

The effects of the Covid-19 pandemic on maritime goods transport in the Western Mediterranean

Jordi Selfa Clemente, CETMO

Transport flows were clearly affected by the outbreak of the Covid-19 pandemic in the first quarter of 2020, the resulting health crisis, lockdown and slow recovery process back to normal, which was still not completed at the end of that year. The drop in production activity and the health and safety measures adopted in transport had a negative effect on 2020 transport flows, despite efforts in the sector to keep global supply chains operating at all times. More specifically, maritime transport in 2020 was marked by the cancellation and adaptation of services in the initial period of the health crisis and a process of recovery and transformation of global flows that involved increased container freight rates in the final months of the year. These processes also impacted the Western Mediterranean and, more specifically, maritime flows between the two shores of the Mediterranean. As described in this article, there was a drop in maritime flows between the Maghreb countries and European countries in the Western Mediterranean. It is worth analysing whether this reduction also produced changes in flow patterns between these countries, or in the type of cargo or the position of different ports, especially for general cargo flows. The aim of this article is to attempt to find answers to these questions by analysing maritime flows between the European countries in the Western Mediterranean and the Maghreb countries based on annual statistical data provided by Eurostat. This source provides an overview of exchanges flows between the two shores of the Western Mediterranean. However, this analysis is based only on data on European ports, given that individual data on each port in the Maghreb have not yet been published by the competent statistics centres in each country.

1. Evolution of maritime flows in the Western Mediterranean by type of cargo. 2016-2020

Compared to 2019, there was a drop in maritime flows in 2020 between the two shores of the Mediterranean, i.e. between Portugal, Spain, France, Italy and Malta in Europe, and Mauritania, Morocco, Algeria, Tunisia and Libya in the Maghreb. This drop was calculated to be 25.7 million tonnes, i.e. a 25.7% reduction on the previous year's volume of 100 million tonnes. The drop occurred in all types of cargo, although the most affected one was liquid bulk cargo, which showed an accumulated drop of 21.6 million tonnes (Figure 1). This evolution of liquid bulk cargo involved a drop of 38.9% compared to flows in the previous year. All other types of cargo showed annual evolution in 2020 of about -10% (Figure 2). This drop represented a change in the evolution of maritime flows between the two shores of the Western Mediterranean in recent years. Starting in 2017, there was a slow increase in total flows, but it was not uniform for all types of cargo. In 2018, positive growth rates were detected in all types of cargo, but they slowed down

the next year. The evolution of 2020 flows therefore involved a change in trend compared to the situation of increasing total flows recorded since 2017.

