

# Survey on International Merchandise Transport

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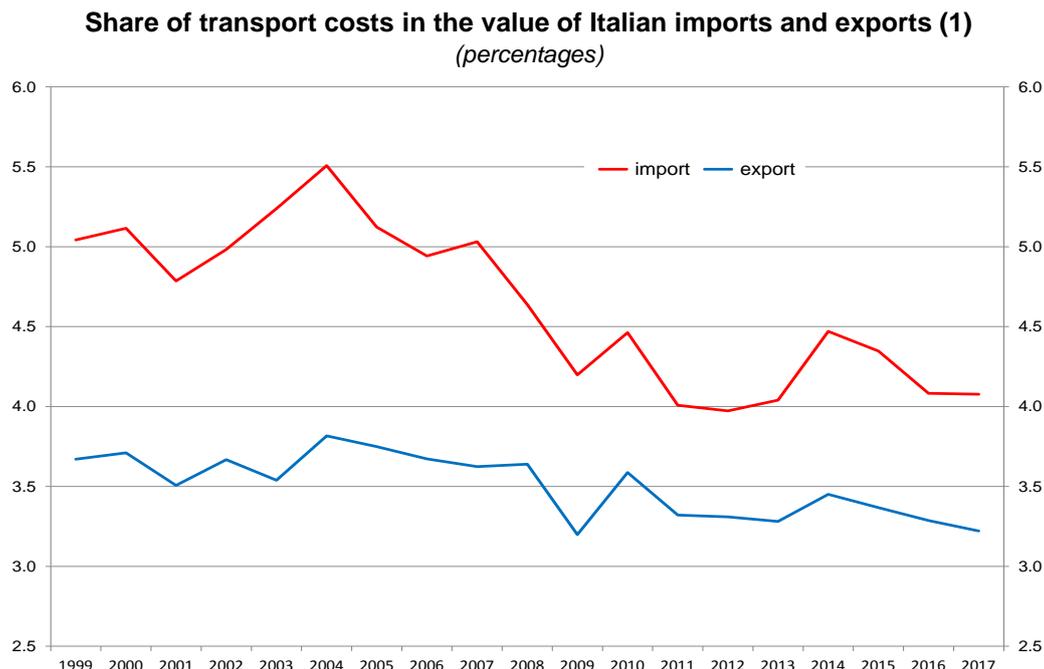
## Main findings

In 2017 Italy's balance of payments recorded a freight transport deficit of almost €6 billion, an increase compared with 2016. The country's persistent deficit is still associated with the limited market shares of Italian carriers in international transport of goods.

The share of transport costs in the value of goods continued to decrease in 2017, standing at 3.2 per cent for exports and 4.1 per cent for imports (excluding those transported by pipeline, mainly natural gas imports; see Figure 1).

In 2017 the cost of road and rail transport fell on average compared with the previous year, even though there were variations according to the goods' country of origin or place of provenance. In the maritime sector there was a significant recovery in freight rates following an increase in operating costs (fuel prices) and higher demand, which mitigated the pre-existing excess supply of cargo space. The increase was seen most in the container sector, following a sharp fall in 2016, and in the bulk transport segment (liquid and dry), while tariffs for general cargo remained more stable. Air freight also saw an increase in the cost of exporting goods.

Figure 1



Source: Based on data from Istat, Alps Crossing, Eurostat, and ENAC.

(1) Excludes goods transported by pipeline; provisional data for 2017; the costs include ancillary and logistical services linked to international freight transport, as well as any road transport cost supporting other modes of transport (container ships, bulk and container rail transport).

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## 1. Introduction

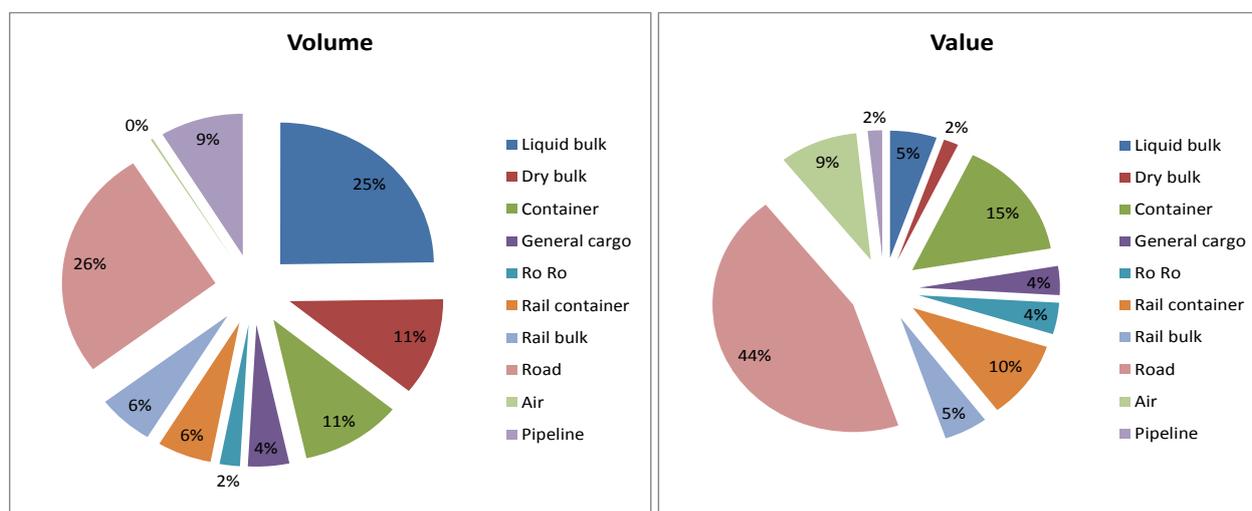
Since 1999 the Bank of Italy has conducted sample surveys of international freight transport operators to collect the data needed to compile the balance of payments. In 2017, 162 transport firms operating in Italy took part in the survey.

The survey's main purpose is to estimate the unit cost of freight to and from Italy by mode of transport; carriers' market shares by nationality are also estimated. The tonnage of imports and exports is based on Istat data on Italy's foreign trade. On the basis of this information, the volume of goods transported by foreign and Italian carriers is calculated. Multiplying the freight rates by the volume of goods transported produces an estimate of the transport services purchased or sold abroad. The estimate also includes some other items, such as cross-trade by domestic carriers. The findings of the survey are also used to further subdivide the data on foreign trade flows by type of load and to refine the breakdown by mode of transport, which otherwise tends to overestimate road haulage to the detriment of other modes of transport, especially rail freight.<sup>1</sup>

A breakdown of Italy's commercial trade in 2017 by mode of transport is given in Figure 2. Considering the volumes imported and exported, ships were the main form of transport (53 per cent of the total, compared with 26 per cent for road and 12 per cent for rail transport). In value terms, however, ships declined to 29 per cent, against 44 per cent for road haulage and 16 per cent for rail freight. Air transport was significant only for its share of the value of trade (9 per cent) while pipelines were more significant in terms of volume.

Figure 2

**Breakdown by mode of transport of Italy's commercial trade in 2017**  
(percentages, averages of imports and exports)



The next section illustrates the main findings of the 2017 survey by mode of transport and by area of origin/destination in relation to almost 5,200 'standard consignments'.<sup>2</sup> Freight rates are given in at market prices in euros per tonne<sup>3</sup> and include ancillary transport costs (cargo handling, motorway tolls, carrier fees etc.), for which the data are also gathered in interviews with transport operators. In specific cases, the prices are given in the trading currency (the dollar is widely used for sea transport) or net of ancillary services. The average freight rates by mode of transport are calculated as the average of the tariffs by area of origin/destination, weighted by volumes transported; accordingly, the trends over time also reflect the geographical composition of the

<sup>1</sup> The data can be found in the Statistical Appendix to this report. The method of correction is described in a separate document: [Methods and Sources: Methodological Notes](#)

<sup>2</sup> Surveying freight rate on a quarterly basis for bulk container ships, half-yearly for air cargo, and annually for road/rail freight and any other types of sea transport. For reasons of brevity, only the annual averages are given.

