

MARITIME SECTOR DEVELOPMENTS IN THE CONTEXT OF ECONOMIC GROWTH - MARITIME TRADE EVOLUTION

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Abstract: The paper presents an overall image of all familiar processes related to the relationship between economic growth-maritime trade-maritime markets-world fleet output. The analyses are being converted from world economic analyses to those related to shipping capacities and their usage at microeconomic level. The main conclusions stand for an urge to issue some valuable judgements which may allow the development of sensible managerial strategies as a solution to accomplish economic competitiveness.

Key words: maritime markets, economic growth, maritime trade, operational output, over tonnage.

INTRODUCTION

The maritime transport involves activities over large areas at global level. Consequently, the developments in this sector are closely related to world economic and world commercial evolutions and also to the balance demand-supply on maritime markets.

The gross domestic product is also being achieved due to the export and import of goods and raw materials, therefore, due to global trade. An important part of the exports and imports of industrial goods and raw materials is done by sea. Thus, there emerges the maritime trade which operates by means of cargo ships which transport goods and raw materials to various maritime markets.

As we have learnt, the maritime market defines as the place of interaction between the supply carrier (ship owners, agents, exporters) and buyers (social and economic entities).

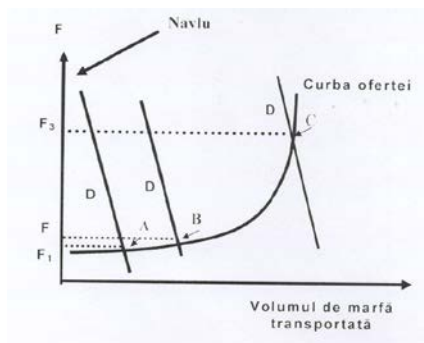
We have divided the maritime market into four great segments:

- The freight market;
- The market for sellers of second hand ships;
- The ship building market;
- The ship demolition market.

An economic model of the maritime transport has thus two main components - supply and demand - connected by freight values, which through their influence on the senders and ship owners, balance them.

Due to the fast change in the demand for ships, with a slow and heavy supply, freight cycles are irregular. The following scheme presents these relationships:

Fig.1 The influence of supply and demand on freight rate



Source: made by the author

The analysis of the above graph allows us to distinguish the following situations:

- Any change in the balance supply-demand noticed in a certain sector of the shipping market mirrors immediately in the level of freight rates. Along with the appearance of any shortage in shipping capacity, the freight rate increases, change which generates two fast effects: obsolescent ships are being returned on the market, the market juncture allowing

them to become profitable; in order to take advantage of the favourable moment, ship owners operate the ships at the highest parameters, reducing the time needed for maintenance or regular checkouts far below the minimum period required. In the event of an oversupply, the level of the freight at which the available tonnage will be hired will undergo a rapid decline.

- Vessels which experience lack of profit or even losses will find themselves unable to cover their maintenance and operating costs, so they will be removed from service. Moreover, the performances made by vessels kept in operation will record, regarding the quantities transported, a visible decline, both due to the reason previously mentioned and as a consequence of reducing the operating speed in order to save fuel.

- The connection between the four segments is given by freight. An increasing freight stimulates ship owners to hire ships in the carriage of different categories of goods. Therefore, they aim to sign as many contracts at profitable rates (freight). Through the multiplier effect, the purchase of second hand or new vessels is being stimulated. As for the new vessels, there arises the problem of their coming into operation at the right time, more exactly, into the expansionist period of the business cycle. For this reason, the GDP and the structure of the economies targeted, such as the import and export of goods and raw materials, are being studied. Ship building is thus encouraged. During the recession period of the business cycle, the adjustment of transport contracts and vessels to their profit requirements will be pursued. Multiplier effects are now negative. We are witnessing the decline of ship purchase, recession in ship building sector and consequently the increase of the demolition market.

- A simple indicator which allows us to evaluate the sustainability of a business in this field is the ship's operational productivity. It actually represents the quantity of goods transported within a reference time with a given transport capacity (TDW).

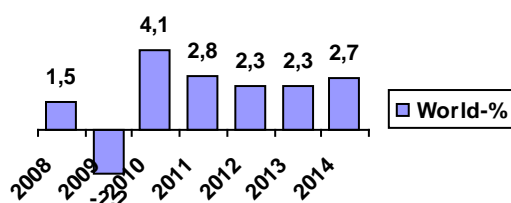
$$\text{So, it will be an indicator such as: } Wop = \frac{Q_{tr}}{Q_{TDW}}$$

Its evolution enables us to assess the effectiveness of the use of a ship or a ship fleet.

