The Contribution of Shipping to the Greek Economy

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MASTER THESIS

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<tr>
<td>BOP</td>
<td>Balance Of Payments</td>
</tr>
<tr>
<td>BRICS</td>
<td>Brazil, Russia, India, China and South Africa (as an association)</td>
</tr>
<tr>
<td>DWT</td>
<td>Deadweight Tonnage</td>
</tr>
<tr>
<td>EC</td>
<td>European Community</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investments</td>
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<tr>
<td>FOC</td>
<td>Flag of Convenience</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GENE</td>
<td>Seafarers’ Employment Bureau</td>
</tr>
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<td>GSEE</td>
<td>General Confederation of Greek Workers</td>
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<tr>
<td>HSA</td>
<td>Hellenic Statistical Authority</td>
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<tr>
<td>ILO</td>
<td>International Labor Organization</td>
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<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>IOBE</td>
<td>Foundation for Economic and Industrial Research</td>
</tr>
<tr>
<td>ISM</td>
<td>International Safety Management</td>
</tr>
<tr>
<td>MARPOL</td>
<td>The International Convention for the Prevention of Pollution from Ships</td>
</tr>
<tr>
<td>NAT</td>
<td>Merchant Seamen’s Fund</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OTE</td>
<td>Greek Telecommunications Organization</td>
</tr>
<tr>
<td>PEPEN</td>
<td>National Union Master Mariner</td>
</tr>
<tr>
<td>Ro-Ro</td>
<td>Roll-on/Roll-off (type of vessel)</td>
</tr>
<tr>
<td>SOLAS</td>
<td>Safety Of Life At Sea</td>
</tr>
<tr>
<td>STCW</td>
<td>Standards of Training Certification and Watchkeeping</td>
</tr>
<tr>
<td>TEN-T</td>
<td>Trans European Transport Network</td>
</tr>
<tr>
<td>TEU</td>
<td>Twenty-foot Equivalent Unit</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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Abstract

This dissertation refers to the contribution of Shipping to the Greek Economy. Initially, there is a distinction of the Shipping Industry into commercial and passenger as well as in the type of goods being transported. Then, the composition of the fleet is analyzed, according to the type of ship and to the flag of registration in order to estimate the actual size of the Greek fleet. In addition, some important elements are accounted for in relation to the Greek ports, such as their categorization and the types of loads which are transported. Thereby, the direct link between these ports and Greek shipping becomes apparent. Therefore, the presence of the ports is very important in order to evaluate their indirect contribution. What follows is a thorough analysis of the direct and indirect effects. Particular emphasis is given on the contribution of Greek Shipping to Employment and other Greek Macroeconomic Indices. Furthermore, a comparison is made among different types of exchanges showing their significance in the Maritime Exchange. There are also two small subdivisions according to which a reference has been made about the improvement of the living standards of workers in shipping industry and the increase in national income, as the Greek economy benefits greatly through the imposition and subsequent collection of taxes. Nonetheless it is important to compare other sectors of economic activities in relation to shipping and their contribution to Greek GDP. In conclusion, a reference is made to the prospects and to some possible proposals which can bring better results and in this way, the Greek shipping strengthens and it contributes even more to the Greek economy.

Keywords: Shipping, Greek Economy, GDP, Greek Ports, Maritime Exchange
1. Introduction

The main objective of this dissertation is to highlight the importance of the contribution of Shipping to the Greek Economy. For many years, the Greek economy has been linked to the Shipping Industry and Greek ship owners are considered as the best businessmen. Onassis, Niarchos, Lemos, Tsakos, Frankou and many others are well-known for their business acumen worldwide.

In recent years, the Shipping industry has had a constant contribution and it is considered to be the pillar of the Greek economy. Compared with other industries, Shipping has been affected less by the global economic crisis and it is considered as Greece’s competitive advantage in the world economic chessboard.

At the time of writing, important research questions unfold, such as:

- What is the contribution of Shipping to the Greek Economy?
- What other economic activities are affected by the contribution of Shipping?
- Is the Shipping Industry the sector that contributes the most to the Greek GDP?

But also secondary questions arise, such as:

- Do Flags of Convenience affect the development of the Shipping Industry?
- Is the employment of Greek crew members affected by Flags of Convenience?
- Are there any adequate infrastructures in Greece for the development of Shipping as well as other investments?
- Can all the Greek Ports manage loads from abroad?
- Have the Cruise Industry and the Greek Economy been affected by the Cabotage removal?

In the first chapter, there is introductory information about the objectives of the present dissertation. In addition, there is a presentation of the basic research questions and my
motivation. A chapter classification follows and the structure of each one is presented with a reference to its analysis.

The second chapter is an approach to the Shipping Industry generally and to its sectors. When we refer to shipping, it is important to discern its individual fields, and the breadth of services which are provided. For this reason, there are two main classifications: the first is based on purpose and the second on the type of commodities. I underline the ability of most commercial ships to transport various and different raw materials and products since a significant proportion of world trade is carried out with the contribution of the Merchant Shipping (Asariotis, et al., 2013). Moreover, the current chapter analyzes the fleet and the age of the vessels in order to emphasize the size of the Greek-owned fleet. Finally, there is a significant section of the chapter dedicated to the Flags of Convenience. As we will see in the analysis of this chapter, the classification of most countries is based on the ships which fly a national flag or a Flag of Convenience. So, there is a brief analysis of the causes which lead ship owners to prefer flags of convenience because this factor is very important in the analysis of the contribution of Shipping to the employment of Greek Seamen.

In the third chapter, there is a reference to the port industry and Greece is known as a country with a long coastline and many harbors. The way ports are organized according to the laws of the Greek State and European Union directives is presented. There is also a reference to the importance of Greek Ports as European corridors hubs through European Transport Network. In addition, a thorough attempt is made to analyze the uniformity index of Greek Ports in order to evaluate the ports according to the diversity of cargoes they handle. This section of the chapter is considered very important because we can realize the synergies which have been created among adjacent ports. Also, we will have the chance to comprehend whether Greek Ports have the opportunities to be centers of Containers. This is a need correlated directly with the contribution of Shipping to the Greek Economy and in this way, we can realize the existence of infrastructures and wonder if they are developed enough or not.

The fourth chapter is the most important one as it provides with first-hand answers to our questions. There is an approximation of the contribution of Shipping to the Greek Economy directly and indirectly. We analyze the direct contribution of Shipping to the employment, the balance of payments, the National Income and the living standards. Also, there is a first
comparison of the Maritime Exchange with other types of Exchanges and a second comparison among the major economic sectors of the Greek economy. In addition, there is a reference to the Cruise Industry and specifically to the Cabotage Law; its institutional framework and the results of the Cabotage removal in the sector of Greek Cruise are presented briefly. On the other hand, the indirect advantages of Shipping and the branches which benefit from the contribution of Shipping to the Greek Economy are analyzed.

The fifth chapter presents the conclusions and it emphasizes the stability of the sector regarding its contribution to the Greek economy.

In the sixth chapter, the perspectives of Greek Shipping are presented, based on recent statistics from the Annual Financial Reports of the Bank of Greece.

Finally, in the seventh chapter there is a variety of proposals that are related directly and indirectly with the development of Shipping, the governmental policies that should be applied, the further development of the Port Industry and of course the revival of Greek Register of Shipping.
2. The Shipping Industry

Maritime transportation, compared with other types of transportation, is focused on specialized ships according to the carriage of particular cargoes. So, with the aid of Shipping, the share of internationally traded goods is increased in each country in relation to the non-tradable products. Therefore, shipping transportation managed to play a very significant role in the consolidation of global markets. Shipping, however, should not be equated only with transportation of goods, since there are ferries and even warships. So, there are two basic classifications of Shipping based on their activities.

2.1 Classification by purpose

The shipping industry is not a single industry. It can be divided into sub-sectors which differ depending on the usefulness and usability offered in the labor market. The main segmentation separates Shipping according to its purpose. At first sight, Shipping is divided in Passenger Shipping, Merchant Shipping and Maritime of special purposes. (Vasilopoulos, 2013)

The passenger shipping applies only to the handling and transportation of people and includes vessels which can transport more than 12 passengers (Durand, 2014). Depending on the particular circumstances which prevail in some areas, the more significant categories are Ferry Boats, Cruises and Dolphins (Flying Cats Vessels). Ships of this class can offer accommodation to the passengers and transportation to vehicles –cars or trucks- and have the ability to develop very high speeds in relation to the Ships of Merchant Navy. (Marin, 2011)

The second and most important category is the commercial vessel which is related solely to the movement of goods. Such goods may include raw materials, semi-manufactured materials and / or finished products. The form of the materials which are transferred can be liquid or solid. Some examples are petroleum and chemicals for the category of liquid cargoes; some other examples for the solid cargoes are coal, bauxite, various foods or even raw materials such as cement powder. A lineament of this class is the autonomy of vessels and the large distances they can
The Shipping Industry

cover. This dominant category of commercial vessels has achieved a substantial contribution to the global transports a fact which is analyzed in details in the fourth chapter of this master thesis. (Vasilopoulos, 2013)

Finally, the third category refers to the vessels of special purposes which is also worth mentioning in comparison to the vessels of the previous categories (Asariotis, et al., 2013). Ideal examples for this specific category are the auxiliary vessels in their ports (ie tugs, boats or platform-type vessels for marine structures), different yachts (ie speedboats and sailboats) as well as vessels that serve under specific conditions such as icebreakers. (United Nations Conference on Trade and Development, 2007)

2.2 Classification based on the types of Commodities

The Seaborne trade is separated into bulk cargoes and general cargoes. Accordingly, the bulk shipping market which has been created is often known as «one ship one cargo basis», and the liner shipping market is well known as «one ship many different cargoes basis». (United Nations Conference on Trade and Development, 2007)

More specifically, we characterize as a bulk cargo each individual load which is sufficiently large to fill an entire ship or a vessel’s hold. There are three main types of bulk cargoes:

- The dry bulk
- The liquid bulk and
- The special bulk cargo

The transportation of bulk cargoes is carried by bulk vessels and they can be transferred by the following types of ships

- Tankers
- Bulk carriers
- Combined Carriers
- Specialist bulk vessels
But what could be characterized as a bulk cargo?

- Petroleum and its products,
- The liquefied Gases
- Vegetable oils
- Coal
- The iron ore but not everything carried into coils

On the other hand, the second category of this distinction is related to the overall load which includes any videlicet individual cargo shipment that is too small to fill an entire ship or a ship's hold. Main types of this category are: (Pardali, 2001)

- The conventional load (in bales, coils and pallets)
- Containers
- The barges
- The laden lorry or its trailer part.

The transportation of general cargoes is usually carried by liner type vessels and the general cargoes are usually carried on ferries. The main types of vessels are:

- Multipurpose vessels
- Containers vessels
- Ro-Ro
- Barge carriers

But apart from these two main divisions which often refer to the entirely concept of the Maritime Industry, there are also individual variations which include the following sectors:

- The type of load which will be transferred
- The requirements of maritime routes
- The type of ship which will be chosen
- And the geographical division.
The Shipping Industry

It is particularly important to emphasize that the type of load plays an important role in the selection of the appropriate type of vessels. So, according to Lloyd's Registers List, there are various categories of commercial vessels in the table below (Pardali, 2001).

