

Impact Assessment of the Shipping Cluster on the Greek Economy & Society

BCG

THE BOSTON CONSULTING GROUP

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1 Background

Greek shipping in modern times was originally developed outside Greece by Greek entrepreneurs. From 1970 onwards, once the institutional framework became competitive and the necessary infrastructure was developed, Greek shipping companies rapidly moved their headquarters and their activities to Greece. Concurrently, the Greek flag was also developing in a fast pace, reaching its peak in 1979, right before the big shipping crisis. The creation of the Greek shipping cluster naturally emerged as supporting services companies followed the Greek ship management companies.

Today, with more than 4,000 ships, Greek-owned fleet ranks first in the world in total capacity. In order to better understand this achievement, one should consider that the Greek-owned fleet represents 16% of worldwide cargo capacity, while the contribution of Greek Gross Domestic Product (GDP) to the global GDP is only 0.4%, i.e. 40 times smaller compared to the capacity percentage of Greek-owned fleet.

Greece is currently experiencing the deepest economic crisis since World War II. Greek GDP has been contracting for the past 5 years (since 2008) by over 20% and the country's economic recovery is expected to be a long and difficult journey.

At this critical moment, the Greek shipping cluster, already a significant contributor to the Greek GDP, can become a **key growth driver** and support Greek economy's liquidity, employment, GDP and investments.

2 Methodology

This study was conducted in order to assess the social and economic contribution of Greek shipping. The study is based on the extensive experience of The Boston Consulting Group in the shipping industry and the proprietary database with benchmarks of operating expenses of vessels by segment and size as well as a number of Belief Audits with Industry experts and the review of publicly available data. In order to fairly estimate the contribution of Greek shipping to the country's economy, it is necessary to assess the direct, indirect and induced impact that is related to Greek shipping cluster.

- **Direct** impact refers primarily to the expenses of the core of the Greek shipping cluster (Greek ocean-going / passenger ship companies and Greek port authorities) that are spent in Greece and thus, it represents its contribution to the country's GDP.
- **Indirect** impact refers to the contribution that is linked to the supporting companies (e.g., banks, ship brokerages, law firms, P&I clubs, shipyards etc.) and the suppliers (e.g., spare parts, equipment, fuels etc.) of the core Greek shipping.
- **Induced** impact refers to the contribution of the shipping activities to the wider economy. It includes the effect from the additional household expenditure due to the salaries of core and supporting companies' employees.

The methodology used is based on Input /Output tables for the Greek economy. The analysis consists of estimating the effects produced across the entire value chain due to an increase in demand within specific sectors associated with the shipping activities. To produce the goods and services in demand, any given sector requires the goods and services of many other sectors in the proportions indicated by the Input /Output table. Direct, indirect and induced impact is measured in terms of €-contribution and employment.

Beyond shipping, Greek shipowners invest to other sectors of the Greek economy, and contribute to the Greek society through philanthropic activities. These activities are also examined and further detailed in this study.

- In order to better understand the importance of alternative (to shipping) economic activities of Greek shipowners to the economy, employment, and development of Greece, data were collected from publicly available sources with regards to their investments in other sectors beyond shipping (present and past).
- By conducting an extensive research on publicly available sources and many interviews, the study covers also the continuous effort of Greek Shipowners to support the Greek society. Greek Shipowners are contributing through three main channels: their own foundations, the Union of Greek Shipowners and their individual activities (e.g. donations etc.).

In the last section of the study, we identify and present concrete actions that could enhance the current contribution of Greek shipping to the economy of Greece. These recommendations are extracted from interviews with industry and economy experts as well as from a targeted research on countries, which succeeded in attracting/enhancing their shipping clusters and increasing the contribution to their national GDP.

3 Results

Greek shipping is one of the key sectors of the Greek economy, contributing annually €13.4B on country's GDP (2010 data), while employing over 165,000 people.

