KMI International Journal of Maritime Affairs and Fisheries • Volume 3 Issue 1 June 2011 pp.001-032 •

The EU-27 Logistics Industry: Structure and Trends of Major Subsectors and National Markets

Giovanni Satta*, Francesco Parola** and Sung-woo Lee***

ABSTRACT

Europe's transport and logistics systems need to be optimized, improved and leveraged through cutting-edge logistics solutions. In other words, there is a recognized growing need for a holistic European approach to transport and logistics questions, focusing on integration and coordination between the different dimensions of transport policy.

This paper is willing to investigate the nature and the structure of the EU logistics industry. The study has been carried out analysing the last available confirmed data extracted from a wide selection of statistical sources.

Starting from the relevance of the EU logistics industry within the non-financial business economy, our main objective is to evaluate the structure and the trends characterising the major subsectors across various nations. Variables such as turnover, value added and employment will be discussed and compared following a cross-country approach.

The originality of the manuscript is to provide a comprehensive view of the industry, also facing methodological difficulties in managing data lacks and non-homogeneous statistical classifications.

Major outcomes reveal the market fragmentation within some subsectors, the progressive shifting towards East of the transport and logistics industry, as well as the vertical integration and internationalization strategies performed by some leading players.

Key words: EU logistics, transport sectors, vertical integration, market liberalization

* University of Genova, Faculty of Economics, Department of Business Studies and Italian Centre of Excellence for Integrated Logistics, Via Vivaldi 5, 16126 Genova (Italy). E-mail: giovanni.satta@cieli.unige.it, Tel. : +39-10-209-5074

** corresponding author, University of Naples "Parthenope", Department of Business Studies, Via Medina 40, 80133 Napoli (Italy). E-mail: francesco.parola@uniparthenope.it, Tel. : +39-81-547-4845

*** Korea Maritime Institute, International Logistics Department, Sangam Dong 1652, Mapo-Gu, Seoul (R.O.Korea). E-mail: waterfront@kmi.re.kr, Tel. : +82-2-2105-2830

1. Background: the logistics industry in Europe

Logistics, as widely recognized, is not only one of the main drivers and key pillars of European competitiveness, paving the way for added industrial value, the movement of goods and cooperation among companies, but also a prime contributor to the Lisbon agenda on growth and jobs (EC, 2007). Its relevance for European Economy is primarily related to the share of the logistics industry in the European economy (estimated at close to 14% of GDP), and its growth rates have been above average of the overall economy over the recent years.

The current interest for logistics also derives from other factors. First, researchers, policy makers and the private sector agreed that production and distribution networks depend on efficient logistics chains to ensure the transport of raw materials and finished goods across the EU and beyond. In this context, transportation and logistics activities become strategic business functions, not only because related costs account for a wide share of the costs of goods sold[1], but also because logistics and transportation performance can strongly effect customer service levels (Gurav, 2004). Therefore, external logistics, including the organization and management of goods handling, warehousing and transport activities, becomes the backbone of companies' capability to compete on the final markets.

Secondly, transport and logistics services, using public resources such as environment goods, may deeply effect on environmental and territorial systems (Boscacci and Pesaro, 2002). They not only play a key role in ensuring sustainable mobility, but also "contributes to meeting other objective, like a cleaner environment, security of energy supply, etc.", as pointed out by the Commission of the European Communities (see EU COM no 336/2006)). So, with the progressive EU enlargement, freight transportation has become a hot political issue in Europe: in fact the growth of flows transported has caused congestion, pollution, noise and other environmental problem[2].

Finally, the ongoing enlargement of the EU has determined a more than proportional growth of bi-directional flows within and across the EU region, presenting the European Logistics Industry with relevant business opportunities and challenges. In particular, the outsourcing and relocation of business operations to relatively lower cost markets, the growth in trade with the countries of Central and Eastern Europe and the increase of freight traffic and congestion, stimulate logistics services providers operations

1 According to EC estimates, on average logistics costs, comprising transportation and warehousing, account for 10-15% of the final cost of the finished product.

2 In particular, as highlighted by the European Commission and many authors, the transport sector imposes costs on society. *"Road congestion alone is estimated to cost around 1.1% of GDP per year. Greenhouse gas emissions from transport increased by 28% over the period 1990-2006. Moreover, many Europeans are exposed to transport noise levels that affect their health and quality of life. Finally safety also constitutes an important concern since mobility primarily depends on people's trust in the safety of transport systems."* (Spachmueller and Tiede, 2010).

provoking an high rise in the demand of specialized and integrated logistics services which require the creation of European intermodal transport systems.

According to previous consideration, Europe's transport and logistics systems need to be optimized, improved and leveraged through cutting-edge logistics solutions. In other words, there is a recognized growing need for a holistic European approach to transport and logistics questions, focusing on integration and coordination between the different dimensions of transport policy. This approach underlines the logistics' role in ensuring the efficiency of individual modes of transport and their combination (inter-modality, co-modality, multi-modality, etc.). (COM(2006) 336). From this point of view, this paper is willing to introduce a "logistics perspective into transport policy"(EU COM no 336/2006).

As largely recognized, the European Union has been operating in a changing competitive mode for several years. In fact, progressively, "the efficiencies promised by the creation of the Single Market in 1993 are synchronizing the economies of the member nations and allowing true pan-European distribution to develop along the U.S. model" (Foster, 1999). However, even if the vexing border controls are gone, substantial differences remains among the various European countries in terms of market structure, competitive approaches and cultural identities, making the EU sector, a really complicated market to operate in.

Various authors (Christopher, 1998; Skjoett-Larsen, 2000; Zografos and Regan, 2004; Rodrigue and Notteboom, 2010) recognized the need of an integrated approach to logistics. Nevertheless, at the EU-level, a lack of an empirical and homogeneous analysis on the overall logistics market is still perceived by academics (McKinnon, 1998; Hesse and Rodrigue, 2004) and practitioners (European Logistics Consultants, 1996).

This paper, presenting the last available confirmed data from a wide selection of statistical sources, gives a general picture of the structure, development and characteristics of the European transport and logistics services business, trying to identify main trends and internal dynamics. Therefore, the main objective of this document is to value the status and importance of transport and logistics industry in Europe, considering:

- the relative importance of transport and logistics industry in comparison with other industries (in terms of number of enterprises, turnover, value added, employment, etc.);
- the structure, position and characteristics of various activities and markets which compose transport and logistics industry;
- the structural profile of the logistics sector in some major EU Member States.

The manuscript is structured as follows. Section 2 describes the major data sources and brings some methodological notes regarding statistical classification. Section 3 discusses the relevance of the logistics industry within the non-financial business economy, also splitting the logistics industry into "transport & storage" (i) and "post & courier activities"

(ii) aggregates. Section 4 and 5 analyse the “transport & storage” and “post & courier activities” aggregates in terms of turnover, value added, number of enterprises and number of persons employed. Finally, some conclusions with implication for Asia logistics market are addressed in Section 6.

2. Methodological notes: Data sources, NACE classification and selection criteria

Data and information in this paper predominantly come from Eurostat, the Statistical Office of the European Community. In particular, our major sources are: Structural Business Statistics (SBS), annual structural business statistics where all data are split by activity, according to NACE Classification; STS (Short-Term Statistics), including short-term indicators, useful for evaluating the recent economic developments; Eurostat publications (Eurostat, 2009a, 2009b, 2009c), consisting of several collections such as “News releases”, “Statistical book”, Pocketbooks”, “Statistics in focus”, “Data in focus” and “Methodologies and working papers”.

The statistical methodology used by Eurostat known as NACE[3] is the “statistical classification of economic activities in the European Community”. It is subjected to European legislation, which imposes the use of the classification uniformly within all the Member States, and provides a unique framework for gathering collection and presenting statistical data in various economic domains.

Following the methodology largely applied by various Eurostat sources, the non-financial business economy (NACE, Rev. 1.1 Sections C to I and K) can be split as follows: industry (NACE Sections Rev. 1.1 C to E); construction (NACE Rev. 1.1 Section F), and non-financial services (NACE Rev. 1.1 Sections G to I and K)[4] . With specific regard to the Logistics Industry, it is difficult to have a reliable picture of Europe’s market, because relevant statistical information is currently not sufficient and sometime misleading.

3 NACE classification is characterized by a hierarchical structure, characterized by fourth descending levels: sections (identified by an alphabetical code); divisions (two–digit numerical code); groups (three–digit numerical code) and finally classes (four–digit numerical code). NACE classification has been progressively reviewed since its original version. In 2002, NACE Rev. 1.1, an update of previous NACE Rev. 1, was established; it introduced a few additional items and changes to some titles. In 2008 NACE Rev. 1.1 was updated by NACE Rev.2, which, according to article 8 of the NACE Regulation, is to be used, for statistics referring to economic activities performed from January 2008 onwards.

