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Inter-Mediterranean Seaports Communications and International trade, globalization, and maritime transport development

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Introduction

The analysis of the relationships between the evolution of the volume of goods –income and outcome–, change in types of merchandise and growth or decline of the transport infrastructures, is a necessarily reductive approach of maritime transport development around the Mediterranean, and prevents from understanding the huge complexity lying behind all these numbers. This complexity increases with the big differences that exist within a very small area, compared with the rest of the world: it encompasses one of the biggest economies, in a very asymmetric trading relationship. Only 12% of the population –known as the G-7–, manages 44% of the global economy, while global trading has grown 4 times more than global production during the last 20 years, and manufactured products have the main rates of change according with the World Trade Organization (WTO/OCM 2006).³

The mutual needs of the different economies around the Mediterranean have changed the protecting view of the economy trading rules between European Union Countries and Maghreb Countries or Middle East economies, in a world highly interconnected where interdependence is necessary to maintain growth. The present world economic crisis is a perfect example of the way one region of the world can affect another, and of the different ways by which these regions are affected.

In the Mediterranean, the economy has permanently relocated activities, moved investments into developed or safe countries, while trade tried to promote open policies, and liberation of markets, with the constant intent of taking

1. Universidad Politécnica de Madrid.

2. Universidad Politécnica de Madrid.

3. World Trade Organization WTO/OMC 2006. *Estadísticas del comercio internacional, 2006. Tendencias a largo plazo.*

advantage from e-commerce. At the same time, the transport sector offered reduced traffic costs and more efficient services.

Méditerranéen Sea Asymmetry

To understand the evolution of seaports in the Mediterranean Sea, and the trade generated along its shoreline, it is necessary to assess the difference between each area towards the whole system, and the present relevance of each for the future maritime transport development. Indeed, the importance of transport costs and infrastructure explains trade, access to markets, and increase in income per capita.

Regarding geographical asymmetries, we can easily appreciate the differences between three maritime entrances: the Gibraltar, Suez and Bosphorus straits. Gibraltar is the natural and main gate to world from the Mediterranean sea, and so far new logistical technologies cannot avoid this evidence. Algeciras, on the Spanish side, and Tangier, on the Moroccan side, are competing to capture maritime transport and are investing to enlarge their transport facilities. As a consequence, small ports in the area compete for the rest of the trade, like Melilla and Beni-Anzar harbors, with very different strategies. Suez has become more relevant because of the energetic dependence of the European Community countries to the Middle East and Arab and Gulf countries. Finally, Bosphorus is the path to Black sea countries that unfortunately suffer from the weakness and instability of the Caucasian area, but the opportunity to communicate, through Turkey, to high potential growing areas.

The other main asymmetry is the economic basin behind each Mediterranean Sea shoreline. If we consider North African countries, except Egypt, they have a very short back economic basin. The Sahara Desert barrier, the very poor road and railway network connected with Central Africa, form an underdeveloped economic circle that do not attract the main maritime transport to stop in Algerian or Moroccan harbors. At the same time, the lack of development of harbor infrastructures prevents the economies of North and central African countries from growing. It is not only a North-South asymmetry, but also East-West. In the North-West area are located three or four countries: France, Italy, Spain and even Portugal, through the Spanish transport network. In this block, France has a clearly privileged position regarding its commerce with the heart of the European Union, through the port of Marseille and the logistic area around Lyon. Italian harbors, such as Genoa, or Spanish harbors, such as Barcelona or Valencia, try to reduce their costs by increasing their efficiency. "Improving port efficiency from the 25th to the 75th percentile reduces shipping costs by 12%. Bad ports are equivalent to being 60% farther away from markets for the average country" (Clark *et al.*, 2004).⁴ They are also politically working hard to cross the Pyrenees barrier thanks to a new effective railway transport. Italy, France and Spain are developing

4. Ximena Clark, David Dollar and Alejandro Micco, *Port efficiency, maritime transport costs, and bilateral trade*, Elsevier B.V., 2004.

short sea shipping strategies, as promoted by the European Union. Their objective is to reduce transport by road, in order to limit the amount of fuel consumed by the EU, and the emission of greenhouse gases produced by the European road sector. Portuguese harbors, like Spanish economy, will benefit from the Spanish political inland-port logistic transport network connecting Mediterranean seaports, Atlantic seaports and EU. In the Northeast sector, Italy, Slovenia, Croatia, Serbia, Montenegro, Albania, Greece and Turkey can form another block, where Italy, Greece and Turkey play the main role. In this sector, rules are different, since trade between Turkey and EU countries is likely to change soon, if Turkey becomes a EU country. The harbors located in this block have less weight and are also less developed, but are not less relevant than in the Northwest. Indeed, they have more potential growth and a more promising future, due to the economical changes in countries like Rumania, Bulgaria or Poland and to their connections with Ukraine, Byelorussia and Russia.