THE CORRELATION ECONOMIC GROWTH - TRADE

We will further detect a series of evolutions at global level and on groups of countries.

Fig. 2 World output growth 2008-2014



Source: UNCTAD Trade and Development Report, 2014

The figures in the above graph show us the following:
 During the crisis years 2008-2009, at global level, the economic growth declined from 1, 5% (2008) to 2,2% (2009). There came the intermediate and short-time wave in 2010 with a GDP of 4,1%, followed by a longer period, 2011-2014, with variable GDP but within limits between 2, 3-2, 8%. This evolution is however different:

In developed countries:

Table 1 World output growth developed economies 2008-2014

Region	2008	2009	2010	2011	2012	2013	2014
UE -28	0,3	-4,3	2,1	1,7	-0,3	0,1	1,6
Japan	-1,0	-5,5	4,7	-0,6	1,4	1,6	1,4
US	-0,3	-3,1	2,4	1,6	2,3	2,2	2,1
Total	0,0	-3,8	2,6	1,7	1,1	1,3	1,8

Source: UNCTAD Trade and Development Report, 2014

The figures in the above table show that GDP is different:

- In 2008, the developed countries as a whole witnessed a zero economic growth, but on categories the situation differs: thus EU countries recorded a GDP with 0, 3%, Japan and the USA recorded recession with a GDP of -0, 1% (Japan) and -0, 3% (USA).
- In 2009, the recession at the level of this group of countries becomes -3, 8%; EU countries have a recession of - 4, 3%; Japan -5, 5%; and the USA -4, 3%.
- In 2010, within the GDP growth with 2, 6%, Japan leads with a GDP of 4, 7%, followed by the USA with a GDP of 2, 4% and the EU with 2, 1%.
- In 2011, the GDP of the region was of 1, 7%, and the USA and Europe lead with GDP of 1, 7% - the EU and the USA a GDP of 1, 6%; Japan is still in recession with a GDP of -0, 6%.
- In 2012, the GDP of the region is 1, 1%, of which the EU has a GDP of -0, 3%, sliding into recession; Japan grows to 1, 4% and the USA increases to 2, 3%;
- In 2013, the GDP of the region is increasing with 1, 3%; the EU with 0, 1%; Japan with 1, 6%; the USA with 2, 2%;
- In 2014, the GDP of the region is 1, 8% of which: the EU has a GDP of 1, 6%; Japan 1, 4%; the USA 1, 8%.

In developing countries:

Table 2 World output growth developing economies 2008 - 2014

Region	2008	2009	2010	2011	2012	2013	2014
Africa	5,2	2,8	4,9	0,9	5,3	3,5	3,9
Asia	5,8	3,9	8,9	7,2	5,2	5,3	5,6
America	4,0	-1,9	5,9	4,3	3,0	2,6	1,9
Total	5,3	2,4	7,9	6,0	4,7	4,6	4,7

Source: UNCTAD Trade and Development Report, 2014

- In 2008, developing countries had a GDP of 5,3%; among them, there leads the group of countries from Asia with 5,8, China 9,3% and India 7,9; the group of countries from Africa

has a GDP of 5,2% with South Africa with 3,6%; the USA has a GDP of 4,0%, of which Brazil distinguishes with 5,2%;

- In 2009, developing countries witnessed an important decrease reaching a GDP of 2, 4%, of which Asia has a GDP of 3, 9% sustained by China with 9, 2% and India 5, 0%; countries of Africa distinguish with a GDP of 2, 8% where its main vector South Africa slides into recession with a GDP of - 1, 5%; the America group distinguished with a GDP of -1, 9% which signifies recession, the same as Brazil with a GDP of - 0, 3%;

- In 2010, developing countries undergo an important improvement reaching a GDP of 7, 9%; again, Asia proves to be the most important vector with a GDP of 8, 9%, China with a GDP of 10, 4% and India 11, 2%; Africa records a GDP of 4, 9%, with South Africa 3, 1%; America has a GDP of 5, 9% of which Brazil with 7, 5%;

- In 2011, developing countries, during the second wave of the economic crisis, drop to a GDP of 6%; Asia distinguishes with a GDP of 7, 2% and within this group of countries China has a GDP of 9, 3% and India 7, 9%; Africa reaches a modest GDP of 0, 9% greatly sustained by South Africa with 3, 6%; the America group get 4, 3% of which Brazil 2, 7%;