4 Note that “Agriculture, hunting and forestry” (NACE Section A) and “Fishing” (NACE Section B) are not included in the non-financial business economy. Moreover, financial services (NACE Rev. 1.1 Section J) are also kept separate because of their specific nature and the limited availability of most standard business statistics in this area.

In fact, according to NACE Rev. 1.1, Transport and Logistics activities are gathered together with communication activities in section I "Transport, storage and communication" (see Table 1). Therefore, some limitations emerge in this approach, as it includes telecommunications activities within the overall logistics industry. In order to overcome such problem, the new NACE Classification (Rev. 2, since 2008; see Annex I) has modified the composition of this aggregate, including within the overall structure the "Transportation and storage" Section (i.e. H), composed as follows: land transport, transport via pipelines, water transport, air transport, warehousing and support activities for transport, postal and courier activities.

Table 1. Detailed structure of Section I – Transport, Storage and Communication (NACE Rev. 1.1)

Division	Group	Section I - TRANSPORT, STORAGE AND COMMUNICATION
60		Land transport; transport via pipelines
	60.1	Transport via railways
	60.2	Other land transport
	60.3	Transport via pipelines
61		Water transport
	61.1	Sea and coastal water transport
	61.2	Inland water transport
62		Air transport
	62.1	Scheduled air transport
	62.2	Non-scheduled air transport
	62.3	Space transport
63		Supporting and auxiliary transport activities; activities of travel agencies
	63.1	Cargo handling and storage
	63.2	Other supporting transport activities
	63.3	Activities of travel agencies and tour operators; tourist assistance activities n.e.c.
	63.4	Activities of other transport agencies
64		Post and telecommunications
	64.1	Post and courier activities
	64.2	Telecommunications

Following the above considerations, in order to appreciate the real importance and composition of the logistics industry as a whole, in this study we performed a simplified re-classification of the logistics sector. Therefore, Table 2 shows the specific segments composing the entire logistics sector for the purposes of this paper. The "Logistics industry" (as labelled in this study) has been classified into two categories: "Transport and storage" and "Post and courier activities". The importance of such methodological choice is related

to the necessity of including in our sample, leading logistics players such as Deutsche Post, TNT and other parcel express and postal operators. The exclusion of "Post and courier activities", in fact, would have clearly poor statistical relevance of our survey.

Table 2. The "Logistics industry" as defined in this work after the re-classification

LOGISTICS INDUSTRY	Nace Rev. 1.1 Classification
Transport and storage	**I**
Transport via railways	I.60.1
Road Transport	I.60.2
Transport via pipelines	I.60.3
Water transport	I.61
Air transport	I.62
Warehousing and transport support activities	I.63.1
	I.63.2
	I.63.4
Activities of travel agenzie	I.63.3
Post and courier activities	**I.64.1**

3. The relevance of the EU Logistics Industry in the non-financial business economy

Transport and logistics covers various industries which includes a wide range of service providers, covering all modes of transport, as well as related services, such as warehousing, handling, stevedoring, and value added services (packaging, labelling, assembling, etc.). Besides, it comprises a huge kind of planning, organisational and management services.

Over the past years, a trend of consolidation in European Logistics industry is observed, resulting in larger, integrated firms` groups operating in the sector[5]; nevertheless, historically, this industry has always been significantly fragmented and competition has been truly intensive, as is evident in the low concentration rate of third-party logistics in Europe[6]. The increased outsourcing demand has been progressively determining a process

5 Many companies and operators, in fact, are trying to manage logistics "on a Pan-European or regional basis, rather than country by country" (Gooley, 1999). The aim is to achieve significant cost savings in "transportation, inventory, real estate, taxes, personnel, capital equipment, and more".

6 In fact, according to Ojala *et al*. (2008), the top 20 companies of third-party logistics in Europe only have a market share of 33%.

of supply concentration: few larger logistics operators are trying to achieve scale and scope economies, following qualitative and quantitative patterns of growth. They often decide to externalize the simple physical execution of some non-strategic activities to other small firms, focusing on strategic functions.

Nevertheless, in the EU, there were over 1.2 million firms (2007) operating in the Logistics industry, representing almost 5.8% of the non-financial business economy (see Table 3).

Table 3. Number of enterprises in the "Logistics industry", percentage of total EU Logistics enterprises and share of the "Logistics industry" on the non-financial business economy– EU-27, period 2004-2007.

	2004			2005			2006			2007		
	Number	%	Share	Number	%	Share	Number	%	Share	Number	%	Share
EU-27	**1,170,805**	**100.00%**	**6.20%**	**1,144,283**	**100.00%**	**5.80%**	**1,174,353**	**100.00%**	**5.80%**	**1,213,453**	**100.00%**	**5.80%**
Italy	155,453	13.28%	4.20%	156,144	13.65%	4.10%	153,182	13.04%	4.00%	149,830	12.35%	3.80%
France	96,602	8.25%	4.30%	95,496	8.35%	4.20%	94,509	8.05%	4.10%	97,738	8.05%	3.80%
Germany	90,532	7.73%	5.30%	91,783	8.02%	5.50%	93,961	8.00%	5.30%	96,588	7.96%	5.40%
UK	74,686	6.38%	4.90%	76,835	6.71%	4.80%	76,920	6.55%	4.70%	77,265	6.37%	4.60%
Spain	224,543	19.18%	9.10%	229,384	20.05%	9.00%	228,274	19.44%	8.70%	233,455	19.24%	8.60%
Top 5	641,816	54.82%	-	649,642	56.77%	-	646,846	55.08%	-	654,876	53.97%	-

Spain clearly demonstrates to be the country with the highest number of firms operating in this sector, showing a high degree of regional specialisation. Spanish enterprises operating in the Logistics business represent over 8.0% of the firms acting in the non-financial business economy. This is also ascribable to the relevant EU firms incentives received by Spain in recent years. Italy ranks second with around 150,000 enterprises, but they represent only 3.8% of the total. Thus, the Italian market appears significantly fragmented and characterized by a high number of small enterprises. France, Germany and UK show a much lower number of enterprises, holding a share on the non-financial business economy generally lower than EU average. Particularly in France the share of Logistics firms on the total is fairly low (3.8%).

Looking at turnover, in 2007 the Logistics Industry has generated over EUR 1,400 billion of revenue (6.1% of non-financial business total revenue). These figures show the relevance of this sector within the EU economy but they do not take into account all the in-house logistics performed by companies (i.e. without the establishment of an ad-hoc legal entity), as these activities escape the current EU data collection systems. In fact, although some enterprises that formerly maintained their own in-house shipping and receiving operation are farming out these tasks to third-party specialists, many others continue to not outsource such activities.

In all the sampled countries the share of the logistics industry ranges from 5.50% to 6.50% (see Table 4), in close correlation with the EU-27 average (6.00%).

Table 4. Turnover generated by "Logistics industry" (EUR million), percentage of total EU Logistics turnover and share of the "Logistics industry" on the non-financial business economy – EU-27, period 2004-2007.

	2004			2005			2006			2007		
	EUR million	%	Share	EUR million	%	Share	EUR million	%	Share	EUR million	%	Share
EU-27	**1,150,379**	**100.00%**	**6.10%**	**1,218,414**	**100.00%**	**5.90%**	**1,300,528**	**100.00%**	**5.80%**	**1,429,577**	**100.00%**	**6.00%**
Italy	130,090	11.31%	5.40%	137,790	11.31%	5.40%	147,432	11.34%	5.30%	155,367	10.87%	5.40%
France	164,114	14.27%	5.70%	173,062	14.20%	5.70%	179,883	13.83%	5.60%	186,860	13.07%	5.50%
Germany	189,902	16.51%	5.00%	205,577	16.87%	5.20%	222,502	17.11%	5.10%	241,980	16.93%	5.50%
UK	214,784	18.67%	6.80%	225,169	18.48%	6.70%	234,436	18.03%	6.60%	245,378	17.16%	6.50%
Spain	93,274	8.11%	5.40%	101,833	8.36%	5.40%	112,902	8.68%	5.50%	121,506	8.50%	5.60%
Top 5	792,164	68.86%	-	843,431	69.22%	-	897,155	68.98%	-	951,091	66.53%	-

In the same year (2007), the five leading countries as a whole have generated about 66% of the European Logistics Industry. This represents a really high share, but significantly lower than previous years (Table 4). Empirical evidence show how the EU enlargement towards East produced positive effects for all the major European countries, which in 2004 and 2005 experienced a growth above the EU average. Afterwards the leading countries showed differentiated dynamics of growth. In particular, UK and Germany are at the top of the ranking in the EU, generating a turnover of over EUR 240 billion. These countries are followed by France, Italy and Spain showing much lower figures. The UK leadership is challenged by Germany which, over the last 4 years, showed the best growth rates within the advanced economies (turnover yearly growth above 8%; see Annex II).

