Statistics in focus

TRANSPORT

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Contents

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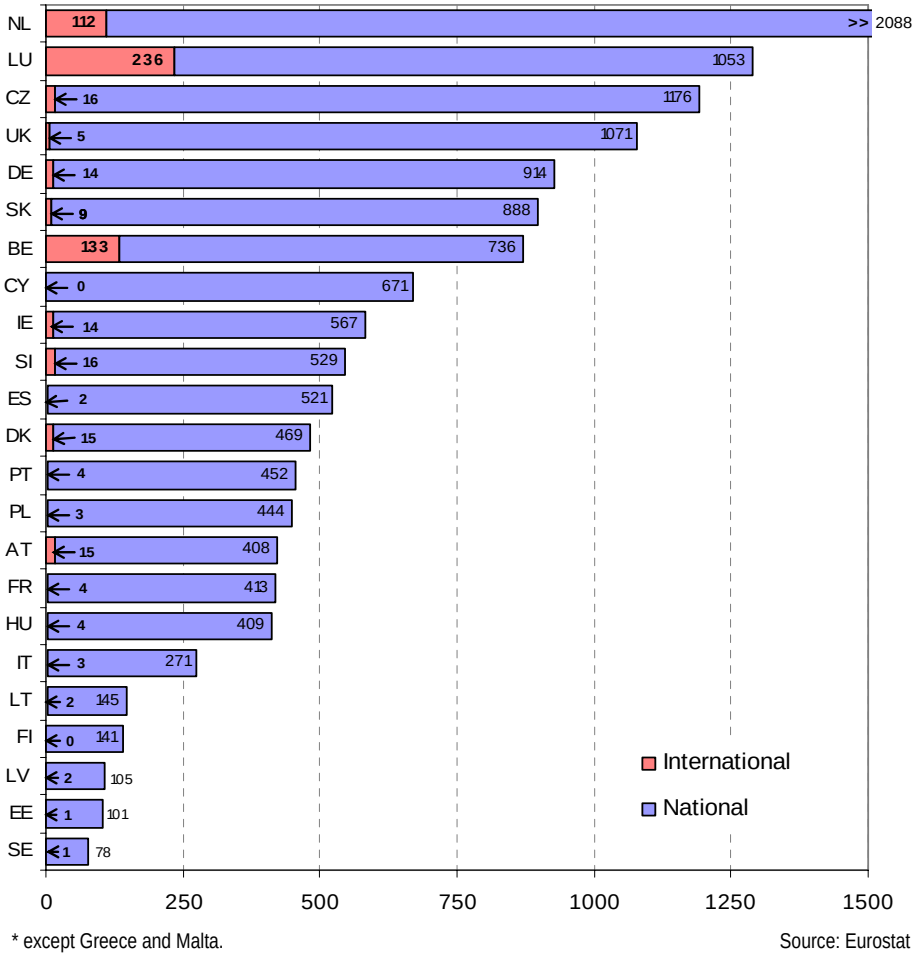
The regional dimension of road freight transport statistics*

* From 1999 onwards, regional statistics on the carriage of goods have been collected by Eurostat in the framework of Council Regulation 1172/98 for the transmission of individual data records on vehicles, journeys and transport operations. Data for 2004 have been analysed for the first time through transport modelling, which gives the possibility not only to enrich the available data, but also to complete these data by estimated values (see Methodological Notes). Transport modelling is a simulation technique used as a policy support tool for matters involving traffic. Using these simulation techniques, existing or expected traffic flows can be calculated and visualised on road maps.