*Table 1 Categories of Commercial Vessels*

<table>
<thead>
<tr>
<th>Vessel Group</th>
<th>Constituent Ship Types</th>
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<tbody>
<tr>
<td>Oil Tankers</td>
<td>Oil Tankers</td>
</tr>
<tr>
<td>Bulk Carriers</td>
<td>Ore and Bulk carriers, ore/bulk/oil carriers</td>
</tr>
<tr>
<td>General Cargo</td>
<td>Refrigerated cargo, specialized cargo, Ro-Ro cargo, general cargo (single – and multi-deck)</td>
</tr>
<tr>
<td>Container Ships</td>
<td>Fully cellular</td>
</tr>
<tr>
<td>Other Ships</td>
<td>Oil/chemical tankers, other tankers, liquefied gas carriers, passenger Ro-Ro, passenger, tank barges, general cargo barges,</td>
</tr>
</tbody>
</table>

Source: (Lloyd's List Information Services, 2014)
2.3 Analysis of Vessels’ fleet

To begin with, I quote below the world fleet by principal vessel types from 1980 to 2013 in millions of dwt\(^1\). As we can see from Table 2 and Graph 1 the quantity of Container Vessels as Dry Bulk and Oil Tankers is increasing, showing an important trend. In addition, the past fleets of these categories are not only constantly upgraded with new vessels but with vessels which bear new technologies as well. In particular, the needs for more bulk cargoes increase being dominant in the transportation of materials; the tankers are also of great importance because of energy issues as it has already been mentioned. Finally, there are the container vessels in this vessels’ fleet analysis which exhibit an increase as it can be noticed below.

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Other type</td>
<td>31</td>
<td>45</td>
<td>49</td>
<td>58</td>
<td>75</td>
<td>49</td>
<td>59</td>
<td>166</td>
</tr>
<tr>
<td>Container</td>
<td>11</td>
<td>20</td>
<td>26</td>
<td>44</td>
<td>64</td>
<td>98</td>
<td>169</td>
<td>207</td>
</tr>
<tr>
<td>General Cargo</td>
<td>116</td>
<td>106</td>
<td>103</td>
<td>104</td>
<td>101</td>
<td>92</td>
<td>108</td>
<td>80</td>
</tr>
<tr>
<td>Dry Bulk</td>
<td>186</td>
<td>232</td>
<td>235</td>
<td>262</td>
<td>276</td>
<td>321</td>
<td>457</td>
<td>685</td>
</tr>
<tr>
<td>Oil Tanker</td>
<td>339</td>
<td>261</td>
<td>246</td>
<td>268</td>
<td>282</td>
<td>336</td>
<td>450</td>
<td>491</td>
</tr>
<tr>
<td>Total</td>
<td>683</td>
<td>664</td>
<td>659</td>
<td>736</td>
<td>798</td>
<td>896</td>
<td>1243</td>
<td>1629</td>
</tr>
</tbody>
</table>

Source: Database by Clarkson Research Services, 2013

\(^1\) “Deadweight tonnage (also known as deadweight abbreviated to DWT, D.W.T., d.w.t., or dwt) is a measure of how much weight a ship is carrying or can safely carry. It is the sum of the weights of cargo, fuel, fresh water, ballast water, provisions, passengers, and crew. The term is often used to specify a ship's maximum permissible deadweight, the DWT when the ship is fully loaded so that its Plimsoll line is at the point of submersion although it may also denote the actual DWT of a ship not loaded to capacity.” (Wikipedia, 2014)
On the other hand, there is a significant reduction in ships and capacities in General Cargoes because the transferred commodities are outweighed by other types of vessels and in this case these are either the Container Vessels or the Dry Bulk Vessels. In conclusion, it is worth focusing on the fact that during time and especially in the beginning of the 1990s the needs for transportation of goods through Shipping have increased. As we can clearly observe from Table 2, ships carry greater quantities in total and we can conclude to the increased fleet employment of the contracts for carriage of goods so consecutive orders for new ships are made. (Thanopoulou, 2007)

Also, it is noteworthy the fact that ship owners are increasingly turning to new ships as having the aim to exploit:

1. The technological evolution
2. The evolution of ecological type ships (Aegean Oil Shipping, 2014)
   a. Saving 7-12 tons of fuel on a daily scale
   b. Internal electronic devices such as the Radar which consumes 20-30% less energy
The Shipping Industry

c. However, the main point is that the materials are recyclable to the end of life of a ship. While in the previous types of ships, the scrap metals are not recyclable, in the Green Fleet type of ships whatever kind of material is recyclable at least 40%.

3. The proper configuration of their construction makes them to accept more dwt
4. The lower maintenance costs and
5. The best adaptation to different loads that can be loaded (Kollianiatis, 2010).

2.4 Age of Vessels

With the help of Graph 2, we can observe that most ships are aged up to five years; with an increase in the age of the ship comes a decrease in its use. Indeed, the age of 17 is considered as the edge of the Ocean Going Shipping. From that point onwards, the ship will have to be rebuilt in order to be in compliance with the specifications which are laid down by I.M.O., SOLAS and MARPOL at regular intervals. In addition, there are sea areas which set out some other specifications such as the restriction of single hull tankers in the Gibraltar Strait. In some special cases, a ship may become active only if the technical characteristics of the vessel permit it (especially the draft). So, a vessel can be useful for Short Sea Shipping distances or only for supportive purposes, for example for educational purposes. (Thanopoulou, 2007)

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2“"The IMO’s primary purpose is to develop and maintain a comprehensive regulatory framework for shipping and its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping. IMO is governed by an Assembly of members and is financially administered by a Council of members elected from the Assembly. The work of IMO is conducted through five committees and these are supported by technical subcommittees. Member organizations of the UN organizational family may observe the proceedings of the IMO. Observer status is granted to qualified non-governmental organizations.” (Wikipedia Online, 2014)

3“"The International Convention for the Safety of Life at Sea (SOLAS) is an international maritime safety treaty. It ensures that ships flagged by signatory States comply with minimum safety standards in construction, equipment and operation. The SOLAS Convention in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships.” (Wikipedia Online, 2014)

4“"Marpol 73/78 is one of the most important international marine environmental conventions. It was designed to minimize pollution of the seas, including dumping, oil and exhaust pollution. Its stated object is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances.” (Wikipedia Online, 2014)
The Shipping Industry

Graph 2 Age of Vessels

Source: (Asariotis, et al., 2013)

It is perceived that over the last 5 years more and more orders have been placed by the owners because of renewal and expansion of their fleet as global seaborne trade continues to grow.

Also, from Graph 2, an additional factor is useful in the Shipping analysis, the one of the Flag of Convenience. It is clear that the ship owners prefer to maintain their fleet under the National Flag and register new ships to their potential Flag of Convenience a fact which is going to be rationalized in the following subsection.
2.5 Registration of Ships and Flags of Convenience

The final and the most important issue in this chapter is related to the registration of the ship. Table 3 below is very detailed so we may have a glance and analyze which strategy is followed on the registration of ships, in accordance to the nationality of ship owners. Table 3 is divided into two parts, the first part presents the number of the vessels and the second part shows their capacity. The classification is performed in ascending order based on the total percentage relative to the maximum carrying capacity in Dwt. Also, in the current table, the vessels which are registered under a National-flag are presented as well as those under flags of convenience. A typical example is Greece, which has just 825 vessels registered under the Greek flag while the Greek ship owners have 2870 ships registered in other countries under the Flag of Convenience. (Asariotis, et al., 2013)

As we can see, Greece is the first country in the world with vessels with the largest capacity and its market share amounts to about 15.17%, followed by Japan and China with market shares of 13.87% and 11.78% respectively. In addition, German market rates are also significant, at about 7.80%, and South Korea with 4.65%. The other countries follow with slight variations. The whole image of these statistics is broadly the same as in the second category which refers to the number of ships as well; China ranks first, closely followed by Japan, Germany and Greece.

More explicitly, the number of Greek Vessels under the National Flag is about 825 with the greatest capability of goods transport approaching 70 million Dwt. Since the ships under the Flag of Convenience of Greek interests are 2870, therefore the country ranks second after China, with a transport capacity of about 175 million Dwt.

Furthermore, it is noteworthy that Denmark, a member state of the European Union, has just 45 merchant ships registered under its National flag while Monaco has no merchant vessels registered at all! On the other hand, countries such as Greece, Germany, Norway and the United States have increased their commercial fleets under the Flag of Convenience.

The main reasons are the followings:
The Shipping Industry

- Low registration fees for operating and fixed costs of the ship
- Each Flag of Convenience defines customary standards that are lower than those of the states which have accepted the international treaties.
- It does not follow the guidelines of the International Transport Workers Federation on the crew. Thus, there are issues of hygiene aboard the ship and there is absence of pharmaceuticals products.
- The minimum quality of controls for both the workforce (direct barque of crews) and the condition of the vessels are not established since the seaworthiness of the ship has little significance. (International Transport Workers' Federation, 2014)

Table 3 Registration, Nationality, Number and Capacity of Vessels –for the Selected Countries

<table>
<thead>
<tr>
<th>Country or Territory of ownership</th>
<th>Number of Vessels</th>
<th>Deadweight Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>National Flag</td>
<td>Foreign and International Flag</td>
</tr>
<tr>
<td>Greece</td>
<td>825</td>
<td>2.870</td>
</tr>
<tr>
<td>Japan</td>
<td>738</td>
<td>3.253</td>
</tr>
<tr>
<td>China</td>
<td>2.665</td>
<td>2.648</td>
</tr>
<tr>
<td>United States</td>
<td>768</td>
<td>1.175</td>
</tr>
<tr>
<td>Denmark</td>
<td>45</td>
<td>946</td>
</tr>
<tr>
<td>Monaco</td>
<td>0</td>
<td>126</td>
</tr>
</tbody>
</table>

Source: UNCTAD, 2013

5 The ranking of Registration, Nationality, Number and Capacity of Vessels of all Countries is at the Appendix A.
3. Greek Ports

3.1 Significance of Ports existence

Maritime transportation has always constituted a driver of growth for each country. In this framework, the organization and location of the nodal infrastructure for shipping is of great developmental importance. Countries that have a long coastline, such as Greece, had better identify their development trends with shipping and maritime transportation if they have not already done so. Furthermore, these countries should develop their present and future perspectives exploiting the possibilities offered by this sector (Christofakis, et al., 2009). More specifically, in Greece, a large network of ports has already been developed since this country has so many islands and large coastlines (it's the eleventh worldwide) (Agency, 2014). In addition, there are so many islands which are serviced by no other competitive public means of transport than shipping and generally the Merchant Marine is the only means to serve their local needs. Of course, the significance of tourism should be added to the above necessity. Thus, if Greece wants to be a tourist country, it should aim to serve not only the local population but tourists as well. The assistance of Passenger Shipping and cruise ships is crucial especially after the abolishment of the Cabotage law (Mikroulea, 2009)

These reasons make the Greek ports extremely important, the country has about 260 ports, some larger and other smaller ones, connecting the mainland with the islands. Also, many of the 106 islands around Greece are served by more than one port indicating the necessity of their existence. It is worth mentioning the freight to overseas imports and exports of goods; about 132 ports operate actively. Finally, we should place emphasis on the fact that the Greek ports receive about 56 cruise ships while we ought to count all ports that help passengers and vehicles to be transported primarily to Italy. (Spathi, et al., 2010)

---

6 “Cabotage traditionally refers to shipping along coastal routes, port to port. Now the word is often used to refer to the transport of goods or passengers between two points in the same country by a vessel or an aircraft registered in another country. Originally a shipping term, cabotage now also covers aviation, railways, and road transport. Cabotage is trade or navigation in coastal waters, or, the exclusive right of a country to operate the air traffic within its territory” (Wikipedia Online, 2014)
3.2 Categorizations of Greek Ports

Considering all these crucial points and as it has been done in the previous chapter, it is necessary to have a classification of the Greek ports considering two basic axes: the state and the substance of transport, so as to realize their importance in practice.

