The Estey Centre Journal of
International Law and Trade Policy

Greek Olive Oil: How Can Its International Market Potential Be Realized?

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Trade issues affecting virgin olive oil originating in Greece are examined. A gravity model is estimated to determine the factors affecting trade in olive oil. The results provided by the gravity model yield information that is central to determining the strengths and weaknesses of the sector, as well as the opportunities and threats that exist. Finally, some proposals and suggestions are developed for increasing the international competitiveness of the Greek olive oil industry and endowing it with essential quality and safety assurances.

Keywords: competitiveness, gravity model, olive oil, quality, trade flows

Introduction

The olive oil industry is one of the most important elements of the Greek agri-food sector. The number of cultivated trees is quite large, not only by national standards but on an EU-wide basis as well. Although Greece produces the largest quantity of virgin olive oil in the EU, the economic returns generated from sales of what is a premium product have been disappointing. The purpose of this study is to examine Greek export flows for olive oil world wide and to provide an extensive review of the positive and negative parameters affecting the export performance of this product. The results provided by a gravity model are quite useful input into a SWOT – strengths, weaknesses, opportunities, threats – analysis of the Greek olive oil industry. Finally, there are some policy recommendations for dealing with the most serious obstacles that the sector faces for the next phase of its development.

Background

All the parties involved in the olive oil production sector in Greece realise that the product is characterised by increasing competitiveness. There is also considerable potential down-side risk associated with expanding olive oil production when firms outside Greece are simply using the Greek product to improve the quality of their final products through blending and to increase their sales. Importers mix lower quality domestic olive oils with superior quality Greek imports. As Greek olive oil cannot be identified by final consumers, any attempt by the Greek industry to expand its market share in international markets is unlikely to be successful. The difficulties lie with both the Greek processing sector and the barriers to entry erected by importing firms.

A gravity model of Greek export flows for olive oil can assist in understanding the fundamentals of the trading environment within which olive oil of Greek origin operates. This trading environment has two tiers. The first tier is the EU market, where there are no official trade barriers. The second is the global market, where there are numerous barriers to market access – tariffs, tariff rate quotas (TRQs), technical barriers, etc. In order to arrive at realistic policy recommendations in a heterogeneous trading environment, it is necessary to examine the most important export destinations and estimate the significance of each factor affecting trade flows.

Objectives

The first objective of this research is to analyze the main export destinations of Greek olive oil worldwide and to bring to light the factors influencing the evolution of such flows. Through application of a gravity model, a number of factors affecting international trade can be taken into account. Studying the impact of each

factor affecting international trade is essential for the implementation of a new international marketing strategy for the product.

The second objective is to measure the importance of each economic factor affecting olive oil trade. The general economic factors expected to affect trade in olive oil are distances to market, GDP per capita, and population.

The third objective is to evaluate the importance of the non-economic parameters affecting olive oil trade. Such parameters are the existence, or not, of Greek immigrant societies in import markets, cultural similarities such as an affinity for a "Mediterranean diet", and tourists from import markets choosing Greece as their destination.

The fourth objective is to identify which policy recommendations are likely to be the most effective in generating a rapid improvement in the international trade performance of Greek olive oil. This aspect of the research is central because, until now, there has not been a cohesive export strategy for olive oil in Greece. At the heart of the problem lies the Common Agricultural Policy (CAP) of the EU, as it was applied by the Greek Ministry of Agriculture. Instead of marketing strategically, the ministry gave priority to the expansion of arable crops based on readily available CAP subsidies. Olive trees were, as a result, planted in non-irrigated areas where sustainable production is problematic. As a consequence, the Greek olive sector has been characterised by low productivity and has appeared incapable of adapting to the requirements of the contemporary international marketplace.

