



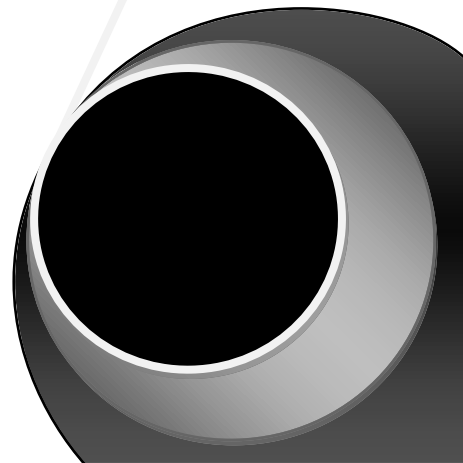
The **HELLENIC OPEN**
BUSSINES ADMINISTRATION
Journal

Volume 4 - 2018, No 1

*Edited by: **Dimitrios A. Giannias**, Professor*
HELLENIC OPEN UNIVERSITY

ISSN: 2407-9332

Athens2014
Publisher: D. Giannias





Volume 4 - 2018, No 1

THE AFTERMATH OF THE “SICKLE-TO-TIE” PROCESS IN GREECE: WHAT DO MERCHANDISE EXPORT TRENDS SUGGEST?

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ABSTRACT

The weak industrialization process of the Greek economy was reflected through the rapid transition from the formerly dominant agricultural production (the “sickle”) to the expansion of the service sector (the “tie”), mainly in terms of sectoral labor distribution during the last decades. This paper highlights the individual components of the recent upward trend regarding the Greek merchandise exports, through a stepwise decomposition of the total merchandise export value to those regarding the main exported products. This in turn leads to the identification of recent export growth prospects for more sophisticated manufactured products, related to the country’s weak industrial base.

Keywords: Greece, Merchandise exports, Manufacturing trade, Agri-food exports, Global economic crisis

JEL Classification: F10, F44, Q17

Introduction

The recent global economic crisis has highlighted the structural problems of the Greek economy, particularly with regard to its twin debt, that is to say the fiscal and commercial debt. Especially on the trade side, the negative commercial

balance has brought to light the issue of the weak industrial base in Greece, due to which Greek merchandise exports mainly concern low-tech consumer products. The latest data already provide some encouraging evidence on the trade balance evolution, namely a stabilizing trend which is mainly due to a drastic reduction in import needs. In the field of exports, the recent upward trend is accompanied by a clear and simultaneous re-balancing between goods and services exports.

The main purpose of this paper is to examine the recent developments in the Greek merchandise export sector, by examining the main exported product composition during the last two decades, focusing later on the recent ten-year period (2006-2015). In this context, is it possible to track changing trends in the Greek merchandise exports' composition over the last decade? If so, are these changes associated with a tendency towards the strengthening of exports regarding superior technological edge products or not?

Background Review

The relevant literature has reported the small-scale productive structure of the Greek economy, characterized by constantly high levels of self-employment (Burtless, 2001 ; World Bank database, 2017), as well as a high degree of dependency on the domestic market, which translated into relatively high consumption rates in terms of private and public expenditure (Brenke, 2012). The Greek manufacturing sector is widely represented by the food, beverage and tobacco production (Herrmann & Kritikos, 2013), namely focused on low technology consumer goods (Louri & Pepelasis Minoglou, 2001). Given the importance of the tourism sector for the Greek economy, a positive aspect of the above assessment is that the relationship between tourism demand and the agri-food sector seems to be confirmed in the Greek case, resulting in the enhancement of agri-food exports to the tourists' home countries (Vellas, 2011; in the case of Greek olive oil, see Vlontzos & Duquenne, 2008).

Some of the reasons lying behind the country's weak industrial structure can be traced back to its industrialization process. Louri and Pepelasis Minoglou (2001) indicate the year 1968 as the starting point of an intensive industrialization process, considering that at that time the GDP share of industry surpasses for the first time the respective share of agriculture, linking the industrialization peak with the moment of improvement of the country's export-to-import ratio. Their empirical results on the Greek economy from 1963 to 1994 suggest a quadratic relationship between the share of the manufacturing sector and the GDP per capita, describing a turning point, after

which a higher GDP per capita converted the consumption needs to more sophisticated goods, such as services, thus inducing the beginning of the de-industrialization process. Pitelis and Antonakis (2003) point out that the industrialization process was interrupted and then followed a reversal trend, before reaching the turning point which characterizes the “completion” of this process, as was the case for other OECD countries. They also argue that the emergence of a source of foreign exchange - which in the Greek case came from tourism, shipping and the émigrés – undermined its manufacturing industries’ competitiveness.

**Figure 1a. Employment in industry
(% of total employment):
Euro-Mediterranean and Balkan area**

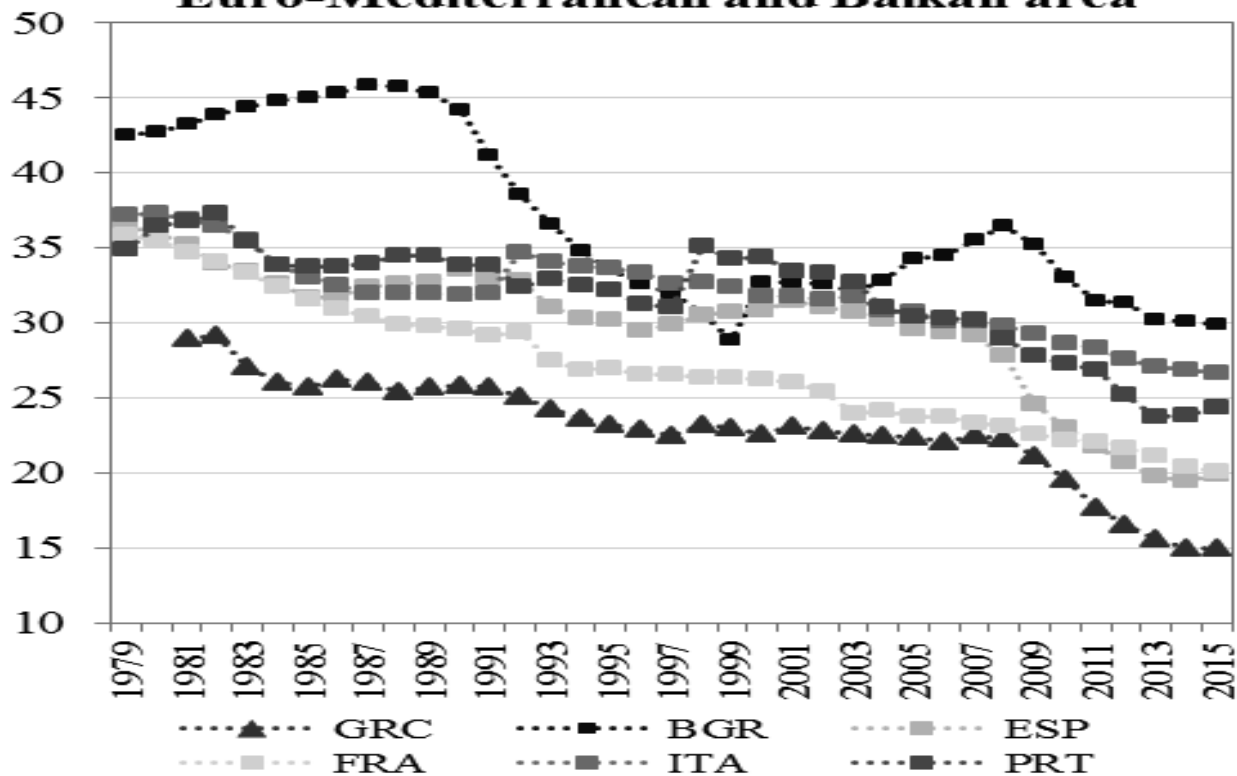
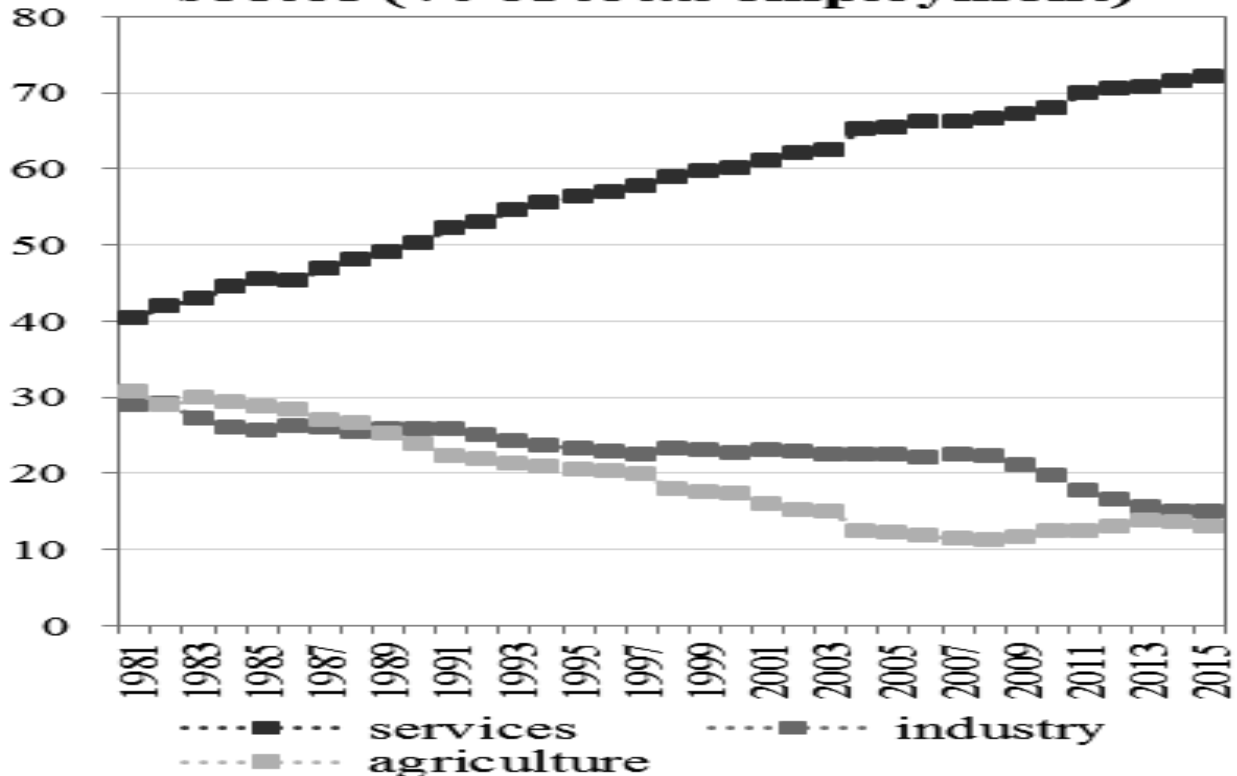


Figure 1b. Employment by sector (% of total employment)