3.2.1 Classification under the National Port System of the Country

According to the Greek Ministry of Merchant Marine and the General Secretariat of Ports and Port Policy, the National Port System of the country is consisted of the following:

a) Twelve organizations (12) of the ports operating as one public company which has the Greek government as a main shareholder
b) Thirty-nine (39) Port Funds that they are supervised by the Ministry of Merchant Shipping in accordance with the Article 10 of Law 2987/2002
c) Thirty-two (32) Municipal Port Authorities and a Port Prefectural Fund, which are established by the issuance of Presidential Decrees in accordance with the Article 28 of the Law 2738/1999 and they are of minor importance compared with the previous two categories, and finally,
d) One thousand two hundred and fifty (1250) regional ports, marinas, fishing shelters and small ports whose responsibility lies upon the 188 Central Authorities, Port Authorities, Sub Port Authorities and harbor stations of the country.

3.2.2 Classification based on significance

The 260 ports of the country participate, also, in a second classification, which is based on their significance. As it is described in the Joint Ministerial Decision which was published in the Greek Government Issue B 'to the sheet 440 07/07/1992, there are the following categories:
a) Ports of National Significance  
b) Ports of major interest  
c) Ports of local importance and all the other ports of the country are included.

3.2.3 Classification under the European’s Union Directive

Under Decision No. 1346 of 2001 of the European Parliament and of the Council as endorsed on 22 May 2001, the ports of each country of the European Union are divided into three categories, as shown below: (Commission of the European Communities, 2001)

- Category A: Includes ports in which traded goods are more than 1.5 million tons or 200,000 passengers. The specific ports are called Ports of international importance.
- Category B: Includes ports in which traded goods are more than 500,000 tons or passengers from 10,000 to 199,999. These specific ports are called Community ports and finally
- Category C: Includes all ports that are not classified in the above categories.

3.2.4 Classification under the project Trans European Transport Network

The project Trans European Transport Network is a strategy of the European Union which was adopted in 2011 and is to be implemented from 2014 to 2020 and it is subsidized by the Multi-Annual Financial Framework. In this project special importance is given in transportation across the longitude and latitude of the European Union focusing on 10 key routes which are the most popular in commercial terms and the most important due to the transportation of containers and commodities. According to the White Paper of Transport in 2011, transfers should be designed as to achieve economic growth and reduce the negative influence of the emission of pollutants into the environment and the ports of Piraeus and Thessaloniki participated in this project. More specifically, a route is established that connects Rostock – Hamburg - Burgas - Thessaloniki and Piraeus-Nicosia and it is regarded as the most efficient route for the linking of the North Sea, the
Black Sea and the Mediterranean. In this project, it is presumed that the Greek Ports are already upgraded and they can serve all the needs of this corridor with their port and rail infrastructure (Proposed TEN-T Core Network Corridors, 2011).

### 3.3 Uniformity Index

In the statistical summaries of the European Commission, the specialization load index (uniformity index) is very often used; the uniformity index is based on the study of Roll and Hayuth which was held in 1993 (Roll & Hayuth, 1993). This index in the case of ports shows the specificity of the ports according to the various kinds of loads. The more active a port is in specific types of cargoes, the greater the index is. On the merits, the unit of specialization load is the coefficient of variation and if a port is more expert in one type of load, it can achieve advanced efficiency. So, based on what it has already been reported, the major ports of the country are expected to experience a high rate of this uniformity index due to the specialization that may have been acquired while the peripheral and island ports may show a lower value in this indicator.

Looking at Table 4, we can realize the following paradox: The port of Thessaloniki has a uniformity index 1.00 while the port of Piraeus has 1.98. Bearing in mind that both are large ports, such a big difference is not justified unless you see what is between the lines. Essentially, these numbers of Table 4 indicate that the port of Piraeus is specialized in a specific type of cargo, the Containers, while the port of Thessaloniki lacks specificity. Of course this is not entirely correct, as the port of Thessaloniki has to cover all the needs of Macedonia, Epirus and Thessaly and it lacks both auxiliary - or additional ports and other large infrastructures that can accommodate for example Ro-Ro\(^7\) type vessels.

More specifically, the port of Thessaloniki is surrounded by auxiliary ports but with reduced infrastructure and port facilities. Those ports are in Nea Moudania and Stavros in Chalkidiki with

\(^7\) “Roll-on/roll-off ships are vessels designed to carry wheeled cargo, such as automobiles, trucks, semi-trailer trucks, trailers, and railroad cars, that are driven on and off the ship on their own wheels or using a platform vehicle, such as a self-propelled modular transporter.” (Wikipedia Online, 2014)
a uniformity index about 1.37 and 1.89 respectively, since they both receive primarily General Cargoes. Also, there are the ports of Eleftheres and Kavala which cover the incoming needs coming from Bulgaria and South Eastern Macedonia and Thrace. Moreover, these ports are specialized in Dry Bulk and in General Cargoes. The last supportive harbor of the area is in possession of Porto Lagos in Xanthi in which small amounts of dry bulk cargoes are transported. So, the major service point for these areas is the port of Thessaloniki.

Moreover, we should not forget three (3) main events. The first is related to the fact that the general cargoes or Dry Bulk Cargoes can be served with a very cheap infrastructure and this is the most efficient solution for small regional ports; for instance, bulldozers are already in the outfitting of the ship. Secondly, there are needs for specialized machinery and special facilities which can be provided only by a central port in order to transport Liquid Bulk Cargoes and Containers, such as the container terminal of the harbor area in Thessaloniki. Finally, we should not ignore the geopolitical factor of our region (Sfetas, 2008). The port of Thessaloniki, for years, has had a special contract concluded on the Balkan Wars and it became active in 1925, since the long term friendship with the former united Yugoslavia bore a special non-taxation clause. The rights of Yugoslavia after the dissolution were transferred to Serbia due to the low cost of cargoes and direct rail links. Consequently, we provide services and we manage in the port of Thessaloniki, a significant volume of goods of Serbia.

On the other hand, the port of Piraeus has all the potentials to expand because it is the central and most important port of the country and Southeast Europe. Moreover, the port of Piraeus is used to be called as the gateway to Europe and this is not random. Piraeus is close to many ports where you can take the loads which do not require highly sophisticated and expensive mechanical equipment and this is why this port is specialized in Containers and in general in the Ro-Ro type of vessels. Finally, if you perform a vertical reading of the Table focusing on the Ro-Ro vessels, we can all see that the ports of Patra, Igoumenitsa and Piraeus exhibit remarkable rates. For the first two ports, these rates are justified since they are the portals of the country to the rest of Europe. Thus, the routes Greece-Italy and vice versa serve the amount of vehicles and big trucks coming from or going to Europe. The port of Piraeus serves the Greek islands with the arrival and the departure of the ferry Boats as well. To sum up, there is a distinct contribution of the ports to the development of the country and thanks to them, different categories of
commercial vessels may reach, facilitate the import and export of products and communication with the rest of the European Union.

Table 4 Uniformity Index of Greek Ports\(^8\)

<table>
<thead>
<tr>
<th>Ports</th>
<th>Liquid Bulk</th>
<th>Dry Bulk</th>
<th>Container</th>
<th>RO-RO</th>
<th>General Cargo</th>
<th>Total</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piraeus</td>
<td>0,52</td>
<td>0,99</td>
<td>80,72</td>
<td>11,86</td>
<td>1,1</td>
<td>17,69</td>
<td>1,98</td>
</tr>
<tr>
<td>Thessaloniki</td>
<td>20,56</td>
<td>11,21</td>
<td>18,2</td>
<td>0,01</td>
<td>18,63</td>
<td>15,98</td>
<td>1</td>
</tr>
<tr>
<td>Agioi Theodoroi</td>
<td>34,85</td>
<td>0,02</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14,28</td>
<td>2,24</td>
</tr>
<tr>
<td>Megara</td>
<td>27,39</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11,22</td>
<td>2,24</td>
</tr>
<tr>
<td>Elefsis</td>
<td>14,18</td>
<td>12,08</td>
<td>0</td>
<td>0,07</td>
<td>21,63</td>
<td>10,18</td>
<td>1,17</td>
</tr>
<tr>
<td>Patra</td>
<td>0,27</td>
<td>0,79</td>
<td>0</td>
<td>48,05</td>
<td>0,76</td>
<td>4,87</td>
<td>2,04</td>
</tr>
<tr>
<td>Igoumenitsa</td>
<td>0</td>
<td>0,01</td>
<td>0</td>
<td>31,52</td>
<td>0,32</td>
<td>2,99</td>
<td>2,21</td>
</tr>
<tr>
<td>Kavala</td>
<td>0,12</td>
<td>3,44</td>
<td>0,03</td>
<td>0</td>
<td>2,47</td>
<td>1</td>
<td>1,58</td>
</tr>
<tr>
<td>Nea Moudania</td>
<td>0</td>
<td>1,09</td>
<td>0</td>
<td>0</td>
<td>2,75</td>
<td>0,46</td>
<td>1,37</td>
</tr>
<tr>
<td>Stavros Chalkidikis</td>
<td>0</td>
<td>0,18</td>
<td>0</td>
<td>3,17</td>
<td>0,3</td>
<td>1,89</td>
<td></td>
</tr>
<tr>
<td>Porto Lagos</td>
<td>0</td>
<td>0,5</td>
<td>0</td>
<td>0</td>
<td>0,53</td>
<td>0,15</td>
<td>1,56</td>
</tr>
<tr>
<td>Eletheres</td>
<td>0</td>
<td>0,12</td>
<td>0</td>
<td>0</td>
<td>0,24</td>
<td>0,05</td>
<td>1,39</td>
</tr>
</tbody>
</table>

Source: (Hellenic Statistical Authority, 2013)

\(^8\) The ranking of all Greek Ports according to Uniformity Index is at the Appendix B.
4. The contribution of Shipping to the Greek Economy

The concept of Shipping is quite confusing as far as data is concerned. If we had to define the contribution of Shipping to the Greek Economy, we would not find direct statistics, neither from Eurostat nor the Greek Statistical Service. Based on the research by the Foundation for Economic and Industrial Research (IOBE), and given the availability, we chose to analyze the sector of the Water Transport industry, which is considered to be representative for the Merchant Marine. The 95% of the value of the services which were offered by the Water Transport corresponds to the exports that the Merchant Marine is solely responsible for while the remaining 5% is based on the movement of goods carried in rivers, lakes and many others. (Eurostat, 2007)

In addition, based on Eurostat, for every 100 Euros produced in the sector of shipping industry:

- 53 Euros counted to the Gross Domestic Product of the country as an added value.
- The remaining 47 Euros are related with financial inputs
  - More specifically, 21 Euros are related with the purchase of goods and services from abroad,
  - The state levied 3,45 Euros as indirect taxes.
  - Finally, the remaining 22,55 Euros go to the other sectors of the Greek economy; the supporting transportation services have the highest share, the petroleum products follow and last comes the construction sector. (Graph 3 )

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9 “The Foundation for Economic & Industrial Research (IOBE) is a private, non-profit, public-benefit research organization. It was established in 1975 with the dual purpose of promoting research on current problems and prospects of the Greek economy and its sectors and of generating reliable information, analysis and proposals for action that are non-produced elsewhere and can thus be of high value to policy makers in the context of economic policy making”.
About the financial outflows, for every 100 euros that are produced in the shipping industry:

- 95,42 Euros are related to the exports which are made through the Merchant Shipping
- 2,91 Euros are related to the internal sector of Passenger Shipping
- 1,67 Euros are related to other consumptions which are made by the Commercial and Passenger Shipping generally (Eurostat, 2010)

Source: (Danchev & Demian, 2013)

Apart from the direct contribution of the sector to the Greek Economy, there are direct and indirect consequences on a series of macroeconomic indicators of the country.