4. Analytical Framework

4.a. Greek olive oil exports

Approximately 95 percent of global olive oil production comes from the Mediterranean basin and 75 percent from EU countries. Greece is the third largest producer of olive oil globally, after Spain and Italy. These three main producing countries are also the major exporters (Tasdogan, Tsakiridou and Mattas, 2005). Outside of the EU, the countries of the Maghreb and Turkey are important producers of olive oil.

With annual Greek production fluctuating between 300 and 400 thousand tonnes during the last decade,[1] the sector is an important contributor to the economic well being of rural areas. About 2,500 business units are operating across a large segment of the country (in Peloponnese, some Greek islands, Crete, etc.). Most production takes place on small farms and in family-run businesses. While the domestic olive oil market absorbs a considerable portion of national production, exports are still significant and primarily focused on the EU market. Italy is the most important export market, receiving more than 75 percent of total Greek olive oil exports (see figure 1).

Exports of Olive oil (Tonnes): 1990-2005
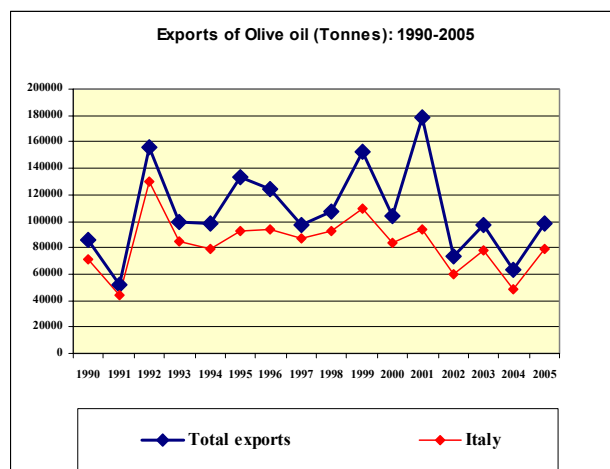
Source: FAO, 2007

Figure 1 Exports of olive oil (tonnes), 1990-2005.

During the 1990-2005 period, exports of olive oil exhibited significant fluctuations, arising primarily from weather conditions and aggravated by the peculiarity of olive trees, which produce substantial olive crops only every second year. It is generally observed that a "good" olive oil producing year in a particular area is followed by a "bad" year. The volume of exports has exhibited a positive trend over the last decade, while the very extreme weather conditions in the winter of 2001 explain the drastic reduction of exports in 2001-2002 (see table 1). After this particularly devastating year, Greek exports appear to struggle to reach the average level of the previous decade. In order to understand the fluctuations in Greek export flows, it is necessary to take into account the structure of the olive oil market in the EU, where export markets appear to be imperfectly competitive as a result of Italian domination of prices (Tasdogan, Tsakiridou and Mattas, 2005). Nevertheless, while Italy remains the dominant foreign market for Greek olive oil, we can see a gradual increase in diversification into new geographical areas – meaning new groups of consumers can be targeted in, for example, Switzerland and Poland in Europe or Japan, Korea and China in Asia.

Table 1 A Tendency to Geographical Diversification

Year	Number of trade partners	Exports in tonnes		
		Total	Italy	
1990	30	85.556	70.718	83%
1991	33	51.750	43.572	84%
1992	42	155.972	129.455	83%
1993	46	98.935	84.521	85%
1994	46	98.731	79.465	80%
1995	48	133.894	93.024	69%
1996	48	124.209	94.160	76%
1997	48	97.732	87.376	89%
1998	52	107.339	92.857	87%
1999	65	152.706	109.578	72%
2000	60	104.106	84.065	81%
2001	59	178.122	93.948	53%
2002	60	73.474	60.221	82%
2003	60	96.704	78.177	81%
2004	56	63.294	48.327	76%
2005	66	98.825	79.012	80%

Data source: FAOSTAT, detailed trade matrix, http://faostat.fao.org

Finally, other countries with important Greek immigrant communities, such as Germany, Canada, the United States, Australia and the United Kingdom, have provided a reliable demand for Greek olive oil.