<sup>3</sup> A 'tonne' is a metric ton (1,000 kilograms).

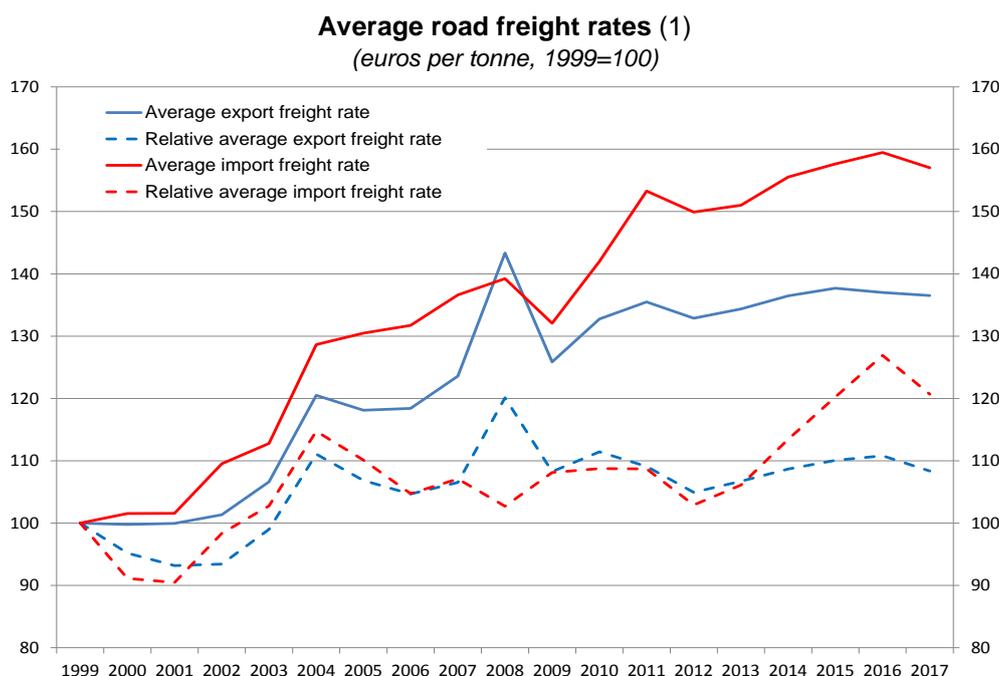
volumes transported. Furthermore, for some modes of transport, the market prices relate not to the weight but to the unit (e.g. a container) or to the overall load. In this way the cost per tonne can vary according to the average volume transported.

## 2. International freight rates

### 2.1 Road freight rates

Average road freight rates in euros per tonne show an upward trend in nominal terms, in particular for imports, despite a slight decline last year (Figure 3). In real terms, i.e. relative to the producer price index for exports (PPIX) and for imports (PPIM),<sup>4</sup> export freight rates are still below the peak reached in 2008, while import freight rates stood, in 2016, at the highest levels recorded since the start of the time series.

Figure 3



(1) The real costs are obtained by dividing the nominal costs by the export price index and the import price index respectively (sourced from Istat).

#### Road freight rates fall for full loads and rise for partial loads

In 2017, while there was moderate growth in overall volumes transported (Table A.1 in the Appendix), average costs fell slightly (Table 1) as a result of the cost of full loads falling and the cost of partial loads (groupage) rising. In 2016, on the other hand, the prices for full loads had buoyed road freight rates.

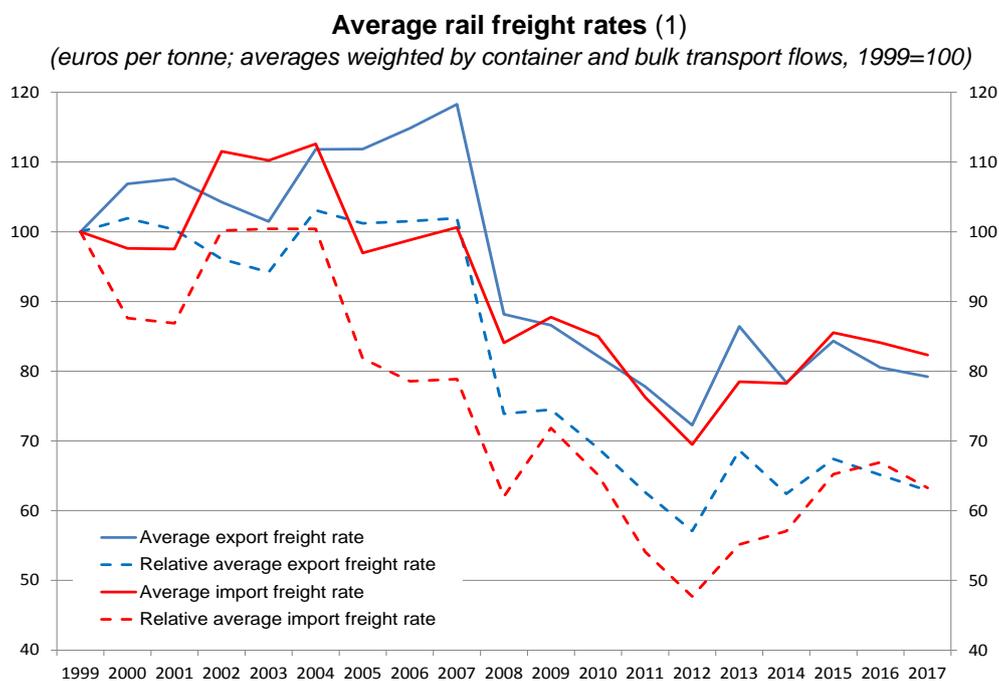
Full load freight rates (net of ancillary services) fell in many of the geographical areas of origin/destination of goods, including Germany, Italy's main trading partner. Overall, the fall in full load freight rates was greater on the import side (-1.5 per cent on average against -0.4 per cent for export rates), although this was mitigated by an increase for groupage rates, on average. There was a sharp reduction of rates in countries in the following areas: the former Soviet Union, Eastern Europe, Benelux, and Scandinavia. Instead, average costs rose in the Alpine and the Balkan countries, including Greece and Turkey.

<sup>4</sup> Compared with last year's report, given the availability of time series from 1999, for all modes of transport we use the two indexes for imports and exports rather than the single producer price index (PPI).

## 2.2 Rail freight rates

Average rail freight rates are still far from the levels recorded at the start of the last decade, suffering from the steep drop recorded between 2008 and 2012 (Figure 4), followed by a brief recovery that has come to a halt in the last two years. The sector continues to be increasingly contestable, with the market share of the Italian state railways (which previously had the monopoly) in constant decline, while transport demand is held down both by competition from road transport and by poor infrastructure (lack of interchanges between rail and other modes of transport).

Figure 4



(1) The real costs are obtained by dividing the nominal costs by the export price index and the import price index respectively (sourced from Istat).

### Average rail freight rates decline in 2017

The average costs for container rail transport were lower than in 2016 (-2.4 per cent for imports, despite an increase in volumes, and -2.9 per cent for exports; Table 2 and Table A.1). Most geographical areas saw a decline in costs, including France and Germany (Italy's main trading partners). This was particularly noticeable in trade with former Soviet

Union countries and the Balkans. For rail transport overall, the reduction in costs was slightly less marked.