In the East, a group is formed by Syria, Lebanon, Israel, Palestinian Territories, Jordan and Egypt. Here, the main aspect is not geographical, and besides these countries, the political situation also affects the configuration of maritime transport development and trading networks of the whole Mediterranean sea.

Nevertheless, a common characteristic, if we compare the last two decades in the Mediterranean economies, is the rapid increase of the trading among all the regions. A representative example is the Autonomic Administration of Andalucía in the Southwest part of the Mediterranean. There, the ratio between the value of import-export and the Gross Domestic Product (GDP) has increased from 18% during the decade 1990-2000, to 29% for 2001-2008, when exports have increased from 14.1% of the GDP for the year 2000 to 17.8% for 2008. Meanwhile imports have remained stable around 11%.

Traditionally, Andalucía has exported to the 15 first members of the EU, about 60% of its exports; whereas about 40% of imports come from OPEP countries. During the last years, these tendencies changed: exports are moving towards new EU countries, Canada and United States of America, some OPEP countries and Africa. At the same time, imports from OPEP has lowered, challenged by South and Central American countries, Asia and new EU countries (*El comercio en Andalucía. Informe 2009. Instituto de Estadística de Andalucía*).⁵

Network Inland Logistic Areas

The old features of main harbors consisted in intercontinental seaport networks, overseas traffic systems and shipping facilities and working efficient conditions with decreasing of handling cost, or less regulation.

A quick view of Mediterranean harbors for 2006 showed that Algeciras (Spain), Gioia Tauro (Italy), Pireo (Greece), Damietta (Egypt) and Haifa (Israel), where the biggest ones as hub harbors. Algeciras, handled less than 5 million

5. *El comercio en Andalucía. Informe 2009. Instituto de Estadística de Andalucía. Spain.*

TEUs, while North European harbors, like Rotterdam and Hamburg, handled around 10 million each one. Harbors like Barcelona, Valencia (Spain), Marseille (France), Genoa, La Spezia and Livorno (Italy) could be considered a gateway harbors.

Today, the network inland logistic areas changes the relation between Mediterranean seaports and their size, playing also a role in the transport trade. Being integrated in the logistic network has enabled harbors like Barcelona and Valencia to receive as many containers as the harbor of Algeciras. Or, for example, the small Spanish port of Motril wants to be the natural port of Madrid, located 600 km inland, instead of Granada, its administrative capital, only 40 km inland. Connecting a Spanish Mediterranean harbor with the logistic area of Coslada dry port, in Madrid, means to be connected with the rest of the Iberian Coast and with an economic area that has been growing at the best rate in the EU during the last 20 years. The advantage comes from the fact of being related like a seaport and being in contact with the EU customs service agents.

Thanks to the use of new information and communication technologies, improvements in infrastructures, and with the advantage of the growing containerization rate, the same freight and insurance per ton of cargo provide today a quicker and more reliable service with less variation in delivery time than a decade ago.

In the meantime, Mediterranean harbors are growing towards the sea, due to the fact that the number of capacity container vessels bigger than 8 000 TEUs has duplicated from 2004 to 2008. The logistic network has grown inland and given some new opportunities to harbors located far from the main global transport lines. Mediterranean European harbors, especially Italian, French and Spanish, are henceforth connected with the main productivities areas of the EU, and Portuguese and North Spanish harbors with Mediterranean transport lines and thus with far East routes.

The development of short sea shipping is another related phenomenon. It is due to the congestion of land transport between Spain and France, through the Pyrenees, between Italy and the rest of Europe, and between Italy and Spain. The road transport from Spain to Europe is about 120 million tons per year, of which 94 millions tons cross through two points, Irun and La Junquera, versus 140 million tons by maritime transport. This unsustainable situation has developed an alternative, complementary and intermodal service. For example, the Ro-Ro service between Barcelona, Tarragona and Valencia on the Spanish side, is connected at least twice a week to Genoa, Livorno, Civitavecchia, Salerno and Palermo. It takes between 12 and 24 hours for a price of around 600 €.