Two factors could contribute to an explanation of the evolution of new markets for Greek olive oil: foreign tourism in Greece – offering the opportunity to tourists from different countries to discover the product – and the increasing interest in the Mediterranean diet, which has a reputation of being healthy and in which olive oil has a major place.

4.b. Factors influencing international trade in Greek olive oil

A model for trade in olive oil originating in Greece

In order to provide a comprehensive empirical analysis of olive oil's trade flows worldwide, the well known gravity model has been used. This model, developed simultaneously by Tinbergen (1962) as well as Pöyhönen (1963) and Pulliainen (1963), is considered one of the most effective ways to formalise and explain bilateral trade flows (Anderson, 1979; Mátyás, 1997).

Adapting the "law of universal gravitation" theorized by Newton in 1687, the basic specification of bilateral trade flows between geographical entities can be expressed as follows:

$$\text{EXP}_{i,j} = a_0 \frac{Y_i^{a_1} . Y_j^{a_2}}{D_{i,j}^{a_3}} \varepsilon_{i,j}$$

where

- $\text{EXP}_{i,j}$ is the volume of exports from country i to country j, corresponding to the attractiveness of market j for country i.

- Y_i and Y_j are indexes of masses, reflecting the economic sizes of the two countries and more precisely the potential to participate in international trade; thus, trade flows between countries should be positively related to their economic size. In international economics, masses are usually measured using GDP.

- $D_{i,j}$ measures the geographical distance between the two countries. The geographical distance captures the resistance factors for two countries to develop bilateral trade. Such factors are limited not only to transportation cost and duration but also concern more general difficulties such as access to appropriate information. Even if technological progress contributes to reduction of transportation costs, recent researches confirm that geographical distance still has a negative impact on trade flows.[2]

Specification of the model

Following the extensive literature related to the gravity model produced during the last 20 years,[3] the equation used in the present work is an augmented form of the basic gravity equation. Additional explanatory variables have been introduced in order to better take into account the factors influencing such trade flows. More precisely, the volume of Greek olive oil exports (EXP$G,$i) depends on:

- Y_i: the size of the partners' respective economies, which is represented by GDP per capita. GDP per capita is usually chosen in the case of estimation of bilateral exports relative to specific products, while total GDP is often used for estimation of aggregated exports (Vlontzos, Duquenne, 2007). GDP per capita is based on purchasing-power parity (PPP). It also reflects the level of development, which is a suitable variable when dealing with non-basic consumption products such as virgin olive oil. We expect a positive relation between the level of per capita GDP and the volume of trade flows (b1 positive).

- Pop_i: the population of the trading partner i. Potential trade is partly dependent on differences in population size (Linnemann, 1966). Moreover, this variable is also introduced as an instrumental variable for GDP. Effectively, geographical entities with high GDPs are logically the most important commercial partners worldwide; at the same time, exports are part of GDP, so that the choice of GDP as an independent variable inflates "quite artificially" the determination coefficient R^2 (Head, 2003). We also expect a positive relationship here (b2 positive).

- $Dis_{G,i}$: the geographical distance between Greece and its trade partners. The distance is estimated from capital city to capital city, which may not be a perfect measure of geographical proximity but is, at least, the simplest one. As olive oil is a perishable good, distance as a proxy for transportation cost and duration cannot be omitted.

- Finally, D_{ik}: this term corresponds to additional dummy variables[4] introduced in order to evaluate the effects of institutional and cultural factors; more precisely, these variables relate to the following factors:

- Trade partners of Greece are or are not members of the EU. This dummy variable can be interpreted as the existence of an institutional proximity.

- Olive oil can be considered a basic product for some countries, especially the Mediterranean ones, while for others it is considered a luxury or premium product.

- Some countries have increasing tourist flows to Greece.[5] This dummy variable tries to capture the impact tourism has on the development of Greek olive oil exports. Foreign tourists have the opportunity to discover new products and progressively contribute to the introduction of "new" products into their national markets.