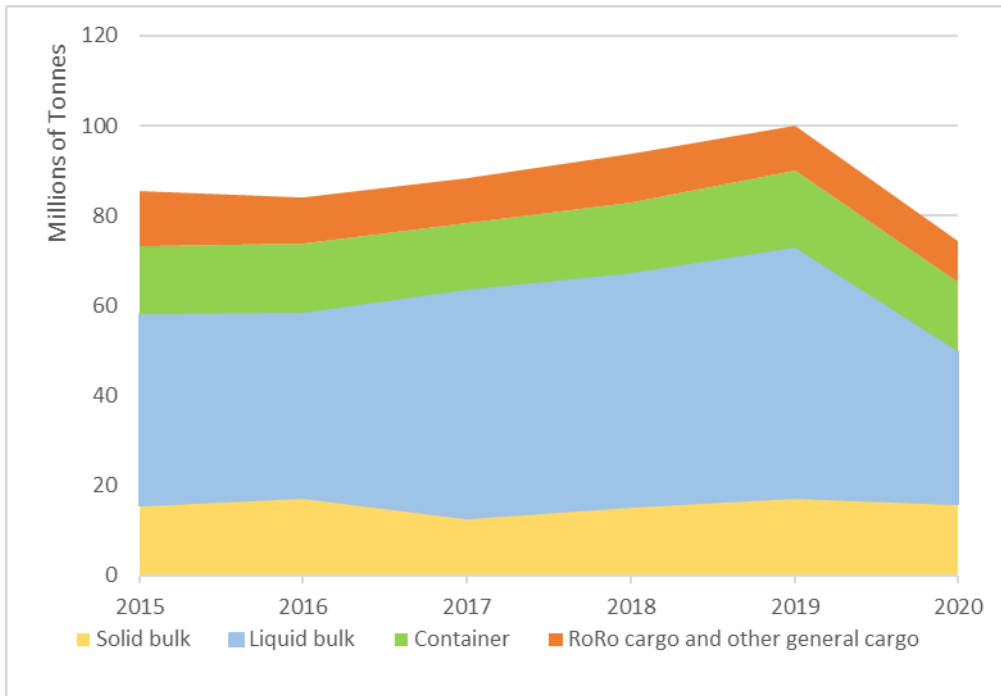


Figure 1. Evolution of maritime transport flows by type of cargo between the two shores of the Western Mediterranean in millions of tonnes (2015-2020). Prepared by the author based on Eurostat data.

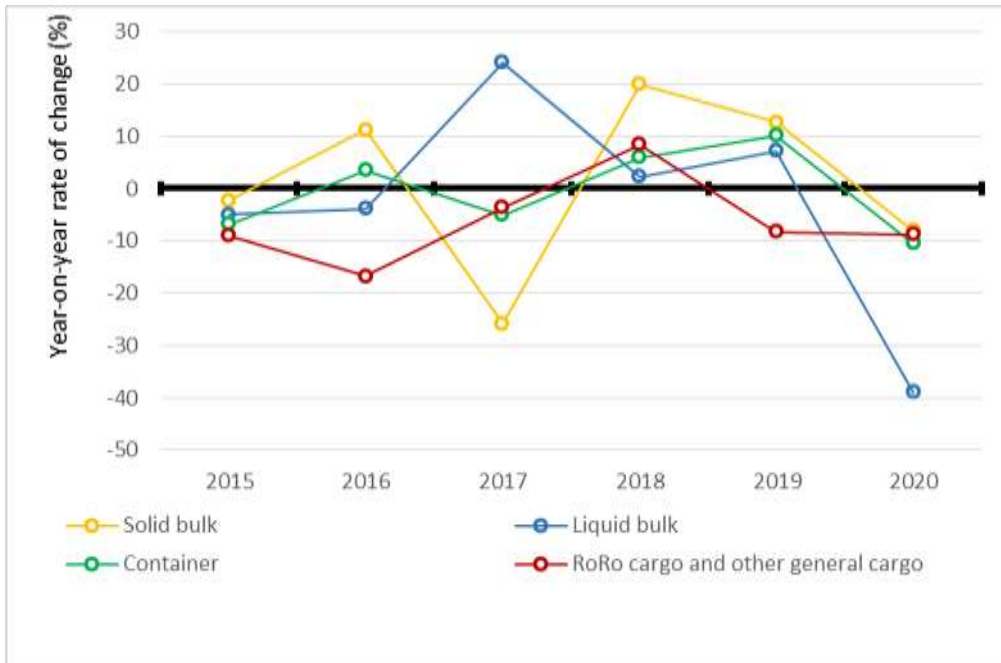


Figure 2. Evolution of year-on-year growth rates of maritime transport flows by type of cargo between the two shores of the Western Mediterranean (2015-2020). Prepared by the author based on Eurostat data.

