

Finnish transport system in European perspective



Authors Petri Jalasto, Eeva Linkama		Type of publication Research report	
Seppo Lampinen (YY-Optima Oy)		Assigned by Ministry of Transport and Communications	
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Abstract <p>This report presents comparative data on the state and the impacts of the Finnish transport system in relation mostly to other European Union countries. The data are based on freely available sources on the Internet as well as relevant Finnish documents. As the available data do not cover all the relevant subjects, the comparison presented is not all-inclusive.</p> <p>The purpose of the report is to give readers an opportunity to make observations on distinctive differences between Finland and other European countries. No conclusions on these differences are drawn in this report.</p> <p>As the comparison in this report is country-specific, the data mostly relate to road and rail transport. Shipping and air traffic being distinctively international, country-specific comparison is seldom relevant in these two transport modes.</p> <p>The finance of the transport system is discussed for the part of mass transit only. It seems evident that there is no relevant comparative information on the finance of construction and maintenance of transport infrastructure available.</p> <p>The Ministry aims at developing this international comparison into a regular updated system for the follow-up of the state of the Finnish transport system.</p>			
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Foreword

This report presents comparative data on the state and the impacts of the Finnish transport system in relation mostly to other European Union countries. The data are based on freely available sources on the Internet as well as relevant Finnish documents. As the available data do not cover all the relevant subjects, the comparison presented is not all-inclusive. The report Transport 2030 – Background facts also covers international comparisons. This information is not repeated in this report.

The purpose of the report is to give readers an opportunity to make observations on distinctive differences between Finland and other European countries. No conclusions on these differences are drawn in this report.

As the comparison in this report is country-specific, the data mostly relate to road and rail transport. Shipping and air traffic being distinctively international, country-specific comparison is seldom relevant in these two transport modes.

The finance of the transport system is discussed for the part of mass transit only. It seems evident that there is no relevant comparative information on the finance of construction and maintenance of transport infrastructure available. This is most likely due to the differences in responsibilities between national, regional and local government, differences in collecting taxes on various levels of government, as well as differences in compiling information for statistics.

The Ministry of Transport and Communications Finland has commenced a project related to the pricing and the use of information technology in traffic. The project aims at defining indicators for the extent of implementation of various aspects of intelligent transport system (ITS). The project also takes a brief look at the use of corresponding indicators in other countries.

Both the financial aspects and the potential of ITS will be as much as possible included in future international comparisons.

Seppo Lampinen from YY-Optima Consulting has prepared the report. The persons in charge of the report in the MinTC are Senior Adviser Petri Jalasto and Senior Adviser Eeva Linkama.

The Ministry aims at developing this international comparison into a regular updated system for the follow-up of the state of the Finnish transport system. The aforementioned persons in charge in The Ministry will gladly receive any comments and suggestions to improve the approach and information base of the comparison (forename.surname@mintc.fi).

Helsinki, September 2007

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1. Person and goods transport in general

- ✦ The Finns travel extensively.¹
- ✦ The total travel output by passenger car (in person-km) is big in Finland.
- ✦ The share of buses in public transport is in Finland big, that of trains small respectively.
- ✦ The modal share of passenger cars in all passenger transport is on the average European level.
- ✦ There is a relationship between the GDP (per inhabitant) and the number of daily trips: the number of trips increases as wealth grows. In Finland the total travel output has increased slower than the GDP, as in the whole of EU-15 the growth in journeys has been equal to the growth of the GDP.
- ✦ The share of household consumption on transport is in Finland slightly under the average of the EU countries.
- ✦ In Finland the share of households with no passenger car is on the average EU level. Between the EU-15 the share is the second highest.
- ✦ The main transport mode of the Finns is, however, the passenger car more often than in average in the EU countries, and respectively, less often the public transport. Walking and cycling are the main transport mode slightly more often than in average in the EU.
- ✦ The Finns have least faith among the EU citizens that the type of car and the way its usage has an important impact on the traffic situation.

- ✦ Freight transport intensity (transport in tonne-km relative to GDP) is very high in Finland in comparison to the EU-15.

It must be noted that the amount of through traffic, or transito, adds to freight intensity. The low intensity in e.g. Great Britain or Norway is indicative of this phenomenon.

Freight transport intensity is highest in the new EU member states, which are the least developed economies in the EU.
- ✦ After the recession of the early 1990s the increase in tonne-km has been remarkably slower in Finland than the growth of GDP. In all of the EU-15 the case is different: tonne-km have grown faster than GDP.
- ✦ Tonne-km in road transport continuously grow faster in Finland than GDP. This is the case elsewhere in the EU, too.
- ✦ The share of rail transport is relatively high in Finland in goods transport. However, the share is lower than in Sweden.

¹ In addition to the national data, also the comparison of European metropolitan areas indicates similar results. (Sources: EMTA Barometer of Public Transport in the European Metropolitan Areas (2004). European Metropolitan Transport Authorities EMTA 2007; European Common Indicators. Towards a Local Sustainability Profile. Ambiente Italia Research Institute 2003.)