Highlights

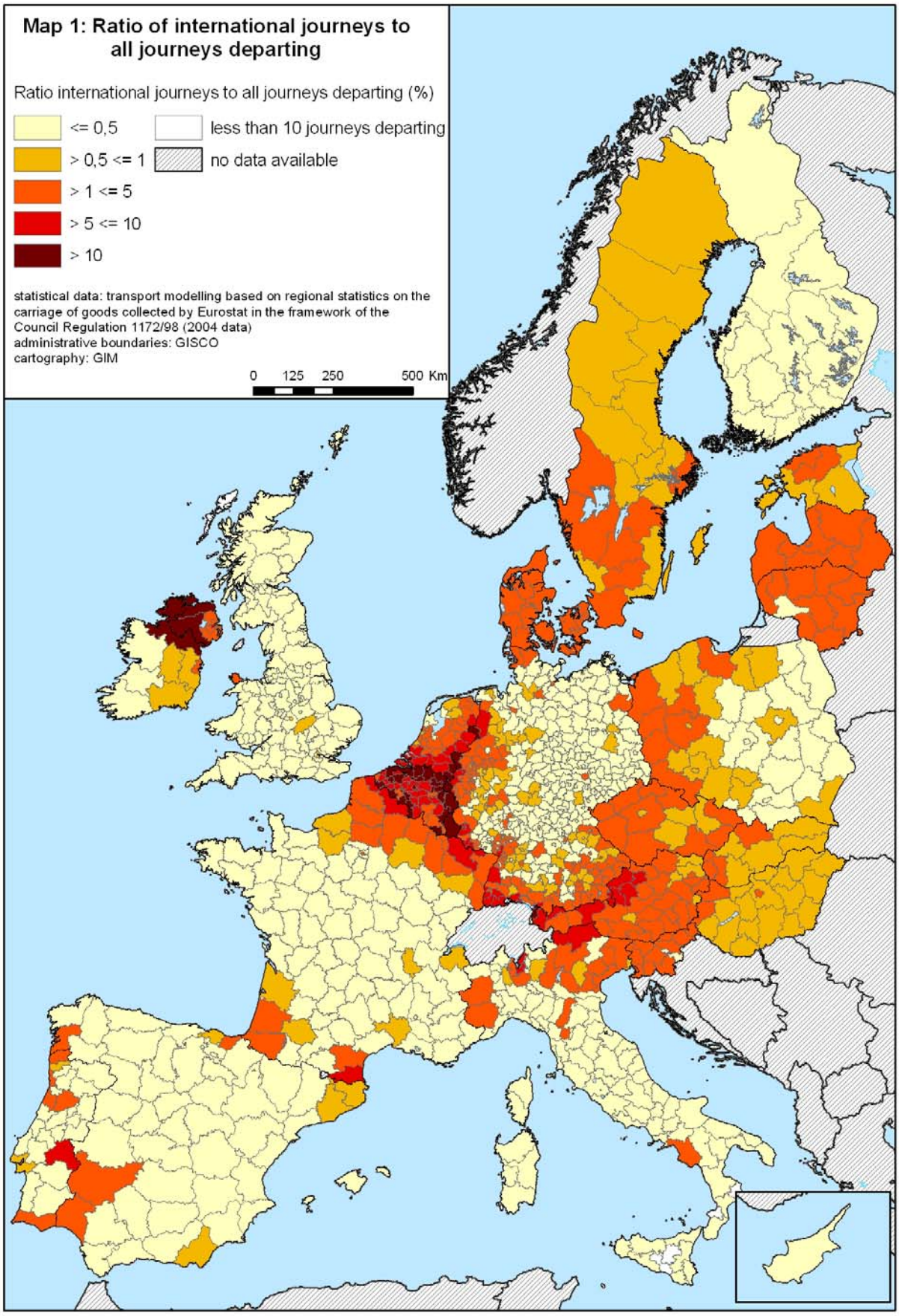
- **'Transport intensity' (expressed as the number of departing journeys per km² of national territory) is by far highest in the Netherlands, and lowest in the Baltic States, Finland and Sweden.**
- **The proportion of international road transport journeys in all journeys is the highest in the Belgian regions bordering the Netherlands; several Danish and Austrian regions also have a high share.**
- **The highest number of long-distance road freight transport journeys (journeys with a length of over 500 km) departed from the *Barcelona*, *Madrid* and *Valencia* region.**

Graph 1: Number of departing journeys per km² of national territory, EU-25*, 2004



* except Greece and Malta.

Source: Eurostat


Map 1: Ratio of international journeys to all journeys departing
Ratio international journeys to all journeys departing (%)
<= 0,5
> 0,5 <= 1
> 1 <= 5
> 5 <= 10
> 10
less than 10 journeys departing
no data available
statistical data: transport modelling based on regional statistics on the carriage of goods collected by Eurostat in the framework of the Council Regulation 1172/98 (2004 data)
administrative boundaries: GISCO
cartography: GIM
0 125 250 500 Km

High proportion of departing international journeys in nearly all Belgian regions

One indicator for the intensity of road freight transport in a given area is the number of departing journeys per square kilometer. This 'transport pressure' is displayed at national level in Graph 1 on the cover page. Transport intensity is by far the highest in the Netherlands, with 2200 departing road freight transport journeys per km² in 2004 (of which 112 were international). Luxembourg follows at a considerable distance with 1 289 journeys. In less central Member States such as the Baltic States, Finland and Sweden, transport intensity is t lowest.