In 2007, the Logistics Industry has generated over EUR 490 billion of value added, equivalent to 8.3% of total value added generated in the non-financial business economy (see Table 5). Such figures clearly reveal the relevance of transport and logistics industry in generating wealth and richness across EU. The five leading countries produce about three quarters of total value added. UK and Germany appear as dominant countries in this field, with a value added at factor cost close to EUR 90 billion (2007). As for turnover figures, France (74 billion) ranks third, followed by Italy (54) and Spain (44). The weight of the Logistics industry on the non-financial business economy (see Table 5) ranges from 7.6% (Germany) to 8.8% (France), value not far from the EU-27 average (8.3%).

Table 5. Value added at factor cost (EUR million) generated by the "Logistics industry", percentage of total EU Logistics and share of the "Logistics industry" on the non-financial business economy – EU-27, period 2004-2007.

	2004			2005			2006			2007		
	EUR million	%	Share	EUR million	%	Share	EUR million	%	Share	EUR million	%	Share
EU-27	**421,553**	**100.00%**	**8.30%**	**440,717**	**100.00%**	**8.50%**	**462,852**	**100.00%**	**8.10%**	**490,330**	**100.00%**	**8.30%**
Italy	48,275	11.45%	8.50%	48,582	11.02%	8.20%	52,962	11.44%	8.40%	54,538	11.12%	8.10%
France	66,755	15.84%	9.30%	69,253	15.71%	9.10%	71,555	15.46%	9.00%	74,246	15.14%	8.80%
Germany	79,608	18.88%	7.50%	79,640	18.07%	7.40%	82,717	17.87%	7.20%	88,891	18.13%	7.60%
UK	76,149	18.06%	7.90%	80,336	18.23%	7.90%	85,179	18.40%	7.90%	89,943	18.34%	7.80%
Spain	35,802	8.49%	7.80%	37,031	8.40%	7.50%	40,877	8.83%	7.60%	44,066	8.99%	7.70%
Top 5	306,589	72.73%	-	314,842	71.44%	-	333,290	72.01%	-	351,684	71.72%	-

Finally, by analyzing the number of persons employed in the EU, the Logistics industry generates almost 11 million job places (see Table 6), approximately equivalent to 8.2% of persons employed in the non-financial business economy. Germany is the leading country (1.8 million), followed by France (1.5), UK, Italy and Spain. These figures, correlated with those related to the number of enterprises, confirms the fragmentation of the economic background in Italy and Spain, with many small and medium firms operating in this sector. The relevance of the Logistics industry on the non-financial business economy is generally higher than that recorded for the previous variables. Particularly, in France the Logistics industry generated almost 10% of the overall job places (see Table 6).

Table 6. Persons employed in the "Logistics industry", percentage of total EU Logistics persons employed and share of the "Logistics industry" on the non-financial business – EU-27, period 2004-2007.

	2004			2005			2006			2007		
	Units	%	Share	Units	%	Share	Units	%	Share	Units	%	Share
EU-27	**10,541,800**	**100.00%**	**8.50%**	**10,607,300**	**100.00%**	**8.40%**	**10,668,200**	**100.00%**	**8.20%**	**10,960,300**	**100.00%**	**8.20%**
Italy	1,098,266	10.42%	7.50%	1,117,561	10.54%	7.50%	1,132,752	10.62%	7.50%	1,150,077	10.49%	7.40%
France	1,413,258	13.41%	9.90%	1,398,988	13.19%	9.70%	1,404,722	13.17%	9.60%	1,489,228	13.59%	9.90%
Germany	1,638,935	15.55%	7.90%	1,688,746	15.92%	8.20%	1,762,526	16.52%	8.20%	1,817,991	16.59%	8.20%
UK	1,392,491	13.21%	7.70%	1,409,476	13.29%	7.80%	1,357,550	12.73%	7.70%	1,383,313	12.62%	7.60%
Spain	924,911	8.77%	7.20%	965,254	9.10%	7.20%	992,046	9.30%	7.10%	1,035,511	9.45%	7.30%
Top 5	6,467,861	61.35%	-	6,580,025	62.03%	-	6,649,596	62.33%	-	6,876,120	62.74%	-

By analysing the aggregate "Logistics industry" we have to go into more details in relation to the components "Transport and storage" and "Post and courier activities". Basically, the "Transport and storage" aggregate is much wider than the "Post and courier activity" one. In fact, it is composed by many items such as: "Land transport" (i.e. transport

via railways, road transport, transport via pipelines, etc.), "Water transport", "Air transport" and "Supporting and auxiliary activities". The above gap already emerges looking at the number of enterprises. Over 1.1 million of firms operate in the "Transport and storage" sector, while "only" 40,000 are those working in the other aggregate (see Table 7).

Table 7. Logistics Industry's key figures: Transport and Storage and Post and courier activities

	Number of enterprises				Turnover (EUR million)				N. of persons employed (thousands)			
	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007
Logistics I.	**1,170,805**	**1,144,283**	**1,174,353**	**1,213,453**	**1,150,379**	**1,218,414**	**1,300,528**	**1,429,577**	**10,541**	**10,607**	**10,668**	**10,960**
Transp. & stor.	1,130,805	1,104,283	1,134,353	1,169,053	1,052,254	1,117,436	1,199,200	1,325,654	8,670	8,725	8,726	9,193
P&C	40,000	40,000	40,000	44,400	98,125	100,978	101,328	103,923	1,871	1,882	1,942	1,767
	%				%				%			
Logistics I.	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Transp. & stor.	96.58%	96.50%	96.59%	96.34%	91.47%	91.71%	92.21%	92.73%	82.25%	82.26%	81.80%	83.88%
P&C	3.42%	3.50%	3.41%	3.66%	8.53%	8.29%	7.79%	7.27%	17.75%	17.74%	18.20%	16.12%

Similar differences emerge analyzing the turnover figures. "Transport and storage" produces a turnover of over EUR 1,300 billion while "Post and courier activities" of only EUR 103 billion.

Finally, looking at the number of persons employed, the "Post and courier activity" group shows to be more labour-intensive than some of the Divisions/Groups composing the "Transport and storage" aggregate. In fact, in 2006, it generates almost 2 million work places, which are much higher figures than those reported (in 2007) by "Transport via railways", "Water transport" and "Air transport" (see Table 7).

The following sections focus on the analysis of "Transport and storage" (Section 4) and "Post and courier activities" (Section 5) aggregates.

4. Transport and storage: competition and integration across various subsectors

The Transport and storage aggregate is a relevant industry in the EU-27, making a vital contribution to the functioning of the European (non-financial) economy as a whole. In 2007, there were quite 1.17 million enterprises in this sector, which employed around 9.2 million people. This represents almost 7% of those working in the non-financial business economy. In the same year this industry generated EUR 433.38 billion of value added at factor cost, with a EUR 1,304.36 billion turnover. The main structural characteristics of this aggregate are shown in Table 8.

Table 8. Transport and storage (NACE Divisions 60, 61, 62 and 63) - Structural Profile, EU-27, 2007

	Enterprises		Turnover		Value Added		Persons Employed	
	(thousand)	% of total	(EUR million)	% of total	(EUR million)	% of total	(thousand)	% of total
Transport and storage	**1,169.53**	**100.0%**	**1,304,362**	**100.0%**	**433,379**	**100.0%**	**9,193.4**	**100.0%**
Transport via railways	0.89	0.1%	73,692	5.6%	33,572	7.7%	806.1	8.8%
Road and other land transport	945.23	80.8%	399,754	30.6%	161,851	37.3%	4,944.4	53.8%
Transport via pipelines	0.16	0.0%	12,310	0.9%	6,001	1.4%	21.9	0.2%
Water Transport	20.00	1.7%	111,429	8.5%	26,332	6.1%	226.4	2.5%
Air Transport	3.77	0.3%	128,469	9.8%	31,263	7.2%	408.4	4.4%
Warehousing & transp. support activ.	112.08	9.6%	418,708	32.1%	152,360	35.2%	2,286.2	24.9%
Activities of travel agency	87.39	7.5%	160,000	12.3%	22,000	5.1%	500.0	5.4%

Source: our elaborations from SBS Eurostat database

In respect to 2006, the number of enterprises in the industry as a whole had a 2.88% growth, the turnover increased 7.84%, value added 8.27% and persons employed 3.91%.