- Some countries have longstanding and important Greek communities as a result of immigration. The introduction of such a dummy variable should reflect the existence of an alternative form of proximity, based not on a geographical criterion but on a relational or cultural one.[6] Considering the structure of Greek olive oil exports, the existence of Greek diaspora in partner countries could produce a similar effect as, for example, a common language. Some authors (Gould, 1996; Head and Ries, 1998; Dunlevy and Hutchinson, 1999; Belair and Gauthier, 2004) have found evidence that immigrant links to the home country in terms of preference for typical products from the country they left can be important in determining the causes of trade flows. Olive oil fits well in such a preference pattern among the Greek diaspora.

For estimation purposes, exports of olive oil by Greece are expressed in log-linear form:

$$lEXP_{G,i} = b_0 + b_1.lY_i + b_2lPop_i + b_3lDis_{G,i} + \sum_k c_k.D_{i,k} + \varepsilon_{G,i}$$

where :

- l denotes that variables are expressed in natural logs.

- $\sum_k c_k.D_{i,k}$ is the sum of the added dummy variables taking the value one when the specific condition (belonging to the EU, being a Mediterranean country or having a significant Greek diaspora population) is satisfied and zero otherwise. The coefficients relative to these dummy variables are expected to be positive.

- $\varepsilon_{G,i}$ is the error term associated with Ordinary Least Squares estimation.

The data set covers 77 trade partners (of which 14 are EU members) that imported during the period 1991-2000, even if the annual quantities imported are not very large. Data relative to the volume of exports were collected from the database of FAOSTAT's detailed trade matrix. With regard to GDP per capita and population, data were extracted from the World Economic Outlook Database of the International

Monetary Fund. Per capita GDP based on PPP is expressed in U.S. dollars, while population is in million of persons. As olive oil exports are subject to considerable annual variations during the period examined, the variables have been expressed as a succession of three-year averages in order to reduce the effect of irregular fluctuations. Consequently, five successive periods are examined, namely the periods 1991-93, 1994-96, 1997-99, 2000-2002 and finally 2003-2005.

The other tool being applied in this research is the SWOT analysis. In the application of this methodology, both economic and non-economic factors are examined. For the internal environment, competencies that are important are marketing, finance, manufacturing efficiency and organisational behaviour. By using the information from the gravity model to inform the SWOT analysis, it is easy to form a picture of the major threats and opportunities faced by Greek exporters.

Gravity Model Results

Estimation with SPSS software was undertaken using Ordinary Least Squares (OLS). The results for the five successive periods are presented in table 2. The model has a relatively low explanatory power, with adjusted R^2 varying, except for the first period, between 72 percent and 75 percent. Nevertheless, if we consider the specificity of the product examined, these results can be seen as quite robust. We have to take into account that, outside of the Mediterranean area, olive oil is not a staple and, instead, can be considered an "exotic" product. This suggests that additional factors may determine trade flows.

All the coefficients of the basic gravity equation have the expected sign:

1. Exports of olive oil to the trade partners of Greece are positively affected by the partners' economic and demographic size. Export flows of olive oil increase in a greater proportion relative to the change in GDP per capita than to the change in population size. Such a result is quite logical if we take into account the nature of the product. If we accept that olive oil is not a staple for the majority of countries, this result confirms that in well off countries consumers are oriented not only towards sustenance but that they also have the economic capacity to develop tastes for "ethnic" or novel products.

2. The role of the distance variable is not obvious, even if it can be interpreted in most cases as a "resistance factor". Olive oil exports are not always negatively affected by geographical distance. When it does occur, however, the negative impact of geographical distance is due not only to transportation costs – even if this factor is typically very important for fresh products such as olive oil – but also indirectly reflects a "cultural distance" and a lack of information. A major portion of exported Greek

olive oil is absorbed by countries that have a tradition of consuming olive oil, and where, therefore, "cultural distance" does not play a determining role. The impact of geographical distance is not consistent over the period for which data were gathered. This may suggest that the development of markets for ethnic products, especially in developed countries, contributes to the reduction of "cultural distances".