Looking at the proportion of international journeys in the total number of departing journeys (see Map 1 on the facing page) it appears that a relatively high share of departing road goods transport journeys in Belgian regions are international journeys. The same can be said for the Southern and Eastern Dutch regions as well as for Luxembourg.

As might be expected, border regions in general show a higher proportion of international departing journeys than their more inland counterparts. This is particularly marked in the French-German, German-Austrian and Austrian-Italian border regions but also between Ireland and Northern-Ireland as well as France and Spain (except for the central Pyrenees regions).

In other cases, a high proportion of international journeys have been registered in more inland regions, such as *Budapest* (Hungary), *Modena* and *Pistoia* (Italy), and certain German regions (especially in the dense *Rhein-Ruhr*, *Rhein-Main* and *Rhein-Neckar* areas).

Between 1% and 5% of all road journeys starting in several Danish regions were international transport operations. The proportions for Austrian, Czech, Latvian and Lithuanian regions as well as the western Polish regions were also fairly high.

Apart from Northern Ireland, nearly all UK regions display a share of international journeys below 0.5%. *Coventry*, *Northamptonshire* and *Inner London-East* are between 0.5% and 1%. The *Isle of Anglesey* is the only region in the 1%-5% category, possibly linked to the fact that it has major ferry connections to Ireland. This higher share might be linked to the fact that road cargo on semi-trailers are forwarded by ferry without the road tractor. Hence, the dispatch of this cargo would be accounted for as a separate (international) journey starting in the port of Holyhead (Holyhead-Dublin ferry link).

Table 1 lists the 20 regions that registered the highest proportion of international journeys (regardless of the number of total journeys). Fourteen of these regions are Belgian regions with the *Arrondissement Thuin* leading with over 30% international departing journeys. The absolute number of departing international journeys for the *Arrondissement Antwerpen* (960 000) is also impressive, influenced by the presence of the port of Antwerp.

The map on the next page does not look at individual journeys but at the absolute volume of freight forwarded. It combines two types of information: the total volume of freight forwarded on the main road network ('thickness' of the lines) and the share of international transport (different colors).

Table 1: Top 20 regions with the highest percentage of international freight traffic (departing journeys), EU-25*, 2004

	Name of the region	Country	% internat. journeys of all journeys departing	Total nb of intern. journeys
1	Arr. Thuin	BE	31.3	44 011
2	Arr. Antwerpen	BE	28.8	959 941
3	Arr. Mouscron	BE	26.7	60 103
4	Zeeuwsch-Vlaanderen	NL	25.3	179 368
5	Arr. Tournai	BE	24.6	130 796
6	Arr. Maaseik	BE	24.4	182 043
7	Kleve	DE	23.5	355 418
8	Arr. Brugge	BE	22.4	201 257
9	Grafschaft Bentheim	DE	19.8	130 871
10	Arr. Tongeren	BE	19.2	98 390
11	Luxembourg (Grand-Duché)	LU	18.3	612 208
12	Arr. Turnhout	BE	18.3	279 180
13	Arr. Gent	BE	18.2	340 023
14	Arr. Hasselt	BE	17.3	230 460
15	Arr. Verviers	BE	17.1	98 658
16	Arr. Ieper	BE	16.7	68 196
17	Arr. Liège	BE	15.3	151 291
18	Noord-Limburg	NL	15.3	388 662
19	West & South of North. Ireland	UK	15.3	538 502
20	Arr. Soignies	BE	15.1	45 826