By far the largest subsector in terms of "number of enterprises" was road and other land transport which contributed 80.8% of transport services enterprises in 2007. The two next largest subsectors were warehousing and transport support activities with more than 112,000 enterprises and activities of travel agency with quite 88,000 enterprises. The number of firms operating in water transport business reached 20,000 units, while the other three activities (transport via railways, transport via pipelines and air transport) represent only 2% of the whole industry. For transport via railways and air transport it is possible to observe that they represent truly concentrated sector, characterized by a few number of large enterprises.

In 2007, warehousing and transport support activities generated around 418 EUR billion of turnover (about one third of the whole industry turnover) obtaining the first positions, and around 152 EUR billion of value added (35.2% of the total). Road and other land transport represents the leading subsector in terms of value added (around 162 EUR billion) and the second referring to turnover (around 400 EUR billion).

In employment terms the dominance of road and other land transport subsector was noticeable. This subsector, indeed, occupied more than one half of the EU-27's transport services workforce. Road and other land transport, transport via railways and activities of travel agencies were the only subsectors whose contribution to transport services was greater in employment than in value added terms. Warehousing and transport support activities occupied more than 2.2 million of persons (about 25% of the total).

Transport via railways subsector, although characterized by a low number of enterprises (0.1% of the total), generated 5.6% of the turnover and 7.7% of the value added. It's also interesting to observe that this subsector, which in 2007 employed around 800,000

persons (8.8% of the EU-27's transport services workforce) experimented in that year a strong reduction in the number of employees (an almost 10% decrease respect to 2006).

The development of the EU-27 transport performance, in the last years, followed economic trends, as a consequence of the more relevant influences on transport and services market. In fact, as known, business cycles determine short-term cycles in trade, and regional development determines mid and long-term trends in trade; at the same time, trade influences the demand for transport and storage services. Between 1995 and 2006, goods transport performance, measured in tonne-kilometres, grew at 2.8% per annum, with an average yearly rate higher than the gross domestic product (GDP, measured at constant 1995 prices). Changes in the structure and location of manufacturing industries in production methods and distribution channels, determined by the demand for Just-In-Time (JIT) shipments, are all factors that have contributed to the overall development in goods transport performance.

Various transport modes were able to catch the evolving market opportunities in a very different way. As such, within the EU transport and logistics industry, a profound modal unbalance in favour of road emerged. Since 1990s, European policy makers have tried to settle the question and reach a modal shift, by the means of extensive subsidy and supporting programs. Nevertheless, until 2006, "the modal split trends remained almost unchanged" (Notteboom, 2008), and only in the last years, a clear interest in intermodal initiatives and modal shift came out directly from the market side.

4.1 Transport via railways: market liberalization and emerging opportunities

In order to understand the actual structural profile of the rail transport sector we have to keep in mind the considerable legislative efforts to open up and revitalize this market. The EU liberalization process started in 1991 and over the last twenty years radically changed the overall picture. Since the beginning of 2007 both national and international rail freight networks had been opened, and from January 2010 also international passenger transport has been opened to competition.

Major aims of such legislative intervention were to improve the competitiveness of rail in respect to road transport, through the increase of the commercial speed and a higher service reliability, and to encourage competition for the market. Such a process was in practice a compulsory choice, considering the long-run decline of rail transport in EU's transport system (Oxford Analytica, 2010). In fact, as pointed out by the European Commission, rail freight transport has suffered "from a lack of reliability and efficiency, caused, inter alia, by insufficient technical and administrative interoperability, and by the priority given to passenger trains on lines with mixed traffic" (COM(2006) 336).

As a result, in 2007 there were 890 rail enterprises in EU. Unsurprisingly Germany hosts almost 33% of the railway undertakings (290 enterprises), followed by Poland (104),

UK (100), Romania (88) and Italy (36). This is clearly the results of the liberalization process across the EU. About 70% of the railways operator is concentrated in the top five Member States.

Historically, the European market appears strongly fragmented, due to the presence of entry barriers related to interoperability problems (rail span, railway signaling, electrification system, etc.), sunk costs, monopolistic rentals, etc. Nevertheless, with specific regards to freight sector, new rules for liberalization, harmonization, standardization and utilization of infrastructure intensified the trend towards the development of a pan European rail services on a one-stop shop basis (Notteboom, 2008) and the internationalization of rail enterprises (Spachmueller and Tiede, 2010). In fact, an interesting number of rail operators are now venturing into other countries' rail markets, aiming to exploit and leverage their own national competitive advantages (e.g. Veolia, Trenitalia, etc.).

The new generation of rail operators, acting in a more commercial way, had permitted the railway sector to reach a higher competitiveness in respect to other transport modes and a more satisfactory profitability. Even if some national rail operators continue to face profitability issues, value added in the EU-27's rail transport sector reached EUR 33.6 billion in 2007, equivalent to 7.7% of the total transport services (NACE Divisions 60 to 63). It is worth mentioning how the rail's value added share slightly declined in respect to 2005 (8.4%). As shown in Table 9, the generated value added is fairly concentrated in a handful of countries. In fact, in 2007, the top five Member States (Germany, The United Kingdom, Italy, Poland and Spain), represented almost 50% of the total. In particular, Germany holds a 17% share. The United Kingdom and Italy represent almost 10% each. Full and complete data analysis on all European countries had permitted to observe that some transition countries such as Czech Republic, Hungary and Poland have strong rail networks, which shall favor the development of multi-modal transport infrastructure in Western Europe, as these nations are located along the major corridors within the European market (Bialas-Motyl, 2010).

Table 9. Transport via railways: Ranking of Top five Member States, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR Million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	Germany	290	32.7%	Germany	16,474	22.4%	Germany	5,666	16.9%	Poland	120,382	14.9%
2	Poland	104	11.7%	UK	10,237	13.9%	UK	3,868	11.5%	Germany	79,358	9.8%
3	UK	100	11.3%	Italy	6,323	8.6%	Italy	3,241	9.7%	Italy	64,115	8.0%
4	Romania	88	9.9%	Poland	4,041	5.5%	Poland	1,968	5.9%	UK	55,746	6.9%
5	Italy	36	4.1%	Austria	2,533	3.4%	Spain	1,420	4.2%	Hungary	43,073	5.3%
	Top Five	618	69.7%	Top Five	39,608	53.7%	Top Five	16,163	48.1%	Top Five	362,674	45.0%

Source: our elaborations from SBS Eurostat
Note: data on the French rail industry are not available

The total EU-27's rail transport turnover amounted to EUR 73.7 billion (2007), with an almost 10% increase in respect to 2006. Germany is again the leading country, accounting for EUR 16.5 billion (22.4% of the total), followed by UK (13.9%), Italy (8.6%), Poland (5.5%) and Austria (3.4%). As such, the five leading nations generated over 53% of the European rail transport's turnover.

Finally, looking at the persons employed in the railways sector, it is possible to observe the leadership of Poland, with almost 120,500 employees, which represent roughly 15% of the total. Germany, Italy and UK reported significantly lower figures in 2007, due to the recent progressive downsizing process of former monopolistic operators.

4.2 Road and other land transport: managing market fragmentation and achieving economies of scale

The aggregate "Road and other land transport" covers road freight transport, urban and suburban passenger transport by bus, coach, tram, trolleybus, underground or elevated railway, inter-city land passenger transport (other than railways), as well as taxi operations and charters. Road transport has been one of the main areas of growth in the transport services sector as it benefited from increased demand for mobility and flexibility from private individuals and enterprises alike.

The road transport market structure is deeply affected by the political and environmental changes (i.e. the legislative framework) and the competitive relationships within the sector.

From a regulation viewpoint this sector was quite active at the EU level over the last few years (Lehmkuhl, 2002). In particular, in May 2007 the European Commission adopted three proposals (COM(2007) 263 to 265) aiming at modernising the rules governing road transport operators and the access to the road transport market. The proposals aim to reduce distortions of competition and improve transport operators' compliance with the provisions of social legislation and road safety rules. Moreover, in July 2008, the European Commission adopted a proposal (COM(2008) 436) to reform the legislation on road charges for heavy goods vehicles. The proposal is intended to enable Member States to reduce environmental damage and congestion through more efficient and environmentally-targeted road tolls for lorries. A Regulation of the European Parliament and of the Council (EC, No 1370/2007) on public passenger transport services by rail and by road was adopted in October 2007. Finally, in September 2007 the European Commission published a Green paper on urban transport (COM(2007) 551), to look, among others, at the questions of congestion and pollution linked to urban transport.