3. With regard to the dummy variables used to capture institutional influences, it appears that the impact of EU membership is not always important for exports of olive oil: the fact that a partner is a member of the EU does not seem to affect trade flows in a meaningful way.

4. In contrast, the existence of an important Greek diaspora population – as it is the case in countries such as Germany, Australia or the United States – has a positive and significant impact on trade flows, and the effect of this factor is consistent for all periods. This point is particularly interesting because it shows that even if Greek migration is a relatively old phenomenon, the attachment and links that the diaspora population maintains with its country of origin remain quite strong. Their existence ensures a presence for Greek products in a market and also ensures that such products are available to consumers in the broader population.

5. Finally, both the characterization of a country as Mediterranean and the role of tourism generally represent a positive impact for the development of olive oil exports. Olive oil imports appear to grow for countries with significant tourist flows to Greece. This result is statistically significant for the last four periods examined. Only during the first period (1991-1993) was the coefficient of this dummy variable not significant, while during the last ten years looked at here, the size of this coefficient increased.

Table 2 OLS Results for the Gravity Equation

Independent variables	Coefficients				
	1991-93	1994-96	1997-99	2000-02	2003-05
Constant	5,955	-3,334	-5,766	-4,968	-5,207
Per capita GDP (in PPP) of importer countries	0,216 (0,591)	0,378 (1,311)	0,592 (2,184)**	0,717 (2,591)**	1,066 (3,332)***
Population of importer countries	0,055 (0,495)	0,209 (2481)**	0,107 (1,081)	0,176 (2,466)**	0,279 (3,047)***
Distance between Greece and importer countries	-0,693 (-2,255)**	0,076 (0,320)	0,163 (0,613)	-0,134 (-0,554)	-0,591 (-2,241)**
EU member countries	0,533 (0,723)	2,481 (4,407)***	1,945 (2,999)***	0,814 (1,228)	0,832 (1,306)
Importer countries with significant Greek community	2,412 (3,172)***	2,015 (2,570)**	2,579 (2,780)***	2,848 (2,827)***	2,978 (2,782)***
Mediterranean countries	2,444 (3,172)***	1,993 (3,396)***	1,939 (2,900)**	2,476 (3,844)***	1,997 (3,399)***
Tourism impact	1,140 (1,560)	1,656 (3,006)***	2,330 (3,560)***	2.368 (3,911)***	2,390 (3,946)***
Adjusted R^2	0,514	0,724	0,682	0,702	0,749
F-test	6.789***	17,196***	14,430***	16,773***	19,003***
Durbin-Watson, d	2,215	2,095	1,773	1,779	1,817

All variables except dummies are expressed in natural logarithms.
Estimations use White's heteroskedasticity-consistent covariance matrix estimator.
t- Statistics are in parentheses.
** denotes significance at 5 percent.
*** denotes significance at 1 percent.

The SWOT Analysis

The results of the application of the gravity model can be used to inform a number of policy recommendations that can be targeted at improving the international performance of Greek olive oil. These policy recommendations, although crucial for the development of the sector, cannot be based upon the findings of the gravity models alone. Domestic factors will play and important role in the ability to expand exports in the future.

Strengths

The most important competitive advantage of Greek olive oil is its superior quality relative to olive oils being produced in other Mediterranean countries. Eighty percent of the olive oil produced in Greece is virgin olive oil. This percentage is the highest in the Mediterranean area (EU DG XI, 2002). This is the crucial element in an effort to increase the value of olive oil. Without a superior product, it is not possible to turn a

commodity into a differentiated product that can be promoted and where premium prices can be attained.