* except Greece and Malta

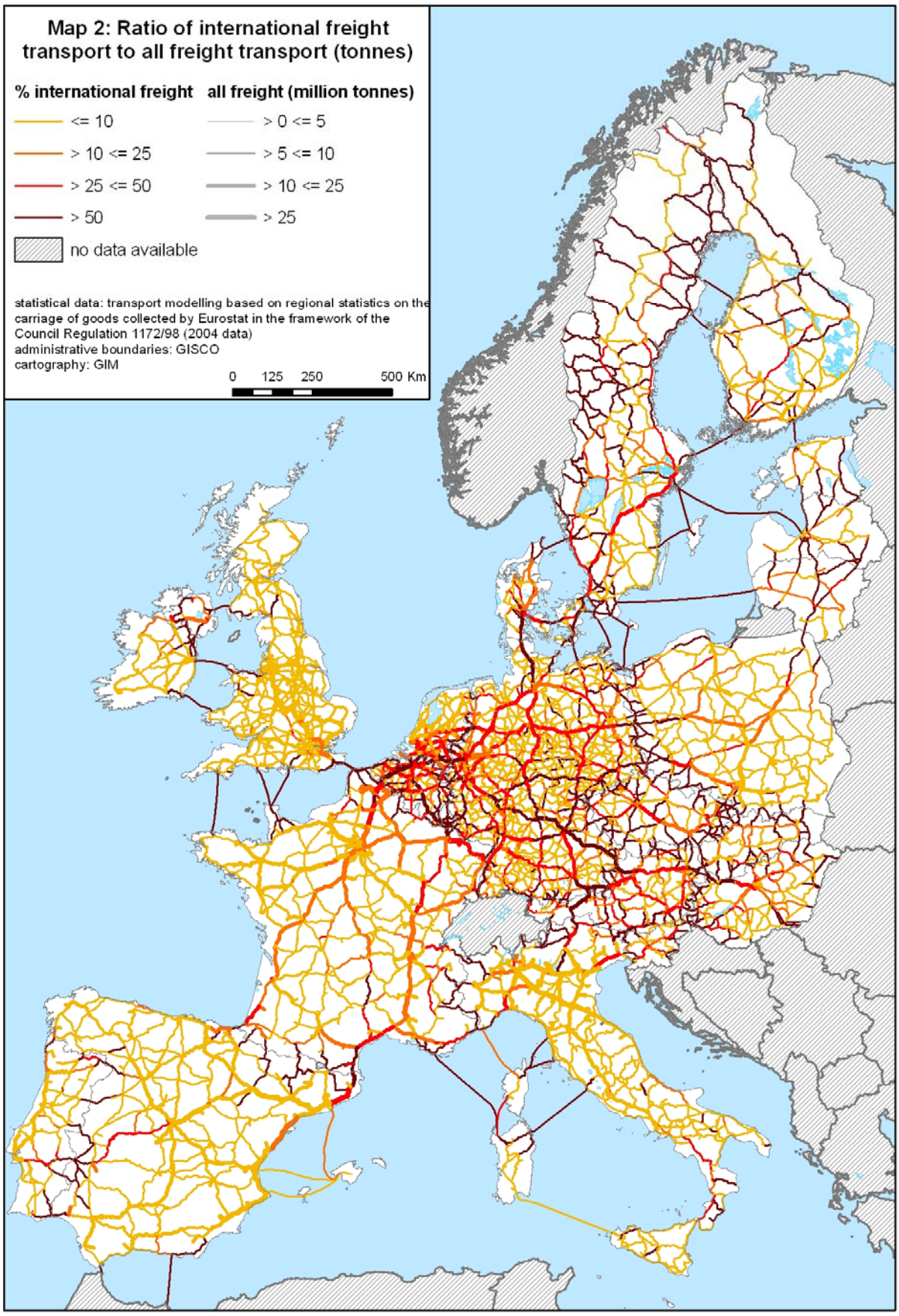
Source: Eurostat

The Benelux regions stand out both with regard to volume and the proportion of international transport. Germany shows important international transport on north-south axes, but also in the east-west direction. The road link between the *Rhein-Ruhr* basin and the Austrian border stands out, with a share of international transport exceeding 50%.

Apart from the heavily used axis leading from *Île de France* (Paris) towards the north, it is the Rhône valley that emerges as a main north-south link.

Influenced by the recently opened Øresund bridge/tunnel, a large proportion of international traffic can also be observed on the main road networks of Denmark and Sweden. Also remarkable are the many east-west connections with at least 50% international transport in central and northern Sweden, explained by journeys that lead to Norway or Finland.

As the main ferry connections are part of the road network model and mostly connect two different countries (except Sicily-Sardinia, Balearics-mainland Spain, Corsica-mainland France) it is obvious that these show over 50% international journeys.