Source: World Bank, 2017

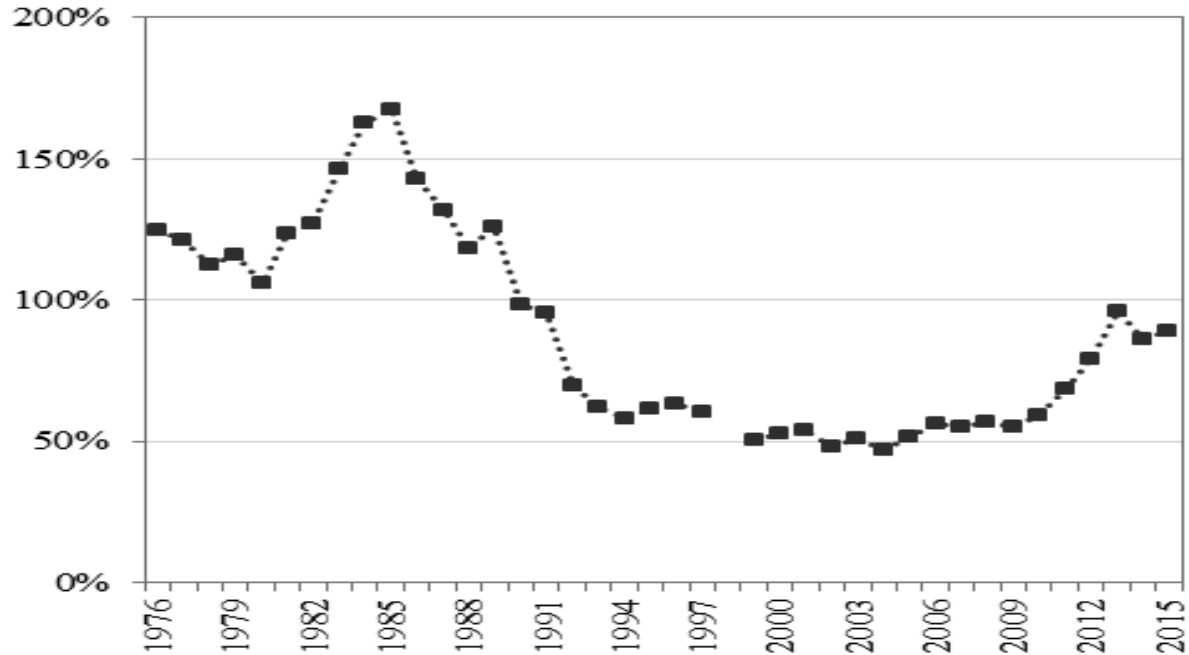
The formerly thriving Greek textile and clothing products sector has been significantly affected by the trade liberalization process. The main reasons that led to this development relate to the decreasing domestic and international prices for cotton-yarn products, the reducing gap between domestic and international prices of cotton-yarn, as well as the increasing gap between the domestic and international cost of labor (Dadakas & Katranidis, 2011). Taking also into account the elimination of product quotas up to 2005, as well as the competitiveness of Chinese products (Dadakas & Katranidis, 2011), this “osmotic” process, or in other words, this process of gradual homogenization of firms’ competitiveness on the international market, had a very negative impact for Greek producers as well.

The beginning of the global economic crisis had brought to light the country’s trade and fiscal deficit, which were drastically reduced, mainly due to the previous significant drop in import payments (Economakis et al., 2014-b ; Economakis et al, 2016). The need to reduce the Greek external imbalances through the expansion of the export sector is clearly recorded in the relevant literature, considering that firms in small countries should be more reliant on the strengthening of the export base, given their small domestic market expansion potential (Brenke, 2012 ; Herrmann & Kritikos, 2013). The recent data suggest such a rebalancing trend between the two trade sectors. In 2015, it is the first time that the export value of goods and services surpasses the respective import value, at least for the last 55 years (World Bank, 2017), even if this instant superiority is far from being significant until now. This recent evolution is also accompanied by another change in the Greek export sector, that is, the gradual re-balancing, in terms of value, between services’ and goods exports – the good-to-service export ratio reaching the unit particularly in 2013 – after about 25 years.

Figure 2a. Exports and imports of goods and services (% of GDP)



Figure 2b. Goods-to-Service export ratio (% , 1976-2015)

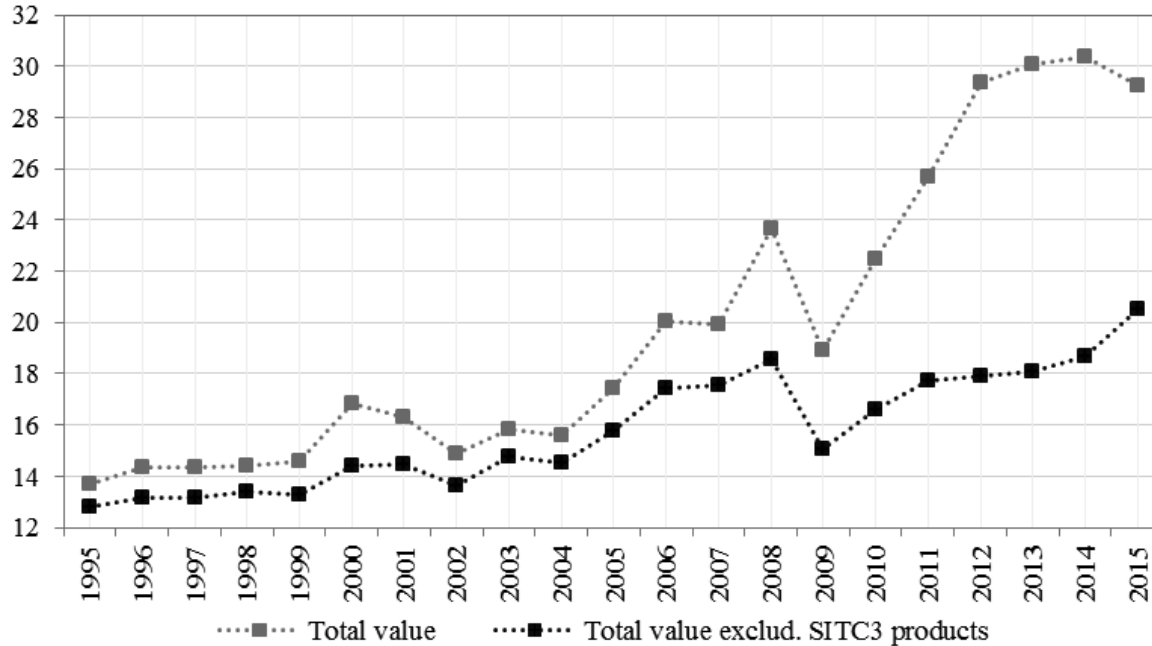


Source World Bank, 2017

The exclusion of mineral fuels, lubricants and related materials (SITC3) from the total merchandise export value provides a clearly differentiated trend, especially since the beginning of the global economic crisis. Apart from several instantaneous fluctuations over time, the total export value can be described by two distinct upward trends. The first trend concerns the first twelve years under study, which is further intensified between 2004 and 2006. The second upward trend starts gradually from 2006, marked by a significant increase from 18 to more than 20 billion dollars. The impact of the crisis in Greek exports is illustrated in Figure 3, translated into a drop from 18.5 to 15 billion in 2009, an initial recovery in 2010 and a subsequent return in the original trend in 2011. As for SITC3 product exports, these mainly concern petroleum oils or bituminous minerals (> 70 % oil, 334).

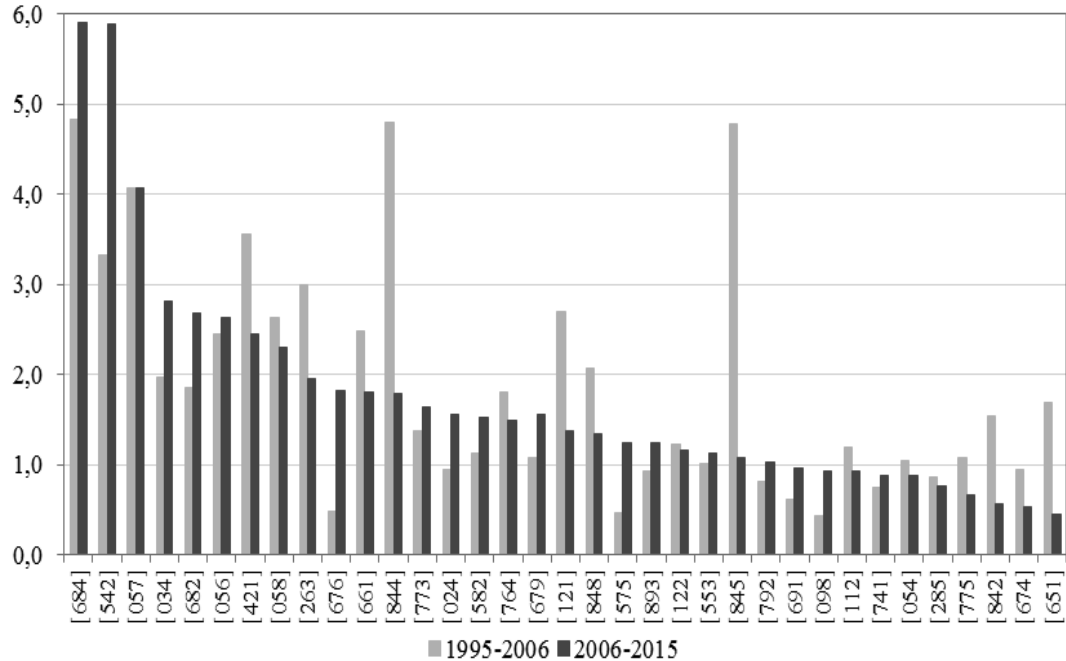
The gradual decline of the clothing industry in Greece is well documented in Figure 4, given the general decline in the relative export shares for all product SITC84 groups, or even the relative reduction in the share of cotton exports. The increasing role of exports of metals, namely aluminium and copper, as well as in the case of medicaments, becomes even more evident during the 2006-2015 period. What does not appear in the previous short-time period, is also the relative increase in the share of food product exports, namely fresh fish, curd and cheese, as well as several edible products and preparations. This seems not to be the case for fixed vegetable fats and oils included in group 421, which mainly concern olive oil exports, accounting for 2.4% of the total export value of the 2006-2015 period, against 3.5% during the first twelve years under study.