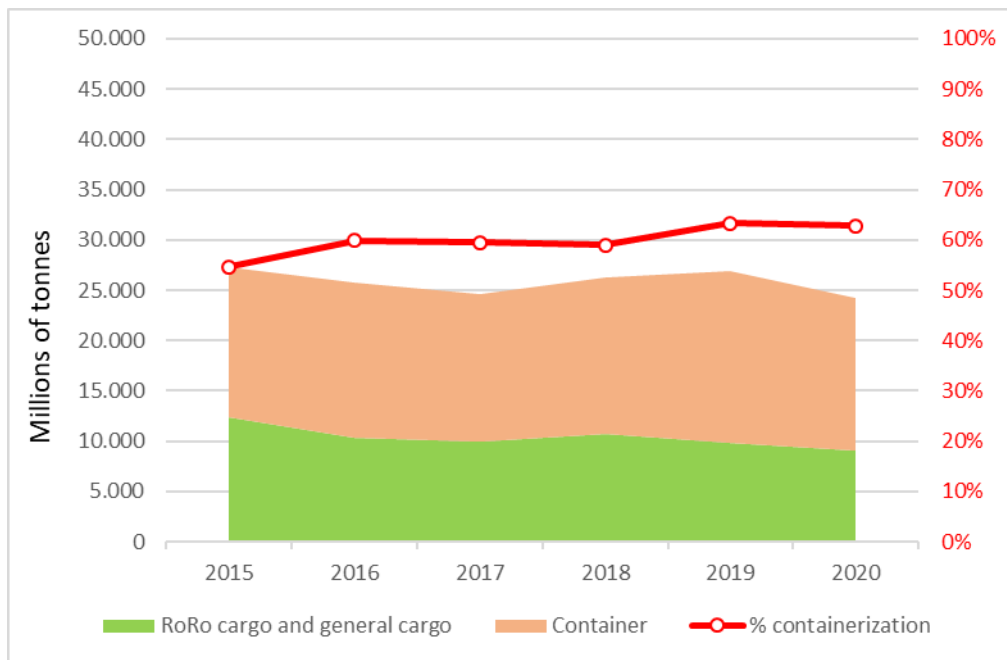


Figure 3. Evolution of general cargo maritime transport flows by type of cargo and level of containerization between the two shores of the Western Mediterranean (2015-2020). Prepared by the author based on Eurostat data.

In 2020, a negative trend was also detected compared to the previous year, specifically for general cargo. This involved a change in the evolution in recent years, as occurred with total flows (Figure 3). Based on 26.9 million tonnes in 2019 and 24.3 million in 2020, there was a 9.9% drop. This drop meant a change in trend compared to the two previous years and a return to the trend of 2016 and 2017. In terms of the distribution of general cargo by type of cargo, both *containerized cargo* and *RoRo cargo and other general cargo* maintain a stability in 2020 in relation to values of 2019. In 2019, *containerized cargo* accounted for 63.3% of all general cargo, whereas it accounted for 62.9% in 2020. The evolution of general cargo was therefore marked by a break in the trend that had started in 2018, but this did not involve a significant redistribution of goods among different types of cargo, but rather stabilization of the evolution of previous years.

2. Distribution structure of container flows between the European countries in the Western Mediterranean and the Maghreb. 2019-2020

2019	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	4.624	269	4.309	1.124	606	10.932
France	795	23	761	17	146	1.742
Italy	1.010	595	1.435	-	422	3.462
Malta	10	89	4	-	5	108
Portugal	37	9	762	-	12	820
TOTAL	6.476	985	7.271	1.141	1.191	17.064

2020	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	4.513	235	4.150	937	630	10.465
France	642	12	650	16	127	1.447
Italy	280	461	1.253	-	607	2.601
Malta	3	97	2	-	4	106
Portugal	26	3	614	4	4	651
TOTAL	5.464	808	6.669	957	1.372	15.270

Table 1. Distribution structure of container flows between the European countries in the Western Mediterranean and the Maghreb in thousands of tonnes. 2019-2020. Prepared by the author based on Eurostat data.

