
	Indexes of Intra-Industry Trade (Grubel e Lloyd)			Variation
	2000	2003	2006	2000-06
010:Portugal	**57,9% 63,7**	**% 66,0**	**%**	**8,1%**
046:Malta	72,5% 62,0% 60,7%			-11,9%
053:Estonia	65,3% 60,5% 72,4%			7,1%
054:Latvia	37,6% 41,4% 53,2%			15,6%
055:Lithuania	56,5% 61,4% 69,2%			12,7%
060:Poland	60,8% 70,3% 73,3%			12,4%
061:Czech Republic	74,0% 79,3% 79,1%			5,1%
063:Slovakia	66,9% 68,7% 76,1%			9,2%
064:Hungary	79,1% 83,5% 83,3%			4,2%
091:Slovenia	74,1% 74,1% 78,8%			4,7%
600:Cyprus	19,8% 17,5% 30,7%			10,9%
066:Romania -		47,7%	55,9%	8,1%
068:Bulgária -		51,7%	53,3%	1,5%

Table A4

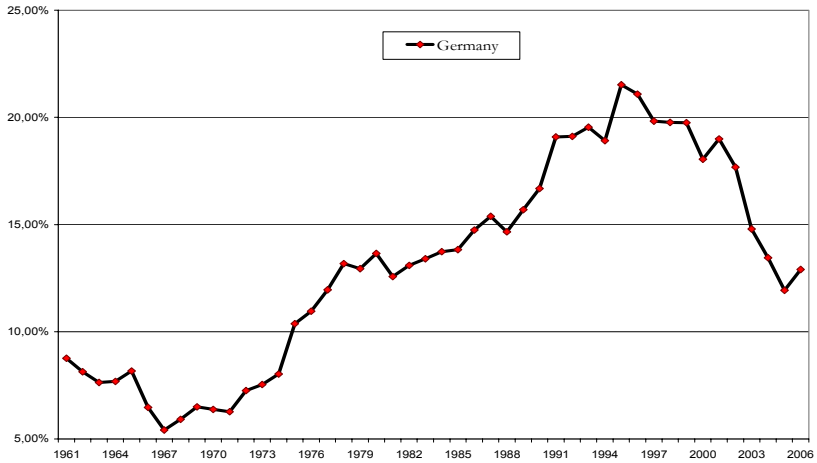
	Indexes of Intra-Industry Trade (Grubel e Lloyd)				Variation
	2000	2003	2006		2000-06
010:Portugal	**57,9% 63,7**	**% 66,0**	**%**		**8,1%**
046:Malta	72,5% 62,0% 60,7%				-11,9%
053:Estonia	65,3% 60,5% 72,4%				7,1%
054:Latvia	37,6% 41,4% 53,2%				15,6%
055:Lithuania	56,5% 61,4% 69,2%				12,7%
060:Poland	60,8% 70,3% 73,3%				12,4%
061:Czech Republic	74,0% 79,3% 79,1%				5,1%
063:Slovakia	66,9% 68,7% 76,1%				9,2%
064:Hungary	79,1% 83,5% 83,3%				4,2%
091:Slovenia	74,1% 74,1% 78,8%				4,7%
600:Cyprus	19,8% 17,5% 30,7%				10,9%
066:Romania -		47,7%	55,9%		8,1%
068:Bulgária -		51,7%	53,3%		1,5%

Figures A5 – Share of the Portuguese Exports destined to each trading partner (as a percentage of total exports of the country)