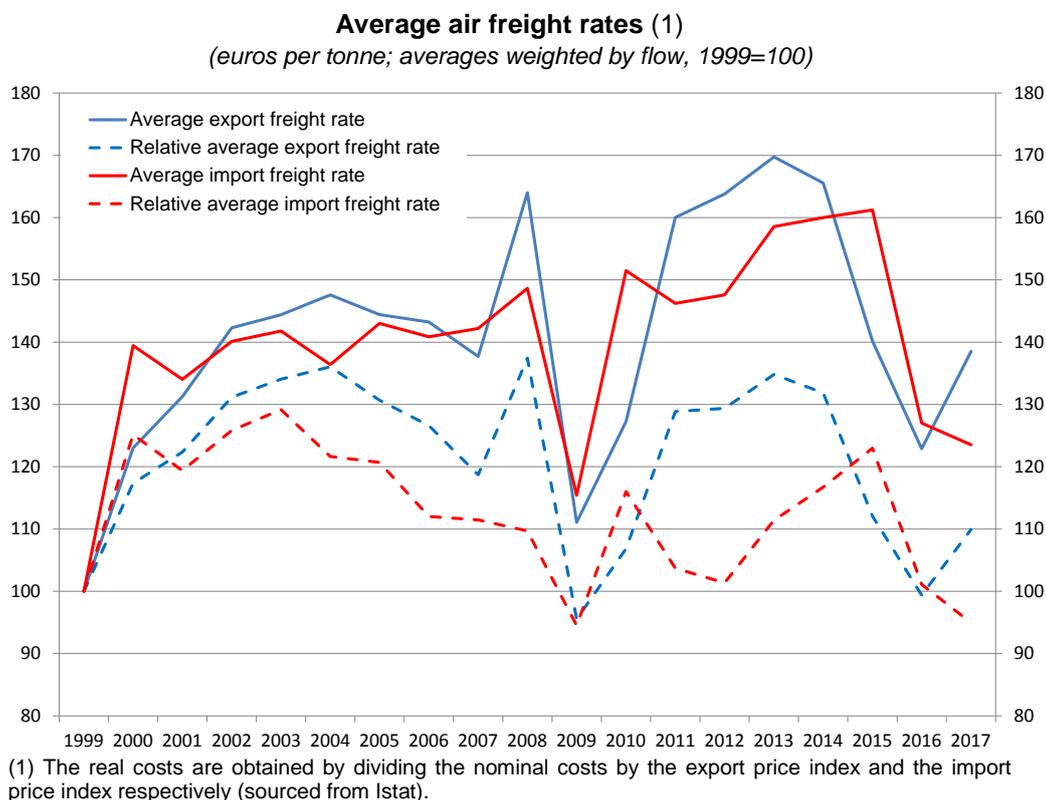
## 2.3 Air freight rates

After falling sharply in 2008 and 2009, air freight rates rapidly recovered their pre-crisis levels to decline again more recently (Figure 5). In real terms, in 2017 these costs were close to the lowest 2009 level, in particular on the imports side.

### Air freight rates rise for exports and fall for imports

In 2017 air freight rates (including ancillary services) increased considerably with respect to 2016 for exports, reflecting an increase in the volumes transported. However, rates declined slightly for imports (Table 3). The rise in tariffs on exported goods was fairly widespread across destination markets, although greater on exports to the Asian countries; the decline in imported goods mainly concerned the European routes.

Figure 5



## 2.4 Sea freight rates

Sea freight rates are surveyed by load type (container, bulk cargo, general cargo and Ro-Ro; see: [Methods and Sources: Methodological Notes](#)) due to the different tariffs for the various market segments.

### 2.4.1 Container sea freight

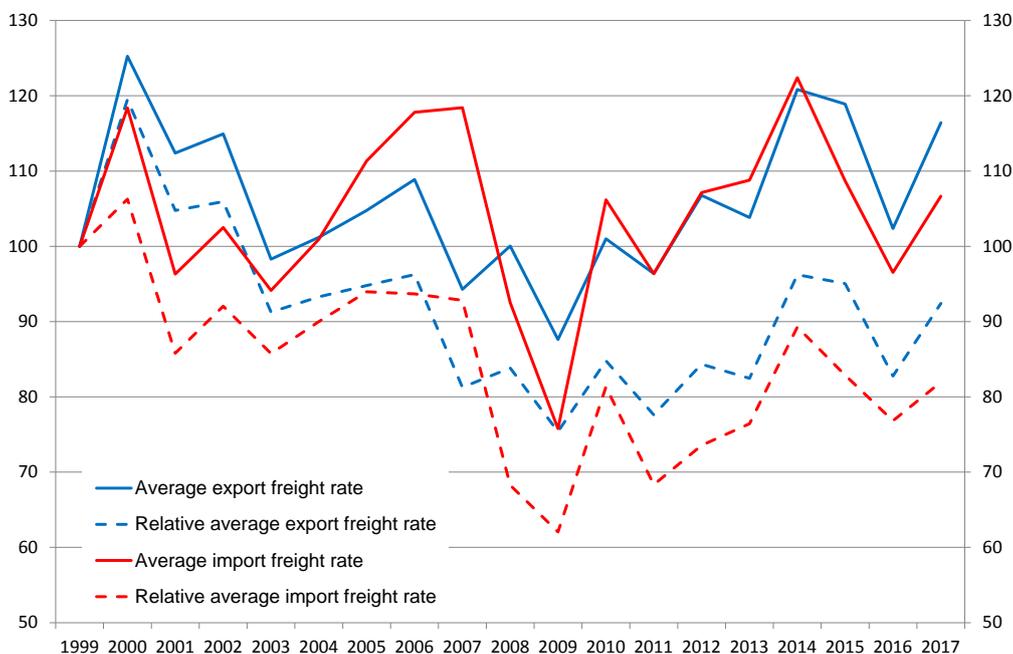
After the recovery stage in 2011, container freight rates, including ancillary services, fell considerably in the two years 2015-2016 (Figure 6); in real terms, last year's increase brought prices to the levels recorded immediately before the 2008-2009 crisis, especially as regards exports.

#### Container sea freight rates rise sharply

In 2017, with growing volumes being transported (Table A.1), the cost per tonne in euros increased by more than 10 per cent (Table 4), recouping the previous year's fall. The rates as surveyed - in dollars per container (TEU) excluding ancillary services - recorded much sharper increases, averaging more than 40 per cent; taken together with the rise in oil prices, the recovery in transport demand was a factor in the increase in freight rates. This improved the fortunes of the sector, whose profitability had been under strong pressure in the previous two years, with corporate crises affecting foreign carriers.

Figure 6

**Average container sea freight rates (1)**  
(euros per tonne, 1999=100)



(1) The real costs are obtained by dividing the nominal costs by the export price index and the import price index respectively (sourced from Istat).

### 2.4.2 Bulk sea freight (liquid and dry)

Average bulk cargo import freight rates (including ancillary services) - mainly commodities - has recovered over the last three years as far as dry loads are concerned (Figure 7). Thanks also to an accelerated hull disposal policy, the market may have reached a more balanced cargo demand and supply situation. In real terms, prices have returned to a level higher than the average since 1999.

Average liquid bulk freight rates (mainly petroleum and petroleum products) also increased but not so sharply. After the decline in 2016, last year saw an upward trend, which also indicated that there was less of an imbalance between supply and demand in the freight transport market.