Figure 3. Total merchandise export value: 1995-2015
 (in billions of 2005 constant US dollars)



Source: UN COMTRADE – UNCTADstat, 2017

**Figure 4. Relative shares (%) of main exported products:
Changes between 1995-2006 and 2006-2015**



Source: UN COMTRADE – UNCTADstat, 2017

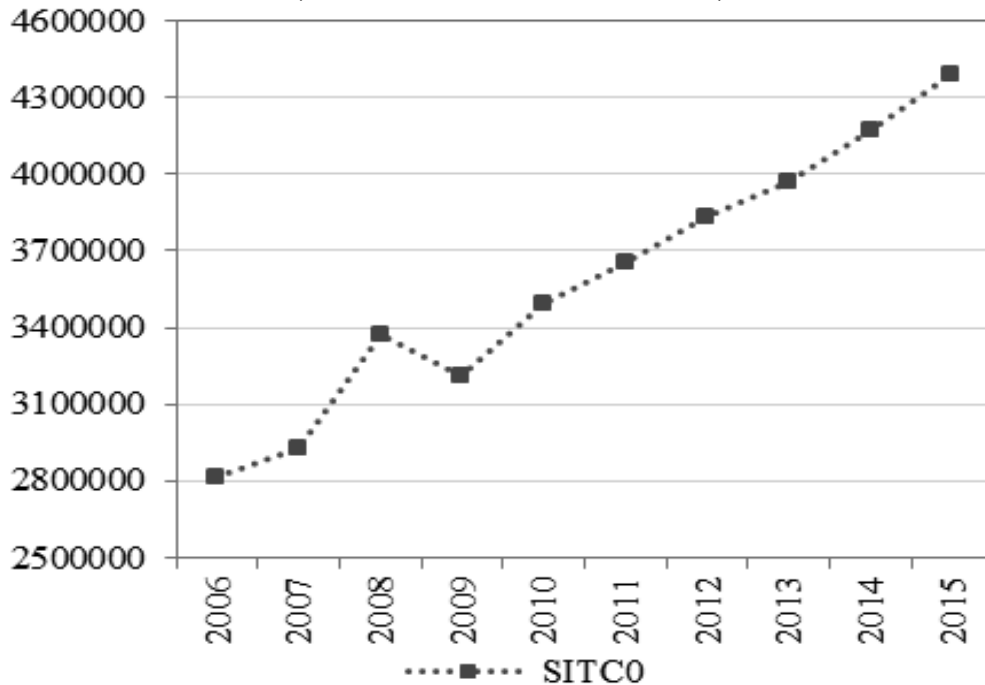
Basic Trends in SITC Categories and Products

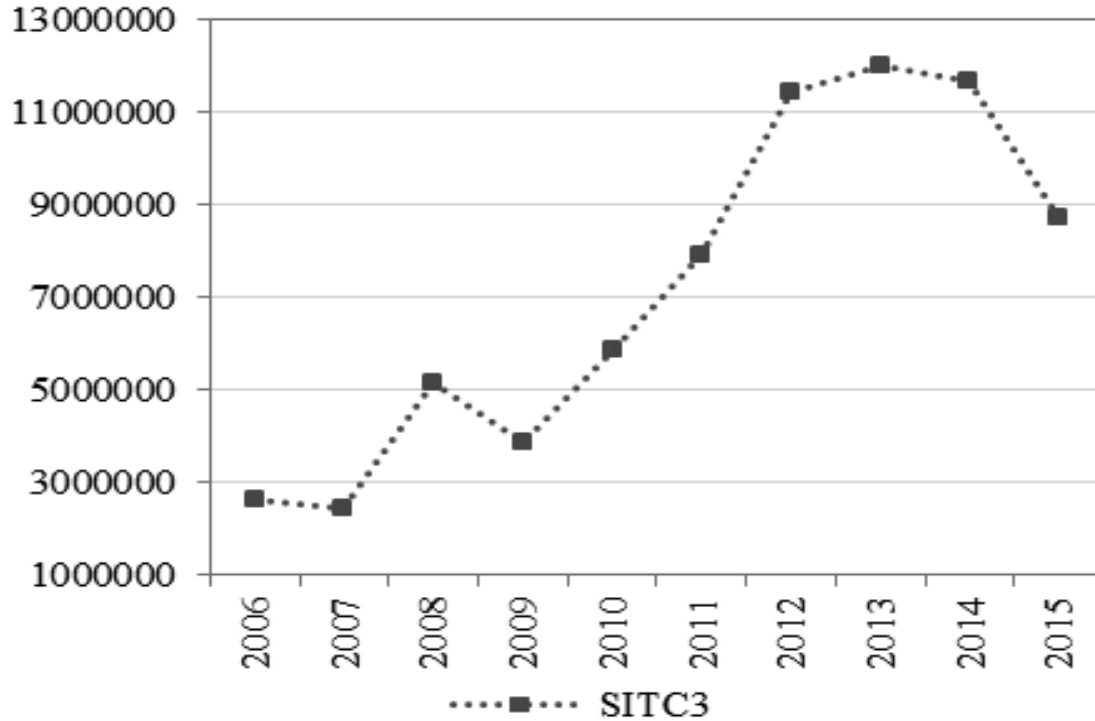
The following sections describe a stepwise decomposition process of the total merchandise export value into those corresponding to the general SITC product categories and, secondly, into those concerning each of the main exported products during the 2006-2015 period. The overall sample includes the above 36 product groups and products (Figure 4), as identified by intersecting the most important exported product groups between the 1995-2006 period and the last decade under study (2006-2015). As also for Figures 3 and 4, primary data derive from the UN COMTRADE – UNCTADStat database, where export values are expressed in current dollars, which are finally deflated and standardized in 2005 constant dollars. The product groups are categorized according to the Standard International Trade Classification (SITC - Rev.3). In case of missing data on product group export values for one or more years, these are not taken into account and thus considered as zero values.

Trends in General SITC Categories

Among all main export product categories, the most significant upward trend clearly concerns the food export sector (SITC0), marked by an average annual increase of about 5.6% during the 2006-2015 period. Together with SITC6 product category, which is mainly represented by aluminium and copper exports, the food export sector constitutes the main export category, except petroleum and petroleum products exports. Based on 2015 data, it accounts for about 15% of the total export value, against 30% concerning petroleum exports (SITC3). As for the latter product category, the sharp rising trend dates back to 2004, reaching its peak in 2013 and an export value of about 12 billion constant dollars. The sudden decrease in the export value of SITC33 products (mainly petroleum oils of group 334) in 2015 is by far the major factor of the abrupt drop in total export value for the same year.

Figures 5a, b. Evolution trends of SITC0 and SITC3 export values
(in thousands of 2005 constant US dollars)





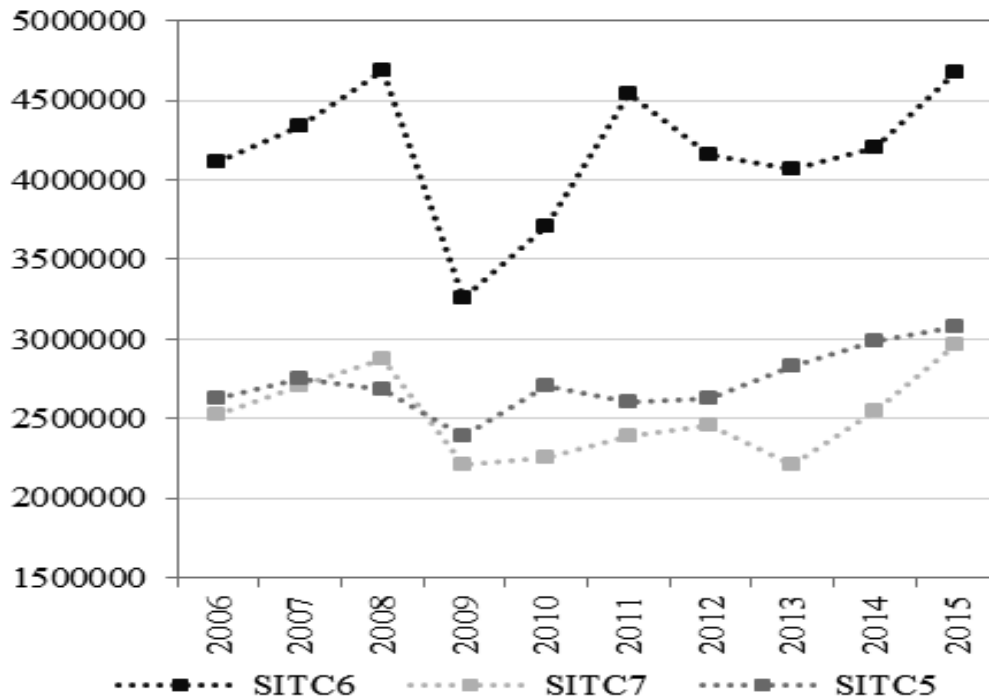
Source: UN COMTRADE – UNCTADstat, 2017

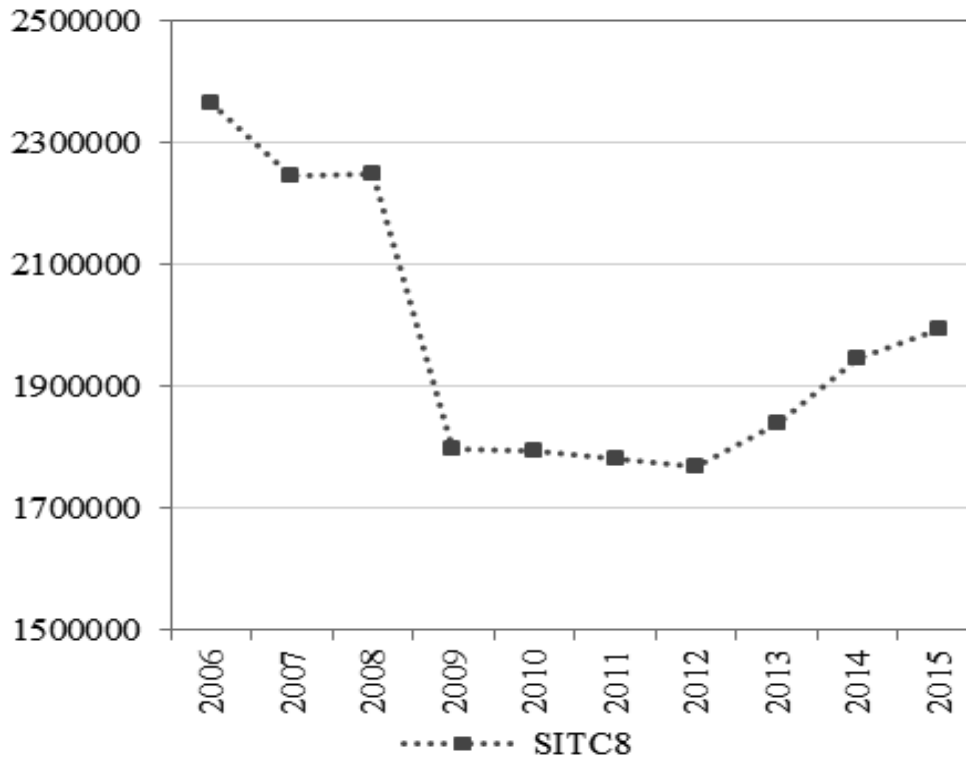
The general product category regarding chemical products (SITC5) is mainly represented by exports of medicaments and plastics. The significant signs of increase observed during the first decade under study, are followed by a rather stabilizing or even downward trend period and, finally, a net increase since 2012. Similar trends are shown for metals, machinery and transport products, even though they seem to be more affected by the global economic crisis. On the contrary and with regard to the clothing export sector, which mostly represents SITC8 product exports, is characterized by a sharp decline during almost the entire period. However, the net increase since 2012 is mainly due to the growth in exports of articles of plastics (893), baby carriages, toys, games and sporting goods (894), as well as of meters and counters (873). Overall, the above and below figures show that the recent total export value increase is due to a generalized recent increase in exports of SITC5-8 products, as well as to the constant upward trend regarding exports of food products.

Changes in Specific Product Groups

Food and beverage industry. The most important increase is observed in the case of cheese, curd (024), edible products and preparations (098) or even in prepared or preserved vegetable exports (056). To a lesser extent, similar trends concern the exports of fresh fish and alcoholic beverages. Unlike the previous product group vegetables, exports of fresh or dried vegetables (054) remain stable during the ten-year period. With regard to fruit exports, the trends show an initial growth process, followed by a recent stabilizing trend during the last 2-3 years under study. Finally, exports of fixed vegetable fats and oils (421) are marked by an initial gradual downward trend until 2010, compared to the base year, which next turns to a rather upward trend, even accompanied by several fluctuations.