With regards to the second factor (i.e. the competitive relations), the main driving force re-defining the structure of the haulage industry and its competitive dynamics, is

the increased cost pressure (Mason *et al*., 2007). This is not only coming from customers, but also derives from the sector's liberalization, i.e. the new European legislation (EU Working Time Directive for Mobile Workers, WEE directive, congestion charges and safety compliance), and from some exogenous factors such as fuel price growth, increasing insurance premium and road congestion[7].

In this competitive context, thus, it became strategic for enterprises to improve and leverage cost reduction capabilities, throughout qualitative and quantitative growth patterns. The pursuit of economies of scale through an endogenous growth does not represent anymore the only way for achieving a cost savings. In fact, the capability of developing organisational innovations and effective partnerships with players involved in the supply chain (Hamel, 1991; Koka and Prescott, 2008; Hoetker and Mellewigt, 2009), are increasingly important for ensuring a higher process efficiency.

Looking to the main structural and economic variables of the sector, an estimated 945.2 thousand enterprises were registered in the EU-27's road and other land transport (NACE Group 60.2) sector which employed about 4.9 million persons in 2007. As such, the road and other land transport sector supplied just over half of the workforce in transport services (NACE Divisions 60 to 63).

The EU-27's road and other land transport sector generated value added of EUR 161 billion in 2007 from turnover valued at EUR 400 billion. As a result, road and other land transport accounted for around two fifths of all value added generated by transport services in 2007.

Within road and other land transport services the largest activity was the road freight transport (NACE Class 60.24) subsector. This subsector accounted for around two thirds of the value added created by the EU-27's road and other land transport sector in 2007 and occupied around three fifths of the workforce.

In terms of number of enterprises, Spain shows the highest number of firms in this sector (over 200 thousand), followed by Poland and Italy.

Unsurprisingly, the larger Member States contributed the greatest shares of EU-27 value added in this sector (see Table 10). The United Kingdom and France each accounted for around 15% of EU-27 value added in 2007. These countries are followed by Germany (13.4%), Spain (13.1%) and Italy (11.0%). However, an analysis based on relative specialisation highlights the importance of the road and other land transport sector in several other Member States. For example, this activity contributed around 6% of non-financial business economy value added in Lithuania, and over 3.5 % in Latvia, Finland, Luxembourg,

7 The effects of road congestion on logistics enterprises' cost structures have been clearly pointed out by Foster (1999). In fact, according to the author "[r]oad congestion is being exacerbated daily by growing intra-European trade, centralized manufacturing, time-definite delivery requirements, and the move toward placing smaller orders". Moreover, "[n]ot only does this congestion cause delays and add extra costs, but it also has evoked a political reaction from an environmentally conscious public, which has called for restrictions on truck movements and higher road fees and taxes".

Spain, Slovenia and Greece. Looking at the turnover, the same top 5 countries, namely UK, Italy, France, Germany and Spain, accounted for almost 65% of the EU-27 total figure.

Finally, in terms of persons employed, France ranks first, occupying over 13% of the EU-27 workforce in this field. This country is followed by Germany, Spain, United Kingdom and Italy.

Table 10. Road and Other land transport: Ranking of Top five Member States, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR Million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	Spain	204,432	21.6%	UK	56,918	14.2%	UK	25,503	15.8%	France	659,123	13.3%
2	Poland	132,521	14.0%	Italy	55,097	13.8%	France	23,306	14.4%	Germany	620,856	12.6%
3	Italy	116,806	12.4%	France	54,871	13.7%	Germany	21,745	13.4%	Spain	594,923	12.0%
4	France	80,188	8.5%	Germany	44,455	11.1%	Spain	21,212	13.1%	UK	520,959	10.5%
5	Germany	59,374	6.3%	Spain	47,544	11.9%	Italy	17,811	11.0%	Italy	497,260	10.1%
	Top Five	593,321	62.8%	Top Five	258,885	64.8%	Top Five	109,577	67.7%	Top Five	2,893,121	58.5%

Source: Our elaborations from SBS Eurostat

4.3 Water Transport: firms' internationalization and vertical integration

Water transport activities include, both sea and coastal transport (NACE Group 61.1) and inland water transport (NACE Group 61.2). Sea and coastal transport is made up of transport of passenger and freight over water (whether scheduled or not), operation of excursion, cruise or sightseeing boats, operation of ferries, transport by towing or pushing of barges. This class also includes renting of ships and boats with crew. Inland water transport comprehends transport of passenger or freight via rivers, canals, lakes and other inland waterways, including inside harbors and docks.

As shown in Table 11 sea and coastal transport dominated the water transport sector, with EUR 111.5 billion of turnover in 2007 (equivalent to 94.5% of the whole water transport sector's turnover), about EUR 24.03 billion of value added (91.2%) and almost 1.83 million of persons employed (80.7%). The remainder accounted for by inland water transport.

It is worth observing the relative importance of inland water transport in terms of number of enterprises; in fact, in this subsector there are 9,324 enterprises (2007), equivalent to 45.9% of the total. Such equal distribution is also due to the relevant concentration process which has characterized shipping line subsector in recent years. As widely recognized, the numerous takeovers and mergers which took place in the competitive arena, have created a handful of big companies with a high market share, thus reducing

the whole number of enterprises operating in the subsector (Stopford, 2009). The water transport sector has been historically characterized by a clear-cut separation of roles among the firms operating in the two subsectors. In the past, in fact, inland water transport services, in particular barge services, were offered by independent barge operators (Charlier and Ridolfi, 1994). Nevertheless in recent years some deep-sea carrier "got directly involved in inland navigation" (Notteboom, 2008). This choice was triggered by the will of exploiting the market opportunities coming from a quite profitable business and it was also driven by the need of integrating their core activities for providing a higher quality and capillarity of services.

The EU heavily relies on maritime transport for its external trade, as a consequence of the relative importance of water transport, which depends on geographical and historical factors. In 2007, in the European water transport subsector there were about 20,000 enterprises, with a good increase in respect to 2006 (18,000 units). They represent only 1.7% of the transport services enterprises in 2007. As revealed in Table 11, the top five Member States host 68.5% of the total. Surprisingly Netherlands and Greece together represent about 37% of the whole subsector; they are followed by Germany (14.4%), France (9.7%) and Italy (7.6%).

Table 11. Water transport: Ranking of Top five Member state, EU-27, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	Netherlands	4,330	21.7%	Germany	29,154	26.2%	Germany	7,380	28.0%	Germany	40,082	17.7%
2	Greece	3,031	15.2%	Denmark	22,983	20.6%	Uk	3,154	12.0%	Italy	28,724	12.7%
3	Germany	2,873	14.4%	Italy	11,102	10.0%	Denmark	3,118	11.8%	Greece	18,488	8.2%
4	France	1,948	9.7%	France	11,097	10.0%	Italy	3,021	11.5%	France	17,991	7.9%
5	Italy	1,513	7.6%	UK	10,043	9.0%	Netherlands	2,768	10.5%	Sweden	17,158	7.6%
	Top Five	13,695	68.5%	Top Five	84,379	75.7%	Top Five	19,441	73.8%	Top Five	122,443	54.1%

In terms of number of persons employed, Germany ranked the first position with more than 40,000 units (17.7%), followed by Italy (28,724 persons employed; 12.7%), Greece (18,488 employees), France and Sweden (both more than 17,000 units). This data also explain how different countries are characterized by various enterprises' average size class.

Value added in water transport subsector reached about EUR 26.5 billion in 2007, equivalent to 6.1% of the "transport and storage" industry, with a significant increase in respect to the previous years (EUR 22.0 billion in 2006), as a consequence of the goods trends in seaborne transport of goods until 2007. It is also possible to observe that value added generated in the EU-27 water transport subsector is fairly concentrated in a handful

of countries; in fact, the top five States reached about EUR 19.5 billion, equivalent to 73.8% of the whole value added. In particular, Germany obtained the first position, generating 28% of the total valued added, followed by UK (12%), in spite of the low number of enterprises and persons employed, Denmark (11.8%), Italy (11.5%), and Netherlands (10.5%).

In 2007 the total turnover reached EUR 111.43 billion in 2007. In terms of turnover the five leading countries reached in 2007 about EUR 84.38 billion, equivalent to 75.7% of the total. Unsurprisingly Germany represent the first market, with almost EUR 30 billion (26.2% of the total), followed by Denmark (20.6%), which also represents a really dynamic and relevant market, Italy (10%), France (10%) and UK (9%).