More specifically, we will analyze the direct effects on:

- Employment
- Balance of payments
The Contribution of Shipping to the Greek Economy

• The formation of National Income

• The improvement of the living standards of workers in the Shipping Industry

There are also the indirect consequences as an eventual contribution to the economic life and activities in general.
4.1 The contribution of shipping to the economy through employment

4.1.1 Employment in Greece

As it is known, the economic crisis has created many problems in the field of employment in Greece. The country now ranks first in the unemployment index in the European Union in all target groups holding a negative record (Bank of Greece, June 2014). After the onset of the economic crisis in the U.S.A., unemployment began to increase in the country dramatically. At this point, I will report based on the publications of the Hellenic Statistical Authority that unemployment in November 2008 was 7.7% and after a year in November 2009, it reached a rate of 9.5% recording an increase of 1.8%. The above percentage does not seem tragic but if we translate it into jobs, then we realize that the unemployed amounted to 465,000 people in 2009. Those numbers increased by 73,000 people and that means more than 6,000 unemployed people per month. Data by the General Confederation of Greek Workers (GSEE\textsuperscript{10}) talk about unemployment higher than 16.5% in 2011 or otherwise 825,000 people, so we can realize the shock experienced by the country. Also, even the more recent data shows that unemployment rate have increased trend. So, according to Hellenic Statistical Authority, the unemployment rate was 24.2% and 27.5% for 2012 and 2013 respectively.

Of course news is constantly going negative even in 2014. I quote the following Table (Table 5) characteristically which shows the history of unemployment rates from 2008 until now. During 2010 and 2012 unemployment rates literally jumped in adding more than 574,800 people in the lists of the unemployed.

\textsuperscript{10} “GSEE is made up of 83 worker unions and 74 departmental secondary confederations. Its prime purpose is defending the interests of all workers in Greece, in the private sector. To that purpose, it negotiates with the employer unions the signing of national union labor agreements and also has the ability to call all workers of the private sector on strike in case the need arises” (Wikipedia Online, 2014)
The Contribution of Shipping to the Greek Economy

Table 5 Unemployment rate between 2008 and 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate</td>
<td>7.7%</td>
<td>9.5%</td>
<td>12.5%</td>
<td>17.7%</td>
<td>24.2%</td>
<td>27.5%</td>
<td>27.8%</td>
</tr>
<tr>
<td>UNEMPLOYMENT RATE</td>
<td>392.000</td>
<td>465.000</td>
<td>594.000</td>
<td>810.800</td>
<td>1.168.800</td>
<td>1.355.000</td>
<td>1.485.000</td>
</tr>
<tr>
<td>NUMBER OF UNEMPLOYMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

Graph 4 Unemployment Rate in Greece between 2008 and 2014

These rates seem to be representative of the situation which prevails in the country and it is noteworthy to cite some quality characteristics, namely:

- The total number of unemployed people registered to the Manpower Employment Organization in June 2014 amounted to 820,156. The corresponding rate in May 2014 was 814,693 people about 0.7% more, which shows that unemployment continues to increase even with a declining rate,
- Also, the long-term unemployed are over 50% of the total number of unemployed and particularly approaches the rate of 53.9% and

---

11 Prediction based on data of the first quarter
In June 2014, the subsidized unemployed were totally 79,621 persons, just the 9.6% of the total number of unemployed job seekers! (Hellenic Statistical Authority, 2014)

4.1.2 The direct contribution of Shipping to the employment

The contribution of Shipping to the employment is very important, but statistics show many peculiarities because of the existence of vessels which may not be registered under the National Flag but under the Flag of Convenience. Also, the managing company of the ship is not affiliated with the Merchant Seamen’s Fund (NAT) making the insurance coverage an obligation of Seafarers. Officially, all data published by the Greek Statistical Service are derived from those seafarers on ships -either under the Greek Flag or under a foreign one- and those seafarers are contracted with NAT. Bearing in mind what I have already reported in the second chapter of the present dissertation, most ships of Greek interests have not been registered in Greece, so that the accuracy and reliability of the data is questionable. Whatever data is going to be presented below is officially documented by the Greek Statistical Service, the Merchant Seamen's Fund and finally by the Seafarers’ Employment Bureau (GENE) (Tsamourgelis, 2007).

4.1.3 Nationality of Seafarers

According to the Statistical Yearbook of the Greek Statistical Office of 2008, the most active seafarers work on ships larger than 100 dwt. Altogether, 26,893 people work on ships contracted with NAT. About 24,300 people work on these ships which are registered under the Greek flag, while other 2,600 seafarers are still working on ships under a foreign flag. Of those who are employed on ships which are registered under the Greek flag, the 61% are Greeks and the second largest nationality represented is Filipinos with 30%. On the ships under a foreign flag, the percentage of Greek sailors is 36%, and Filipinos dominate with 40%. Throughout this report,
we can observe that Greek ship owners prefer, apart from the Greeks, the Filipinos for two main reasons. First, they have experience with ships, and moreover they have already worked as deck officers; the other element is that they are very inexpensive as their gross monthly remuneration is not exceeding the 850$, while for the corresponding Greeks would be far higher. Finally, it is not clear how many of the above are officers (senior or junior) and how many are just crew members. (Tsamourgelis, 2007)

![Graph 5 Nationality of Seafarers in Greek Owned Vessels](source)

Based on statistical data for Greek-owned ships (whether they are affiliated with NAT or not) and an estimation by IOBE, Greeks who are employed as crew members or officers are about 32000 while there is an increased demand for them. To the above numbers, we have to add another important factor. (Danchev & Demian, 2013) Unlike regular employees who are eligible for about one month of vacation entitlement, this is not the case for seafarers. The reason is that the crews at sea cannot entirely be replaced and the work in the sea is burdensome. So, it is adopted by the global organizations that the seafarer is entitled to five months rest and 7 months of work. Therefore, if we take this into account, then we need to calculate a number of sailors approaching 40,000 (Gavroglou, et al., 2013).
4.1.4 Age of Seafarers

A matter of peculiar interest, among others, is the age distribution of seafarers (either as officers or as simple crew members). The resulting image according to the details of the Greek Statistical Office is that Greek Ship owners trust Greeks by 33% and foreigners by 66%. From the Greeks, the 55% are between 40 and 60 years old and mainly deck or engine officers while the 45% belongs to the cluster of 20-39 years. On the other hand, the 66% of foreigners are classified to the age group of 20-39 years old while the 33% of those belongs to the 40-60 years old group. The explanation both for the Greeks and for the foreigners is relatively simple. Greek sailors are trained, experienced and reliable and that is why they are chosen by their owners as officers. The high wage bills excludes them from working as seamen and this is the reason the foreign crews are preferred since they are inexpensive and more flexible working methods can be applied to them.

On the whole, as shown by the statistics of G.E.N.E., graduates of Merchant Marine Academies are sought after and in relation to the rest of the same age group they have lower unemployment rates. Indeed, the Ministry of Merchant Marine considering the increased demand for the Greek officers, has already provided for such an event since 2005 by increasing the admission of students in the Merchant Marine Academy, as due to the reduced supply, the ship owners are pressed to be in search of officers with questionable training.
4.2 The Contribution of Shipping to the Greek Economy through the Balance of Payments

The balance of (external) payments of each country, as it records the amount and the evolution of all financial transactions that a country has with the rest of the world, is considered as one of the key macroeconomic indicators. In this balance, there are recorded inflows and outflows of capitals from and out of the country during a given period which is usually for a year. The balance of external payments is frequently used as an indicator of the demand and supply of the currency of the country. Finally, it is important for the country because this affects the formation of indicators such as the national income and the national expenditure while it reflects the international economic relation of the country with other countries (International Monetary Fund, 2012).

The balance of (external) payments usually is characterized by the deficit or the surplus in the special national account which shows imports and exports of the country. In the case of Greece, this ratio is deficient around 35-40%. Of course in recent years, when the Greek exports have increased, the deficit has reduced to 27%, but it is still rather high. In the short term or in some cases in the medium term, it is possible to cover the deficit from the rising of the undeclared resources which derive from Maritime, Travel and Migration exchanges. In our case, we will analyze the increase that can be observed from the future collections of the Maritime Exchange. (Hellenic Statistical Authority, 2013)

4.2.1 Contribution of shipping receipts to the balances of the country

The contribution of Shipping to the macroeconomic indices is conspicuous. Below some key figures are presented which are related to the GDP. index and the individual balances which are
The Contribution of Shipping to the Greek Economy

part of the Balance Of Payments. Throughout this balance, the importance of Shipping to the Greek Economy is evident.

4.2.1.1 Gross Domestic Product (GDP)

Table 6 Contribution of Shipping to the Greek GDP.

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>% GDP</td>
<td>2.6</td>
<td>3</td>
<td>4.3</td>
<td>4.3</td>
<td>3.9</td>
<td>4.5</td>
<td>4.7</td>
<td>3.1</td>
<td>3.5</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

Graph 6 Contribution of Shipping to the Greek GDP.

Table 6 above shows the constant contribution of the Shipping to the Gross Domestic Product of the country from 2002 to 2011. As it can be realized, Shipping follows largely the trend of the Greek and European economy either in recession or in development. Since 2002 and onwards, the contribution of Shipping is constantly increasing till 2008, with a slight exception in 2006 when there is a temporal decline. The maximum contribution is observed in 2008, just a year before the global economy entered into a recession cycle, and reached a 4.7%, which is considered as a very high percentage. More specifically, from 2004 to 2008, the contribution to the economy has growing rates close to 4.5%. However, in 2009, the year of the global economic crisis, the shipping sector, as well as the whole transport sector was affected by a reduction of
The Contribution of Shipping to the Greek Economy

more than 1.5% reaching a 3.1% of the GDP. However, since 2009 there has been a recovery and as it is obvious from Graph 6 above, that there is an increasing trend.

4.2.1.2 Current Account Balance

Table 7 Contribution of Shipping to the Greek Current Account Balance

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>39.3</td>
<td>45.7</td>
<td>73.9</td>
<td>56.3</td>
<td>34.9</td>
<td>31.4</td>
<td>32</td>
<td>28.1</td>
<td>33.6</td>
<td>37</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

Graph 7 Contribution of Shipping to the Greek Current Account Balance

In Table 7, the percentage contribution of shipping to the current account balance during 2002 and 2011 is recorded. From the existing statistical data, we find out that there is a continuous upward trend from 2002 to 2004 and in subsequent years, there is a significant temporal decline-reduction reaching the 40% which takes place in 2006. From this year on until 2011 there is stability and the contribution of shipping is approximately 33% on the weighted average during the last six years. However, with a careful approach to the graph (Graph 7) it is understood that from 2002 up to 2011 there was a specific increase except from the years 2003-2005. All in all, it
can be noticed that shipping is an important pillar of the current account balance over time and its contribution is approximately 35%.

4.2.1.3 Trade Balance

<table>
<thead>
<tr>
<th>Percentage of Trade Balance</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17,6</td>
<td>22,7</td>
<td>31,1</td>
<td>30,1</td>
<td>23,4</td>
<td>24,7</td>
<td>25,3</td>
<td>24,3</td>
<td>28,6</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

In addition, shipping has a significant presence in the Greek trade balance. With minor variations as it is visible in the above graph (Graph 8), its contribution is constant and with increasing trends. Apart from the significant growth which is recorded during the years 2004 and 2005 and it is close to 10%, in the following years we can realize not only a correction but a stable improvement, too. In fact, according to statistics, even in the depression years, the contribution of Shipping to the trade balance has had a positive impact. The percentage change although it
The Contribution of Shipping to the Greek Economy

was negative by 1%, it was still minimal in front of the unprecedented global economic recession. Furthermore, it shows the smallest variation in relation to the Current Account Balance for the period between 2003 and 2005.