The structure of general cargo flows between countries in the Western Mediterranean is another factor to be considered in the evolution of 2020 flows. In 2019, *containerized cargo* flows between the countries on the two shores of the Western Mediterranean were dominated by flows between Spain and Morocco and between Spain and Algeria. Flows between Spain and Morocco accounted for 4.3 million tonnes and flows between Spain and Algeria accounted for 4.6 million tonnes. These flows also represented the lion's share of all Spanish flows and also made a decisive contribution to Spain becoming the main origin and destination of containerized flows between the two shores (Table 1). Other major flows (in the range of 1 million to 1.5 million tonnes) corresponded to exchange relations between Italy and Morocco, Spain and Mauritania, as well as Italy and Algeria. A third important group of flows (400,000 to 1 million tonnes) was the result of relations between France and Algeria, Spain and Tunisia, Italy and Libya, and finally, Italy and Tunisia.

In 2020, there was a reduction in *containerized cargo* volume in virtually all relations between countries. Of note among them was the case of flows between Italy and Algeria, based on volume and relative value, with a reduction of 72.3%, i.e. 730,000 tonnes. In contrast, the reduction in relations between Spain and Algeria and Spain and Morocco (2.4% and 3.7%, respectively) was far more contained. However, relations between Italy and Tunisia recorded growth of more than

40%, i.e. nearly 200,000 tonnes. Relations between Spain and Tunisia also increased, though in this case by only 4%. All other relevant relations experienced a general drop in volume.

One of the first effects of the 2020 drop in flows on the structure of flows in the Western Mediterranean was that Spain became the leading country of origin and destination of container flows by accounting for 64.1% of flows between Europe and the Maghreb in 2019 and 68.5% in 2020 (Table 2). This was largely due to the relative bolstering of relations between Spain and Morocco and Spain and Algeria. In contrast, the other countries except for Malta lost part of their share in these container flows, including Italy, which lost more than three percentage points, from 20,3% to 17%. Morocco is the Maghreb country that has acquired the greatest share in relations with Southern Europe, especially through its bolstered relations with Spain.

2019	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	27,1%	1,6%	25,3%	6,6%	3,6%	64,1%
France	4,7%	0,1%	4,5%	0,1%	0,9%	10,2%
Italy	5,9%	3,5%	8,4%	-	2,5%	20,3%
Malta	0,1%	0,5%	0,02%	-	0,03%	0,6%
Portugal	0,2%	0,1%	4,5%	-	0,1%	4,8%
TOTAL	38,0%	5,8%	42,6%	6,7%	7,0%	100,0%

2020	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	29,6%	1,5%	27,2%	6,1%	4,1%	68,5%
France	4,2%	0,1%	4,3%	0,1%	0,8%	9,5%
Italy	1,8%	3,0%	8,2%	-	4,0%	17,0%
Malta	0,02%	0,6%	0,01%	-	0,03%	0,7%
Portugal	0,2%	0,02%	4,0%	0,03%	0,03%	4,3%
TOTAL	35,8%	5,3%	43,7%	6,3%	9,0%	100,0%

Table 2. Distribution of container flows between the European countries in the Western Mediterranean and the Maghreb expressed as a percentage. 2019-2020. Prepared by the author based on Eurostat data.

3. Distribution structure of flows of *RoRo cargo and other general cargo* between the European countries in the Western Mediterranean and the Maghreb. 2019-2020

2019	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	1.015	92	5.459	28	162	6.756
France	176	1	182	1	939	1.299
Italy	23	43	233	-	951	1.250
Malta	4	-	-	-	26	30
Portugal	57	-	458	2	33	550
TOTAL	1.275	136	6.332	31	2.111	9.885

2020	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	915	81	5.284	12	108	6.400
France	132	6	140	12	820	1.110
Italy	7	21	151	-	839	1.018
Malta	-	3	1	-	20	24
Portugal	53	-	370	16	27	466
TOTAL	1.107	111	5.946	40	1.814	9.018

Table 3. Distribution of flows of *RoRo cargo and other general cargo* between the European countries in the Western Mediterranean and the Maghreb in thousands of tonnes. 2019-2020. Prepared by the author based on Eurostat data.