The near future will connect railway and seaports, as it is necessary to define a "European land bridge network" between North Seaports, Logistic Inland areas and Mediterranean Seaports and to prevent isolated areas from limiting the development of the whole system. Distant areas like Portugal or Greece will clearly benefit from this policy, but also the other countries that will be able to bring their products there.

Competence and alliance between Mediterranean seaports

The Mediterranean is an especially appropriate area for transport trade. The main global maritime route crosses the Mediterranean Sea from Suez to Gibraltar; one of the centers of the global economy is situated on the Northern shore of the Mediterranean; and the EU is opening its doors to new members. Moreover, emergent economies are located in the Northeast connected with the Black Sea and Africa. They have a potential of development and strong links with European economies through Mediterranean seaports. The optimal routing decision tends to be cargo shipping through hubs, as the hub charge has decreased and its efficiency improved (Chaug-Ing and Yu-Ping, 2007).⁶ All of these aspects are catalysts for the growth of the well-defined seaports on the Northern shore, in order to establish a competence between them, to attract and generate new traffic and to develop new harbors on the Southern shore coast.

Harbors like Ceuta, Tangier, Djen-Djen, Bizerte, Damietta or Port Said are a new generation in the Mediterranean and will surely change the map of transport and economy in the South Mediterranean. A clever view will create a similar land bridge with Africa and the Mediterranean Sea, but unfortunately it will still take some decades.

In reality, competence between harbors is not only good for the users of their facilities; but it is also good for the whole logistic line, from inland dry ports to all seaports that have been connected by the logistic lines. We can now begin to talk about competence between logistic lines, which implies alliance between economies and territories, and between modes of transport and harbors. The sustainability of a seaport is nowadays not only in its efficiency but it also lies in the productivity of the whole logistical chain. The relation between Spanish seaports such as Barcelona, Tarragona and Valencia and Italian seaports like Genoa, Livorno, Civitavecchia, Salerno or Palermo, is a very good example of the way short sea shipping can change the aspect of transport within the continent. It enhances the necessity of a growth in size and in the same direction between harbors.

As these chains are becoming more complex, more intricate distribution structures are needed to tailor final products in all their facets to the customer's preferences, as Zhaojian Liu *et al.*⁷ pointed in their research. They propose options to introduce an integrated collaborative planning system where producers, retailers and logistic service providers work closely together through the sharing of information about production, sales and logistics.

To this increasing complexity, the transport logistic chain must also add environmental and security aspects that play a very important role in the definition of the whole transport system. It may leave out of the line the seaports that will not adapt their characteristics to international regulation on these matters.

6. Hsu Chaug-Ing and Hsieh Yu-Ping, *Routing, ship size, and sailing frequency decision-making for a maritime hub-and-spoke container network*, Chaug-Ing and Yu-Ping, 2007.

7. Liu Zhaojian, Sun Guangqi and Li Qing, *Implications for Transport Systems by Emerging Global Logistics Networks*, School of Traffic and Transportation Management, Dalian Maritime University, Dalian, China. 978-1-4244-2108-4, 2008.

Conclusion

Complexification and changes in international trade have taken place at a very fast velocity at a global scale. The time needed to carry a good from one part of the world to another has declined, and at the same time, transport capacities have considerably grown. A ship can nowadays transport the same amount of cargo as carried by 40 ships 50 years ago, and stays only 3 days in the harbor, in contrast with the 12 days previously needed.

The growth of seaports is not enough to adapt to the accelerated rate of economical growth, but new concepts, such as logistic chains, have to be applied to understand the new relationship between peoples, territories, economies and movement of goods. The relations between the different modes of transport have also changed in the design of a harbor. There is no sustainable harbor without space to connect with a main railway, or with a logistic area inside or close by a natural part of the seaport.

Dry ports are becoming new pieces in the logistic chain, giving new opportunities to inland areas, and connecting harbors that will never be connected by sea, creating new corridors or land bridges between harbors.

The movement of all these amounts of goods, efficiently, in time, safe, and controlled, is impossible without the support of the new communication technologies, in a world where the international trade rules are not always easy.

The Mediterranean Sea transport trade is not an exception but has its own particularities, where many asymmetries are still making differences between territories, and where many considerable changes in the near future will draw new maps of relations between growing economies. Long-term strategies cannot avoid these realities, and have to play with the political uncertainties that remain in the region.