**In 2017 bulk freight rates rise for all types of merchandise**

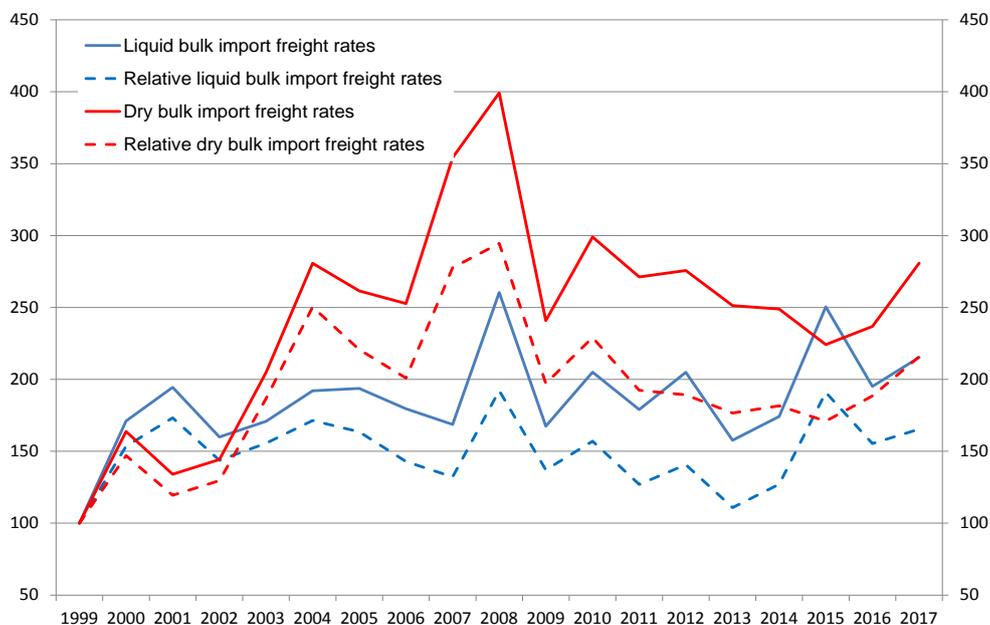
In 2017, although there was a reduction in dry commodity volumes (Table A.1), dollar-denominated freight rates (excluding ancillary services) grew considerably, by about 30 per cent (in euros, by around 15 per cent, including ancillary services; Table 5). The increase was linked to rising operating costs (the price of fuel), which also led some ship-owners to reduce the speed of their services. Together with their policy of

demolishing their oldest ships, such decision led to a reduction in the supply of available cargo space.

In the liquid commodities sector, which is characterized by growing amounts of freight transported, there was also a significant rise in freight rates, especially of chemical products. Besides the recovery of demand for transport, a further factor was the limited growth of world fleets due to fewer new ships on the market than in the past.

Figure 7

**Average sea freight rates: liquid and dry bulk imports (1)**  
(euros per tonne, 1999=100)



(1) The real costs are obtained by dividing the nominal costs by the export price index and the import price index respectively (sourced from Istat).

### 2.4.3 General cargo and Ro-Ro freight rates

**General cargo sea freight rates to transport plant and machinery remain at historically low levels**

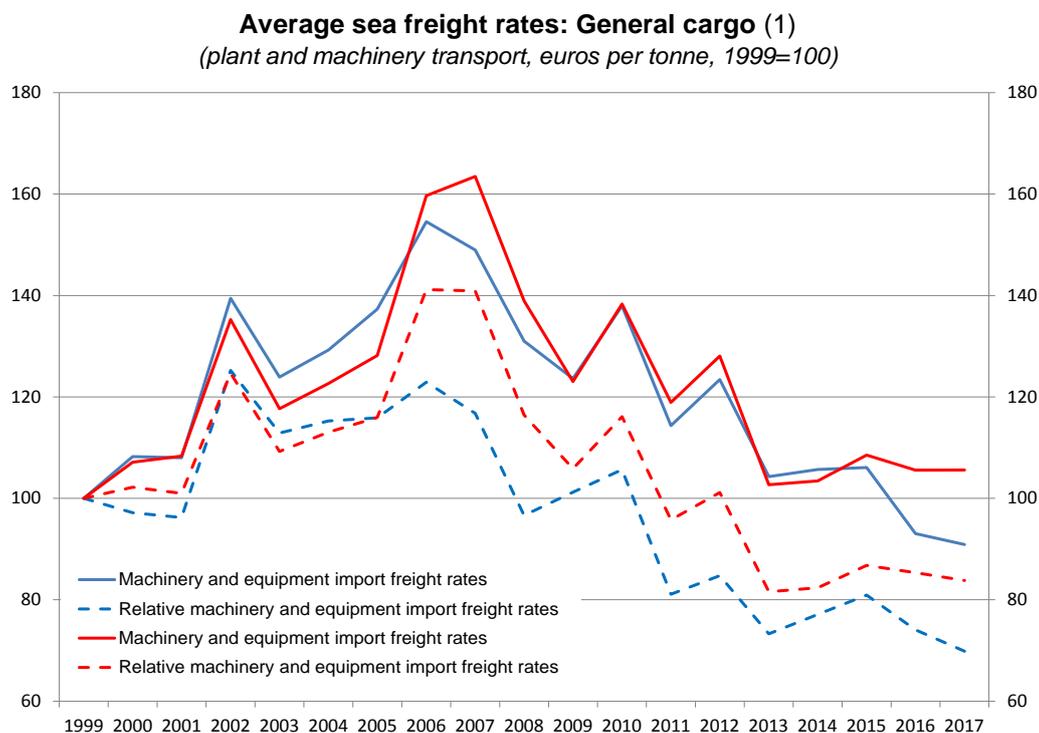
The average general cargo sea freight rates including ancillary services (in euros per tonne) for the transport of plant, machinery and transport equipment have been fairly stable over the last few years for exports and have been declining for imports. In both cases, the rates are at historically low levels, especially if we look at them in real terms (Figure 8).

In 2017, the rates denominated in euros per tonne increased (Table 6), in particular for the two categories ‘chemicals, building material, forestry products’ and ‘tubes, pipes and metal materials’, while rates for the largest category (‘plant, machinery and transport equipment’) remained stable (exports) or declined (imports) compared with the year before.

**Ro-Ro sea transport rates increase by an average of 2 per cent**

In 2017, Ro-Ro (Roll-on/Roll-off) rates for the sea transport of road vehicles (mainly in the Mediterranean area) increased on average by around 2 per cent, while the overall volumes transported grew moderately (Table A.1). Rates varied across geographical areas, rising for routes to Turkey, falling for routes to the Balkans and (slightly less so) to Greece, and were mainly stable in the other zones involved in this type of transport (Table 7).

Figure 8



(1) The real costs are obtained by dividing the nominal costs by the export price index and the import price index respectively (sourced from Istat).

## 2.5 Natural gas transportation rates

The sample survey has collected data on the cost of transporting (mainly importing) natural gas via pipelines since 2016. In previous years the data came directly from the companies of the group managing the gas pipelines; when the market was liberalized, other operators were allowed to purchase and transport gas to Italy, making it necessary to broaden the survey to include this highly concentrated sector.

The costs are those borne from the point of sale (and not the point of production) of the natural gas until the point of entry into Italy<sup>5</sup> and these costs tend to be the same regardless of the volumes that are actually imported (take-or-pay contracts); changes in unit costs (in euros per tonne) also depend on the actual volumes transported compared with those agreed in the contract.

### In 2017 natural gas freight rates decline

In 2017 the overall costs declined on average by almost 6 per cent compared with the previous year, reflecting the sharp fall of rates for imports from Russia and, to a lesser extent, from Algeria - Italy's two main suppliers (Table 8).

## 3. Carriers' market shares

Since 2002 a specific section of the survey estimates the distribution of international merchandise transport to and from Italy among Italian and foreign carriers.