An analysis of flows of *RoRo cargo and other general cargo* between the countries on the two shores of the Western Mediterranean shows that these flows were dominated in 2019 by flows between Spain and Morocco. In 2020, these flows amounted to 5.5 million tonnes and accounted for 55.2% of total flows between the European countries in the Western Mediterranean and the Maghreb. Other important exchanges (in the range of one million tonnes) are those between Spain and Algeria, Italy and Tunisia, and France and Tunisia (Table 3).

In 2020, there was a drop in virtually all the relations, but there were differences in degree. While relations between Spain and Morocco dropped by 3.2%, other relations considered important in 2019, such as Spain-Algeria, Italy-Tunisia and France-Tunisia, recorded a drop in volume of 9.9%, 11.8% and 12.7%, respectively. Spain-Morocco relations thus increased their relative share of total flows of *RoRo cargo and other general cargo* between the two shores of the Western Mediterranean in 2020 from 55.2% to 58.6%. Spain increased its share among European countries from 68.3% in 2019 to 71% in 2020. As occurred with *containerized cargo*, albeit to a lesser extent, Morocco increased its share among Maghreb countries of *RoRo cargo and other general cargo* by increasing its share of total flows from the southern shore of the Mediterranean from 64.1% to 65.9% (Table 4).

2019	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	10,3%	0,9%	55,2%	0,3%	1,6%	68,3%
France	1,8%	0,01%	1,8%	0,01%	9,5%	13,1%
Italy	0,2%	0,4%	2,4%	-	9,6%	12,6%
Malta	0,04%	-	-	-	0,3%	0,3%
Portugal	0,6%	-	4,6%	0,02%	0,3%	5,6%
TOTAL	12,9%	1,4%	64,1%	0,3%	21,4%	100,0%

2020	Algeria	Libya	Morocco	Mauritania	Tunisia	TOTAL
Spain	10,1%	0,9%	58,6%	0,1%	1,2%	71,0%
France	1,5%	0,1%	1,6%	0,1%	9,1%	12,3%
Italy	0,1%	0,2%	1,7%	-	9,3%	11,3%
Malta	-	0,03%	0,01%	-	0,2%	0,3%
Portugal	0,6%	-	4,1%	0,2%	0,3%	5,2%
TOTAL	12,3%	1,2%	65,9%	0,4%	20,1%	100,0%

Table 4. Distribution of flows of RoRo cargo and other general cargo between the European countries in the Western Mediterranean and the Maghreb expressed as a percentage. 2019-2020. Prepared by the author based on Eurostat data.