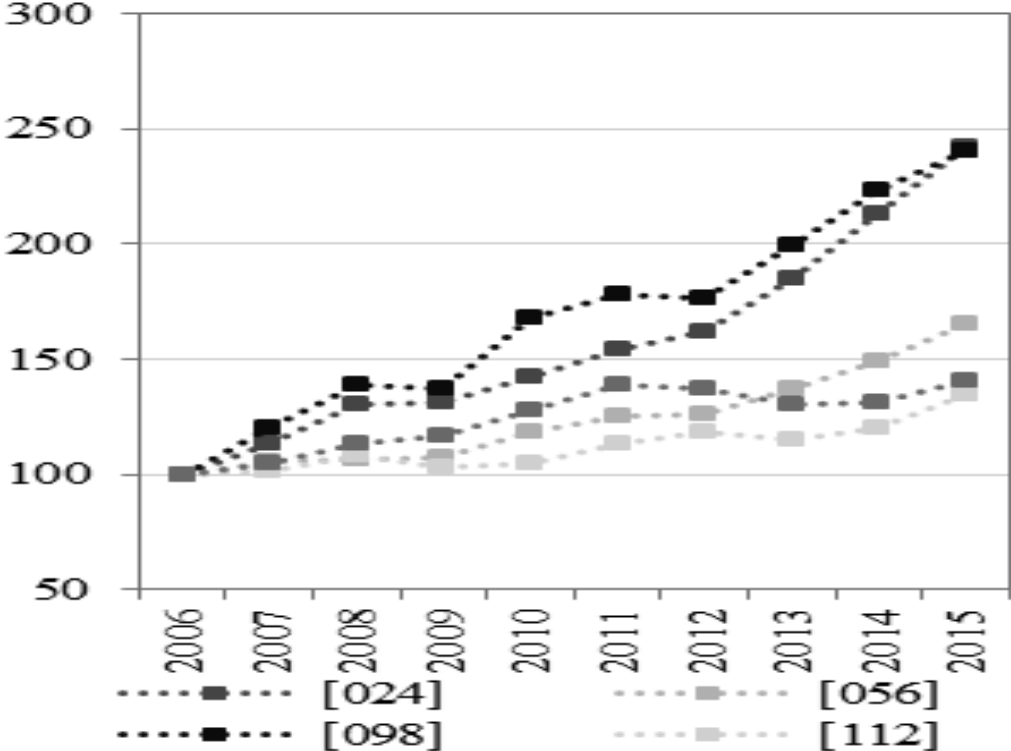
Figures 6a, b. Evolution trends of SITC5-8 export values
(in thousands of 2005 constant US dollars)

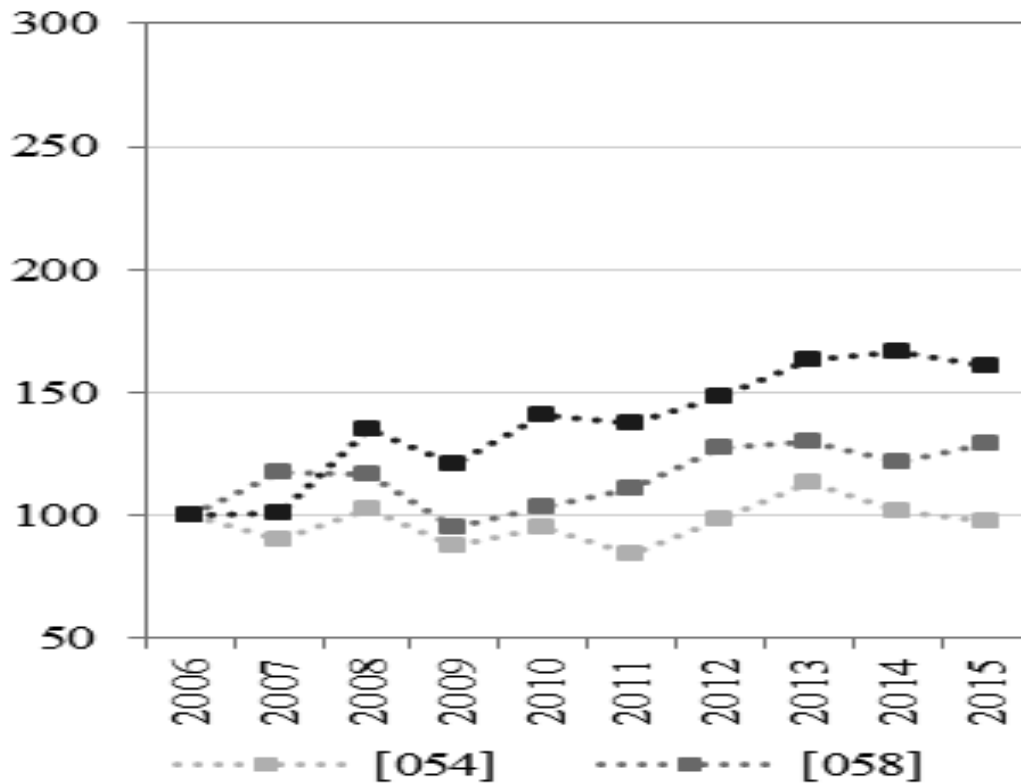


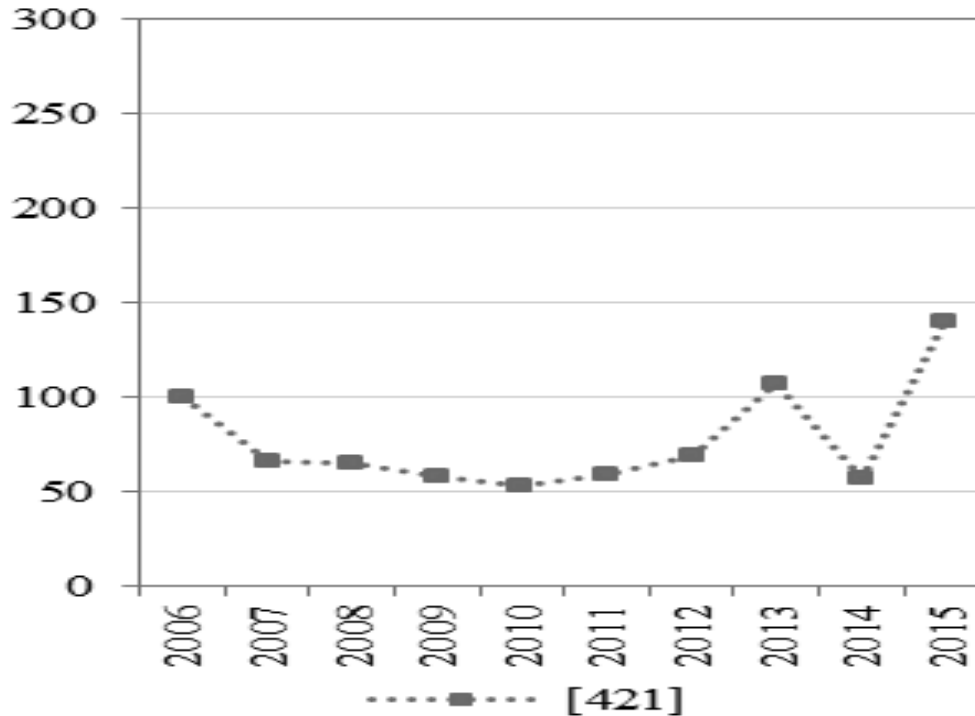


Source: UN COMTRADE – UNCTADstat, 2017

Figures 7a-c. Percentage changes (%) in food and beverage export values





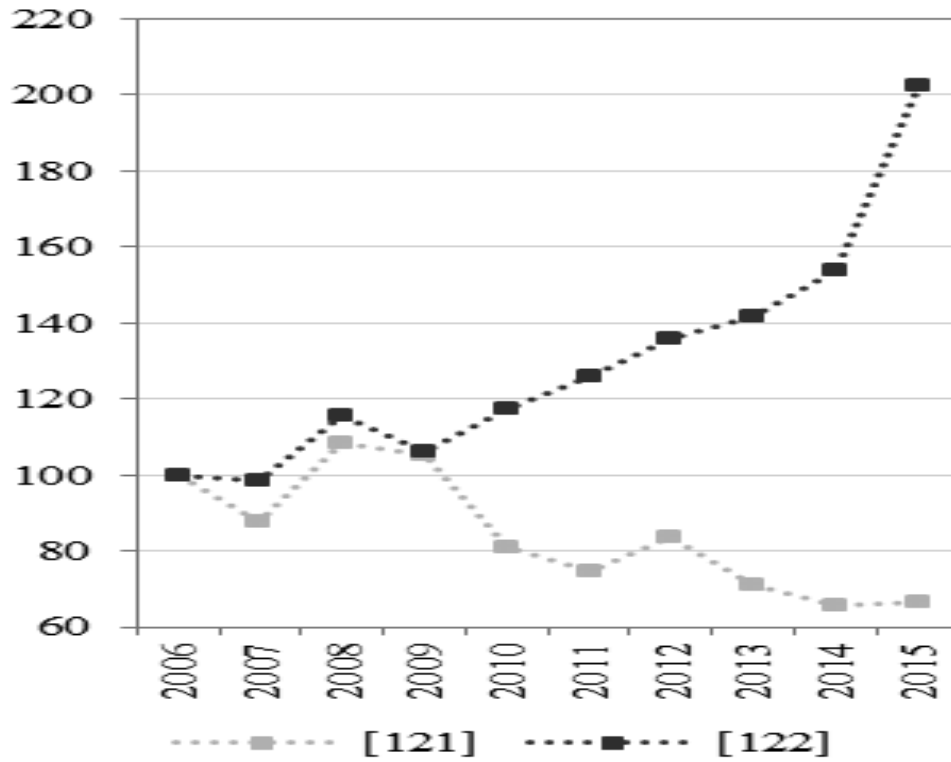


Source: UN COMTRADE – UNCTADstat, 2017

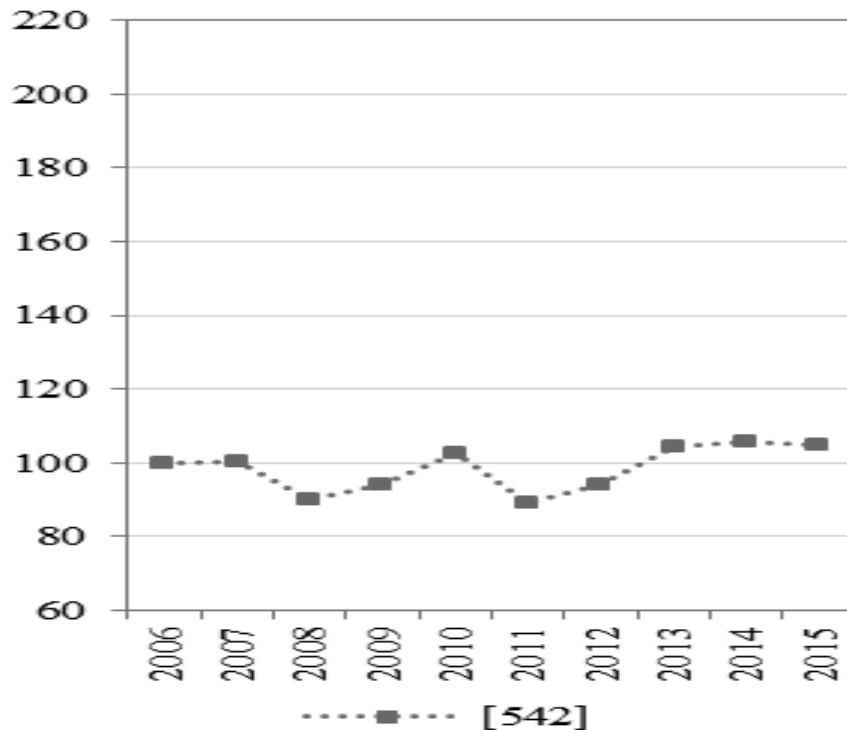
Luxury and healthcare products. The last ten years under study reveal a structural change in tobacco exports. The significant increase in exports of manufactured tobacco (122), along with the simultaneous decline in those of unmanufactured tobacco (121), sets the tone for the shift from a raw tobacco production highly dependent on European subsidies, to a significant boost in export activities regarding manufactured tobacco products. The implementation of the Common Agricultural Policy (CAP) in 2006 included the elimination of subsidies on tobacco cultivation, resulting in a drastic reduction in tobacco cultivation areas in Greece (Behrakis & Connolly, 2011). As for exports of perfumery, cosmetic or toilet preparations (553), there is a recent recovery back to 2006 levels. About the same export value in 2015, compared with 2006, is also observed in medicament exports (542), albeit with several fluctuations. The latter stabilizing trend comes after a sharp increase in terms of export value during the 1995-2015 period. At this point it should be mentioned that, especially in small-population countries, the trade sector plays a key role in the competitiveness of the firms concerned, as imports often complement domestic shortage in raw materials necessary for the medicament production, while exports become crucial in order to counterbalance the decreased domestic demand (Voulgaris & Lemonakis, 2014). Summing up for the main exported luxury and healthcare products, the ten-year period between 2006 and 2015 is marked by a remarkable rise in manufactured tobacco exports.