4.2.1.4 Services Balance

*Table 9 Contribution of Shipping to the Greek Services Balance*

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>37,2</td>
<td>44,7</td>
<td>51,2</td>
<td>54</td>
<td>53,8</td>
<td>61,8</td>
<td>65</td>
<td>59,1</td>
<td>61,1</td>
<td>52,2</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

*Graph 9 Contribution of Shipping to the Greek Services Balance*

From the above table (Table 9), it is clear that the contribution of Shipping to the Greek Economy is achieved through the Services Balance as well. In fact, according to the statistics of the Hellenic Statistical Authority, Shipping seems to be the sector with the largest contribution to this balance. As it is evident from 2002 to 2011, both the trend and the actual evolution of the index have been rising although there is a correction in substance in 2009 when there is a widespread economic crisis worldwide.
4.3 Comparing Maritime, Travel and Migration Exchange

The Maritime, the Travel and the Migrant Exchange contribute greatly to the equivalence of the Balance of Payments. The Maritime Exchange is considered inelastic, its contribution is more important than the other two types. Concerning the Travel Exchange, it is in a flourish development in the recent years and if we had adequate statistical data from the years 2013 and 2014, I'm sure that our estimation could be confirmed. However, the creation and the continuous existence of considerable sums for important investments in infrastructure are necessary but difficult to occur in Greece of the economic crisis. Finally, an important element for Migration Exchange is the index of registered unemployment in the country.

As it is already known, the unemployment in the country is in very high rates and it continually holds first position in the relevant indicators of Eurostat for each age group - category continuously. Therefore, it is very difficult to be an emigrant for financial reasons in a country like Greece and even more in search for a job. Also, according to the customs authorities of the country, a large stream of economic emigrants has been cut off for several years due to the economic crisis. So, many families of economic emigrants return to their countries because it is impossible to find work in Greece. The main consequence of the above is the reduction of the Migration Exchange. (Gkiziakis, et al., 2006)

4.3.1 Maritime Exchange

What do we mean by saying Maritime Exchange? It consists mainly of remittances, transfers and other financial transactions. More specifically, it consists of: (Papagianoulis, 2002)

- Remittances of ship owners
- Remittances of seafarers
- Remittances for refueling and / or repairs of vessels
- The contributions to the Insurance Funds and in particular NAT
- Other minor importance categories.
The Contribution of Shipping to the Greek Economy

More specifically, the remittances of Ship Owners are imported by the shipping companies and they are usually related to the expenses coverage such as:

✓ The payment of money to the families of seafarers
✓ The payment of obligations to:
   ❖ Insurance Funds
   ❖ Insurance Healthcare
   ❖ For the Internal Revenue Service
✓ Other costs resulting from the regular operation
✓ For emergency cases
✓ For ships expenses in port (eg cost of towing or lighthouses Fees) and
✓ Costs of maintenance, repair and supply ships in Greek ports (Theotokas & Harlaftis, 2007)

4.3.2 Inelasticity of Maritime Exchange

The Maritime Exchange is not affected by any fluctuations from the income of Greek Enterprises. This is important because the costs which are incurred in the Greek sector have inelasticity due to the following causes:

✓ The increase of government spending is customary for the benefit of the Greek economy. As it is estimated, there is a repatriation of many Greek shipping businesses which had always been based in Greece. In this way, the size of contribution of the Maritime Exchange in the Greek Economy is extensive.
✓ In addition, apart from the headquarters of the shipping companies, there are many other managing companies which have now been established in our country creating turnover, which generates profits for the Greek state by taxes imposition.
✓ Furthermore, the services which are offered by the Greek state to the vessels have significantly increased now. Thus, as discussed in the third section of this dissertation
The Contribution of Shipping to the Greek Economy

which is about ports, there are construction and repair services; there is an extended banking as well as insurance and brokerage services which generate profits from imposing taxes on turnover of these services.

✓ The prominent position of Greek merchant shipping in the international trade of dry bulk and liquid cargoes allows not to suffer from the effects of fluctuations in demand of capacity (Haralambides, 1996)

4.3.3 Comparing Maritime and Travel Exchange

**Table 10 Amounts of Maritime and Travel Exchange**

<table>
<thead>
<tr>
<th>In million Euros</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maritime</td>
<td>4005.5</td>
<td>5145.2</td>
<td>7918.2</td>
<td>8306.1</td>
<td>8255.7</td>
<td>10251.7</td>
<td>11139</td>
<td>7471.9</td>
<td>8088.3</td>
<td>7630.2</td>
</tr>
<tr>
<td>Travel</td>
<td>7736</td>
<td>7359.3</td>
<td>8037.4</td>
<td>8283.8</td>
<td>8973.9</td>
<td>8833.5</td>
<td>8956.8</td>
<td>7975.7</td>
<td>7455.3</td>
<td>8238.2</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority

**Graph 10 Evolution of Maritime and Travel Exchange**

In the above table (table 10) there is an initial comparison between Maritime and Travel Exchange for the years 2002 to 2011. As the graph 10 shows, the first observation is that the Travel Exchange albeit with some minor differences has had constant trend over the years, with a
relative decline for the years 2009 and 2010. The cause is the rumors of an impending Greek bankruptcy and Grexit developed within the European Union and other countries and caused distrust among tourists. On the other hand, the Maritime Exchange seems to be affected by the economic crisis in transports in 2009. Although the rates are constantly increasing until 2008 and particularly during 2003 and 2004, there has been a boom and the same is observed during the years 2006 and 2007. (Oikonomou, et al., 2010) Also, it is noteworthy the height of the financial transaction. However the Maritime Exchange was 51% in comparison to the Travel in 2002, in less than five years, the first exceeded the second in 2005 without a reduction of Travel Exchange. In 2008, there is also a significant increase in the difference of 2.156 million! At the end of 2011, both exchanges were almost identical in annual flows of million Euros. (Bank of Greece, June 2014)

4.3.4 Comparing Maritime and Migration Exchange

| Table 11 Amounts of Maritime and Migration Exchange |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                  | 2002   | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   |
| Maritime                        | 4005,5 | 5145,2 | 7918,2 | 8306,1 | 8255,7 | 10251,7| 11139  | 7471,9 | 8088,3 | 7630,2 |
| Migration                       | 1633,5 | 1239,4 | 2386,1 | 2048,6 | 3041,3 | 4332,3 | 4090,8 | 2017,4 | 2071,8 | 2671,8 |

Source: Hellenic Statistical Authority

Graph 11 Evolution of Maritime and Migration Exchange
From the above comparison between Maritime and Migration Exchange, we can observe that there is a significant difference in the level of cash flow throughout the duration of the study period. As the graph 11 shows, the changes in both types of exchange are common and during the years 2007 and 2008 both of them are increased significantly while both were affected by the economic crisis of 2009. It would be particularly interesting to study the existence of data for the years 2013 and 2014 since it is believed that there would be a significant change and mainly a fall in the Exchange Migration due to the high and continuing unemployment plaguing Greece. (Bank of Greece, June 2014)
4.4 The contribution of the Shipping to the Greek Economy through the formation of the National Income

The National income is the macroeconomic index which is the sum of the remuneration of the factors of production within a period of one year, the fees which are paid for the contribution of these factors throughout the production. It is also possible to include the fees of the production factor "Labor" and specifically wages and salaries, as well as the production factor of "Capital" this means that any business profit and return on capital is considered as income. Of course, we should bear in mind that for the configuration of the Annual National Income, the macroeconomic index should be calculated resulting to the sum of incomes of the Private and Public Sector. (Vlachos, 2007)

As a result of this practice which is followed for the calculation of the National Income, shipping contributes decisively to the national income through workers’ incomes abroad the vessels and in the offices as well. Therefore, the national income is formed through seafarers’ income and their benefits which are available to them. Also, it is contributed by the employees in offices in the same way and finally by the public sector and by any kind of revenue from taxes and fees. (Sulpice, 2011)

The formation of these aggregates is indicated by the number of employees in the shipping industry, by the number of shipping companies which are established in the country –either with Headquarters or with branches- and of course the annexes of cooperating shipping companies, for example insurance agencies, Registers etc.

Also, according to statistics of the National Union Master Mariner (PEPEN) and the Collective Labor Contract for crews of passenger ships which is published in the Sheet of Greek Government on 08.26.2013, the Greek deck and engineer officers are particularly highly paid in relation to other employees. This is a decisive contribution to the positive development of the overall index of the national income.
More specifically:

- Basic Salary for Captain A is around 3485.59 Euros per month and
- Basic Salary for Engineer A is around 3468.50 Euros per month

With regard to seagoing vessels, according to 123 Issue B Sheet of Greek Government of 09/02/2011 as it is valid till now:

- Gross Salary for Captain A is around 5300 Euros payments with benefits
- Gross Salary for Engineer A is around 5260 Euros with benefits
4.5 The contribution of Shipping to the Greek Economy by improving the living standards of workers

In the previous section of this chapter, a much different remuneration is analyzed. At this point, we should refer to the people employed in the Merchant Marine and their living conditions. In general, these employees have already secured their boarding when on the ship and generally they enjoy higher wages because of the nature of their work which is fairly regarded as fairly dangerous, heavy and unhealthy. Their wages used to be formed either by collective bargaining agreements or by conventions which are ratified by the I.L.O.\textsuperscript{12} and more specifically by the Maritime Labor Convention (International Labour Conference, 2014)

Consequently, most of these employees share the convenience to accomplish higher consumer expenditures since the majority of seafarers achieves higher deposits and possible investments as well (International Labor Organization, 2001). This has resulted to a satisfactory standard of living of their families and themselves in relation to other professions. On the whole, the people who work in the Shipping make more vigorous consumer expenditures which are caused by the return of additional incomes and investments; it is also likely to reduce their living costs if they have for example their own house.

\begin{flushleft}
\textsuperscript{12} “The International Labor Organization (ILO) is devoted to promoting social justice and internationally recognized human and labor rights, pursuing its founding mission that labor peace is essential to prosperity. Today, the ILO helps advance the creation of decent work and the economic and working conditions that give working people and business people a stake in lasting peace, prosperity and progress. Its tripartite structure provides a unique platform for promoting decent work for all women and men. Its main aims are to promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue on work-related issues.” (International Labor Office, 2014)
\end{flushleft}
4.6 The Contribution of the Cruise Sector of Shipping to the Greek Economy

Passenger Shipping and Cruise are a subcategory of Merchant Navy due to the increasing turnover and the obvious passengers’ and tourists’ preferences in comparison to the alternative means of transport. As it has already been mentioned in the third chapter of this dissertation, in an insular country like Greece, the necessity of Passenger Shipping is of a paramount importance due to the existence of so many islands. However, even if the passenger shipping sector is essential for the transport of goods and people, there is still no alternative means of transportation. As for the Cruise, the situation is also the same although Cruise is directly connected with tourism since it is considered as a leisure trip in conjunction with visits to islands and other coastal destinations. (Prandeka & Zarkos, 2014)

4.6.1 Institutional Framework

Talking about the Cruise, it is important to refer to the term of Cabotage which has become the field of controversy for many years among the Ship owners, the Greek Government and the European Union.