Map 2: Ratio of international freight transport to all freight transport (tonnes)
% international freight
<= 10
> 10 <= 25
> 25 <= 50
> 50
all freight (million tonnes)
> 0 <= 5
> 5 <= 10
> 10 <= 25
> 25
no data available
statistical data: transport modelling based on regional statistics on the carriage of goods collected by Eurostat in the framework of the Council Regulation 1172/98 (2004 data)
administrative boundaries: GISCO
cartography: GIM
0 125 250 500 Km

Small share of long distance trips; most long journeys starting from Barcelona

Table 2: EU-25*: Top 20 regions with the highest number of long-distance journeys (> 500 km, departing journeys), 2004

	Region	Country	Number of long distance journeys	% long distance journeys in all journeys departing
1	Barcelona	ES	957 029	3.7
2	Madrid	ES	573 548	2.7
3	Valencia	ES	375 823	2.2
4	Milano	IT	285 542	4.9
5	Nord	FR	250 707	2.6
6	Seine-Maritime	FR	225 743	3.7
7	Rhône	FR	216 569	2.6
8	Sevilla	ES	216 499	2.3
9	Centralny slaski	PL	201 184	1.4
10	Luxembourg (Grand-Duché)	LU	177 878	5.3
11	Murcia	ES	168 799	1.6
12	Torino	IT	160 543	5.4
13	Bas-Rhin	FR	157 966	2.9
14	Skåne län	SE	145 712	3.2
15	Bouches-du-Rhône	FR	145 502	1.7
16	Szczecinski	PL	136 298	3.4
17	Stredocesky	CZ	127 177	0.9
18	Pas-de-Calais	FR	126 774	1.6
19	Zaragoza	ES	124 374	2.2
20	Gironde	FR	117 728	2.1

* except Greece and Malta

Source: Eurostat

Only a relatively small share of road freight transport journeys are long-distance trips, i.e. longer than 500 kilometers.

It is the *Barcelona* region that registered the highest absolute number of departing long-distance trips with over 957 thousand journeys. Even so, these journeys only represented 3.7% of the total number of departing journeys registered in *Barcelona*. Hence, the vast majority of road freight transport journeys are of a distance of less than 500 km.

Albeit at a considerable distance, two other Spanish regions follow with regard to the number of long-distance journeys: *Madrid* and *Valencia* with 574 thousand and 376 thousand trips respectively.

Looking only at the share of long-distance journeys in all trips departing, the highest proportions among the Top-20 regions are found for *Torino* (5.4%), *Luxembourg* (5.3%) and *Milano* (4.9%).

Due to the small size of the country, the 178 000 long-distance journeys starting in Luxembourg are at the same time international journeys. The relatively high number of long-distance trips is influenced by the fact that Luxembourg has an important air freight terminal.

Cross border traffic: focus on Central EU

The comments relating to the first map on page 2 already mentioned the fact that border regions in general show a higher proportion of international road freight transport journeys. Map 3 on the following page zooms in on the Central part of the European Union and looks at cross-border goods transport. Cross-border transport is defined here as journeys with a distance of less than 180 kilometers, crossing at least one border. Indirectly, cross border goods transport can be seen as a sign of economic integration, particularly in those countries having adjoining land borders.