- In 2012, developing countries get a GDP of 4, 7% of which: the Asia group 5, 2% with China with a GDP of 7, 7% and India a GDP of 4, 9%; Africa achieved a GDP of 5,3% and within it South Africa 2,5%; the America group achieves a GDP of 3% of which Brazil a GDP of 1,0%;

- In 2013, developing countries achieve a GDP of 4, 6% of which: Asia 5, 3% with China with 7, 7% and India with 4, 7%; Africa achieves a GDP of 3, 5% and within it South Africa with 1, 9%; America gets a GDP of 2, 6% of which Brazil with a GDP of 2, 5%;

- In 2014, developing countries achieve a GDP of 4, 7% of which: the Asia group 5, 6% with China with a GDP of 7, 5% and India 5, 6%; Africa has a GDP of 3, 9% and within it South Africa 2, 5%; the America group achieves a GDP of 3% of which Brazil a GDP of 1, 3%;

Another group of important countries we want to point out is that of transition economies of which The Russian Federation distinguishes itself.

Table 3 World output growth transition economies 2008-2014

Region	2008	2009	2010	2011	2012	2013	2014
Transition economies in care:	5,2	-7,8	4,5	4,7	3,3	2,0	1,3
Russian Federation	5,2	-7,8	4,5	4,3	3,4	1,3	0,5

Source: UNCTAD Trade and Development Report, 2014

- In 2008, transition countries had a GDP of 5, 2%; of which the Russian Federation had a GDP of 5, 2% on a par with that of the group;

- In 2009, transition countries underwent a steep drop with a GDP of - 7, 8%; the Russian Federation a similar drop;

- In 2010, transition countries had a return of 4, 5% and within them the Russian Federation a return to 4, 5%;

- In 2011, under the terms of the second wave of the economic crisis, transition countries maintain their growth with an increase of 4, 7%, and within them the Russian Federation with a growth of 4, 3%;

- In 2012, transition countries had a drop to 3,3 % and within them the Russian Federation with 3,4%;

- In 2013, the decreasing trend persists and transition countries reach 2, 0% with the Russian Federation with a GDP of 1, 3%;

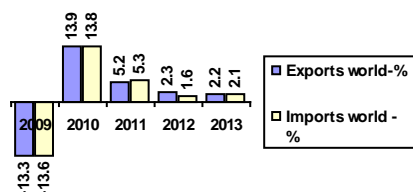
- In 2014, the decreasing trend persists and this group of countries reaches 1, 3% and within it the Russian Federation with 0,5%.

A preliminary conclusion is appropriate: the GDP evolution at global level and on groups of countries is divided into three periods of crisis: 2008-2009; 2011 -2014.

The next analysis regards trade evolution:

The evolution of the GDP both at global level and on groups of countries influenced trade evolution regarding both exports and imports.

Fig. 3 Growth in the volume of merchandises 2009-2014



Source: UNCTAD Trade and Development Report, 2014

- The global recession led in 2009 to a drop in both exports and imports: in relative terms, of 13, 3% for exports and 13, 6% for imports; so a net negative export;
- In 2010, an increase in both exports and imports was noticed; in relative terms, of 13, 9% for exports and 13, 8% for imports; so a net positive export but of very little value;
- In 2011, the value of exports increases by 5, 2% and that of imports by 5, 3%; again a negative export of little value point out;
- In 2012, the value of exports increases by 2, 3% and that of imports by 1, 6%; a positive export of a higher value points out;
- In 2013 the value of exports increases by 2, 2% and that of imports by 2, 1 %; a net positive export but of little value;

Let us point out these evolutions on groups of countries:

Table 4 Growth in the volume of merchandises - developed economies - 2009-2014

Region	2009	2010	2011	2012	2013
UE -28 Exports	-14,9	11,6	5,5	-0,2	1,4
Imports	-14,5	9,6	2,8	-2,8	-1,2
Japan Exports	-24,8	27,5	-0,6	-1,0	-1,8
Imports	-12,2	10,1	4,1	3,7	0,5
US Exports	-14,0	15,4	7,2	4,1	2,6
Imports	-14,5	9,6	3,8	2,8	0,9
Total Exports	-15,5	13,0	4,9	0,5	1,3
Imports	-14,6	10,8	3,4	-0,4	-0,4