Since ancient times, olive oil has been an integral part of the Mediterranean diet. This tradition persists, and it is strengthening due to a stream of scientific findings supporting the view that olive oil is a healthy alternative to other vegetable oils and fats. These findings provide a platform upon which to promote Greek olive oil.

A number of Greek olive oils are being named as PDO and PGI products,[7] according to EU legislation. Twenty-six olive oils have been included on this list. These products gain an advantage through a recognized differentiation that can be promoted and that allows a degree of isolation from competitor products. A positive outcome of WTO negotiations regarding increased protection of products being included on these lists is that it can decrease the intensity of rivalry between competing firms and countries and provide more accurate information to consumers about quality characteristics of the products.

One of the findings of the gravity model was the significant interrelationship between consumption of olive oil and tourist visits to Greece. Given that such a relationship exists, it can form an important element in a marketing strategy for Greek olive oil. Much of this promotional activity can take place in Greece, but it needs to be reinforced in the countries where the tourists originated.

Weaknesses

One of the most important obstacles for Greek agriculture in general is high cost due to lack of infrastructure. The cultivation of olive trees is no exception. Many olive groves are old, and therefore their productivity is declining. Irrigation infrastructure is largely absent, further lowering productivity. Input costs tend to be higher compared with those in other Mediterranean countries in the EU. There has been a gradual increase in the wages of immigrant farm workers.

The other crucial factor causing poor competitiveness is the large number of small agricultural holdings specialising in olive trees. Beyond increasing the cost of production, they dramatically reduce the bargaining power of producers when they negotiate the selling price of their product. Further, while many farmer cooperatives exist, they perform poorly, leaving room for private buyers to pay lower prices to producers.

The majority of exports are in the form of bulk generic oil that is subsequently packaged in Italy as well as some other countries. Bulk generic oil cannot garner price premiums; thus the potential of what is a superior quality product is wasted. Superior Greek oil is blended with other countries' oils to raise their quality.

Opportunities

The total decoupling of EU subsidies for cultivation of olive trees ended a long period where a quite complicated scheme for distributing subsidies to farmers was in place. A new subsidy scheme provides a simpler method by which to distribute subsidies and also provides a more secure income for farmers. The most important issue, however, is the removal of a series of restrictive measures pertaining to the quantity of production. The new CAP moves forward by means of its second pillar and subsidises actions related to development of marketing plans and gaining market shares globally. EU policy makers are attempting to boost the economic performance of the sector through improved market performance rather than subsidies.

An international trend with considerable potential impact is the increasing adoption of aspects of the Mediterranean diet. Consumers in a range of developed countries exhibit rising concerns regarding their dietary habits. As a result, they have been gradually including in their diet ingredients having their origin in the Mediterranean area. Olive oil is a central component of this diet because it is incorporated in almost every food from the region. Recognition of this trend should form a central element of any marketing strategy for olive oil.

Over the last few years there has been a significant increase in tourism in Greece. During their sojourn tourists have the opportunity to taste the product and become familiar with it. This opportunity should be used to expose tourists to identifiable Greek brands that they can seek out when they return home. This is one of the most efficient and low cost promotion strategies possible, because the majority of tourists will not enjoy such easy access to the product in their home countries.

Finally, a positive outcome at the WTO negotiations regarding the acceptance of the EU wish list for increased protection for a series of PDO and PGI products could be the starting point for increased recognition of the twenty-six PDO and PGI olive oils of Greek origin.

Threats

The recent gradual revaluation of the Euro against the U.S. dollar has meant a negative environment for exports to the United States, as well as to countries with currencies tied to the U.S. dollar. Further, Mediterranean countries that are not EU members can utilize this situation to their advantage and become more price competitive.

The growing interest in olive oil internationally has motivated farmers in regions with climates similar to that of the Mediterranean area to plant olive trees, even though there has not been any tradition or experience with olive tree cultivation. Olive groves have proliferated in the Americas as well as in South Africa and in some Asian countries (FAO, 2006). If successful, these farmers can partially satisfy the increased

demand for olive oil and reduce the demand for imports from traditional olive oil–producing countries such as Greece.