- The **direct** contribution of the core Greek shipping cluster is estimated to be €7.6B representing 3.5% of the Greek GDP. Greek ocean-going ship companies contribute the most with €6.5B. In addition, the shipping cluster contributes **indirectly** €2.3B to the economy, while the total **induced** impact of Greek shipping is estimated at €3.4B. Therefore, the total contribution of the shipping cluster is €13.4B or **6% of Greek GDP** (2010 data)
- The contribution in euro amounts of the Greek shipping cluster in the past years has remained stable, indicating that as a percent of GDP **it has exceeded 7% of the economy by 2012**, given the overall Greek GDP contraction over the last years.
- Greek shipping cluster employees approximately 165,000 people, which represents 3.5% of total country's employment (**previous studies on the sector have estimated the**

indirect and induced employment from shipping to contribute to even higher job numbers).

Another indicator of the contribution of Greek shipping to the Greek economy is the Services Balance inflow. The receipts in Services Balance that come from Sea Transport services are estimated at €136B for the past decade.

- Greek shipping with €12.7B in 2011 ranks first in the Services Balance receipts. The capital needs of Greek shipping are covered mostly by private investments, without any subsidies or State financing, in contrast to Tourism with €10.5B which ranks in the second position of Services Balance receipts.

Beyond Shipping, Greek shipowners support the Greek economy and society in other ways. In particular, they support the economy through their investments in other sectors and they support the society through their philanthropic activities.

- Greek shipowners have been investing shipping capital in other sectors of the Greek economy such as Energy, Transportation, Construction, Financial Services, Tourism, Technology and Retail. A big part of their funds is also invested in Real Estate. These economic activities support the GDP and employment in Greece, and reveal the additional contribution of Greek shipping to the economy.
- Some indicative examples of investment beyond shipping since the 1960s are the foundation of Greek shipyards and refineries in Scaramanga by the Niarchos family, the foundation of Olympic Airlines by the Onassis family, the foundation of Elefsina shipyards and Emporiki Bank by the Andreadis family, the investments in hotels by Carras, Handris and Constantakopoulos families etc.
- Greek shipowners have also been supporting arts & culture, education, health, social welfare through individual contribution, through the Union of Greek Shipowners or through their own foundations. Indicative examples of the latter are (in alphabetical order) Eugenides, Laskaridis, Latsis, Lemos, Niarchos, Onassis, Pateras and Tsakos foundations.

Moving forward, Greek shipping could support further the Greek economy and become a key driver of economic recovery. Five concrete actions could enhance the shipping activities in Greece and thereby increase their impact to the Greek economy.

- Integration of shipping in the long-term national development strategy
- Increase enrollment in maritime schools in order to increase employment of Greeks in the shipping cluster
- Upgrade educational quality and establish private maritime schools
- Simplify requirements and processes for start-ups and reduce bureaucracy
- Stable institutional framework to maintain attractiveness in an increasingly competitive international ship registration environment and to attract further shipping activities

Appendix: Detailed methodology for impact assessment

The impact assessment of Greek shipping on the Greek economy was based on two key metrics: the economic contribution in money terms (€-contribution) and employment. In order to assess the €-contribution of Greek shipping, a **bottom up** approach was used, with a focus on the operating expenses of the core shipping companies (ocean-going, passenger, port authorities).

A similar approach (**bottom-up**) was applied for assessing the contribution in terms of employment. For ocean-going ship companies, Greek / Greek-based seafarers and head-quarters' employees were included in the calculations. For passenger ship companies and Greek port authorities, data from companies that constitute more than 95% of each respective market, were used for both €-contribution and employment calculations.

After assessing the direct impact of core shipping in terms of €-contribution and employment, the results were provided as input in an econometrical model in order to extract the indirect and induced impact.