The beginning of the global economic crisis was accompanied by the sharp rise in exports of petroleum oils and oils obtained from bituminous minerals (>70 % oil, 334), reaching its peak in 2013 and an estimated value of 11.3 billion dollars (2005 constant). For the same year, they account for 37.6% of the total export value, which then falls to about 28% in 2015. A similar trend can also be observed in the case of gold exports. Even though they are not among the main exported products, it is of particular interest to notice the sharp increase from 2010 onward, mainly due to limited liquidity issues in the Greek economy during the crisis period. Finally, the plastics export sector shows significant signs of recovery during the very last years. Since 2009, there is a net increase in exports of plastic plates, sheets, film, foil and strip (582), as well as in the case of articles of plastics (893).

Figures 8a-c. Percentage changes (%) in luxury and healthcare product export values

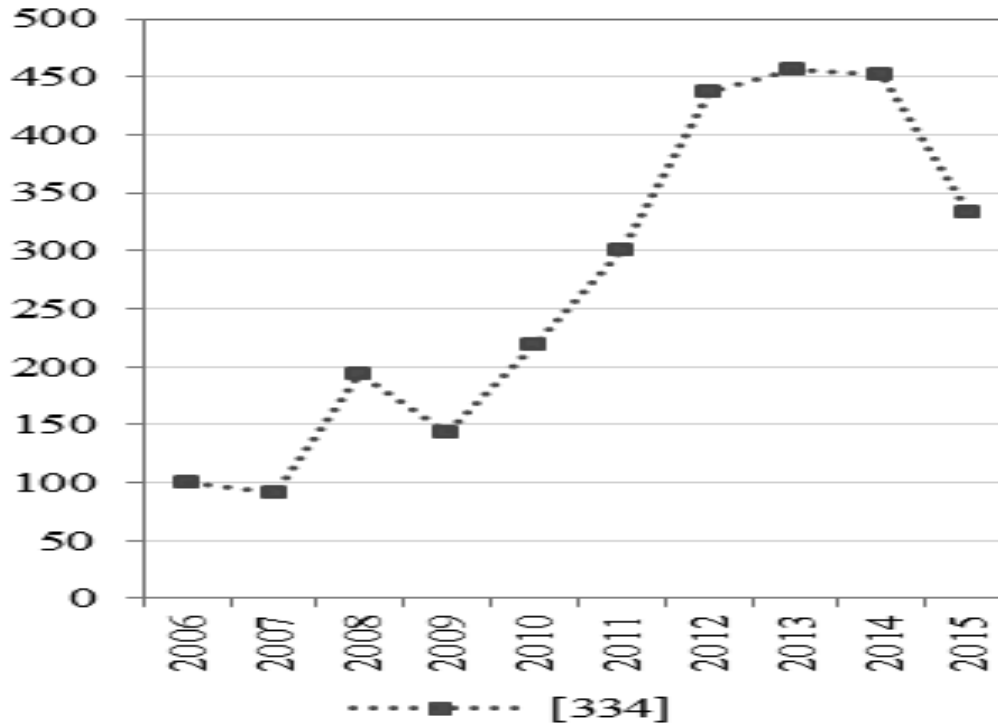


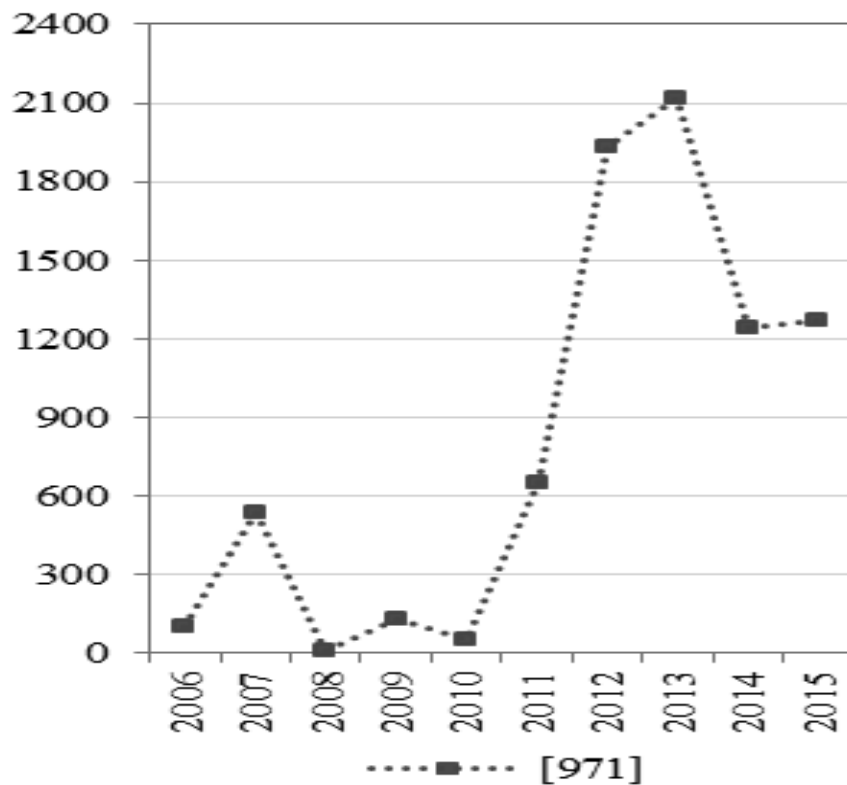


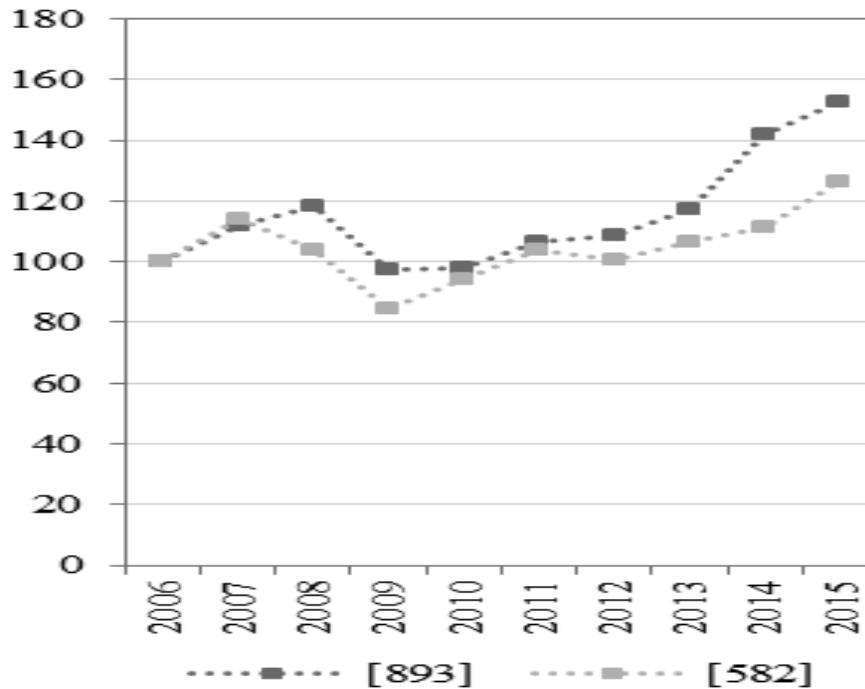


Source: UN COMTRADE – UNCTADstat, 2017

Figures 9a, b. Percentage changes (%) in petroleum products, gold and plastics export values