As a concept, Cabotage refers to trade and to passenger shipping in the territorial waters of a Country and between two different points of departure and arrival within the state. As a restrictive / protective term, Cabotage, is also referred to the trade and the transport between two points (ports) for ships sailing under the flag of the state. So, it favors the national shipping and it provides, theoretically, a safety net for its development away from the competitive practices of the third countries. Finally, the term contrasts with the freedom of navigation in the open sea or in the overseas trade among remote parts of the world (Bredima-Savopoulou & Tzoannos, 1990).

In an effort to review historical data, we can see that the restrictions of Cabotage had begun in 1985. Then France, Germany, Greece, Italy, Spain and Portugal began to implement this policy. Particularly in Greece, the concept of Cabotage was legislated in 1985 but substantially
implemented in 1990. In all cases, except Germany, Cabotage focused on services to the islands, which in our case these are the Aegean islands. Since the ferry trade is essential for the movement of goods and people even in cases of national security, the application of Cabotage was a form of defense for purely strategic reasons. (Bredima-Savopoulou & Tzoannos, 1990)

In the European Union, the principles of the single market, the free movement of people, goods and capital are the cornerstones of the Maastricht Treaty and the Schengen Agreement I & II. Nowadays, after the ratification of the European Constitutional Treaty, the free access to shipping services contributes to the revitalization and the competitiveness of the community market and the establishment of Marine internationally. The full liberalization of maritime trade is achieved gradually through the common transport policy, and more specifically by the Commission of Maritime Affairs of the European Affairs. (Commission of the European Communities, 2001)

In more details, on 7th December 1992, the European Council voted for the regulation 3577/92 about the Community Cabotage. For the first time, according to this regulation, the freedom of movement of goods and services in marine transports among the member-states of the Community was institutionalized. In this framework, it was additionally permitted to the ship owners who have in their possession ships flying under the European Community (E.C.) flag to move within EU waters. Moreover, this regulation gave way to the creation of a common European policy in shipping which was necessary for the Community for the purpose of internal convergence and empowerment of commercial transactions with the third countries. In addition, Regulation 3577/92 gives the chance to ship owners to operate ships registered in a Member State. Also, it permits them to fly the flag of that Member State and comply with the new conditions carrying out Cabotage removal within that Member State.

4.6.2 The cruise industry
The cruise industry is characterized by excellent services worldwide and commercial and business circles (lobbies); it is also recognized widely and so it is of a high demand. In recent years, all the performance indicators of the cruise industry, including the number of the passengers, the quality characteristics of the growth and the number of the new ships indicate a significant and steady growth. Also, the Cruise industry contributes significantly to the development of the areas which are visited by cruise ships. In order to attract passengers, the providers of leisure services increase continually the services offered during the journey, integrating water parks, luxurious spa with exclusive suites, pools and recreational areas; they also provide free internet access to the passengers throughout the duration of a trip (Wood, 2006). Finally, a decrease in revenue was observed only in consumption during the cruise trip because of the relative reduction in the purchasing power of the passengers without having an important influence to the overall revenue.

In the globalized international environment, the cruise industry is an area of Business activity which is subject to many regulations mainly because of the complex system of international conventions and laws concerning the operation of the market. However, the restrictions are at many points justified since they adjust issues of high risk and interest such as ship safety, marine pollution and labor law issues.

### 4.6.3 The removal of Cabotage in Greek Cruise.

Although, Cabotage was liberalized in the European Union for the commodities in 1999 concerning the Merchant Marine and for Cruise in 2002, in Greece, it was significantly delayed. The abolishment of Cabotage in Greece and the submission of a draft law have been subjects to controversies and conflicts in the mid of 2010. Ten years after the legislative intervention of the European Union, just in 2012, Greece adopted the removal of Cabotage into its national legislative framework in order to emphasize the cruise industry. In this way, it contributes to the better link among the economic sectors and the activities which are developed around Cruise Industry.

According to data from the European Cruise Council, the new legislation has the following positive elements: (European Cruise Council, 2013)
Foreign Direct Investments (FDI) for the cruise industry in the country reached 580 million in 2012.

Approximately 4.5 million of passengers visited the Greek ports in 2012 which is the 20% of the total European market.

The consumption of each passenger arrives at 98 Euros per day, so 360 million Euros profits for the wider sector operating within or outside of the Cruise.

Creation of approximately 11,500 jobs of which the 38% is in the sector of Transport.

The port of Piraeus has been found in the 5th position of European ports regarding the traffic of tourists. It welcomed 1.2 million passengers and 700 cruise ships.

The cruise industry combines shipping activity with tourism resulting to the earnings and in general, the benefits of it to be doubled. In the following sectors of industry (shipbuilding, repair, constructions), imports, exports, trade, services (transport, hotels, travel agencies, airports, legal services, education) and employment (crews, office staff, suppliers) the positive total effects are obvious. In the Aegean, Small-and medium-term cruises are usually combined with overnight stays in hotels and tours before and after the cruise and thereby strengthening the local level of tourism as well.

The legislation of removal of Cabotage provides an important setting which is ultimately crucial for the development of industry in Greece and this is the change of transit and stay of the cruise vessels. Up to 2011, many cruise ships used the largest ports of the country for intra-day visits, the duration of which was ranged from 4 to 6 hours. The ports were exclusive places only of transit of the cruise, and they were not bases of cruises (homeporting) due to the existence of Cabotage. In terms of per capita expenditure, the use of ports as transit spaces gives 65 Euros per person while it was estimated that if a port is going to be used as a base of homeporting, it will earn about 574 Euros per passenger, which means nine times more profit. By abolishing the Cabotage, the Greek ports have the ability and the interest to be a starting point and a final destination of the cruise now (homeporting). Apart from the above, benefits can also be created for shipbuilding areas as the maintenance of ships will be there. (Hellenic Chamber of Shipping and University of Piraeus, 2005)
4.7 Comparing Shipping with Other Economic Activities

It is particularly useful to have a comparative table with the contribution of the Shipping and the other major industries in the GDP of the country in order to assess the durability and stability to the contribution of each sector in the Greek GDP. For this reason, the industries below are selected since they account for the 40% of the Greek GDP per annum from 2000 to 2010. At this point, we should mention once again the lack of statistical data as the national statistical yearbook provides data about the contribution sectors only up to 2010, so any other attempt would bring heterogeneous data. In addition, the specific areas which were selected cover the three sectors of the economy. Of course, economic developments as well as regulations tend to be the explanation for many changes in the contribution of these economic sectors.

However, bearing in mind the unstable legislative framework which governs the economic activities of the country during the period 2000-2010, it will be attempted firstly a comparison among the sectors of industries giving special attention to the Shipping Industry. Secondly, a horizontal in-depth analysis of the decade will be presented covering data for the most important industries in order to determine their stability (Bank of Greece, June 2014).

Table 12 Performing of sectors of Industries of the Greek Economy and their contributions to GDP

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Livestock</td>
<td>6.05%</td>
<td>5.91%</td>
<td>5.41%</td>
<td>5.03%</td>
<td>4.54%</td>
<td>4.45%</td>
<td>3.29%</td>
<td>3.14%</td>
<td>2.76%</td>
<td>2.73%</td>
<td>2.81%</td>
</tr>
<tr>
<td>Textiles</td>
<td>1.53%</td>
<td>1.39%</td>
<td>1.37%</td>
<td>1.24%</td>
<td>1.04%</td>
<td>0.82%</td>
<td>0.74%</td>
<td>0.64%</td>
<td>0.65%</td>
<td>0.57%</td>
<td>0.55%</td>
</tr>
<tr>
<td>Manufacture</td>
<td>8.41%</td>
<td>8.35%</td>
<td>7.51%</td>
<td>7.23%</td>
<td>7.29%</td>
<td>7.49%</td>
<td>7.58%</td>
<td>7.39%</td>
<td>7.42%</td>
<td>8.67%</td>
<td></td>
</tr>
<tr>
<td>Tourism and Catering</td>
<td>7.75%</td>
<td>7.85%</td>
<td>7.54%</td>
<td>7.02%</td>
<td>6.95%</td>
<td>5.97%</td>
<td>5.93%</td>
<td>5.87%</td>
<td>5.93%</td>
<td>7.07%</td>
<td>7.04%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>11.35%</td>
<td>10.70%</td>
<td>11.15%</td>
<td>11.50%</td>
<td>11.14%</td>
<td>11.50%</td>
<td>10.60%</td>
<td>12.18%</td>
<td>13.13%</td>
<td>13.99%</td>
<td>14.02%</td>
</tr>
<tr>
<td>Financial and Insurance</td>
<td>5.55%</td>
<td>4.34%</td>
<td>4.17%</td>
<td>4.26%</td>
<td>4.89%</td>
<td>4.90%</td>
<td>4.89%</td>
<td>4.65%</td>
<td>4.57%</td>
<td>4.47%</td>
<td>4.73%</td>
</tr>
<tr>
<td>Shipping</td>
<td>2.55%</td>
<td>3.12%</td>
<td>2.60%</td>
<td>3.00%</td>
<td>4.30%</td>
<td>4.30%</td>
<td>3.90%</td>
<td>4.50%</td>
<td>4.70%</td>
<td>3.10%</td>
<td>3.50%</td>
</tr>
</tbody>
</table>

Source: Hellenic Statistical Authority, 2013

Observing in a more detailed way the data of the above table (Table 12), the field of Agriculture and Livestock, is included to in the primary sector of the Economic Activities. For many years, Greek economy was intertwined with agriculture but not classified as an agricultural one.
Moreover, the importance of this sector is not confined to the economic field but mainly to the development of the Greek countryside. From the above information which is available, a downward trend in the contribution of this sector to the total GDP is distinct. The contribution of agriculture to the GDP index faced a reduction in 2000 from 6% to less than 2.8% in 2010. The causes of that fall should be investigated to the implementation of the Common Agricultural Policy and the reduction of the competitiveness of the Greek economy after joining the Economic and Monetary Union.

A similar image in relation to the Agriculture Sector is presented in the erstwhile mighty Textile sector which was financed by the Community Support Frameworks. In addition, Textile industries lose their competitiveness because Greek craftsmen prefer to relocate their operations clearly due to economic reasons to the neighboring Balkan countries; these states are at the same time either Members of the European Union or they have special customs arrangements. So, the total reduction in this sector is consequent.

On the other hand, the sectors of Manufacture, Tourism, Maritime, and the financial-insurance sector are stable although we would expect to have increased since the Greek economy during this time was in a growth trajectory. But this is not obvious from the perspective of numbers. Finally, the sector of Real Estate is constantly increasing up to the 3% for the decade which is examined in the following table.

From what we are able to know this image does not continue in the coming years. The unstable economic background of the Greek Economy in conjunction with the global economic crisis is the reason that many of the industries closed. There is a decrease of economic transactions, so the specific sectors are expected to show a significant reduction of their contribution to the Greek GDP index.