Estimating operating expenses per category and employment from different sources:

- Ocean-going shipping: Operating expenses based on data from Greek shipping directory and BCG benchmarks; employment based on analyst reports and Hellenic Statistic Authority (El.Stat.) data
 - Data regarding the Greek fleet were extracted from the Greek Shipping Directory, i.e., a database with detailed information about all vessels of the Greek fleet. Based on this database, the Greek fleet was divided into groups such as tankers, dry bulk carriers, container ships, LNG, LPG etc. Each category was further broken down into different age groups.
 - BCG benchmarks were used for assigning each group of ships to specific cost categories. Benchmarks were extracted from the BCG benchmarking databases, which cover more than 20 international cargo ship companies and over 800 vessels of different type, age and flag. Operating expenses are divided into 7 categories: Salaries (taking under consideration the differences depending on the nationality and flag), Fuels/Lubricants, Repairs/Maintenance, Insurance fees, 3rd party commissions, Inspections, Extraordinary costs and Other expenses.
 - After assessing the total operating expenses for each group of Greek fleet, the percentage (%) of these expenses that are allocated in Greece was derived from interviews and market data.
 - For the assessment of €-contribution of the ground operations of the ocean-going ship companies (head-quarters), the main operating expenses' items were taken under consideration (salaries, equipment, services) and applied to the total number of companies that are based in Greece. These companies were broken down into groups based on the number of ships under management.
- Passenger shipping: Calculations based on data from annual reports of the 5 biggest companies

- Greek port authorities: Expenses coming from annual reports of the 3 biggest port authorities

1 Direct impact

Assessment of total impact coming from core shipping companies (ocean-going, passenger, port authorities)

- €-contribution
- Employment (# of employee)

1.1 Assessment of operating expenses that stay in the Greek economy (operating expenses multiplied by the percentage (%) of those expenses that are allocated in Greece):

- Main categories of operating expenses for ocean-going ship companies:
 - Salaries, Fuels/Lubricants, Repairs/Maintenance, Insurance fees, 3rd party commissions, Consumables
- Main categories of operating expenses for passenger ship companies:
 - Salaries, Fuels/Lubricants, Repairs/Maintenance, Insurance fees, 3rd party commissions, Consumables
- Main categories of operating expenses for port authorities:
 - Salaries, 3rd party commissions, Depreciation, Consumables
- Percentage (%) of the expenses allocated in Greece derived from interviews with core shipping and supporting companies

1.2 Assessment of employment

- Ocean-going ship companies
 - Initial assessment of the total number of employees
 - Seafarers (Greek and non-Greek) in Greek-owned ships (per type and size of vessel) that are affiliated with Seamen's Pension Fund (NAT)
 - Head-quarter employees of the ocean-going ship companies
 - Identification of the percentage (%) of seafarers that are registered in Greece (i.e. Greek seafarers in Greek ships that are affiliated with NAT) based on interviews and data from analyst reports, El.Stat. and NAT, as well as headquarter employees that are also registered in Greece
- Passenger ship companies and port authorities
 - Initial assessment of the total number of employees
 - Seafarers in passenger ships(per type and size of vessel)
 - Head-quarter employees of the passenger ship companies and port authorities
 - Identification of the percentage (%) of employees that are registered in Greece

2 Indirect and induced impact

Assessment of the core shipping's direct impact on the wider economy

- Impact on supporting services companies, suppliers etc. (indirect impact)
- Impact on the wider economy, as a result of the increasing household expenditure due to the salaries of core and supporting companies' employees (induced impact)

2.1 Estimation of indirect and induced multipliers for both €-contribution and employment based on econometrical model Input / Output

- Econometrical model designed and used by BCG, based on Leontief methodology, for estimating indirect and induced **€-contribution** multipliers for each sector of Greek economy
- **Assigned each category of operating expenses in specific sector/s of the Greek economy, based on their relevance e.g. fuel/lubricants expenses were assigned in coke and refined petroleum products/sector etc.**
- Indirect and induced impact assessed by multiplication of each operating expense item with its respective indirect and induced multiplier
- Input / Output from Eurostat (2010)

2.2 Assessment of employment

- Estimation of employment vector (number of employees per output unit) for **every sector** of the Greek economy
- Employment Input / Output tables designed by BCG, based on the existing Input / Output from Eurostat and the estimated employment vector
- Econometrical model designed and used by BCG, based on Leontief methodology, for estimating indirect and induced **employment** multipliers for each sector of Greek economy
- Assigned Greek shipping on a specific sector of the Greek economy (Water transport services) and use of respective sector's multipliers in order to extract of the indirect and induced impact on employment
- Employment data from National Statistical Authority (El.Stat., 2010)

About The Boston Consulting Group

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