Source: UNCTAD Trade and Development Report, 2014

In developed countries:

- In 2009, this group of countries achieved a contraction of exports of 14, 9%, and of imports of 14, 6%; as regards the EU group -28, there appears an export contraction of 14, 9% and import contraction of 14, 5%; Japan has an export contraction of 24, 8% and 12, 2% for imports; as regards the USA export contraction was of 14% and imports 14, 5%;
- In 2010, this group of countries achieved a growth of exports of 13, 0 % and of imports of 10, 8%; as regards the EU group -28, exports increase with 11, 6% and imports with 9,6%; Japan has an export increase of 27, 5% and 10, 1% for imports; in the USA exports increase by 15, 4% and imports by 9, 6%;
- In 2011, the developed countries achieved a growth of exports of 4, 9 % and of imports of 3, 4%; as regards the EU

group -28, exports increase with 5, 5% and imports with 2, 8%; Japan has a drop of 0,6 % for exports and an import growth of 4,1%; in the USA exports increase with 4, 9% and imports with 3,4%;

- In 2012, this group of countries achieved an increase of exports by 0, 5 % and a decrease of imports of 0,4%; as regards the EU group -28, there is noticed a decrease of exports with 0, 2%, and of imports with 2, 8%; Japan has an export drop of -1, 0 % and an increase of imports with 3, 7%; in the USA exports increase with 4, 1% and imports with 2, 8%;
- In 2013, this group of countries achieved an increase of exports of 1, 3 % and a drop of imports of 0, 4%; as regards the EU group -28, there is determined a growth of exports with 1, 4%, and a drop of imports of 1, 2%; Japan has a drop of 1, 8% % for exports and a growth of imports with 0, 5%; in the USA exports increase by 2, 6% and imports with 0, 9%;
- The analysis of these evolutions shows that the trend in this group of countries is that of levelling the commercial balance and of ensuring such imports as to satisfy the necessities for the export production.

In developing countries:

Region	2009	2010	2011	2012	2013
Africa Exports	-9,5	10,3	-6,8	7,8	-1,8
Imports	-6,2	6,5	3,9	11,8	5,6
Asia Exports	-9,9	18,2	8,5	4,5	4,3
Imports	-9,1	19,3	7,3	5,1	6,1
America Exports	-7,4	8,1	5,1	3,1	1,5
Imports	-17,9	22,3	11,3	3,1	2,4
Total Exports	-9,7	16,0	6,7	4,6	5,1
Imports	-10,2	18,5	7,7	5,3	5,5

Table 5 Growth in the volume of merchandises - developing economies - 2009 -2014

Source: UNCTAD Trade and Development Report, 2014

- In 2009 developing countries had an exports contraction of 9, 7%, respectively 10, 2% for imports; within the group of countries from Africa, exports dropped by 9, 5% and imports by 6, 2%; within the Asia group, the export dropped by 9, 9% and the import with 9, 1%; these countries have as main vectors for this indicator the two reference states: China with a drop in exports of 14, 1% and a growth of imports with 1, 1%, respectively India with a fall of exports of 6, 8% and of imports of 0, 9%; the America group of countries has a decrease of 7, 4% for imports and a fall of imports of 17, 9%;
- In 2010, developing countries on the whole witness an exports growth of 16%, and imports growth of 18, 5%; countries within Africa group achieved an export of 10, 3%, respectively an import of 6, 5%; countries generically grouped in the Asia region recorded a growing export with 18, 23%, respectively a growing import with 19, 3%; of this group, China achieved an export of 29, 5%, respectively an import of 25%; India, another important vector of the region, achieves a growth of the export of 14% and an import of 13, 8%; the America group has an increase of exports of 8, 1%, respectively an increase of imports of 22, 3%;
- In 2011, developing countries achieve a growth of exports of 4, 9%, respectively 3, 4% for imports; countries of Africa achieve a drop of exports with 6, 8%, respectively a growth of imports with 3, 9%; Asia achieves a growth of exports with 8, 5% and 8, 3% for imports; again, China and India stand as

main vectors for this increase in exports with 13, 4 % respectively 15, 0% and import increases of 10, 7% respectively 9, 7%; the group of countries of America achieves an increase in exports with 5, 1% and of imports with 11, 3%;