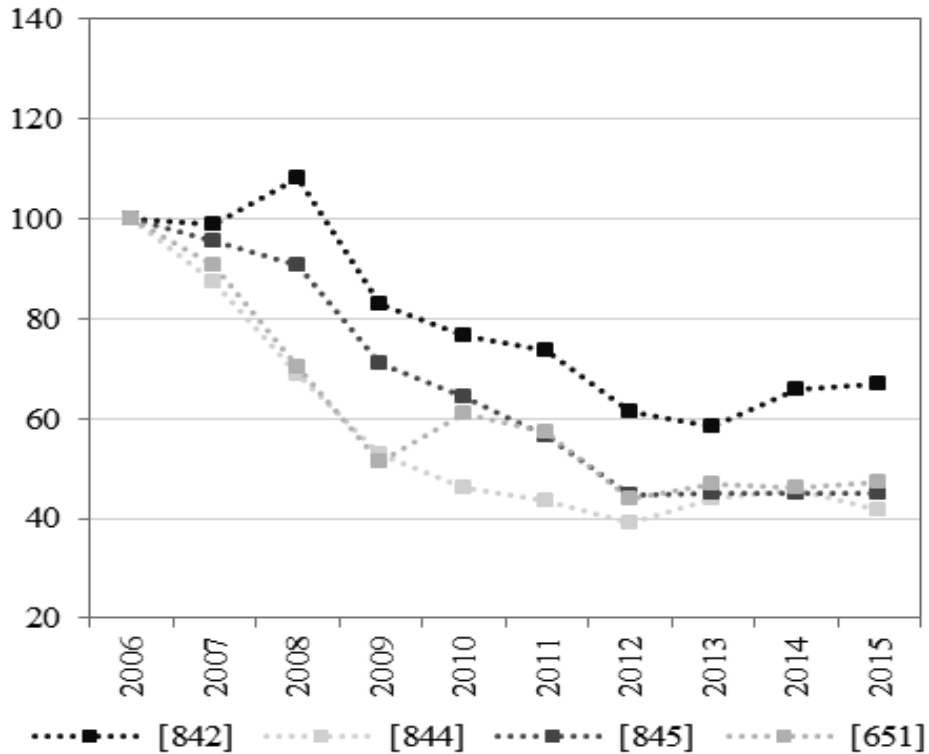


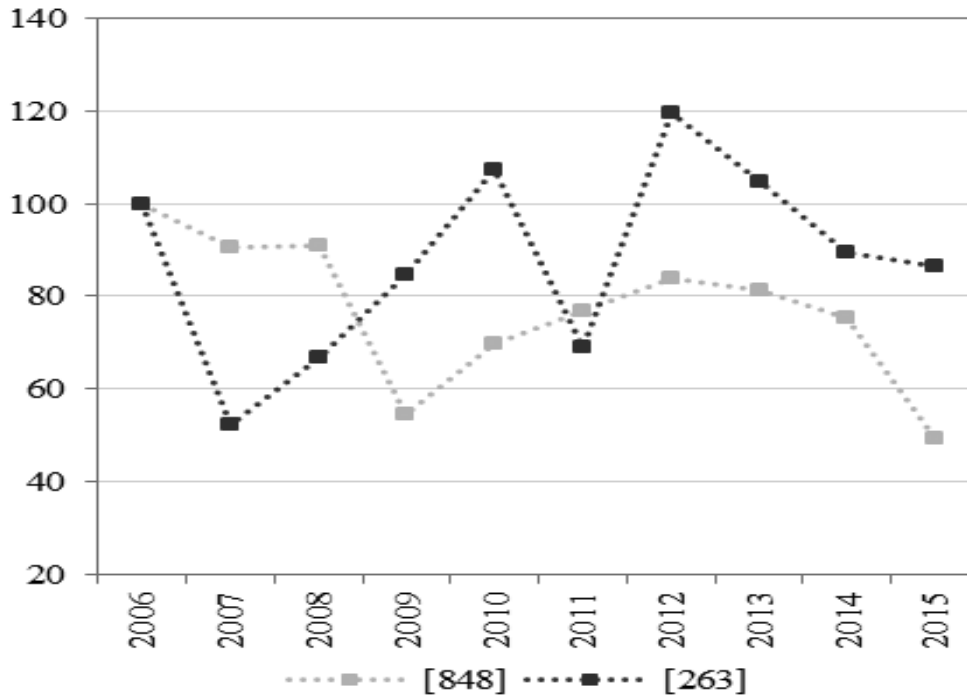
Source: UN COMTRADE – UNCTADstat, 2017

The gradual contraction in the textile and clothing industry in Greece is clearly reflected in the significant decrease in exports of related products, such as women's clothing, articles of textile fabrics and other clothing accessories. Similar trends are also seen in exports of men's clothing products, except that, as shown in Figure 4, women's clothing exports are constantly much more important for the Greek export sector than the first, placed among the three main exported products during the 1995-2006 period. The cotton export value is characterized by significant fluctuations, leading to a recent decline and a lower export value than that of the base year. To sum up, the trends illustrate the impact of the trade liberalization process in textiles and clothing, the release of export quotas and the transfer of the domestic productive activities outside Greece, to the gradual displacement of the clothing export sector from the status of the major export industries in Greece.

The general upward trend in the total export value is accompanied by a significant increase in aluminium exports. This is not the case for aluminium ores and concentrates, which show a stabilizing trend over the last years. Similar trends are shown in the case of exports of lime, cement and fabricated construction materials (661). Signs of recovery describe the trends related to copper exports, as well as for tubes, pipes and hollow profiles of iron or steel (679). On the contrary, exports of flat-rolled products of iron and non-alloy steel (674), other structures and parts thereof (not elsewhere specified, 691) are marked by a decrease to half of their export value, compared with 2006. At this point it is worth pointing out the impact of the global economic crisis in the Greek construction sector, considering that many Greek construction firms decided to expand their activities abroad, namely in the Middle-East, the Balkans and Southeastern Europe, apparently due to the lack of new public works in Greece (Kamsaris & Kougoulos, 2014). This may partially explain some signs of recovery in construction material exports after the crisis, as mentioned before, where Greek companies which expand their activities abroad import some of their construction materials back from Greece.

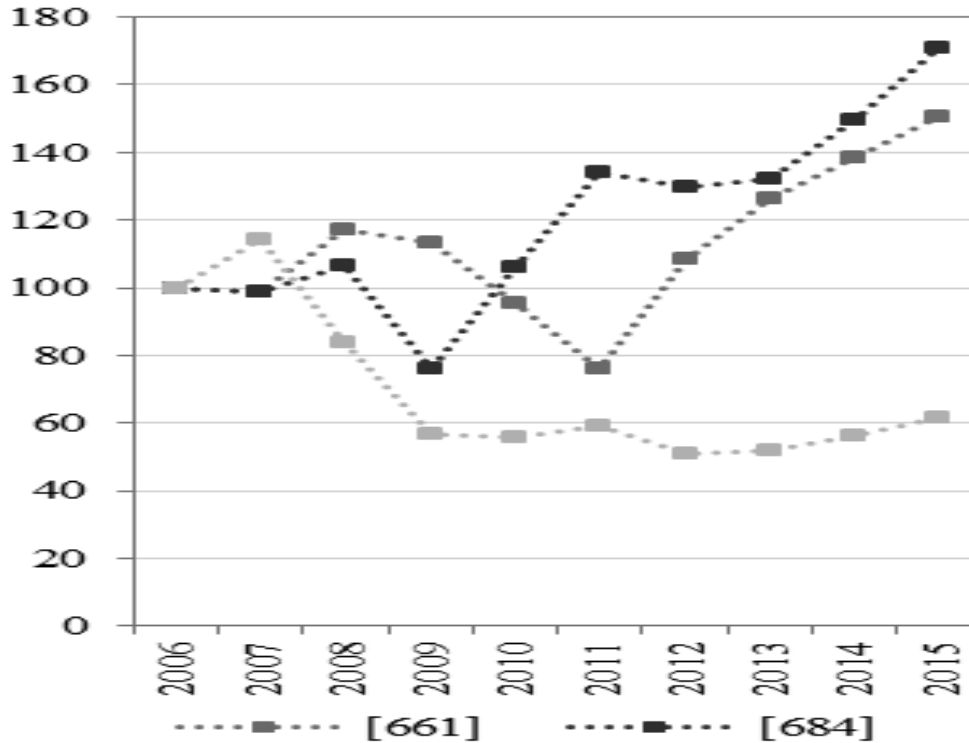
Figures 10a, b. Percentage changes (%) in textile and cloth export values