In conclusion, this in-depth analysis of the available data allowed to observe some relevant trends affecting the sector. First, the process of concentration characterising the sector over the last few years recently stopped. Second, some shipping companies undertook a process of vertical integration in warehousing and transport supports activities, not only for achieving economies of scale and scope, but also for better controlling the entire supply chain (Levy, 1985; Stukey and White, 1993). For instance some shipping lines are diversifying their core activities, also providing rail services. Third, a high level of specialization in the water transport sector in some of the smaller and medium-sized Member States (Enache, 2009), in particular, Baltic Sea country. This process has also been supported by the presence, in this regions of ports which are equipped to handle virtually any combination of intermodal transport.

4.4 Air Transport: market liberalisation, low-cost carrier's growth and UK hegemony

Basically, the aggregate of "Air transport" concerns enterprises engaged in the transport of passengers and freight by air on scheduled (NACE Group 62.1) as well as unscheduled services (NACE Group 62.2). The expansion of air traffic has faced criticism, notably because of the growing levels of emissions and noise from this means of transport, although emissions have grown more slowly than air traffic volumes due to technological improvements. In November 2008, a Directive was adopted (EC, No 101/2008) to include aviation in the existing emissions trading scheme for carbon dioxide, starting from 2012. Growth in EU air traffic has occurred during a period of market liberalisation and structural change, with an increased number of operators, particularly low-cost carriers.

The development of low-cost carriers (LCCs) has expanded the market for air travel, by offering the possibility of relatively cheap flights for the leisure market. The three largest low-cost carriers in Europe in 2008 in terms of revenue passenger-kilometres were Ryanair, EasyJet and Air-Berlin. Actually, the growth of LCCs is focused on the Western European Market (Dobruszkes, 2006).

Increased competition, allied with greater costs (notably for fuel), and the rapidly worsening economic climate, have led to a number of airlines struggling to continue operations, with Alitalia, for example, entering administration in 2008, before emerging in a restructured form in 2009. In September 2008, a Regulation (EC, No 1008/2008) for air services was adopted, updating legislation from 1992. With the aims of ensuring more competition, and improving quality, it covers a wide range of issues, such as price transparency, oversight of operating licences, market access, aircraft registration, and public service obligations.

In 2007, there were almost 3.8 thousand enterprises in the air transport sector in the EU-27. In the same year, the estimated 408.4 thousand persons employed in this sector generated EUR 31.3 billion of value added, and as such the air transport sector's contribution to the transport & storage total was over 4% for employment and around 7% for value added. Three tenths of the EU-27's value added in air transport was generated in the United Kingdom alone, while France's contribution was one fifth. For the fourth consecutive year Germany recorded a negative value added for air transport in 2007, and this Member State's relative size can be better expressed by its 14.0 % share of the EU-27 workforce.

By analysing the top 5 Member States (see Table 12), the United Kingdom shows the highest figures for all the selected variables. In relation to the number of enterprises, UK is followed by France (555,000) and Germany (425,000). The top 5 countries host 65% of EU-27 firms operating in this sector. In terms of turnover, the ranking is similar to the previous one, with the entry of Spain in the 5th place.

By analysing the figures related to the value added, after UK and France, the Netherlands emerges as third leading country. Indeed, in 2007, the value added was highly concentrated in the top 5 countries; the leading nations generated almost 77% of the EU-27 value added. Finally, in employment terms, UK (22.9%), France (17.9%) and Germany (14.0%) confirm to be the major leading forces in this field, occupying a great portion of the overall EU-27 workforce.

Table 12. Air transport: Ranking of Top five Member State, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	UK	1,014	26.9%	UK	29,737	23.1%	UK	8,667	27.7%	UK	93,431	22.9%
2	France	555	14.7%	France	19,673	15.3%	France	6,590	21.1%	France	73,229	17.9%
3	Germany	425	11.3%	Germany	14,959	11.6%	Netherlands	3,221	10.3%	Germany	57,335	14.0%
4	Italy	243	6.4%	Italy	11,081	8.6%	Spain	2,831	9.1%	Spain	38,840	9.5%
5	Netherlands	235	6.2%	Spain	10,538	8.2%	Italy	2,699	8.6%	Italy	22,531	5.5%
	Top Five	2,472	65.5%	Top Five	85,988	66.9%	Top Five	24,008	76.8%	Top Five	285,366	69.9%

Source: Our elaboration from SBS Eurostat

4.5 Warehousing and transport support activities: the emergence of new logistics players

This Section gathers information on auxiliary and supporting transport activities as covered by NACE Groups 63.1 (Cargo handling and storage), 63.2 (Other supporting transport activities) and 63.4 (Activities of other transport agencies), not considering travel agencies (NACE Group 63.3).

Thus, "warehousing and transport support activities". includes various activities such as support services for all modes of transport (baggage & cargo handling, storage & warehousing, freight forwarding & brokerage) and the operations of terminals and infrastructure as well as navigational services (notably for air and water transport), towing, berthing and parking services[8].

Cited services are often provided by a variety of trade specialists who can offer various functions to facilitate the movement of cross-border shipments. The efficiency of transport and logistics facilities becomes crucial not only for logistics performance (attracting intermodal operators), but also for local industries' competitiveness (ensuring lower transport and logistics costs). Although companies opt today for lean production lines and just-in-time delivery, warehouses still play an important role in the logistics activities, being strategic hubs in the flow of goods within a logistics system. In the recent years, the centralization of distribution chain, the increase in effective outsourcing and the request for wider logistics infrastructures have urged to create new modern warehouse infrastructures. In such an environment, there has been a remarkable increase in the development of large-scale logistics facilities across Europe (Blaskoza, 2008). Moreover the requirement of a higher integration of terminal operations in the supply chain management (Lambert *et al*., 1998; Marlow and Paixao, 2003; Carbone e De Martino 2003; Panayides and Song, 2009), has forced leading terminal operators and warehousing companies to develop diversification strategies, aiming

8 In particular "cargo handling and storage" includes, within the other, operations of loading and unloading of goods or passengers' luggage irrespective of the mode of transport used for transportation, stevedoring, operations of storage and warehouse facilities for all kind of goods (notably operations of grain silos, general merchandise warehouse, refrigerated warehouse, storage tanks, etc.), but excludes operations of terminal facilities (included in NACE Group 63.2). The class "Other supporting transport activities" includes a wide number of activities related to land transport, water transport and air transport; within the other, the following are worthy of note: operation of terminal facilities such as railway stations, bus stations, stations for the handling of goods, harbors and piers, airway terminals; operation of railroad infrastructure; maintenance and minor repair of rolling stock; winter storage of caravan; operation of waterway locks; navigation, pilotage and berthing activities; lighterage, salvage activities; lighthouse activities; airport and air-traffic-control activities; ground services activities on airfields. Finally, the class "Activities of other transport agencies" includes several services like forwarding of freight, arranging or carrying-out of transport operations by road, sea or air, receipt of group and individual consignment (including pick-up of goods and grouping of consignments), issue and procurement of transport documents and way-bills, organization of group consignment by road, rail, air or sea, activities of customs agents, activities of sea-freight forwarders and air-cargo agents, good-handling operations (e.g. temporary crating for the sole purpose of protecting the goods during transit, uncrating, sampling, weighing of goods).

to control larger parts of the supply chain. As a result, pursuing a door-to-door approach, some operators have transformed into logistics organizations, often asset-based. Similar strategies have been performed by LTL (Less Than a Load) operators, which are progressively expanding into warehouse activities.

When logistics facilities or/and intermodal operators lack, the intermediaries, such as forwarders, could have a role in ensuring transport integration. With specific regard to European Ports, some contributions (Ducruet and Lee, 2007; Ducruet and Van Der Horst, 2009) highlighted that they permit to obtain a higher efficiency in transport chain when intermodal operators' absence (or weak presence), determines infrastructures' low performances.

In 2007, there were more than 112,000 enterprises operating in warehousing and transport support activities, in the EU-27. As shown in Table 13 the leading country is Italy, which hosts 17,642 enterprises, equivalent to 15.7% of the total, followed by Germany (13.2%) and Spain (12.0%), UK (9%) and finally Greece (7%). The Spanish third position and Greek fifth position are worthy of note. According to previous figures a wide number enterprises operating in warehousing and transport supports activities are located in Southern European Country.