- In 2012, developing countries point out with a growth in exports of 4, % respectively 5, 3% for imports; countries of Africa have a growth of exports with 7, 8% and of imports with 11, 8 %; the Asia group has an increase of exports with 4, 5% and 5, 1% for imports; within this group we point out China with a growing export of 7, 4% and import of 6, 1%; India has a drop of exports with 1, 8%, respectively an increase of imports with 5, 5%; the America group has an increase of exports and imports with 3, 1%;

- In 2013, developing countries achieve a growth of exports with 5, 1% and of imports with 5, 5%; among them, Africa achieves a drop of exports with 1, 8% and an increase of imports with 5, 6% ; countries of the Asia group achieve a growing export of 4, 3% respectively an increase of imports of 6, 1%; China achieves a growth of exports with 4, 8% and of imports of 8, 8%; the America group achieves an export of 1, 5 %, respectively an import of 5, 1%;

The last group of countries analysed is that of transition countries.

Table 6 World output growth transition economies 2009- 2014

Region	2009	2010	2011	2012	2013
Transition economies Exports	-14,4	11,4	4,1	1,3	1,0
Imports	-28,2	17,6	16,8	5,0	2,7

Source: UNCTAD Trade and Development Report, 2014

- In 2009, transition countries had a dropping export of 14, 4% and a decrease of imports of 28, 2%;
- In 2010, transition countries had a return of exports 11, 4% and of imports of 17, 6%;
- In 2011, the export increases with 4, 1% and the import with 16, 8%;
- In 2012, transition countries recorded a growth of the export of 1, 3%, respectively of imports with 5, 0%;
- In 2013, transition countries have a growth of exports of 1, 0%, respectively of imports of 2, 7%.

These evolutions of the domestic gross product, respectively evolutions of goods imports and exports determine a series of configurations in the area of maritime markets.

EVOLUTIONS OF THE OPERATIONAL PRODUCTIVITY OF THE COMMERCIAL FLEET

The operational productivity of the fleet is measured in our case in tonnes per dwt and depends on four main factors: the average speed, the extent of the stay in the harbour, the use of the gross capacity and the day at sea with cargo.

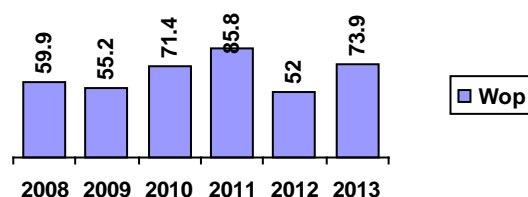
The main indicators of operational productivity for the world fleet in tonnes and tonnes-miles per dwt are presented in Fig 4 and Table 7 below.

Table 7 The evolution of operational productivity

Year	World fleet (dwt millions)	Total quantity of cargo (millions t)	Operational productivity (t/dwt)
2008	137,413	8.229	59,89
2009	142,392	7.858	55,18
2010	117,813	8.409	71,37
2011	102,345	8.784	85,82
2012	176,730	9.197	52,03
2013	129,299	9.548	73,85

Source: UNCTAD Trade and Development Report, 2014

Fig. 4 The evolution of operational productivity



Source: after UNCTAD Trade and Development Report, 2014

The analysis of the operational productivity shows us the following:

- At the time of the analysis the existing vessels have transported a cargo quantity per dwt as follows: 2008 – 59,89 tonnes; in 2009 -55,18 tonnes; in 2010- 71,37 tonnes; in 2011- 85,82 tonnes; in 2012- 52,03 tonnes; in 2013 – 73,85 tonnes;
- Fleet size is fixed, but vessels productivity adds an element of flexibility;
- Productivity changes are more visible if we thoroughly analyze the activity of commercial vessels. Cargo shipping is just a small part of the vessel's activity. Generally, a vessel spends just 1/3 of its operating time on shipping goods.
- There are also other activities that do not include trade: accidents, incidents, repairs, loading, stocking in the long run, or market and social conditions;
- The variations of operational productivity show us if we have an oversupply or undersupply of available tonnage for trade activities at a given time.
- If we have an oversupply of trade, the problem is to reduce the costs with the vessel's stay which are not covered by profits.

Conclusions

The analyses done in this brief study underline the need to reach managerial decisions by taking into account a series of technical and economic variables.

Economic growth is also determined by trade, and therefore in the case of industrial production the way to insure the demand by supply is to a great extent the maritime transport.

The supplier of transport capacities has to supply with well proportioned transport capacities which may insure both performance and productivity.

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