The contribution trends of Shipping and Tourism are growing as they are the pillars of the Greek economy, particularly tourism is experiencing one of the best years for the Greek Events in 2014. Therefore, if we compare the above industries with shipping during the decade 2000 - 2010, we will find out that Shipping shows a significant stable contribution 4% to the Greek GDP but this is lower than the other major sectors of the Greek economy except from agriculture and textiles.
Our estimations about the years 2011-2014 show that the shipping industry, despite the dire economic situation of the country, has expanded its activities; it has also increased steadily its contribution to the Greek GDP and it has exceeded other sectors which are mentioned above.
The Contribution of Shipping to the Greek Economy

Graph 12 A comparison of the significant economic sectors

Source: Hellenic Statistical Authority, 2013
4.8 Indirect Positive Contribution of Shipping to Greek Economy

The contribution of Shipping to the Greek Economy is not limited to what has been stated so far. If there was not the infrastructure for the development of Shipping in the country, then this would need to be covered by other shipping companies operating abroad. However, the Greek shipping market is fully developed and related businesses and professions are deployed. The following activities are very important and they are directly dependent on Shipping: (Harlati, et al., 2009)

- The shipbuilding and repair industry (reference has been made in the chapter of ports)
- The Shipping
- The Freight brokerage
- Any related trading activity
- The insurance costs
- The officers’ education, the training of managers and the cycles of compulsory education in Fire and Rescue Issues
- The services of Classification Societies
- The Inspection services of other technical organizations
- Every cargo and every kind of services which are provided by the local ports and port authorities (for example the visa of seamans’ books)

Below, there is Table 13 with ten sectors which have more indirect effects in Shipping Industry. (Danchev & Demian, 2013)
The Contribution of Shipping to the Greek Economy

Graph 13 Ten Sectors with more indirect effect on Shipping in million Euros

Table 13 Ten Sectors with more indirect Effect on Shipping

<table>
<thead>
<tr>
<th>Sector</th>
<th>Effect in million Euros</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation support Activities</td>
<td>635,9</td>
</tr>
<tr>
<td>Consulting and Legal Services</td>
<td>179,2</td>
</tr>
<tr>
<td>Real Estate</td>
<td>165,8</td>
</tr>
<tr>
<td>Constructions</td>
<td>158,4</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>141,7</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>112,6</td>
</tr>
<tr>
<td>Banking Sector</td>
<td>105,2</td>
</tr>
<tr>
<td>Electricity and natural gas</td>
<td>82</td>
</tr>
<tr>
<td>Oil products</td>
<td>81,1</td>
</tr>
<tr>
<td>Telecommunications and postal services</td>
<td>69,1</td>
</tr>
</tbody>
</table>

Source: (Danchev & Demian, 2013)

As it comes into view, the transportation support activities have the greatest indirect influence in Shipping because the transport of goods to and from ports is done with the help of logistics. Apparently, legal and advisory services occupy a significant share of these indirect effects in shipping. It is also noteworthy the contribution of trade (retail and wholesale) as well as the banking sector. Particularly in the banking sector, private banks such as Alpha Bank and Piraeus...
Bank have specific departments of services for their customers: shipping companies and seamen or officers of oceangoing ships. Also, the sectors of indirect contribution of shipping which are related to energy (petroleum and natural gas) are of great importance and they exceed 163 million Euros totally. Finally, we should not forget the crucial significance of the telecommunications sector although it occupies the last position in the above table. These important services are offered by the Greek Telecommunications Organization (OTE) through the Inmarsat to the oceangoing Vessels. The organization has been the first choice for communication among ship owners and Ships Companies, after Deutsche and France Telecom. (Zervas, 2013)

4.8.1 Contribution to Income Tax

Based on data published by the Hellenic Statistical Authority and the analysis which is made by the IOBE, the total taxes of the tax system on ships which are under the Greek flag are around 14 million Euros in 2013. Also, there are still 546 million Euros as taxes from the products of consumption. Overall, the direct contribution of Shipping is valued 560 million Euros while the indirect effect according to the taxation data is around 231 million Euros. In conclusion, the state earns about 790 million Euros from the activities of the Shipping Industry.
5. Conclusions

From the analysis so far, it is clear that the contribution of Shipping to the Greek Economy is of great importance. Shipping may not be the dominant economic factor that influences the Greek economy; however, it has had steady growth rates even in times when the economic crisis has affected the country's economy.

As regards the merchant shipping, its contribution is multidimensional and it is not influenced either by national or by global economic and geopolitical factors (Hellenic Chamber of Shipping and University of Piraeus, 2005). For example, in the oil crisis of 1970s, Greek ship owners had increased their influence and their profits as their competitors were unable to take advantage of the situation. Another important factor is the Flags of Convenience and because of them, we cannot have clear statistics in order to estimate the macroeconomic indicators in depth. To be more specific, it would be of great interest if we could estimate the concentration of the market per a specific type of cargo. However, this is impossible because there are no recorded statistics to show the percentage share of each company in every transportable good. Moreover, there are so many Shipping companies and some of them are responsible for the ownership and others for the management of a ship. Consequently, these additional facts make the existence or even the processing of statistics even more difficult and perhaps impossible.

Bearing in mind all these difficulties and the statistics which are available, it is evident that Shipping has contributed actively to the Greek Economy in plenty of areas. The foremost sector is this of employment in which there is a continuous absorption mainly of deck and engineer officers and there is also a continuous creation of new jobs. According to the annual reports, 40,000 people mostly officers are employed in shipping having contracts and they actually work for seven months at sea-work and rest for the remaining five months. In addition, there is a number of unnamed seafarers who are employed on not-Greek interests’ ships because these ship owners trust Greek officers or Greek crew members. Finally, in the above figure there are not included jobs which are created by Greek Interests ships because these are registered in countries
outside the European Union flying flags of convenience (eg Liberia) and they are not affiliated with the NAT.

Furthermore, shipping has contributed to the current account balance of the country. Greece had net exports of 12.7 million Euros in 2009 and 14.5 million in 2010 creating a trade surplus. Moreover, the 52.2% of the surplus of the Services Balance came from net procedures of the Shipping Sector in 2011.

What is more, the improvement of national income and living standards of the population are important areas in which Shipping via Exchange has contributed. Moreover, due to the nature of the Maritime Exchange, the performance of the Greek economy is much higher and much more important in relation to Immigration and Tourism.

Finally, if we consider the interactions among the other sectors of the Greek economy, we can realize that the contribution of shipping to the economic indexes of the country is being multiplied continuously. Analytically, the final demand created direct and indirect domestic added value of about 13.3 million Euros in 2009. Also, about the 6.1% of the GDP derived from the final demand directly or indirectly for the Shipping and its services. Finally, the direct and indirect jobs in numerous field of employment which are related to the wider maritime industry reached the number of 192 thousand people.

On the other hand, after the removal of Cabotage, the Cruise has also contributed decisively to the Greek economy as a sub-branch of the Shipping Industry. Cruise is directly linked to tourism and in a combination of the morphology of the country and the existence of many islands and ports have made Greece as one of the leading and most popular destinations. In the beginning of 2012, about 4.5 million tourists visited Greece through cruises; this figure represents the 20% of the tourists in this sector. For this reason, we realize that Cruises have created about 11,500 jobs helping to the increase of visits to the Greek islands as well as the consumption of products and the offer of services generating revenue through taxation. Lastly, the investments of Cruises approached 580 million in 2012 a fact that gave impetus to the development of the Greek economy.
Conclusions
6. Prospects of the Greek Shipping Industry

Although Greek Shipping industry is affected by the worldwide economic conditions, EU policies and national policies have low influence to the development of the industry and this is remarkable indeed (Theodoropoulos, et al., 2006). Furthermore, considering the indicators which have been presented so far and based on the last 6 reports from the Bank of Greece about the monetary policy, it is concluded that shipping faced an important increase in traffic loads for five years 2004-2008. The financial income of the Current Account Balance recorded a spectacular increase in a Compound Annual Growth Rate of about 15% and amounted to 18 billion Euros in 2008 so these figures held a record in this sector. (Bank of Greece, June 2014)

However, for the next decade 2009-2013, there were evident the signs of a correction since the economic crisis which was observed globally affected the financial markets all over the world and the recession was inevitable. Due to the economies of the satellite countries or else BRICS countries, the depth of the recession was not very intense and it did not cause significant damage to the industry. Meanwhile, two other important events were consistently positive and the recovery of the industry accelerated significantly. Both of these are related to the shipbuilding, the first concerns the delays in deliveries of new ships globally and the other refers to the reduction of the global fleet capacity (Bank of Greece, June 2014)

Although the economic recession has affected many countries in the world and begins to affect China's exports, the international trade has begun to recover. The same happens in the shipping industry which is directly connected with trade. Despite the fact that 2013 was a difficult year, economically speaking, there was a strong recovery in the freight market. Apart from the first nine months of 2013, according to the Clark Sea Index, freight rates recorded a slight decrease touching about the 3% in the fourth quarter of 2013; mainly in the sector of dry bulk and tanker, there was a satisfactory increase to reverse the negative image which had been formed by then. (Greiner, December 2013)
Prospects of the Greek Shipping Industry

According to the predicted trends in this indicator, a further increase is expected in the volume of seaborne trade worldwide and this will be close to and it may exceed the 4.2%; the fright also recovery rates will bring back profitability in Shipping Companies globally. However, the significant increase in the orders of new vessels (which has been observed since the mid of 2013) in combination with the impending increase of transport capacity will bring significant growth of supply and as a consequence the global demand will be overbalanced. Therefore, a possible scenario is likely to occur in the mid of 2015 according to the natural sequence of the laws of demand and order, there will not be any further development of the sector and possibly that will hold the freight market temporarily.

The outlook regarding of the Greek Shipping deemed fully positive due to the Greek-owned fleet either it is under the Greek flag or under the Flag of Convenience and the financial income from the seaborne transports.

Thoroughly, according to the Bank of Greece, the Greek fleet represents the 43% of Europe and more than the 15% of the world. It also displays a high concentration of the following ship classes:

- Tanker Vessels: 25% of the world fleet
- Dry bulk vessels: 18% of the world fleet
- LNG Vessels: 6% of the world fleet and
- Container ships: 7% of the world fleet

At this point we should mention that only the 22% of the Greek-owned fleet is under the Greek flag which is reduced by 10% compared with the corresponding proportion which was in force in 2013. Finally, the Greek fleet is the youngest and its average age is only 7.7 years (Bank of Greece, June 2014)

Further, it is imperative for the country to increase revenues from the maritime transport so that Greek economy will benefit the maximum from the positive performance of the Greek Shipping Industry. In particular, Greece collects for every dwt of its fleet just 60 euros while Germany collects 178 euros per dwt. The reason is that the Greek ship owners are specialized in transportation of petroleum and its products and solid bulks, and so they prefer short-term
Contracts, which do not bring in the expected in Greek economy. On the other hand, the Germans are specialized in containers and they prefer to conclude long-term contracts which contribute almost three times more to their own economy.
7. Proposals

As it has been analyzed so far, the Shipping Industry contributes greatly to the Greek economy and with the help of Tourism are both considered as the pillars of the economic development of the country. But just these cornerstones are not enough without any projects in the future. The effort of shipping development must be continuous and only in this way, the sector can improve continuously in order to be stable to the dictates of the times. It is well-known that the business temperament of the Greek Ship owners is the lighthouse showing the way forward but it is not sufficient by itself. A further effort is required from the state and the civil society as well.