Table 13. Warehousing and transport support activities: Ranking of Top five Member States, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	Italy	17,642	15.7%	Germany	91,004	21.7%	Germany	37,694	24.7%	Germany	508,133	22.2%
2	Germany	14,772	13.2%	UK	63,199	15.1%	UK	29,828	19.6%	Italy	321,884	14.1%
3	Spain	13,469	12.0%	France	54,577	13.0%	France	18,427	12.1%	UK	306,955	13.4%
4	Uk	10,081	9.0%	Italy	43,319	10.3%	Italy	16,161	10.6%	France	254,175	11.1%
5	Greece	7,808	7.0%	Spain	35,541	8.5%	Spain	13,379	8.8%	Spain	208,714	9.1%
	Top Five	63,772	56.9%	Top Five	287,640	68.7%	Top Five	115,489	75.8%	Top Five	1,599,861	70.0%

Source: Our elaborations from SBS Eurostat

The total EU-27 warehousing and transport support activities' turnover, in 2007, amounted to EUR 418,708 million. This information fairly help to understand the relevance of this subsector in respect to the transport services sector and generally the whole logistics industry. The top five Member States in terms of turnover, generated altogether almost 69% of the European total turnover. In particular Germany obtained the first position, reaching more than EUR 91 billion of turnover (21.7% of the total), followed by UK (15.1%), France (13%), Italy (10.3%) and Spain (8.5%) respectively.

In terms of value added generate, unsurprisingly Germany is the first Member State, again, with a result of more than EUR 37.6 billion of value added, equivalent to

24.7% of the European total. Other dynamic and profitable markets are UK, which generate almost EUR 30 billion (19,6%), France (12.1%), Italy (10.6%) and finally Spain (8.8%). As a result in the five leading Member State is concentrated more than 75% of the total value added generated in the EU-27.

Warehouse and transport support activities largely contributed to the EU-27 employment, occupying in 2007 almost 2.3 million of persons. On this point of view the leading countries are Germany[9], where persons occupied in this sub-sector were more than 0.5 million, and Italy, with more than 0.32 million of employees.

From data, emerges the relevance of Germany in the sector, ranking the first place with reference to three of the four analyzed variables. Considering that infrastructure management enterprises belong to supporting transport activities, Germany's performance in the sector seems to be influenced by the presence in the country of relevant nautical assets for the logistics industry, such as efficient ports (no fewer than 10 seaports providing unrivaled access to the shipping lanes of the North Sea and Baltic, expansive rivers (Rhine, Elbe and the Danube) and extensive coastline[10]. Moreover in this Member States, maritime terminals are connected to an extremely efficient system of rivers and canals with more than a hundred ports of their own.

5. Post and courier activities

Post and courier activities mainly concerns pick-up, transport and delivery of mail, parcels and the like: it includes both national post activities (NACE Class 64.11)[11] and other courier activities (NACE Class 64.12)[12].

According to a recent inquiry[13] on postal services promoted by the European

9 To maximize the efficiency of Germany's distribution infrastructure, government agencies have been cooperating with the logistics industry to develop so-called "freight villages". These cargo support centers (called GVZ in Germany) act as regional nodes with optimal access to long haul networks and local delivery points. They also provide essential services such as customs clearance, security and vehicle maintenance. GVZ are becoming increasingly common throughout Europe.

10 For a deep analysis of the European ports' throughput see Amerini (2010a, 2010b). These studies also contribute to show the impact of the general economic crisis on European ports' activities and the main trends in the maritime transport of goods.

11 National post activities comprises a variety of services such as pick-up transport and delivery (both domestic and international) of mail and parcels, collection of mail and parcel from public letter-boxes and post offices, distribution and delivery of mail and parcels, mailbox renting, etc..

12 Courier activities other than national post activities includes picking-up, transport and delivery of letters and mail-type parcels and packages by firms other than national post. Either only one kind of transport or more than one mode of transport may be involved and the activity may be carried out with either self-owned transport or via public transport.

13 ITA Consulting, WIK-Consult (2009), The evolution of the European Postal Market since 1997, Final Report, Study for the European Commission, DG Internal Market and Services, August 2009.

Commission (DG Internal Market and Services), the role of postal services is evolving substantially. This sort of services, in fact, today finds itself at the crossroads of three markets relevant for development: transport, communication and advertising. Indeed, the role of postal and courier services becomes more and more important in economies (as European economy) characterized by manifold in-sourcing and outsourcing activities of non-core business.

Insofar as they still exist, the former national monopolies in the field of post are today in competition with various enterprises from the private sector. In fact in a wide number of Member States, universal service providers (USPs), operators that could be no longer public organizations and that have replaced traditional postal administrations, still operate as a monopoly and have exclusive rights, balanced by the fact that they have a universal service obligation, but, at the same time, private operators' role in the express services is progressively growing, so that they dominate this market, providing letter and parcel services, specifically to the business-to-business, direct mail and business-to-private segments of the market. Such a situation is the main consequence of the gradual development toward market liberalization for post and courier services, started since the mid-1990s. As a result, today parcels and express services are markets completely open to private operators, where competition is strong enough. The recent development in Community legislation affecting the European postal sector, goes towards the whole abolishment of remaining restrictions on mail deliveries under 50 grams, which had been remained a "reserved area" for national operators" until February 2008, and opens up Europe's postal sector to full competition, with relevant consequences on the operators of the market. Finally it is possible to observe that Corporatization and privatization of former postal administrator have permitted considerable progress to the commercialization of the postal business. In order to face new entrants in the parcel and express business and, more recently in their letter post business USPs are increasingly commercially minded and customer-oriented. However, competition does not emerge smoothly, in fact, National regulatory and competition authorities have still to face with abusive behavior of universal services providers who still dominate the national letter market.

European postal and courier operators have now to cope with remarkable changes in their sector, referring to new competition rules and sophisticated customer needs. In particular, the electronic means, as substitute products have determined a decline in mail volume (postal operators' core business), urging postal incumbents to diversify their activities "by providing mail preparation, printing solution, mailroom management and electronic services" (Mollet, 2008). At the same time postal operators have identified various business opportunities aiming to increase their revenue and sustain their balance. Express, delivery financial services and logistics are the main areas considered by operators. Similar problems have been encountered by couriers.

In such an environment, some postal operators and couriers have founded really

attractive the logistic business, considering the relatedness with their traditional core activities, and have tried to enter the market, in order to obtain both economies of scale and economies of scope. In particular, economies of scope could be reached with regards to supply chain's support activities (i.e. sharing infrastructure and technology, leveraging network management skills) and to supply chain's primary activities (i.e. marketing activities and customer know-how; area coverage, etc.).

Nevertheless, as correctly pointed out by Mollet (2008), diversification in logistics activities also carries risks for postal operators and couriers, because, if they do not implement adequate strategies, they could succumb in the struggle with other operators which cover the sector. Logistic Industry, despite actual remarkable growth, remains a highly competitive business, where it appears difficult to identify profitable niches, with high margins. For such a reason some national postal operators have decided to focus themselves on traditional activities (mail), entering new geographic markets (i.e, Osterreichische Post, Austria; De Poste, Belgium; Royal Mail, UK; Post Denmark, Denmark) or have preferred to develop their business in other activities such as financial services (i.e. Poste Italiane, Italy; La Poste, France). Only few operators, such as DPWN (Germany), TNT (Netherlands) and Die Post (Switzerland) have been able to exploit and leverage their traditional competitive advantages and found remarkable synergy, entering successfully logistics markets.

As shown in Table 14, there were more than 44 thousand enterprises in the EU-27's post and courier activities sector (NACE Group 64.1) in 2007. In particular, only 1,572 enterprises (equivalent to 3.5% of the total) operated in "National post activities" subsector, while almost 43 thousand belonged to "courier activities" subsector.

Table 14. Post and courier activities (NACE Division 64.1) – Structural profile, EU-27, 2007

	Enterprises		Turnover		Value Added		Persons Employed	
	Units	% of total	(EUR million)	% of total	(EUR million)	% of total	Units	% of total
Post and courier activities	44,400	100.0%	103,923	100.0%	61,310	100.0%	1,882,300	100.0%
National post activities	1,572	3.5%	56,819	54.7%	41,271	67.3%	1,199,900	63.7%
Other courier activities	42,828	96.5%	47,104	45.3%	20,039	32.7%	682,400	36.3%

Source: our elaboration from SBS Eurostat
Note: number of persons employed, 2006

Adopting a country's perspective, it's possible to observe (see Table 15) a significant concentration of enterprises in the five leading Member States. As a whole they hosted around 31 thousand enterprises in 2007, equivalent to more than 70.4% of the total. In particular UK reached the first position with a share of 26.1%, followed by Germany (20.3%), and Spain (12.2%). Unsurprisingly Netherland obtained fourth position (6.1%), followed by Belgium (5.6%). It's worth underlying the absence of Italy among the leading countries, and, at the same time, the presence of two Member States characterized by little

geographical dimensions.