Air transport data comes from administrative sources, while sea and road transport data are

<sup>5</sup> As regards Russian gas, the point of supply is at the border between Austria and Slovakia; for Algerian gas it is at the border between Algeria and Tunisia; for gas originating in Norway and the Netherlands the supply point is at the border between Germany and Holland; and for gas from Libya, the supply point is on the Libyan coastline.

obtained from specific sample surveys that constitute an original source of information, including internationally. In fact, statistical data on the maritime sector often look at ship owners and not at the actual operators of those ships. For balance of payments purposes, it is the residence of the operator that is needed and that is why the Bank of Italy survey addresses the operators (see [Methods and Sources: Methodological Notes](#)).

**On average the market shares of Italian carriers increase**

The diminishing trend of the share of Italian carriers in the maritime sector came to a halt in 2017, returning to almost 11 per cent on average after having dropped to an all-time low of 9.1 per cent the previous year (Table 9). There was a noticeable increase in the liquid bulk cargo sector and in Ro-Ro transport. There was also an increase in sea container freight but this remained at a very low level. As regards road transport, the market

share of Italian carriers declined further to just over 20 per cent, while the air freight segment remained stable at 17.3 per cent.

In the case of foreign sea freight carriers, in 2017 the main shipping companies for container transport were German or Swiss (Table 10). In the bulk cargo sector, ship owners in Greece continue to hold first place with a very high share of liquid bulk freight, while those in Italy are in second place for liquid and third place for dry bulk cargo. Turkey's carriers hold first place of general cargo transport while Italy is in sixth place. For Ro-Ro transport Italian ship owners have taken back first place.

#### 4. Balance on merchandise transport

As mentioned in the introduction, the volume of goods transported by foreign and by Italian carriers are attributed according to market shares (as shown in Table A.1). The freight rates, multiplied by these volumes, enable us to estimate the merchandise transport services purchased from and sold abroad. Other items are also included in this estimate, such as cross-trade carried out by Italian ship owners in the maritime sector.

**In 2017 the deficit on the freight balance is greater, especially in the road transport sector**

Given the limited market share of Italian carriers, the balance on merchandise transport has a structural deficit that almost always fluctuated between €5 billion and €6 billion between 2007 and 2017 (Table 11). The deficit was greater in 2017 than in 2016, nearly reaching €6 billion, contributory factors were the further worsening of the balance on road freight transport, linked to the fall in market share of Italian carriers, and to a lesser extent the weaker balance on air freight transport.

The recovery of maritime freight rates increased both the payments made to foreign carriers and the revenues realized by Italian carriers including cross-trade, which recorded a significant increase after the fall seen in 2016.

## Tables

Unless otherwise specified, the source of the data for all the figures and tables in this section is the Bank of Italy's Survey on International Merchandise Transport.

Table 1

### Average road freight rates (FTL and groupage)\* (2017)

	Average freight rates for all loads (Including ancillary services)				FTL and groupage freight rates (Average exports and imports, excluding ancillary services)			
	Exports (€/tonne)	% change on 2016	Imports (€/tonne)	% change on 2016	FTL (€/vehicle)	% change on 2016	Groupage (€/tonne)	% change on 2016
Austria – Switzerland	114.9	-1.0	114.8	-1.0	1,139	4.8	198.0	1.5
Benelux	121.3	-3.7	121.3	-3.7	1,563	-6.0	189.0	0.0
Eastern Europe (1)	108.9	-6.9	100.1	-6.4	1,186	-5.2	173.3	-4.9
France	104.0	0.9	104.4	0.4	1,299	-2.1	165.4	3.8
Germany	106.9	-1.1	106.7	-0.3	1,346	-3.4	169.0	2.1
Greece – Turkey	145.1	1.5	144.7	3.3	2,246	4.1	207.3	0.8
Balkans	103.7	2.7	104.2	2.2	1,247	2.8	169.0	1.8
Baltic countries	159.5	0.3	160.3	0.2	2,473	1.1	235.6	0.0
Former USSR	187.6	-13.1	171.9	-12.8	3,512	-11.2	227.8	-12.6
United Kingdom - Ireland	196.2	-0.4	175.3	-1.5	2,522	-2.4	294.7	-0.5
Scandinavia	175.2	2.4	175.2	2.4	2,841	7.4	244.0	-0.8
Spain - Portugal	128.3	1.0	117.2	-0.7	1,706	-1.9	187.0	1.3
<b>Weighted average (2)</b>	<b>119.5</b>	<b>-0.4</b>	<b>114.5</b>	<b>-1.5</b>	<b>1,493</b>	<b>-1.2</b>	<b>185.9</b>	<b>0.9</b>

\* FTL = Full Truck Loads, while the term 'Groupage' = a partial load.

(1) Eastern Europe includes Poland, Czech Republic, Slovakia and Hungary. – (2) Weights are based on transported volumes.

Table 2

### Average rail freight rates: total cargo and container cargo (2017)

	Average freight rates for all types of cargo				Container cargo rates			
	Exports (€/tonne)	% change on 2016	Imports (€/tonne)	% change on 2016	Exports (€/tonne)	% change on 2016	Imports (€/tonne)	% change on 2016
Austria – Switzerland	37.6	-2.1	36.3	-0.8	43.2	-6.1	43.5	-5.5
Benelux	48.1	0.3	47.4	1.1	52.9	-0.3	55.3	0.6
Eastern Europe (1)	55.1	-5.3	53.5	-6.3	59.9	-3.3	63.0	-4.6
France	44.5	-0.9	40.9	0.2	49.8	-2.3	50.6	-2.6
Germany	43.6	-0.2	42.0	-0.2	51.0	-1.8	49.7	-2.6
Greece – Turkey	67.6	7.6	62.0	4.9	76.0	10.2	70.6	8.6
Balkans	58.2	-6.5	62.6	-8.0	64.1	-5.7	70.6	-8.4
Baltic countries	93.3	-10.9	86.3	-9.2	101.8	-12.2	93.8	-10.7
Former USSR	98.6	-12.9	97.9	-11.1	99.9	-14.6	104.8	-14.8
United Kingdom - Ireland	54.8	2.6	52.6	2.5	61.0	3.3	60.1	3.7
Scandinavia	61.0	3.5	58.7	2.3	66.1	4.8	67.2	4.9
Spain - Portugal	48.9	0.2	49.6	2.3	53.7	-0.5	59.5	2.6
<b>Weighted average (2)</b>	<b>48.2</b>	<b>-1.6</b>	<b>46.4</b>	<b>-2.1</b>	<b>54.3</b>	<b>-2.4</b>	<b>54.7</b>	<b>-2.9</b>

(1) Eastern Europe includes Poland, Czech Republic, Slovakia and Hungary. – (2) Weights are based on transported volumes.

Table 3

**Average air freight rates (1)**  
(2017)

	Exports		Imports	
	€/tonne	% change on 2016	€/tonne	% change on 2016
Europe	1,780	-5.1	1,780	-5.1
Russia	2,000	0.0	2,000	0.0
Mediterranean and Middle East	1,900	31.5	1,900	31.5
Rest of Africa	1,865	-22.1	1,865	-22.1
India	1,630	34.2	2,905	-12.8
Indonesia - Singapore	1,640	24.2	2,440	-5.8
China	1,315	16.9	2,540	1.2
Japan - Korea	1,805	12.8	2,170	16.7
Oceania	2,955	-1.0	2,955	-1.0
United States and Canada	1,675	13.6	1,695	3.7
Central and South America	2,445	-0.4	2,445	-21.1
<b>Weighted average (1)</b>	<b>1,742</b>	<b>12.7</b>	<b>2,170</b>	<b>-2.7</b>

(1) Weights are based on transported volumes.