To begin with, I will present some core proposals below that will result not to a temporal but to a strong keystone growth of shipping development. These suggestions aim to the blooming of the activities which are depended on shipping in order to become even more useful for Greek Economy and Society. The first and main proposal that could be adopted by the Greek State will enhance the contribution of Shipping to the Greek Economy and this is the development and the active involvement of the Hellenic Register of Shipping. As it is already known, even if the Hellenic Register of Shipping was founded in 1870, it is almost nonexistent without a substantial presence. The grotesque of the whole matter is that Greek Ship owners manage more than the 15% of the world fleet and yet they are forced to resort to other classification societies. (Theotokas & Harlaftis, 2009). So, it is proposed to expand to the countries in which Hellenic Register of Shipping is acceptable. It is worth mentioning that although Norway has a much smaller fleet than Greece, Norway has a very strong and active Register of Shipping which employs over 10,500 employees and follows the 14.5% of carrying capacity worldwide at the time being. It has also a turnover of nearly 1.7 billion Euros with net profits over 139 million Euros. (Det Norske Veritas, 2013)

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13 Marine classification is a system for promoting the safety of life, property and the environment primarily through the establishment and verification of compliance with technical and engineering standards for the design, construction and life-cycle maintenance of ships, offshore units and other marine-related facilities. (Wikipedia Online, 2014)
Moreover, as it has already been mentioned, Shipping is a concept linked to the employment; it has many ancillary industries which are depended on it and they also enhance it acting complementary. In this category, emphasis should be given to the existence and the presence of insurance companies, companies of financial sector, charterers and traders since they are necessary especially in huge ports and logistic centers. Particularly after the upgrade of Piraeus port since the presence of Cosco, this port has become an important center for the containers. It is understood that through the future upgrade of Thessaloniki’s Port to a powerful hub of containers in the Balkans Peninsula, the presence of the above ancillary categories become absolutely necessary. If indeed the current government legislates aiming to the creation of a stable and friendly tax environment, the development should be considered certain, creating new jobs implicitly.

Although the port of Piraeus is already heading towards the path of success being a hub of containers of Eastern Europe, similar steps should be taken by the other ports of the country. In comparison to other European countries, Greece has the advantage of being very close to the Suez Canal which is crossed mostly by the merchant ships coming from the Far East and they are directed to the ports of Eastern Europe and the Balkans (Pallis, 2007). It is beyond any doubts that the Greek ports with good, reliable and fast rail links (eg with TRAINOSE) will be given preference compared to the other competitive ports. In the following tablet (Table 14), there are given four examples related to what it has already been said. So, for any cargo there is a need to reach Eastern Europe the solution of the Greek ports is undoubtedly a must.

<table>
<thead>
<tr>
<th></th>
<th>Shanghai/Budapest</th>
<th>Shanghai/Warsaw</th>
<th>Shanghai/Bucharest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Piraeus</td>
<td>23</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Through Trieste</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Through Hamburg</td>
<td>35</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>Through Constanta</td>
<td>N/A</td>
<td>N/A</td>
<td>30</td>
</tr>
</tbody>
</table>

Source: Hellenic Chamber of Shipping, 2014

In the above proposal, we should take into account that there are two other competitive solutions, which link China and Europe. The one is via the Trans-Siberian railway but the costs are increased by 40% compared to the transport in the sea. There are also eminent the risks of the
recent geopolitical skirmishes between Russia and Ukraine. The second alternative solution is the sea route through the Antarctic which has been much easier in recent years due to the melting of ice caps but it requires ships certified for operation in ice and icebreakers are needed as well. Consequently, both choices are considered as unattractive and hazard solutions (Hummels, 2001).

Moreover, an unexplored area of proposals is the field of education although at first sight it does not seem to be directly linked with the economic development, it is actually the basic requirement to provide it. Maritime education in Greece is provided through the Merchant Marine Academies serving as a senior technical college equal to the Technological Educational Institutes. The candidate students are asked to choose between two directions; the first is the Captains’ and the other the Engineers’. The Greek Merchant Marine is fully harmonized with the STCW Manilla\textsuperscript{14} having high expertise and after 2005 it accepts a total of approximately 1200 students every year. Regarding the graduates, there are no more than 300 per year and the implemented training method is in the form of Sandwich Courses; this means internships and courses simultaneously switching semester for the first two years. According to the survey, there is a lack of officers in the Greek fleet who amount 15,000. Additionally, considering the huge unemployment rates of young people in our country (close to 62.9%), many candidates students would consider to work as officers or as members of crews in the Merchant Marine generally. In fact, the applications to join the Merchant Marine Academies amounted 4,900 in 2012 while there were set only 1,200 enrollments. After the above listed facts, we need to understand that more officers are needed in order to cover the Greek and international demands and this is a benefit for young people reducing unemployment rates and raising shipping contribution to the Greek economy. (Kahveci, et al., 2014)

Another proposal in the direction of strengthening Shipping and the contribution of Shipping to the Greek economy is a necessary change of the law about the crews that ought to be voted. In details, the Greek Ferry Boats serve at least 1,566,000 islanders meaning the 14.2% of the population and in many cases there are no other competitive types of transportation. Thus,

\textsuperscript{14} “The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (or STCW), sets qualification standards for masters, officers and watch personnel on seagoing merchant ships” (Wikipedia Online, 2014)
tourists who choose to visit the country for vacation only the 20-25% of them select the passenger shipping as means of transport since they prefer to be served by charters or low cost flights. A second important point on this issue, according to the 177/74 Presidential Degree, is that the requirements of the Greek law for crews define almost 50% more people to work as crews in passenger shipping in contrast to the Merchant Shipping. Therefore, my suggested change of legislation introduces the removal of the current law about workers on ships as well as the removal of the criterion of necessary approaches to a port per week. In this way, transportation costs could be reduced by 30% according to the estimations of the Hellenic Chamber of Shipping. As a result, more and more tourists will choose the Greek islands for their vacations and in turn they will provide more tax revenue due to the consumption of goods and the increased demand of services.

A last but not least proposal is the expansion of the operation of the four Greek shipyards as they can be a strong pole of shipbuilding investments in the country. More specifically, after the successful completion of construction of the two Ferry Boats for the Hellenic Seaways, the Greek Shipbuilding points the way to success. We should focus on the facts that within two years the Greek Shipbuilding built more than 41 merchant ships and more than 10 warships of different classes on behalf of the European countries because they have developed an expertise in knowhow and in the quality of workmanship (Gratsos, 2013). Therefore, such incentives should be adopted by the government in order to attract primarily new orders for shipbuilding of commercial vessels of Greek interests.
# Appendix A – Registration, Nationality, Number and Capacity of Vessels

<table>
<thead>
<tr>
<th>Country or Territory of ownership</th>
<th>Number of Vessels</th>
<th>Deadweight Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>National Flag</td>
<td>Foreign and International Flag</td>
</tr>
<tr>
<td>Greece</td>
<td>825</td>
<td>2.870</td>
</tr>
<tr>
<td>Japan</td>
<td>738</td>
<td>3.253</td>
</tr>
<tr>
<td>China</td>
<td>2.665</td>
<td>2.648</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>764</td>
<td>812</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.090</td>
<td>798</td>
</tr>
<tr>
<td>United States</td>
<td>768</td>
<td>1.175</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>415</td>
<td>822</td>
</tr>
<tr>
<td>Norway</td>
<td>414</td>
<td>1.494</td>
</tr>
<tr>
<td>Taiwan Province of China</td>
<td>102</td>
<td>712</td>
</tr>
<tr>
<td>Denmark</td>
<td>45</td>
<td>946</td>
</tr>
<tr>
<td>Bermuda</td>
<td>4</td>
<td>206</td>
</tr>
<tr>
<td>Turkey</td>
<td>645</td>
<td>935</td>
</tr>
<tr>
<td>Italy</td>
<td>673</td>
<td>211</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>269</td>
<td>297</td>
</tr>
<tr>
<td>India</td>
<td>584</td>
<td>158</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>82</td>
<td>617</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>1.195</td>
<td>532</td>
</tr>
<tr>
<td>Malaysia</td>
<td>472</td>
<td>142</td>
</tr>
<tr>
<td>Netherlands</td>
<td>757</td>
<td>450</td>
</tr>
<tr>
<td>Brazil</td>
<td>202</td>
<td>108</td>
</tr>
<tr>
<td>Switzerland</td>
<td>39</td>
<td>291</td>
</tr>
<tr>
<td>Country</td>
<td>Rank</td>
<td>Rank 2</td>
</tr>
<tr>
<td>------------------------</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>Islamic Republic of Iran</td>
<td>108</td>
<td>121</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1.383</td>
<td>147</td>
</tr>
<tr>
<td>Cyprus</td>
<td>183</td>
<td>192</td>
</tr>
<tr>
<td>France</td>
<td>179</td>
<td>230</td>
</tr>
<tr>
<td>Canada</td>
<td>206</td>
<td>145</td>
</tr>
<tr>
<td>Monaco</td>
<td>0</td>
<td>126</td>
</tr>
<tr>
<td>Belgium</td>
<td>90</td>
<td>155</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>758</td>
<td>83</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>62</td>
<td>125</td>
</tr>
<tr>
<td>Kuwait</td>
<td>40</td>
<td>36</td>
</tr>
<tr>
<td>Sweden</td>
<td>114</td>
<td>225</td>
</tr>
<tr>
<td>Oman</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>Thailand</td>
<td>336</td>
<td>79</td>
</tr>
<tr>
<td>Other owners</td>
<td>2.655</td>
<td>2.522</td>
</tr>
</tbody>
</table>

Source: (Asariotis, et al., 2013)
## Appendix B - Uniformity Index of Greek Ports

<table>
<thead>
<tr>
<th>Ports</th>
<th>Liquid Bulk</th>
<th>Dry Bulk</th>
<th>Container</th>
<th>RO-RO</th>
<th>General Cargo</th>
<th>Total</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total (In tons)</td>
<td>96986</td>
<td>51154</td>
<td>47098</td>
<td>22288</td>
<td>19243</td>
<td>236767</td>
<td>0,66</td>
</tr>
<tr>
<td>Piraeus</td>
<td>0,52</td>
<td>0,99</td>
<td>80,72</td>
<td>11,86</td>
<td>1,1</td>
<td>17,69</td>
<td>1,98</td>
</tr>
<tr>
<td>Thessaloniki</td>
<td>20,56</td>
<td>11,21</td>
<td>18,2</td>
<td>0,01</td>
<td>18,63</td>
<td>15,98</td>
<td>1</td>
</tr>
<tr>
<td>Agioi Theodoroi</td>
<td>34,85</td>
<td>0,02</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14,28</td>
<td>2,24</td>
</tr>
<tr>
<td>Megara</td>
<td>27,39</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11,22</td>
<td>2,24</td>
</tr>
<tr>
<td>Elefsis</td>
<td>14,18</td>
<td>12,08</td>
<td>0</td>
<td>0,07</td>
<td>21,63</td>
<td>10,18</td>
<td>1,17</td>
</tr>
<tr>
<td>Patra</td>
<td>0,27</td>
<td>0,79</td>
<td>48,05</td>
<td>0,76</td>
<td>4,87</td>
<td>2,04</td>
<td></td>
</tr>
<tr>
<td>Volos</td>
<td>0,14</td>
<td>0,11</td>
<td>31,52</td>
<td>0,32</td>
<td>2,99</td>
<td>2,21</td>
<td></td>
</tr>
<tr>
<td>Igoumenitsa</td>
<td>0</td>
<td>0,01</td>
<td>0</td>
<td>0,73</td>
<td>2,6</td>
<td>2,15</td>
<td></td>
</tr>
<tr>
<td>Aliveri</td>
<td>0,06</td>
<td>11,65</td>
<td>0</td>
<td>0</td>
<td>0,73</td>
<td>2,6</td>
<td>2,15</td>
</tr>
<tr>
<td>Milos</td>
<td>0</td>
<td>10,1</td>
<td>0</td>
<td>0,43</td>
<td>2,22</td>
<td>2,19</td>
<td></td>
</tr>
<tr>
<td>Chalkida</td>
<td>0,61</td>
<td>2,8</td>
<td>0</td>
<td>10,6</td>
<td>1,72</td>
<td>1,11</td>
<td></td>
</tr>
<tr>
<td>Antikithira</td>
<td>0,33</td>
<td>4,58</td>
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Source: (Hellenic Statistical Authority, 2013)
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