4. Container flows with the Maghreb at ports in the European countries in the Western Mediterranean. 2019-2020

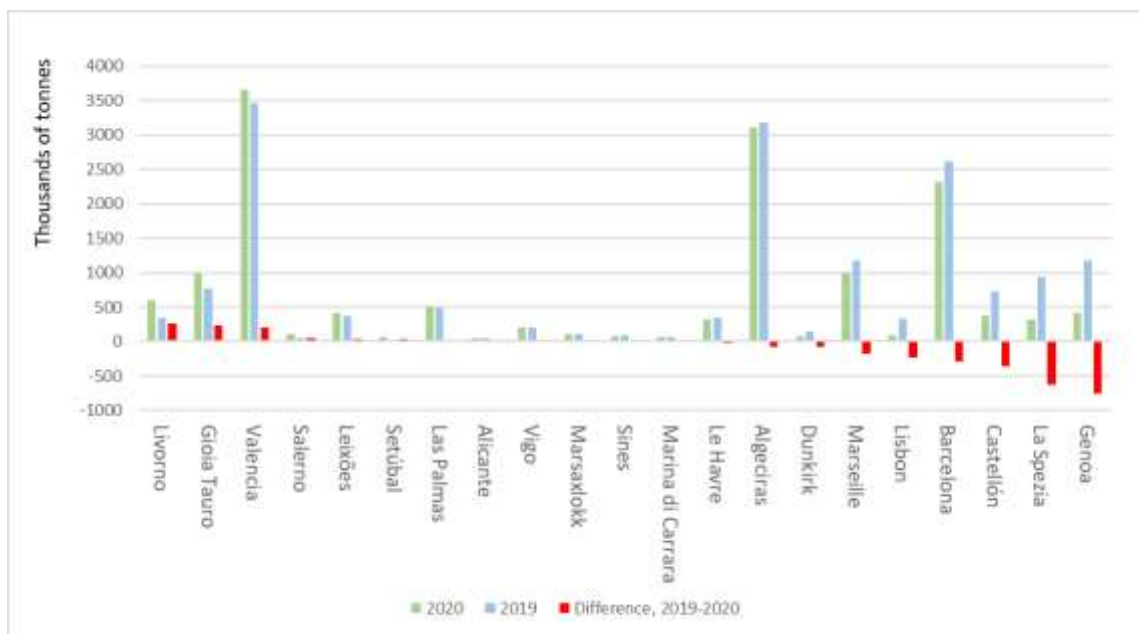


Figure 4. Container flows with the Maghreb at ports in the European countries in the Western Mediterranean in thousands of tonnes. 2019-2020. Prepared by the author based on Eurostat data.

As mentioned above, in container traffic between the two shores of the Western Mediterranean, the year 2020 basically involved a general reduction in flows, bolstered relations between Spain and Morocco and Spain and Algeria, and a reduction of volumes between Italy and Algeria. Let's take a look at how these changes were reflected in the port network. An analysis of the evolution of the most important ports shows that the main reductions in volume and as a percentage of the previous year occurred in Genoa (-64.35), La Spezia (-66.1%) and Castellón (-48.2%). All three ports were listed in the under 500,000 tonnes category in 2020. Other ports of importance in flows with the Maghreb, such as Barcelona, Marseille and Algeciras, also experienced losses. However, these losses were lower in volume than in the previous year, especially when expressed as a percentage. Barcelona recorded a drop of 11.2%, Marseille 15.5% and Algeciras only 2.4%. At the other extreme were the Italian ports, with Livorno and Gioia Tauro topping the list of ports that recorded increases compared to 2019, in volume and as a percentage (73.9% and 29.6%, respectively) (Figure 4). However, these ports did not make up for the losses of Genoa and La Spezia. The port of Valencia, the largest in terms of volume with the Maghreb countries in 2019 and 2020, experienced an increase in container flows with the Maghreb, although this increase was minimal compared with the flows recorded at former Italian ports. Flows between Italian ports seem to have been redistributed, although this did not prevent Italy's absolute losses in container flows, whereas major ports such as Valencia, Algeciras, Barcelona and Marseille experienced more limited losses and even slight increases. It could be said that the main container ports were relatively bolstered in 2020, especially Spanish ports, whereas the greatest losses occurred in the Italian port system.

5. Evolution of port flows of *RoRo cargo and other general cargo* with the Maghreb at ports in the European countries in the Western Mediterranean. 2019-2020