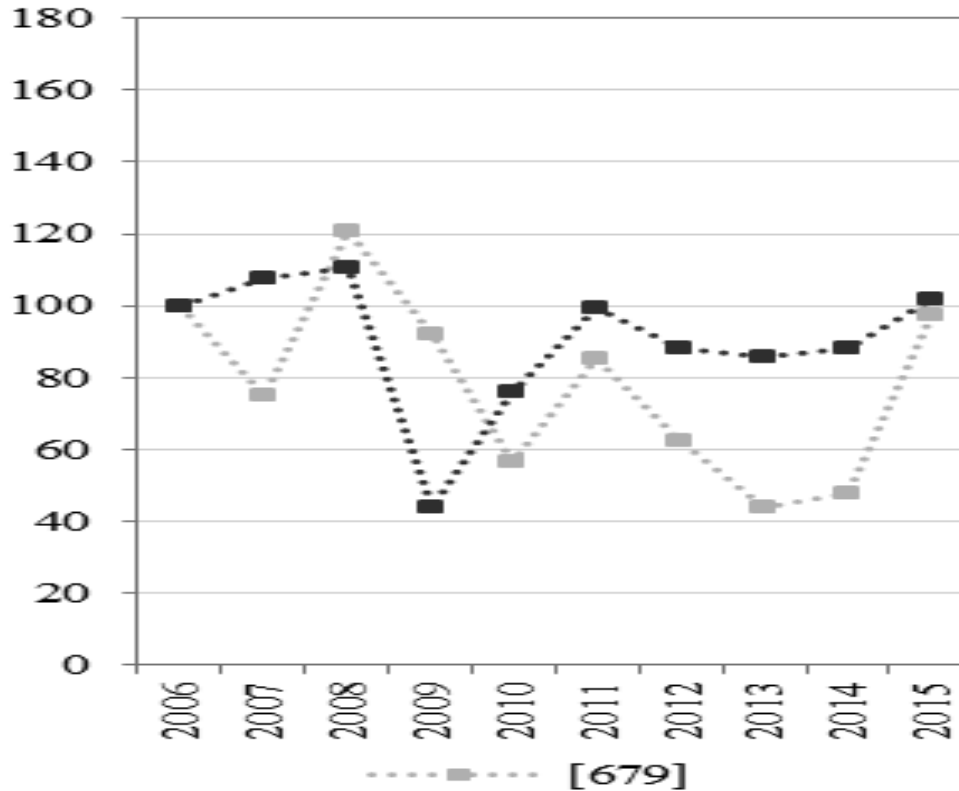


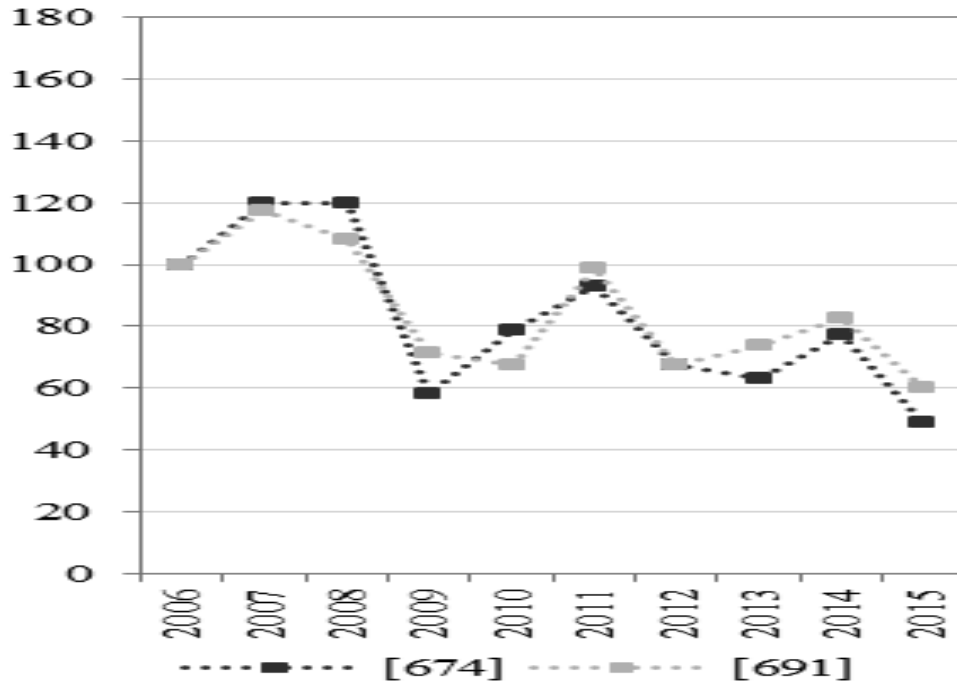


Source: UN COMTRADE – UNCTADstat, 2017

Figures 11a, b, c. Percentage changes (%) in construction material export values







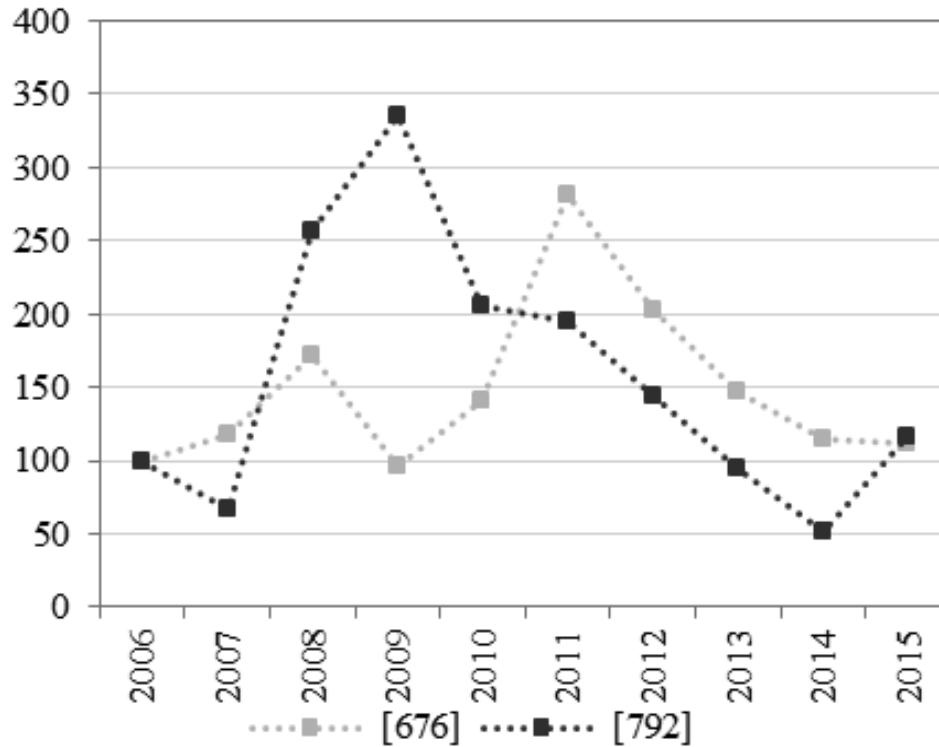
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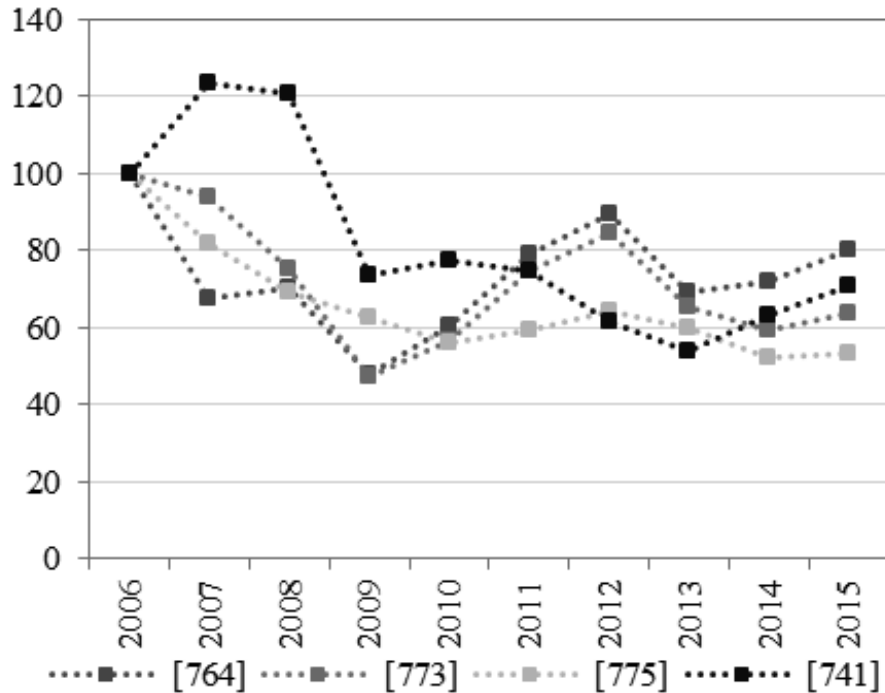
With regard to machinery and transport equipment, the last five years represent a general decline in exports of aircraft and associated equipment (792), as well as in the case of iron and steel bars, rods, angles, shapes and sections (676), leading to similar export values in 2015 compared with the base year. Among the main exported products belonging to machinery equipment, significant losses are shown in exports of heating, cooling, telecommunications and household equipment (741, 764, 775), as well as equipment for distributing electricity (773), which in 2015 account for 50-80% of their respective export values observed in 2006. Overall, this ten-year period is marked by a general decline in exports of machinery products, along with a temporary rise in aircraft equipment exports until the beginning of the global economic crisis.

Changes in Trade Partnerships (2006-2015)

The ultimate objective of this approach is to assess the changes in Greece's trade partnerships regarding four of the major exported products, based on 2015 data, namely aluminium, medicaments, fresh or dried fruits and nuts and fixed vegetable fats and oils. The aluminium sector is the main pillar towards the enhancement of the Greek exports over the last five years, except the exports of petroleum products (334). This evolution is due to the significant increases in exports to Germany and Italy, accounting for about 16% and 15% of the total increase in aluminium exports between 2006 and 2015. To a lesser extent, it is worth mentioning the increase in exports towards two other European countries, such as Poland and France, accounting for about 9% of the total increase, while outside the European market, the country's export focus is on two large consumer markets, such as the United States and Turkey. Overall, it is no surprise that Greek aluminium exports are mainly focused on large-population countries, such as all the above. The recent upward trend in medicament exports is the result of two opposing factors: the export growth towards northeastern European countries, Spain and Italy, in contrast to the significant drop in exports towards the three largest European markets, namely Germany, United Kingdom and France. Unlike the aluminium sector, medicament exports are much more focused on the European continent.

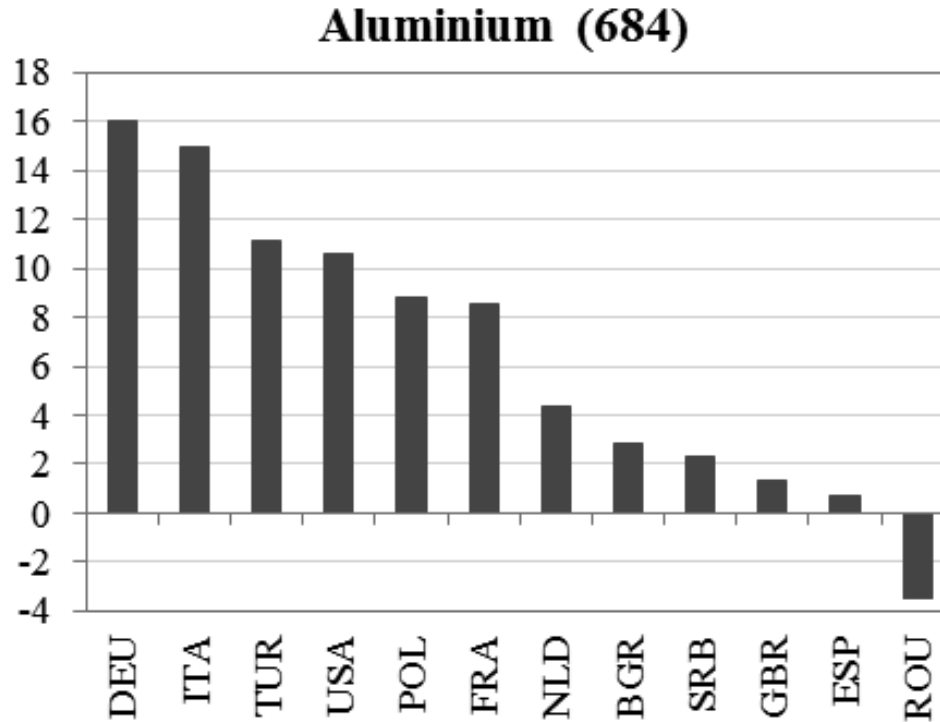
Figures 12a, b. Percentage changes (%) in machinery and transport export values

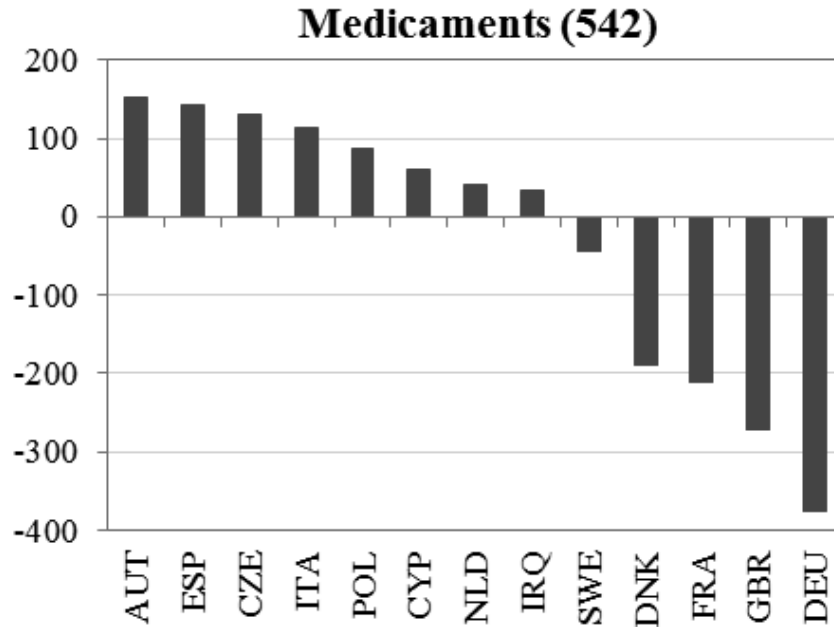




Source: UN COMTRADE – UNCTADstat, 2017

Figures 13a, b. Relative contribution (%) to aluminium and medicament export value by trade partner (2006-2015)



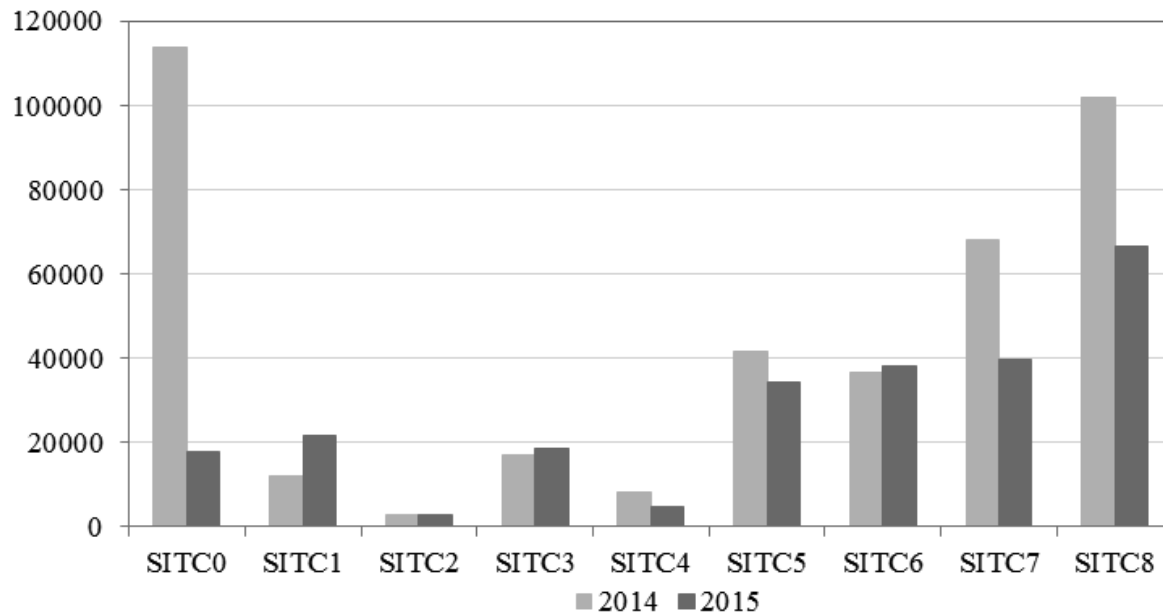


Source: UN COMTRADE – UNCTADstat, 2017

During the same period of time, Eastern European countries (Balkans, Post-Soviet countries) are a rather crucial destination for Greek fresh or dried fruits and nuts. The general upward trend in this specific product group is mainly due to the increase in exports towards Romania. To this evolution, it is worth also noticing the important shares of exports towards Egypt and Italy. Russia's import ban on agricultural products from the EU (FAO, 2014; European Commission 2017), imposed in August 2014 and caused by the EU restrictive measures in view of Russia's destabilizing actions in Ukraine (European Union, 2014), had a very strong negative impact on Greek fruit exports. This is reflected in the export value trend regarding fruits and nuts (Figure 7b, 057), but it becomes even more evident by the negative contribution share of Greece-to-Russia exports to the general export value increase concerning the specific product category. The impact of the Russian import ban on Greek fruit exports corresponds to a decline in export value between 2013 and 2014 from about 120 to 80 million dollars, which eventually becomes zero in 2015.