Table 15. Post and courier activities: Ranking of Top five Member State, 2007

Ranking	Largest number of Enterprises			Highest Turnover			Highest value added			Largest number of employed		
	Country	Units	% of EU-27	Country	(EUR million)	% of EU-27	Country	(EUR Million)	% of EU-27	Country	Units	% of EU-27
1	UK	11,609	26.1%	Germany	23,762	22.9%	Germany	12,275	20.0%	Germany	443,713	23.6%
2	Germany	8,995	20.3%	UK	21,259	20.5%	UK	11,378	18.6%	UK	282,410	15.0%
3	Spain	5,427	12.2%	France	14,271	13.7%	France	11,361	18.5%	France	271,229	14.4%
4	Netherlands	2,710	6.1%	Italy	12,039	11.6%	Italy	8,113	13.2%	Italy	165,245	8.8%
5	Belgium	2,499	5.6%	Spain	5,090	4.9%	Belgium	2,011	3.3%	Spain	106,331	5.6%
	Top Five	31,240	70.4%	Top Five	76,421	73.5%	Top Five	45,138	73.6%	Top Five	1,268,928	67.4%

Source: Our elaboration from SBS Eurostat

For 2007, employment data referring to this sector are not available for EU-27 as a whole, for the absence of data relative to some countries. In 2006 there were close to 1.9 million persons employed in the sector: unsurprisingly national post activities was the largest of the two subsector within post and courier activities sector in terms of employment, with almost 1.2 million persons employed (63.74%), the remainder being accounted for by courier activities (Table 14).

"Post and courier activities" fairly represents an important subsector for Germany, where in 2007 were employed more than 443 thousand persons (equivalent to 23.6% of total Post and courier activities' employment in 2006). The other four leading countries in terms of employment, in 2007 were UK (282,410 employed), France (271,229), Italy (165,245) and Spain (106,331).

The total EU-27's turnover generated by the post and courier activities reached in 2007 almost EUR 104 billion, with an increase equivalent to about 3 percentage points in respect to 2006 (EUR 100,978 billion). As shown in Table 14, even if the class "National post activities" remains the largest of the two subsectors in terms of turnover within the post and courier activities sector, accounting for 54.7% of the total, the two subsector reached closer performance in respect to previous years. This is the consequence of the extremely high performance of the "Other courier activities" class, which has grown almost 7% between 2006 and 2007, while "National post activities" has seen a slight decrease (equivalent to -0.11%) in the same year.

Adopting a country's perspective, it is possible to observe that European post and courier turnover is fairly concentrated in a handful of countries. In fact, in 2007, the top five Member States represented 73.5% of the total. In particular Germany reached the first position, with almost EUR 24 billion of turnover (equivalent to 22.9%), followed by the United Kingdom, which obtained a performance slightly lower (EUR 21.2 billion),

equivalent to 20.5% of the total. The other three leading countries, unsurprisingly are France (EUR 14.2 billion), Italy (EUR 12.03 billion) and Spain (EUR 5.09 billion), so that we can argue that the five largest EU economies were also the five largest contributors to the post and courier activities sector in 2007, measured in turnover.

Post and courier activities generated in EU-27 (2007) a value added at factor cost of EUR 61.3 billion, with an increase of 2.2% in respect to 2006. In terms of value added the class "National post activities" remain fairly the most important of the two subsectors, probably as a consequence of the fact that in various countries they still operate as a monopoly and have exclusive rights.

In 2007 the top five Member States obtained a share equivalent to 73.6% of the whole value added generated in EU-27. In particular Germany maintained the first position with more that EUR 12.2 billion (20.0%), followed by the United Kingdom (18.6%), France (18.5%), Italy (13.2%) and, surprisingly, Belgium with more than EUR 2 billion (3.3% of the total).

6. Concluding remarks

Main general economic trends, such as the enlargement of the EU, the strong growth of periphery regions and the growing necessity for costs and environmental externalities' reduction, have deeply affected EU Transport and Logistics Industry. As results, some relevant conclusions can be finally pointed out:

i) A unitary and homogeneous EU approach to transport and logistics industry, with regards to both "modal" and "geographical" aspects, is required. From a modal point of view, transport and logistics should be analyzed and managed aiming to optimize the value of supply process as a whole and create an efficient, sustainable, integrated European transportation and logistics network. According to such an approach effective inter-modality, co-modality and multi-modality become a must, if the EU wants to efficiently manage the increasing flows of transported goods and maintain its role in the worldwide logistics market. Thus, the value of each transport node depends on its capacity to interface with and to coordinate multiple transport modes. From a "geographical" viewpoint, the EU logistics market progressively became more homogeneous. Nevertheless national distinctive features must be considered and market segmentation appears as necessary: in fact, service requirements from customers (in terms of delivery time, flexibility, packaging, reliability, etc.) "vary widely in Europe, and logistics networks should reflect this reality" (Foster, 1999).

ii) The analysis of European transport and logistics industry and markets require new tools and methodological approaches (see point i). Traditional EU statistical methods, in fact, have made available a remarkable amount of statistical information, which however, often has produced a misleading picture of EU's logistics market. With the introduction of the Rev. 2.1 classification, a relevant improvement will be soon appreciable in the forthcoming EU statistical reports.

iii) Leading European Countries remain the key logistics markets, but, with the shifting East of the geographic centre of Europe, new challenges are emerging. Although Germany, UK, Italy, France, Netherlands and Spain, actually represent the larger portion of European logistics markets, Eastern Europe is gaining in importance, both as a manufacturing location and as a consuming market. Consequently, Central European countries like Poland, the Czech Republic, and Hungary are experimenting a dynamic trend in the logistics industry and thus they hold the most potential for logistics providers (Lee *et. al.*, 2007).

iv) New big integrated operators are appearing. The trend towards outsourcing the logistics services continues, bringing new competitive rules, and stressing towards a more concentrated sectorial structure. In such an environment, main logistics operators, in particular third-party logistics, are urged to grow rapidly in firm's size and service quality. The strategies adopted by economic actors widely differ from each other. Some transport operators have preferred to enrich and enlarge their range of logistics services offered throughout vertical integration, transforming in integrated logistics operators. Finally, a few specialized logistics players have decide to undertake a growth strategy in various countries exploiting and leveraging their national competitive advantage.

As is the case with EU, the trend will appear in Asia, notably, Northeast Asia, because they will also be unified into a big economy community. Asia should recognize the trend and prepare new analytical tools and accurate statistics data to analyse its logistics industry.

Received: Nov. 18, 2010
Reviewed: Nov. 26, 2010
Accepted: Dec. 28, 2010

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Annex I

Detail structure of Section H – Transportation and Storage (NACE Rev. 2)

Division	Group	Section H - TRANSPORT AND STORAGE
49		Land transport and transport via pipelines
	49.1	Passenger rail transport, interurban
	49.2	Freight rail transport
	49.3	Other passenger land transport
	49.4	Freight transport by road and removal services
	49.5	Transport via pipeline
50		Water Transport
	50.1	Sea and costal passenger water transport
	50.2	Sea and coastal freight water transport
	50.3	Inland passenger water trasnport
	50.4	Inland freight water transport
51		Air transport
	51.1	Passenger air transport
	51.2	Freight air transport and space transport
52		Warehousing and support activities for transportation
	52.1	Warehousing and storage
	52.2	Support activities for transportation
53		Postal and courier activities
	53.1	Postal activities under universal service obligation
	53.2	Other postal and courier activities

Annex II

Turnover growth rates

	2004-2005	2005-2006	2006-2007	Total Growth	Composite growth rate
EU-27	**5.91%**	**6.74%**	**9.92%**	**24.27%**	**7.51%**
Italy	5.92%	7.00%	5.38%	19.43%	6.10%
France	5.45%	3.94%	3.88%	13.86%	4.42%
Germany	8.25%	8.23%	8.75%	27.42%	8.41%
UK	4.84%	4.12%	4.67%	14.24%	4.54%
Spain	9.18%	10.87%	7.62%	30.27%	9.21%
Top 5	6.47%	6.37%	6.01%	20.06%	6.28%

Value added growth rates

	2004-2005	2005-2006	2006-2007	Total growth	Composite growth rate
EU-27	**4.55%**	**5.02%**	**5.94%**	**16.32%**	**5.17%**
Italy	0.64%	9.02%	2.98%	12.97%	4.15%
France	3.74%	3.32%	3.76%	11.22%	3.61%
Germany	0.04%	3.86%	7.46%	11.66%	3.74%
UK	5.50%	6.03%	5.59%	18.11%	5.71%
Spain	3.43%	10.39%	7.80%	23.08%	7.17%
Top 5	2.69%	5.86%	5.52%	14.71%	4.68%