Table 4

**Average container sea freight rates**  
(2017)

	Average rates (€/tonne) (including ancillary services)				Rates (\$/TEU) (excluding ancillary services)			
	Exports	% change on 2016	Imports	% change on 2016	Exports	% change on 2016	Imports	% change on 2016
Europe	83.5	13.0	84.6	8.6	371.7	58.0	371.7	59.2
Mediterranean	114.3	0.8	115.4	-1.8	377.4	2.3	377.4	4.9
Rest of Africa	131.7	7.8	133.6	3.3	901.6	16.4	901.6	17.2
Middle East	118.0	12.3	119.4	8.6	589.3	42.4	589.3	44.2
India	124.0	8.8	129.0	16.8	681.6	24.4	727.5	68.8
South-East Asia	110.0	43.1	131.3	20.4	632.6	212.6	888.0	62.6
China and Japan	94.8	30.1	117.0	14.1	421.2	204.2	690.9	51.5
Oceania	162.2	54.9	164.6	49.6	1,315.9	126.8	1,315.9	131.7
USA and Canada	169.9	13.7	157.7	16.5	1,072.7	31.4	890.3	61.4
Central America	137.3	0.6	139.1	-3.6	915.5	-0.4	915.5	0.3
South America	106.7	3.0	108.0	-0.7	516.4	8.1	516.4	9.7
<b>Weighted average (1)</b>	<b>120.7</b>	<b>13.7</b>	<b>118.8</b>	<b>10.5</b>	<b>640.2</b>	<b>43.1</b>	<b>635.9</b>	<b>43.8</b>

(1) Weights are based on transported volumes.

Table 5

**Average rates for liquid and dry bulk sea freight**  
(2017)

Type of merchandise		Average rate for imports			
		€/tonne (including ancillary services)	% change on 2016	\$/tonne (excluding ancillary services)	% change on 2016
<b>Liquid cargo</b>	Petroleum and petroleum products	13.6	9.5	13.3	13.4
	Chemicals	82.6	17.3	85.7	21.1
<b>Dry cargo</b>	Coal/minerals	19.3	13.1	11.3	29.4
	Grain	33.2	16.3	21.7	33.7

Table 6

**Average general cargo sea freight rates**  
(2017)

Type of merchandise	Exports		Imports	
	€/tonne	% change on 2016	€/tonne	% change on 2016
Plant, machinery and transport equipment 1)	225.9	0.0	198.4	-2.3
Chemicals, building material, forestry products	70.8	3.2	77.0	2.1
Tubes, pipes and metal products (2)	69.7	4.7	70.9	2.8

(1) 'Plant, machinery and transport equipment' are Categories 11 (Machinery and equipment) and 12 (Transport equipment) of the NST 2007 classification; – (2) 'Tubes, pipes and metal materials' come under Category 10 (Basic metals; manufactured metal products, excluding machinery and equipment) of the NST 2007 classification.

Table 7

**Average Ro-Ro sea transport rates**  
(2017)

	Average of exports and imports (including ancillary services)	
	€/tonne	% change on 2016
Balkans	22.3	-29.1
France	25.3	1.4
Greece	38.0	-4.9
Northern Europe	234.9	0.0
North Africa (excluding Tunisia)	135.5	-2.5
Rest of Africa	158.6	0.0
Spain	158.6	0.0
Tunisia - Malta	52.9	-0.8
Turkey	63.6	0.3
Other countries	84.8	15.6
<b>Weighted average (1)</b>	<b>122.1</b>	<b>2.1</b>

(1) Weights are based on transported volumes.

Table 8

**Average rates for natural gas transport via pipeline**  
(2017)

Point of entry	Country of origin of natural gas	€/tonne	% change on 2016
Mazara del Vallo	ALGERIA	30.6	-1.2
Gela	LIBYA	31.7	2.0
Passo Gries	NETHERLANDS	29.3	4.0
Passo Gries	NORWAY	72.7	4.0
Tarvisio	RUSSIA	11.5	-20.4
<b>Weighted average (1)</b>		<b>30.9</b>	<b>-5.8</b>

(1) Weights are based on transported volumes.

Table 9

**Market shares of Italian carriers for imports and exports of goods to and from Italy**  
(weighted by transported volumes; percentages)

YEARS	Sea						Road	Air
	Liquid bulk	Dry bulk	Container	General cargo (1)	Ro-Ro	Average (1)		
2002	23.3	8.0	16.0	16.0		17.5	33.0	34.7
2003	27.7	10.3	11.9	24.4		20.6	33.0	24.5
2004	19.4	12.9	5.7	14.6		15.0	36.1	23.6
2005	20.8	8.6	8.9	17.7		15.5	35.2	29.3
2006	19.6	15.5	9.3	16.7		16.5	34.7	30.3
2007	21.5	13.6	7.9	17.9		17.0	32.1	30.2
2008	18.2	12.1	10.6	18.6	25.0	15.8	30.7	26.3
2009	21.2	12.2	5.5	16.7	23.8	16.6	28.6	17.4
2010	18.9	8.8	1.6	10.0	32.2	14.1	27.9	21.5
2011	18.0	12.7	2.8	12.9	27.4	13.9	27.4	20.6
2012	16.6	13.6	3.2	11.6	23.8	13.2	26.4	19.2
2013	13.8	12.2	2.7	10.1	29.7	11.5	25.7	15.7
2014	13.7	12.1	2.5	10.5	39.7	11.6	25.3	16.9
2015	10.7	8.9	2.8	9.7	34.1	9.4	26.8	16.3
2016	10.8	8.7	1.0	11.4	26.7	9.1	22.2	17.3
2017	15.5	8.7	1.8	6.1	30.7	10.9	20.2	17.3

(1) Weights are based on transported volumes.

Table 10

**Market shares by nationality of maritime carriers in 2017**  
(percentages, imports and exports of goods to and from Italy by ship)

Container	Dry bulk	Liquid bulk	General cargo	Ro-Ro					
Germany	25.0	Greece	22.7	Greece	36.0	Turkey	18.4	<b>Italy</b>	<b>30.7</b>
Switzerland	23.9	Turkey	14.3	<b>Italy</b>	<b>15.5</b>	Germany	12.8	Turkey	22.2
Denmark	10.6	<b>Italy</b>	<b>8.7</b>	United Kingdom	6.7	Netherlands	12.4	Greece	21.3
Japan	7.2	Japan	8.2	Denmark	6.2	Switzerland	7.4	Japan	8.0
France	4.9	Denmark	5.9	United States	4.1	Denmark	7.3	Sweden	6.5
China	4.8	United States	4.7	Switzerland	3.8	<b>Italy</b>	<b>6.1</b>	Norway	3.0
Taiwan	4.3	Germany	4.4	Canada	3.3	Greece	3.7	Tunisia	1.9
Ukraine	3.9	Bermuda	3.9	Turkey	3.2	Sweden	3.5	Switzerland	1.4
Arab Emirates	3.8	Hong Kong	3.4	Russia	3.0	Albania	3.0	Croatia	1.3
<b>Italy</b>	<b>1.8</b>	China	2.8	Monaco	2.0	Norway	2.9	Spain	0.6
Romania	1.7	Monaco	2.4	Netherlands	1.8	United Kingdom	2.8	Saudi Arabia	0.6
Turkey	1.2	Switzerland	1.8	Libya	1.4	Bulgaria	2.6	France	0.6
Singapore	1.0	Singapore	1.8	Venezuela	1.3	Russia	2.2	United States	0.5
Netherlands	0.9	Norway	1.3	Romania	1.2	Estonia	2.0	South Korea	0.3
United Kingdom	0.9	Poland	1.0	Norway	1.1	Singapore	1.7	Hong Kong	0.3
Israel	0.8	Canada	0.9	Bermuda	1.0	Marshall Islands	1.5	Ukraine	0.2
Ukraine	0.7	Luxembourg	0.9	Cyprus	0.9	Lebanon	1.5	Monaco	0.2
Sub-total	97.5	Sub-total	89.1	Sub-total	92.2	Sub-total	91.9	Sub-total	99.5
Other countries	2.5	Other countries	10.9	Other countries	7.8	Other countries	8.1	Other countries	0.5
<b>Total</b>	<b>100.0</b>	<b>Total</b>	<b>100.0</b>	<b>Total</b>	<b>100.0</b>	<b>Total</b>	<b>100.0</b>	<b>Total</b>	<b>100.0</b>