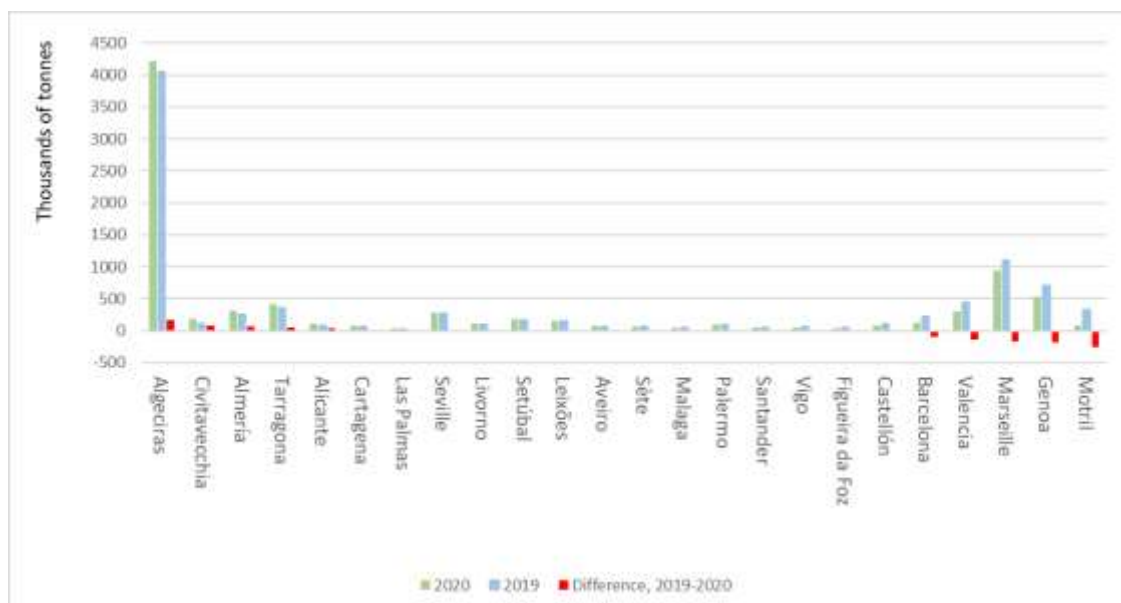


Figure 5. Flows of *RoRo cargo and other general cargo* with the Maghreb at ports in the European countries in the Western Mediterranean in thousands of tonnes. 2019-2020. Prepared by the author based on Eurostat data.

In 2019, the Port of Algeciras stood head and shoulders above the other ports in the Western Mediterranean in terms of flows of *RoRo cargo and other general cargo*. This port, with 4.1 million tonnes in 2019, accounted for 41.5% of flows of *RoRo cargo and other general cargo* between ports in Southern Europe and the Maghreb (Figure 5). In 2020, there was an increase in volume to 4.2 million tonnes, as well as an increase in total share, which rose to 46.9%. This relative increase in its share was a result of the fact that, in sharp contrast to the Port of Algeciras' own positive development, most of the other ports with a significant volume showed a downward trend, which is also explained by the overall drop in all *RoRo cargo and other general cargo* flows between the Maghreb and European countries in the Western Mediterranean: Motril lost 248,000 tonnes (i.e. 75.2%), Genoa lost 180,000 tonnes (25.4%) compared to the previous year, Marseille lost 160,000 tonnes (14.4%), and Valencia lost 142,000 tonnes (31.7%). The concentration of flows of *RoRo cargo and other general cargo* in the Western Mediterranean therefore increased in 2020, especially at the Port of Algeciras, a facility that already accounted for a major share of these flows.

6. Evolution of port concentration in general cargo flows in the Western Mediterranean

The evolution of flows of general cargo between the two shores of the Western Mediterranean, either in containers or as *RoRo cargo and other general cargo*, seems to have had the result of providing relative bolstering to the ports at the top of the port hierarchy: Valencia, Algeciras, Barcelona and Marseille for container flows, and Algeciras for flows of *RoRo cargo and other general cargo*. This appears to have led to increased port concentration compared to 2019. However, it is worth considering to what extent this concentration has actually occurred and how it fits into a wider time frame in order to understand the importance of the changes in the last year. The port concentration level was therefore calculated for container flows and flows of *RoRo cargo and other general cargo* between 2015 and 2020 (Figure 6). The result shows that, as previously indicated, there was effectively an increase in concentration in both cases, though the concentration levels used as a starting point were already quite high. However, when considering the time period since 2015, it can be observed that the increase in the concentration of flows of *RoRo cargo and other general cargo* followed a trend that began in 2018, whereas containers did little to alter the shift towards decentralization first detected in 2018 after a major increase in 2016 and 2017. So even though port concentration levels of container flows and flows of *RoRo cargo and other general cargo* increased in 2020 compared to 2019, the signs in 2020 did not seem to point to a clean break with previous trends.