The olive tree is quite hardy and drought resistant. It can also make use of low quality water. Climate change may, however, lead to declines in yields. Over the last ten years a series of extreme weather events such as frosts, heat waves, fires and floods have damaged millions of trees and caused considerable fluctuations in supply. If sustained, these changes can decrease the quantity and quality of Greek olive oil.

Due to their sensitivity to low temperatures, olives trees have been planted nearby the sea in coastal areas in Greece. Competition from real estate development and tourism is intense. Alternative and more lucrative employment activities have led many owners of olive groves to abandon them. This trend has strengthened in the wake of the last CAP reform due to the complete decoupling of subsidies from production. Better incomes from the sale of olive oil are central to reducing this trend.

Policy recommendations

The findings of both the gravity model and the SWOT analysis provide useful information about the future of the cultivation as well as the trading performance of Greek olive oil. Although there is currently a perception that there is an oversupply of olive oil, which is at the same time a reason for low producer prices, the gradual increase of demand globally will eventually ease this pressure. A progressive reduction in the dependence of Greek olive oil on bulk exports to Italy is the key to significant improvement in its international success and the basis for a differentiation strategy that will increase the export price that can be garnered for the product. Another initiative would be the establishment and implementation of an aggressive marketing strategy in countries with considerable potential for olive oil consumption such as northern European and eastern European countries, as well as markets in Asia and North America. Strategic initiatives in these areas are eligible for funding from the second pillar of the new CAP and should be utilized in order to increase the competitiveness of the sector. It is obvious that the only mechanism that will improve economic returns and profitability is to increase the price of the product by putting in place a successful differentiation strategy based upon the unique quality and cultural characteristics of Greek olive oil. Until now, the CAP subsidy system did not provide this form of incentive. The new CAP can be the starting point for developing a successful international marketing strategy.

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Endnotes

1. Hellenic Statistics Bureau
2. See, for example, Leamer and and Levinsohn (1995), Anderson and van Wincoop (2003) and especially Disdier and Head (2006). The latter study investigates the sensitivity of the distance coefficient estimated within the gravity equation, taking into account the results of a sample of 103 papers corresponding to 1,467 estimations. The authors conclude that despite the technological progress that should reduce the importance of transportation costs, the negative impact of distance has not disappeared and moreover has slightly increased over the last century.
3. An interesting review of the literature relative to the refinement of the explanatory variables and the addition of new ones is provided by Martinez-Zarzoso and Nowak-Lehmann (2003)

4.   The dummy variables listed in subsequent paragraphs take the value one when the condition is respected; otherwise, the value is zero. One criticism often levelled at analyses based on gravity models that introduce dummy variables is that they are simply empirical approaches without serious theoretical foundation. Nevertheless, several authors, including Anderson (1979), Bergstrand (1985, 1989, 1990), Helpman and Krugman (1985) and Deardoff (1995), have highlighted that the use of such models can, to a considerable degree, be justified using standard trade theories.

5.   Countries have been classified in two groups: the first group is made up of countries with a clear positive trend as regards the annual arrivals of foreigners in Greece (arrivals at the borders) over the period 1997-2006; the second group is made up of countries with non significant tourist flows to Greece, or a negative trend. Source of data: General Secretariat of National Statistical Service of Greece (NSSG), www.statistics.gr

6.   The official source for the measure of Greek diaspora, by countries, is the General Secretariat for Greeks Abroad of the Ministry of Foreign Affairs. The data are available at http://www.ggae.gr

7.   PDOs (protected designations of origin) apply to foodstuffs that are produced, processed and prepared in a given geographical area using recognised know-how. In the case of PGI (protected geographical indication), the geographical link must occur in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation associated with the location.