From the European side, the restrictive measures generally included limited access to EU primary and secondary capital markets for five major Russian institutions, three energy and three defense companies, an export ban on arms trade, dual-use goods for military use, as well as to curtail Russian access to several sensitive technologies and services intended for oil production and exploration (European Union, 2014). In this context, the crisis in Ukraine had a twofold negative effect in EU countries such as Greece, not only in exports of food products (SITC0) to Russia, but also in machinery and other manufactured product exports. This becomes evident in Figure 14, showing that the SITC7 and SITC8 export values in 2015 are estimated at about 60% of the export value in 2014. But the most significant decrease concerns undoubtedly the food and live animal export sector, estimated at about 16% of the SITC0 export value in 2015.

**Figure 14. Greek exports to Russian Federation by SITC product category
(2014 and 2015, in thousands of 2005 constant US dollars)**

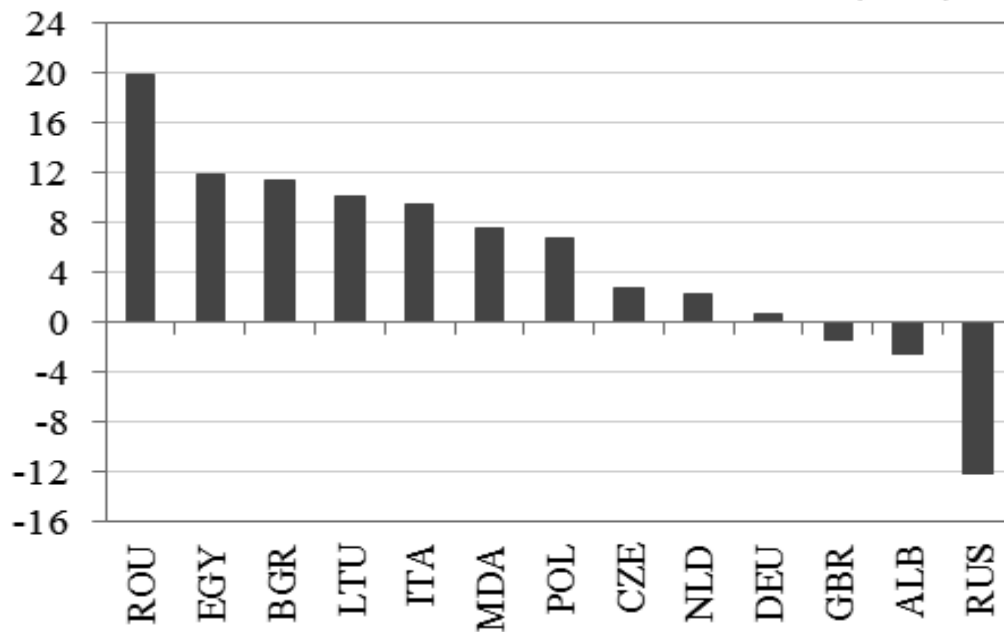


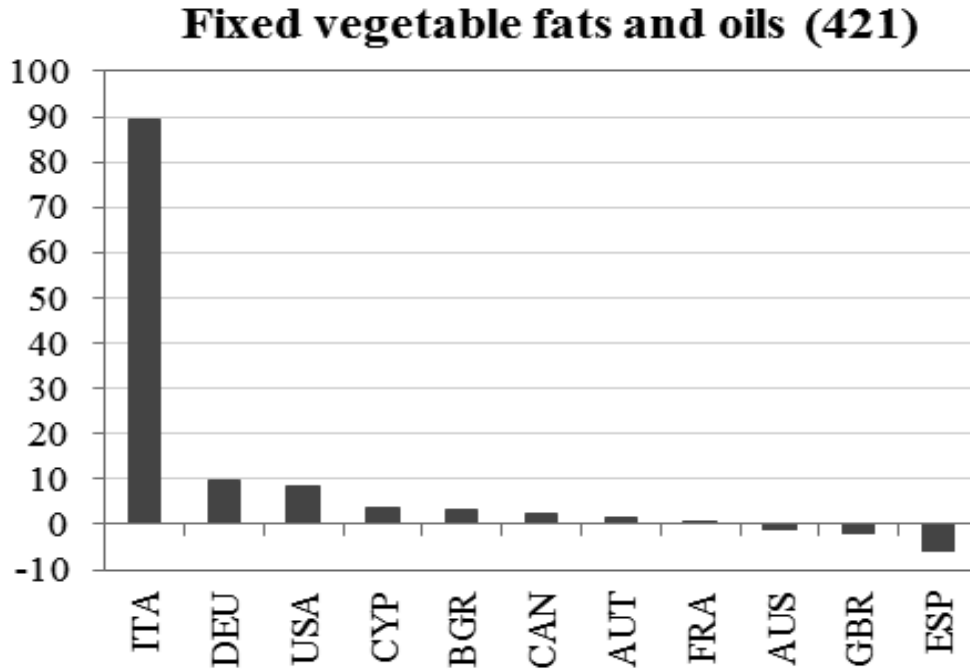
Source: UN COMTRADE – UNCTADstat, 2017

Last but not least, the recent upward trend in olive oil exports (421) is largely due to the increase in exports to neighboring Italy, accounting for about 90% of the total export value increase. A positive contribution is also observed in exports to Germany and the United States. The Greek olive oil export sector undoubtedly represents a special case, considering that the importers of olive oil outside Greece usually blend lower quality olive oils with superior quality Greek olive oil, so as to increase their sales. Apart from its significant nutritional value, the large potential of Greek olive oil exports is enhanced by the presence of the Greek diaspora in the most developed countries all over the globe, the role of tourism in Greece, as well as the increasing international adoption of several dietary habits included in the Mediterranean diet (Vlontzos & Duquenne, 2008). From the above four specific product groups, it is worth reminding that the exports of medicaments and fresh or dried fruits and nuts are characterized by a rather stabilizing trend during the very recent years under study. On the contrary, aluminium exports follow a net upward trend all along the period under study, while olive oil export growth seems to recover since the beginning of the global economic crisis.

Figures 15a, b. Relative contribution (%) to (i) fruits and nuts and
(ii) fixed vegetable fats and oils export value by trade partner (2006-2015)

Fruits and nuts, fresh or dried (057)





Source: UN COMTRADE – UNCTADstat, 2017

Conclusions

The retrospective analysis conducted here tried to shed light on the changes that occurred in the composition of the main exported Greek products, focusing on the recent developments during the last decade. At the level of the general SITC categories' exports, the most promising growth trends concern the case of food products (SITC0). With regard to more sophisticated manufactured products, the gradual decline in clothing and textile exports has already been documented through the present analysis, under the new framework set by the international trade liberalization process and, furthermore, the high competition standards from the respective Chinese products. The medicament export sector had been already marked by a remarkable expansion during the first ten-year period under study, being constantly among the main exported products. Significant signs of recovery are presented in the case of perfumery, cosmetic or toilet preparations, as well as plastics, while the beginning of the global economic crisis was accompanied by the expansion of aluminium, copper and several construction material exports.

The dual nature of the recent trade barriers, imposed by the EU restrictive measures on exports towards the Russian Federation and, conversely, by the Russian import ban on EU agri-food products, had a significant negative impact on the export activities towards the country's one of the most important trade partners. The agri-food export sector is, and can only be, a major component of Greek exports, and this momentum is expected to be further enhanced by the eventual future removal of barriers in EU-Russian trade relations. The country's manufacturing export dynamics are limited to specific metals such as aluminium and copper, luxury and health products, several construction materials and plastics. While the possibility of a re-industrialization process, in order to boost manufacturing export growth, is not seen as a likely future development in the Greek case, this does not preclude focusing on sectors concerning several more sophisticated manufactured products, such as the aforementioned. An integrated strategic plan for the development of targeted manufacturing sectors which, unlike small-scale agri-food export firms, could potentially contribute more effectively to creating new jobs seems to be the most suitable solution in order to cope with the constantly high unemployment rates in Greece.

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APPENDIX. Product Classification by SITC - Revision 3

[024]	Cheese and curd
[034]	Fish, fresh (live or dead), chilled or frozen
[054]	Vegetables
[056]	Vegetables, roots, tubers, prepared, preserved, n.e.s.
[057]	Fruits and nuts (excluding oil nuts), fresh or dried
[058]	Fruit, preserved, and fruit preparations (no juice)
[098]	Edible products and preparations, n.e.s.
[112]	Alcoholic beverages
[121]	Tobacco, unmanufactured; tobacco refuse
[122]	Tobacco, manufactured
[263]	Cotton
[285]	Aluminium ores and concentrates (incl. alumina)
[334]	Petroleum oils or bituminous minerals > 70 % oil
[421]	Fixed vegetable fats & oils, crude, refined, fractionated
[542]	Medicaments (incl. veterinary medicaments)
[553]	Perfumery, cosmetics or toilet preparations (excluding soaps)
[575]	Other plastics, in primary forms
[582]	Plates, sheets, films, foil & strip, of plastics
[651]	Textile yarn
[661]	Lime, cement, fabricated construction materials (excl. glass, clay)
[674]	Flat-rolled prod., iron, non-alloy steel, coated, clad
[676]	Iron & steel bars, rods, angles, shapes & sections
[679]	Tubes, pipes & hollow profiles, fittings, iron, steel
[682]	Copper
[684]	Aluminium
[691]	Structures & parts, n.e.s., of iron, steel, aluminium
[741]	Heating & cooling equipment & parts thereof, n.e.s.
[764]	Telecommunication equipment, n.e.s.; & parts, n.e.s.
[773]	Equipment for distributing electricity, n.e.s.
[775]	Household type equipment, electrical or not, n.e.s.
[792]	Aircraft & associated equipment; spacecraft, etc.
[842]	Women's clothing, of textile fabrics
[844]	Women's clothing, of textile, knitted or crocheted
[845]	Articles of apparel, of textile fabrics, n.e.s.
[848]	Articles of apparel, clothing access., excluding textile
[893]	Articles, n.e.s., of plastics



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