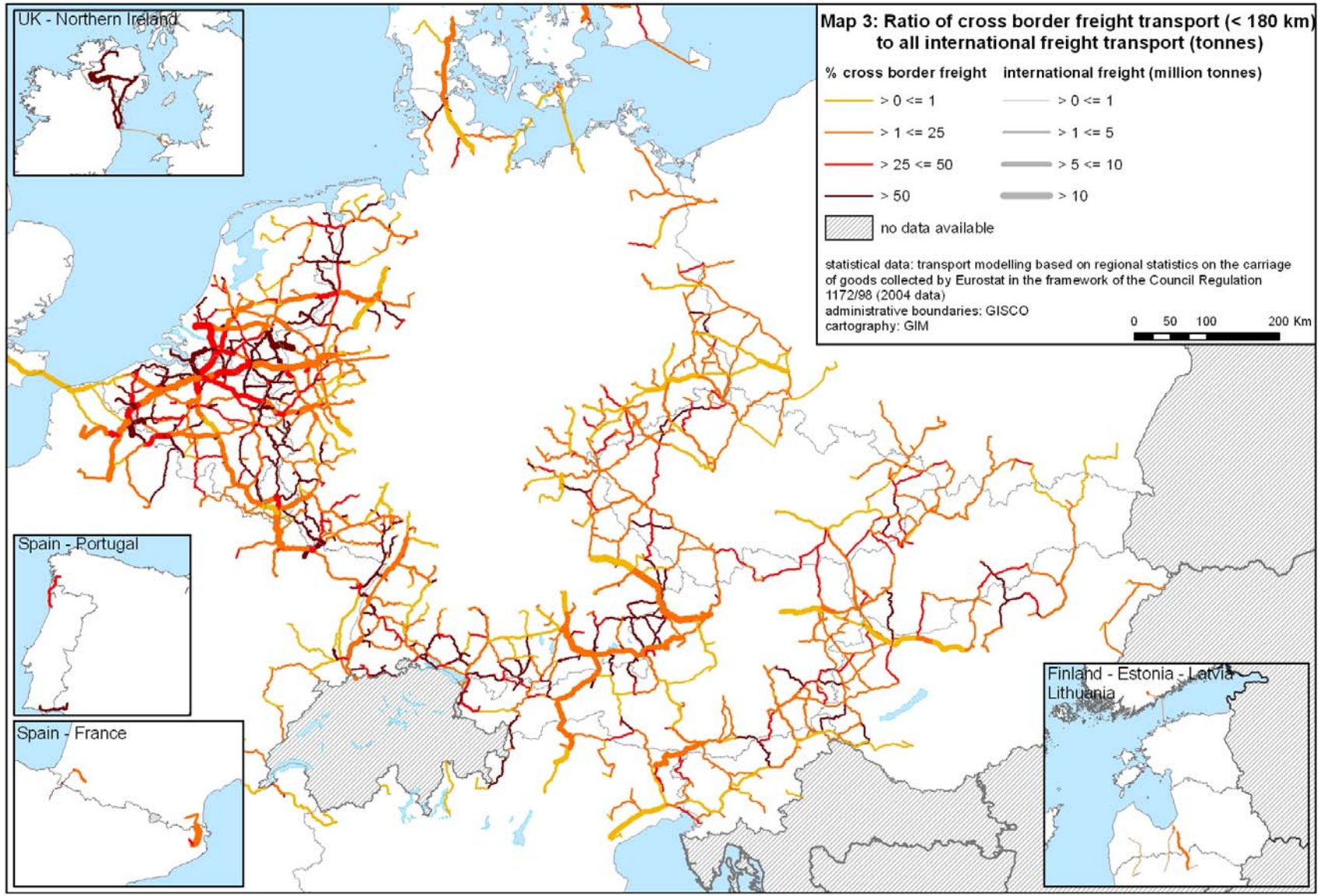
The map hence allows the identification of the proportion of 'short-distance' international traffic (different colors) in total international transport volume ('thickness' of lines).

The entire Benelux area along with the main road connections to neighbouring France and Germany shows rather intense cross border traffic. Many road network segments, although not the most heavily used in terms of absolute international transport tonnage, show proportions of cross border transport in excess of 50%.

A high share of cross border road freight transport under 180 km trip length is also observed in Southern Germany with links to France, Austria and the Czech Republic. Conversely, cross border transport between Germany and Poland is less intense.

Looking beyond the central EU, due to its inherent geographical characteristics but also considering the centers of economic activity, cross border transport between Northern Ireland (UK) and the Republic of Ireland is quite important (over 50% of the total tonnage in international transport).

More to the south, between 25% and 50% of the total volume of goods forwarded on international journeys between *Norte* (Portugal) and *Galicia* (Spain) is cross border traffic that does not exceed 180 km in trip length.


Map 3: Ratio of cross border freight transport (< 180 km) to all international freight transport (tonnes)
% cross border freight
> 0 <= 1
> 1 <= 25
> 25 <= 50
> 50
international freight (million tonnes)
> 0 <= 1
> 1 <= 5
> 5 <= 10
> 10
no data available
statistical data: transport modelling based on regional statistics on the carriage of goods collected by Eurostat in the framework of the Council Regulation 1172/98 (2004 data)
administrative boundaries: GISCO
cartography: GIM
0 50 100 200 Km
UK - Northern Ireland
Spain - Portugal
Spain - France
Finland - Estonia - Latvia - Lithuania

➢ METHODOLOGICAL NOTES

Data sources

Eurostat collects regional statistics on the carriage of good by road. In the past the collection was done in the framework of two Directives (78/546 and 89/462). From 1999 onwards, statistics are collected in the framework of the Council Regulation 1172/98 for the transmission of individual data records on vehicles, journeys and transport operations that replaces the existing directives.