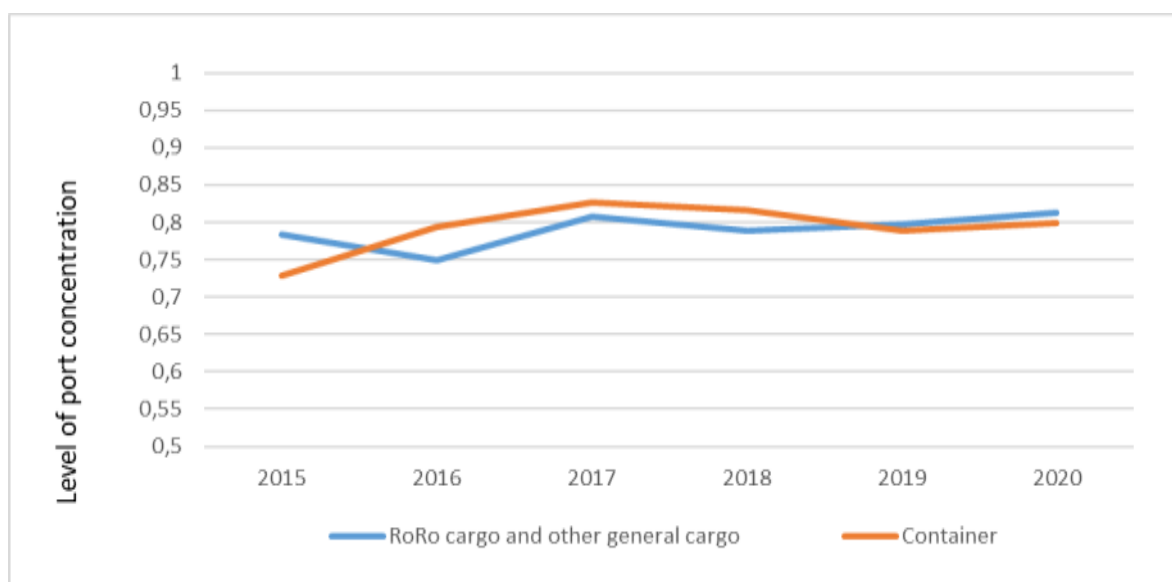


Figure 6. Evolution of the port concentration level of European ports in general cargo flows with the Maghreb. 2015-2020. Prepared by the author based on Eurostat data.

7. Conclusions

In 2020, maritime flows between the two shores of the Western Mediterranean was marked by a reduction in volume that affected all types of cargo, especially liquid bulk. This drop contrasted with the evolution that had taken place since 2017. As a result, general cargo was affected by this reduction, although the distribution of *containerized cargo* and *RoRo cargo and other general cargo* was not significantly altered compared to previous years.

For general cargo flows between the countries on the two shores of the Western Mediterranean, 2020 involved the relative bolstering of already consolidated flows relations, such as flows between Spain and Morocco and between Spain and Algeria for *containerized cargo*, and between Spain and Morocco for *RoRo cargo and other general cargo*. The main ports received relative bolstering. In terms of containers, this was especially true of Spanish ports, whereas the greatest reductions occurred in the Italian port system. The Port of Algeciras was the port that most benefited in absolute and relative terms from redistribution of flows of *RoRo cargo and other general cargo*. Finally, the level of port concentration for all types of general cargo indicated that concentration had increased, but its evolution was within the limits recorded in recent years.

It can therefore be concluded that 2020 involved a drop in maritime flows between the two shores of the Western Mediterranean. Moreover, a trend was detected of bolstering consolidated relations and ports, though it did not appear to represent a major change compared to previous years. Evolution in coming years will determine whether these trends detected in 2020 represented a temporary adaptation to an emergency health scenario or are an indication of a deeper change in how maritime flows are organized in the Western Mediterranean and will therefore be strengthened and become more consolidated in the future.