Table 11

**Balance on merchandise transport**  
(millions of euros)

	Mode of transport	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Credit</b>	Sea	4,987	3,585	4,641	3,948	4,006	3,887	3,601	4,055	3,912	4,578
	<i>of which: cross-trade</i>	3,426	2,395	3,217	2,587	2,468	2,518	2,132	2,346	2,030	2,705
	Air	348	191	701	296	281	289	299	286	287	354
	Road	2,906	2,260	2,779	2,733	2,502	2,761	2,889	3,034	3,051	2,959
	Rail:	41	32	32	29	29	26	28	30	30	30
	Pipeline	5	5	5	6	6	6	10	11	12	12
	<b>Total</b>	<b>8,287</b>	<b>6,073</b>	<b>8,158</b>	<b>7,011</b>	<b>6,823</b>	<b>6,969</b>	<b>6,828</b>	<b>7,417</b>	<b>7,293</b>	<b>7,933</b>
<b>Debit</b>	Sea	7,407	4,452	6,685	5,836	5,626	5,312	5,276	5,956	5,173	5,819
	Air	642	542	1,103	645	646	808	864	817	753	914
	Road	4,490	3,782	4,776	5,062	4,775	5,131	5,262	5,423	6,061	6,228
	Rail:	333	295	370	334	289	342	378	372	380	406
	Pipeline	593	577	422	542	533	639	574	587	563	555
		<b>Total</b>	<b>13,465</b>	<b>9,648</b>	<b>13,357</b>	<b>12,420</b>	<b>11,868</b>	<b>12,231</b>	<b>12,354</b>	<b>13,154</b>	<b>12,929</b>
<b>Balances</b>	Sea	-2,420	-867	-2,045	-1,889	-1,620	-1,425	-1,676	-1,901	-1,261	-1,241
	Air	-294	-351	-403	-350	-365	-519	-565	-531	-466	-560
	Road	-1,585	-1,522	-1,997	-2,329	-2,273	-2,371	-2,373	-2,388	-3,010	-3,270
	Rail:	-292	-263	-338	-305	-260	-316	-350	-342	-349	-376
	Pipeline	-588	-572	-416	-537	-527	-633	-563	-576	-550	-543
		<b>Total</b>	<b>-5,178</b>	<b>-3,575</b>	<b>-5,199</b>	<b>-5,409</b>	<b>-5,044</b>	<b>-5,263</b>	<b>-5,526</b>	<b>-5,737</b>	<b>-5,636</b>

## Statistical Appendix

Table A.1

### Import and export volumes by mode of transport<sup>1</sup> (millions of tonnes)

Imports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo (1)	Ro-Ro	Container	Bulk			
1999	127.3	55.7	16.7	19.5		9.1	16.8	35.0	0.4	42.9
2000	129.7	60.1	17.8	20.7		9.8	17.6	38.4	0.5	38.6
2001	124.3	61.1	17.1	21.6		9.9	17.6	40.2	0.4	38.0
2002	121.4	59.9	17.0	21.7		9.8	17.0	42.3	0.3	41.5
2003	117.7	62.7	18.2	22.5		10.1	17.2	44.4	0.4	42.4
2004	114.3	69.8	17.8	23.6		10.7	17.9	47.9	0.4	47.4
2005	113.7	66.5	17.3	23.1		10.8	17.9	50.0	0.4	50.7
2006	111.0	65.8	20.0	23.8	5.1	11.6	19.1	53.9	0.4	54.6
2007	114.0	70.3	21.8	25.0	4.9	11.9	19.9	58.4	0.4	51.5
2008	106.7	68.1	20.8	22.7	4.6	11.0	18.6	54.3	0.3	56.3
2009	99.1	48.9	16.9	14.9	4.2	9.3	15.9	47.9	0.3	50.2
2010	106.0	51.0	21.0	20.3	4.2	10.7	19.1	55.7	0.3	48.0
2011	97.8	55.2	20.2	21.3	4.4	10.7	18.9	55.8	0.3	43.7
2012	78.9	51.4	16.6	17.7	3.9	10.1	17.3	52.7	0.3	41.3
2013	81.9	47.3	17.4	18.4	3.3	11.2	18.0	53.5	0.3	40.7
2014	73.9	44.7	18.2	19.4	3.3	11.8	19.0	55.9	0.3	37.1
2015	83.9	50.1	21.1	11.4	4.5	13.7	17.4	56.8	0.3	39.7
2016	86.4	50.1	22.2	11.9	4.5	13.8	18.1	57.8	0.4	39.0
2017	90.1	47.8	22.6	12.0	4.9	14.5	19.2	60.6	0.4	40.5
Exports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo (1)	Ro-Ro	Container	Bulk cargo			
1999	18.7	4.5	19.2	8.6		7.9	5.0	36.9	0.4	2.0
2000	18.1	4.4	20.9	9.7		8.7	5.2	39.5	0.4	0.0
2001	18.2	3.9	20.8	9.6		9.2	5.4	40.3	0.4	0.3
2002	18.0	3.3	21.8	9.7		9.3	5.5	40.7	0.5	1.7
2003	21.0	2.6	20.8	9.1		9.5	5.6	40.8	0.4	5.7
2004	21.3	2.4	22.3	9.8		10.3	5.8	43.5	0.5	3.7
2005	24.7	2.1	23.0	10.3		11.1	6.2	45.9	0.5	5.1
2006	23.0	1.7	24.0	9.4	5.3	12.0	6.9	48.1	0.5	0.3
2007	27.2	2.7	25.3	9.5	5.5	12.7	7.4	54.5	0.7	5.1
2008	25.8	2.9	25.5	9.9	5.4	12.1	7.3	52.6	0.5	5.3
2009	24.2	2.4	21.6	7.0	4.2	9.8	6.1	42.2	0.4	0.2
2010	27.7	2.8	24.7	7.7	4.4	12.4	7.9	52.7	0.5	0.1
2011	23.7	2.5	25.8	7.6	4.1	12.6	7.9	53.6	0.5	0.1
2012	25.8	2.4	27.3	8.5	4.1	12.5	7.8	53.3	0.5	2.1
2013	19.1	4.1	25.1	9.9	3.9	10.2	8.6	55.5	0.5	2.8
2014	18.5	4.2	25.4	10.1	3.8	9.3	8.5	52.2	0.5	0.2
2015	23.2	4.8	26.5	9.0	5.1	10.9	7.2	56.3	0.5	0.1
2016	22.8	4.1	25.7	8.6	5.0	12.2	8.0	62.2	0.5	0.1
2017	24.7	3.6	26.7	8.1	5.0	11.9	8.2	61.6	0.6	0.1

Source: Based on data from Istat, Alps Crossing, Eurostat, and ENAC.

(1) In 2015 there were some breaks in the time series (for General cargo imports and Ro-Ro maritime) because the methodology was updated for estimating the modal distribution of the foreign trade data. Provisional data for 2017.