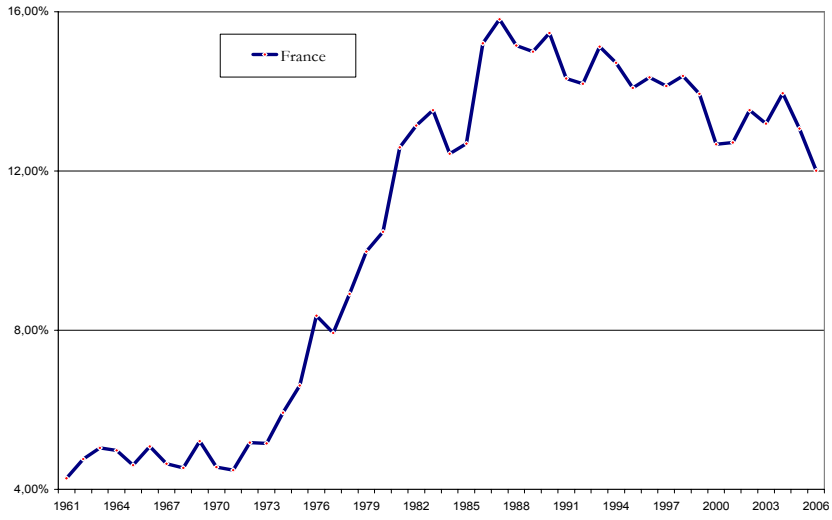
A5.1 - Spain



A5.2 – Germany

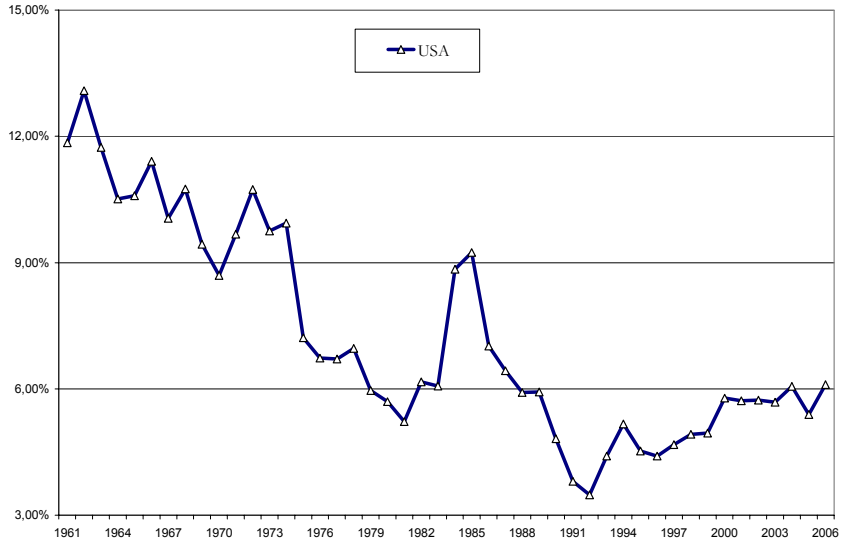


A5.3 – France

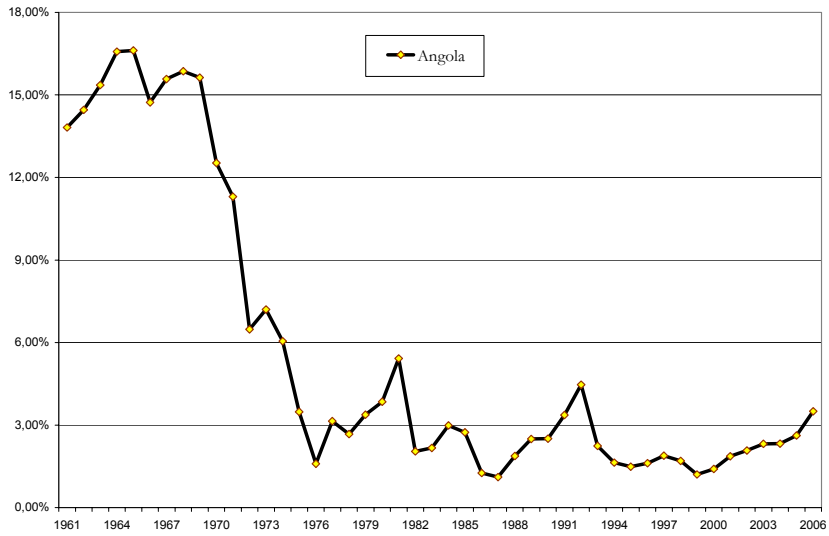


A5.4 – United Kingdom

A5.5 – United States



A5.6 – Angola


Angola
18,00%
15,00%
12,00%
9,00%
6,00%
3,00%
0,00%
1961
1964
1967
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006