The statistics collected in the past contain regional (NUTS 1 or 2 level) origin-destination data for national transport. For international transport only country-to-country level information was available. The new regulation (No 1172/28) is aiming at more detailed regional information (NUTS 3) on both national and international levels.

Transport modelling

This new data collection is now for the first time analysed through transportation modelling. Transport modelling is a simulation technique used as a policy support tool for matters involving traffic. Using these simulation techniques existing or expected traffic flows can be calculated and visualised on road maps.

Transport modelling gives the possibility, not only to enrich the available data, but also to complete these data by estimated values. These estimates have been obtained by means of specific modelling techniques to expand the partial origin-destination observations into full scale NUTS Level 3 – NUTS Level 3 origin-destination trip matrices. Secondly, transport modelling transforms traffic flow information in more efficient and useful formats. As such, the possibilities for traffic flow analysis are much more extensive.

Transport models require a number of specific datasets. First of all, the transport model is implemented for a certain area of interest, i.e. a geographical area, namely all 25 EU Member States, EFTA and Candidate Countries. Since data is collected in the framework of the new council regulation, the area of interest is divided into transport zones which correspond to the administrative NUTS3 areas of the EU.

Another important dataset is the road network of the area of interest. This network is a model of the real road network enriched by several important attributes describing the individual roads.

Since the analysis focuses on regional road freight transport, regional transport statistics in terms of origin-destination are needed. These data give information on the OD-relations on tonnes annually transported, as well as actual journeys. A part of these data (6%, low values) are left out by Eurostat for reasons of confidentiality.

Finally, a set of socio-economic data must also be available for the transport zones. Therefore, data on population, employment and gross domestic product from within Eurostat's reference database is used.

Definitions

• International road transport: road transport between two places (a place of loading/embarkation and a place of unloading/disembarkation) in two different countries. It may involve transit through one or more additional country or countries. (Glossary of Transport Statistics, 3rd edition)

• National road transport: Road transport between two places (a place of loading/embarkation and a place of unloading/ disembarkation) located in the same country irrespective of the country in which the vehicle is registered. It may involve transit through a second country. (Glossary of Transport Statistics, 3rd edition)

• Road journeys: A movement of a road vehicle from a specified point of origin to a specified point of destination. A journey can be divided into a number of sections or stages. (Glossary of Transport Statistics, 3rd edition)

The following definitions have been taken from the modelling application used in the framework of this project:

• Link: a segment in the road network that is connecting one segment of the network to another;

• Origin: the transport zone (i.e. NUTS Level 3 region) where a trip is departing from;

• Road Network: model of the real road network enriched by several important attributes describing the individual roads such as driving speed, number of lanes, types of road, capacity, …;

• Freight transport: goods transported between two transport zones or regions in amount of tonnes;

• Transport zones: division of the area of interest (EU-25, EFTA, CCs) in uniform, spatial units from a socio-economic point of view; for this project the transport zones correspond to the administrative NUTS Level 3 areas of EU.

Regional breakdown

Data used are figures at Level 3 of NUTS 2003 rev., Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS) (Official Journal L 154, 21/06/2003) (http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_154/l_15420030621en00010041.pdf).

The Nomenclature of Territorial Units for Statistics (NUTS) was established by Eurostat more than 25 years ago in order to provide a single uniform breakdown of territorial units for the production of regional statistics for the European Union.

Certain smaller countries are not sub-divided in NUTS Level 3 regions. This is the case for Cyprus (CY), Luxembourg (LU) and Malta (MT).

Country codes

Please note that the content of this publication was prepared at the end of 2006 and does not take into account the latest EU enlargement (Bulgaria and Romania – 1 January 2007). Hence:

EU: European Union, including the 25 Member States (EU-25): Belgium (BE), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Greece (EL), Spain (ES), France (FR), Ireland (IE), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK).

Further information:

Data:

Eurostat data is available free of charge and can be accessed at http://epp.eurostat.ec.europa.eu/.
Regional Transport data is located under:

Transport
Transport - Horizontal view
Regional transport statistics

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