**Import and export values by mode of transport<sup>1</sup>**  
(billions of euros)

Imports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
1999	18.0	6.6	41.5	19.1		14.6	18.0	67.9	15.8	
2000	31.3	7.4	47.2	23.0		17.3	20.7	82.5	20.1	
2001	28.2	7.6	44.2	22.3		18.5	21.6	91.2	20.0	
2002	25.3	7.0	40.2	20.2		18.5	21.2	94.8	19.8	
2003	24.5	6.6	37.3	19.4		19.1	21.5	100.2	18.6	
2004	25.6	7.6	37.3	21.4		20.9	23.1	111.7	19.7	
2005	33.6	7.7	36.8	21.3		22.1	23.8	120.3	21.2	
2006	39.9	8.0	38.5	22.0	5.9	24.6	26.6	136.3	22.3	
2007	41.6	9.3	44.0	25.4	6.4	26.3	28.7	153.2	20.5	
2008	49.8	11.2	45.2	24.2	6.3	25.1	27.8	147.8	20.3	
2009	31.2	7.9	36.7	14.6	4.9	20.4	22.5	121.8	18.3	
2010	45.7	9.3	49.7	20.0	6.0	24.0	26.6	144.1	20.9	
2011	54.9	11.8	52.6	22.5	6.7	25.1	27.9	152.9	22.8	
2012	53.8	10.7	44.8	18.9	6.1	22.8	25.4	142.3	23.5	
2013	49.3	7.8	43.5	17.7	5.9	29.2	23.8	138.4	22.5	
2014	40.9	7.5	46.5	18.4	6.3	29.5	24.9	140.4	23.4	
2015	30.7	12.5	50.9	11.9	12.6	33.8	22.6	150.3	27.9	15.5
2016	25.5	11.5	51.0	11.3	13.8	34.7	23.9	156.0	26.5	11.7
2017	33.4	13.1	54.4	12.8	14.9	37.0	26.3	167.2	26.6	13.6
Exports	Sea					Rail		Road	Air	Pipeline
	Liquid bulk	Dry bulk	Container	General cargo	Ro-Ro	Container	Bulk			
1999	2.9	1.3	43.7	22.0		19.8	10.5	98.7	17.9	
2000	4.9	1.3	52.5	25.6		23.5	11.9	112.4	22.8	
2001	4.5	1.2	54.1	24.9		25.9	12.6	119.1	24.3	
2002	4.2	1.0	53.0	22.7		26.0	12.4	116.7	24.4	
2003	4.9	0.8	48.6	20.1		27.2	12.6	118.4	23.0	
2004	5.6	0.6	50.8	20.3		30.1	13.7	129.0	24.4	
2005	8.7	0.4	52.6	19.3		32.2	14.5	135.3	26.1	
2006	9.5	0.3	57.4	15.3	11.8	36.6	16.2	145.0	28.6	
2007	11.4	0.5	62.2	18.0	13.2	39.8	17.8	169.6	31.7	
2008	13.8	0.7	65.1	19.7	13.6	38.5	17.9	168.7	30.7	
2009	8.4	0.5	54.7	15.3	10.4	30.0	14.1	131.1	25.9	
2010	13.1	0.6	60.9	16.5	11.5	34.2	16.0	151.0	30.8	
2011	14.5	0.7	66.6	17.4	11.9	37.2	17.6	169.0	35.4	
2012	17.9	0.7	72.2	18.9	11.7	37.0	17.4	171.0	38.0	
2013	13.9	1.4	69.8	18.0	10.3	35.1	21.3	176.3	38.9	
2014	12.2	1.4	72.9	18.4	10.4	36.2	21.7	181.3	39.2	
2015	11.2	1.3	70.1	18.1	18.4	42.6	14.7	193.0	44.3	0.3
2016	9.0	1.2	68.4	17.0	17.2	43.1	15.1	195.9	44.1	0.4
2017	11.8	1.3	73.9	18.1	18.9	45.9	16.2	208.7	49.4	0.4

Source: Based on data from Istat, Alps Crossing, Eurostat, and ENAC.

(1) In 2015 there were some breaks in the time series (for General cargo imports and Ro-Ro maritime) because the methodology was updated for estimating the modal distribution of the foreign trade data. Provisional data for 2017.

Table A.3

**Import and export unit values by mode of transport<sup>1</sup>**  
(euros/tonne)

Imports	Sea					Rail		Road	Air	Pipeline
	Liquid Bulk	Dry Bulk	Container	General cargo	Ro-Ro	Container	Bulk			
1999	142	119	2,488	980		1,609	1,072	1,939	36,929	
2000	241	123	2,649	1,112		1,770	1,175	2,148	42,367	
2001	227	124	2,588	1,035		1,862	1,226	2,269	54,425	
2002	209	116	2,361	933		1,896	1,249	2,242	57,581	
2003	209	105	2,047	864		1,884	1,251	2,255	48,422	
2004	224	109	2,103	909		1,945	1,289	2,335	53,762	
2005	295	116	2,121	922		2,042	1,330	2,404	59,066	
2006	360	122	1,928	924	1,158	2,116	1,388	2,528	59,252	
2007	365	133	2,014	1,016	1,302	2,217	1,440	2,621	53,885	
2008	466	164	2,168	1,064	1,384	2,271	1,492	2,723	60,377	
2009	314	161	2,171	984	1,172	2,196	1,414	2,543	52,471	
2010	431	183	2,364	988	1,430	2,233	1,398	2,588	64,753	
2011	561	214	2,608	1,058	1,514	2,338	1,475	2,740	71,558	
2012	681	208	2,696	1,070	1,565	2,268	1,466	2,702	76,457	
2013	601	165	2,495	960	1,800	2,594	1,321	2,585	82,822	
2014	553	167	2,553	948	1,925	2,498	1,311	2,512	76,832	
2015	366	249	2,412	1,042	2,797	2,474	1,299	2,646	81,779	391
2016	296	230	2,294	950	3,074	2,510	1,320	2,698	70,227	300
2017	371	275	2,400	1,067	3,049	2,548	1,369	2,762	63,066	335
Exports	Sea					Rail		Road	Air	Pipeline
	Liquid Bulk	Dry Bulk	Container	General cargo	Ro-Ro	Container	Bulk			
1999	157	277	2,279	2,545		2,511	2,116	2,677	40,282	
2000	271	287	2,515	2,637		2,717	2,278	2,845	51,982	
2001	249	300	2,594	2,610		2,808	2,340	2,951	54,715	
2002	233	299	2,436	2,336		2,800	2,251	2,868	53,508	
2003	235	291	2,337	2,213		2,863	2,267	2,902	51,256	
2004	263	261	2,275	2,060		2,920	2,339	2,963	51,160	
2005	352	211	2,288	1,868		2,913	2,334	2,950	55,925	
2006	413	157	2,398	1,629	2,237	3,047	2,334	3,015	59,448	
2007	418	186	2,460	1,889	2,393	3,127	2,386	3,114	46,395	
2008	534	221	2,551	1,997	2,519	3,179	2,460	3,209	61,747	
2009	345	217	2,529	2,172	2,455	3,067	2,314	3,105	63,753	
2010	473	212	2,464	2,145	2,606	2,750	2,029	2,865	67,666	
2011	611	270	2,578	2,299	2,907	2,944	2,218	3,155	71,263	
2012	692	300	2,641	2,224	2,854	2,951	2,230	3,209	78,245	
2013	727	349	2,775	1,819	2,617	3,440	2,465	3,175	82,338	
2014	662	343	2,866	1,822	2,767	3,897	2,568	3,472	82,010	
2015	481	281	2,648	2,009	3,612	3,894	2,027	3,426	85,621	2,030
2016	396	304	2,663	1,971	3,433	3,528	1,882	3,151	81,710	3,122
2017	480	358	2,762	2,230	3,815	3,868	1,967	3,389	80,579	3,400

Source: Based on data from Istat, Alps Crossing, Eurostat, and ENAC.

(1) In 2015 there were some breaks in the time series (for general cargo imports and Ro-Ro maritime) because the methodology was updated for estimating the modal distribution of the foreign trade data. Provisional data for 2017.

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