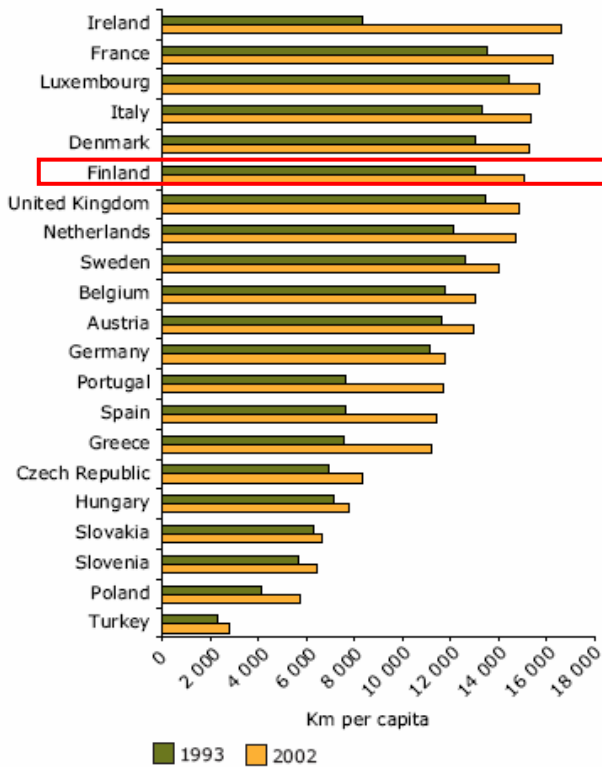


Figure 1. Passenger-kms per capita (per annum) by motorized vehicle in 1993 and 2002.²

Please note!

The growth in Ireland can partly be explained by very strong growth in air transport by Irish-registered airlines. But even when air transport is excluded, Ireland still has the highest level of growth and would be at a level comparable to the United Kingdom.

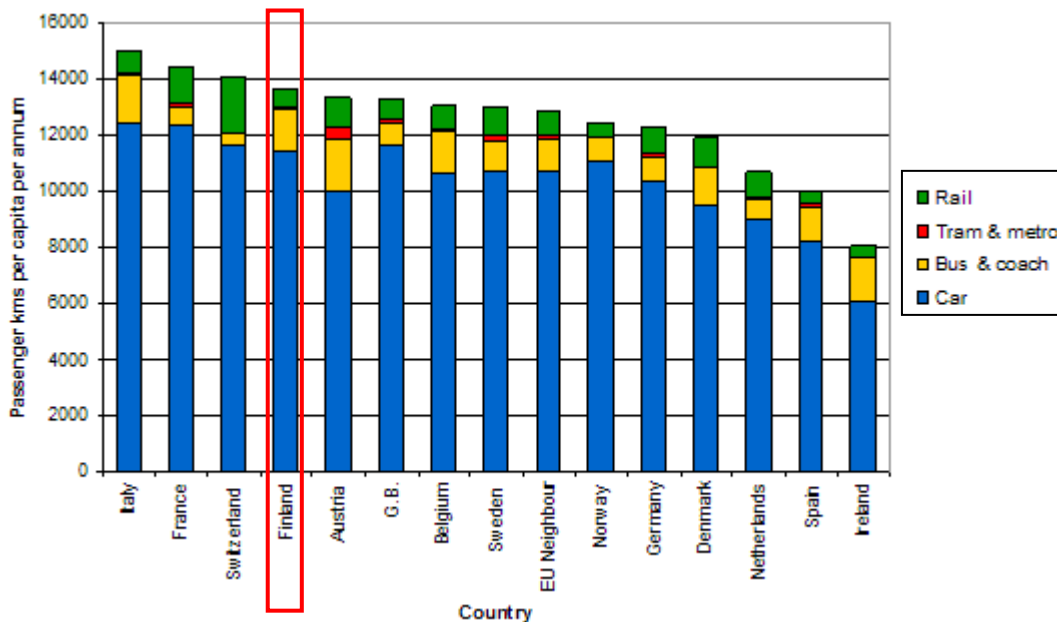


Figure 2. Passenger-kms per capita per annum by transport mode in 2003.³

² Source: Transport and environment: facing a dilemma. TERM 2005: indicators tracking transport and environment in the European Union. EEA Report No 3/2006.

³ Source: The U.K. Commission for Integrated Transport (Great Britain) 2006.

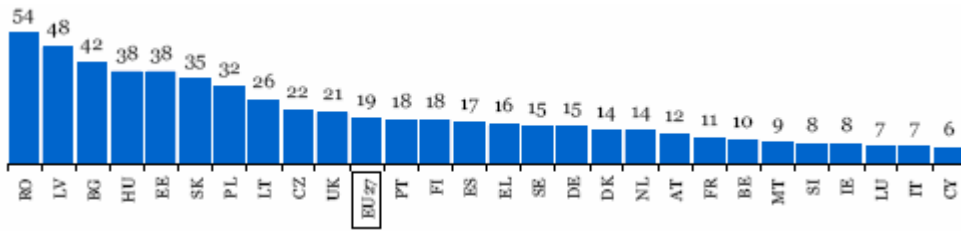


Figure 3. Share of households (%) with no passenger car in 2007.⁴

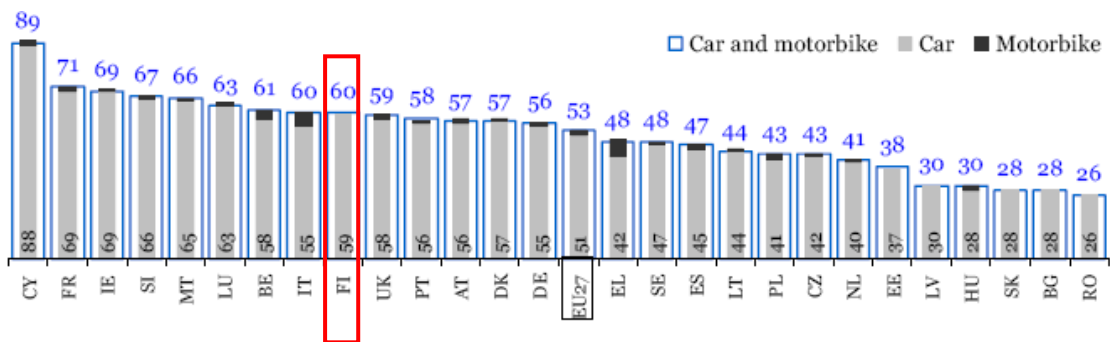


Figure 4. Share of households (%) using car or motorbike as main mode of transport in 2007.⁵

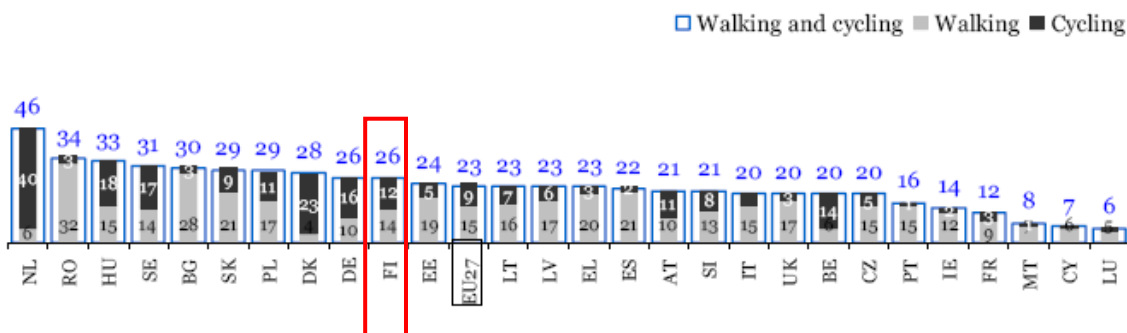


Figure 5. Share of households (%) using walking or cycling as main mode of transport in 2007.⁶

⁴ Source: Attitudes on issues related to EU Transport Policy. Analytical report. European Commission 2007.

⁵ Source: Attitudes on issues related to EU Transport Policy. Analytical report. European Commission 2007.

⁶ Source: Attitudes on issues related to EU Transport Policy. Analytical report. European Commission 2007.

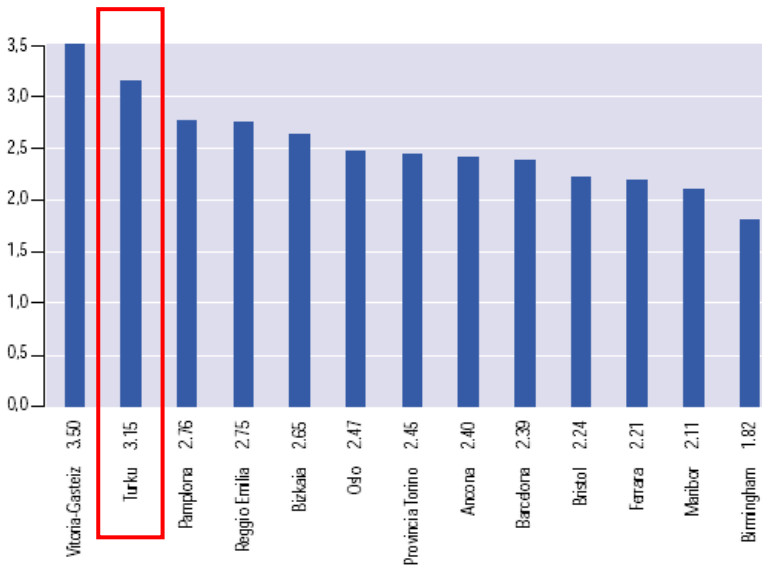


Figure 6. Number of trips per capita in selected medium-sized cities.⁷

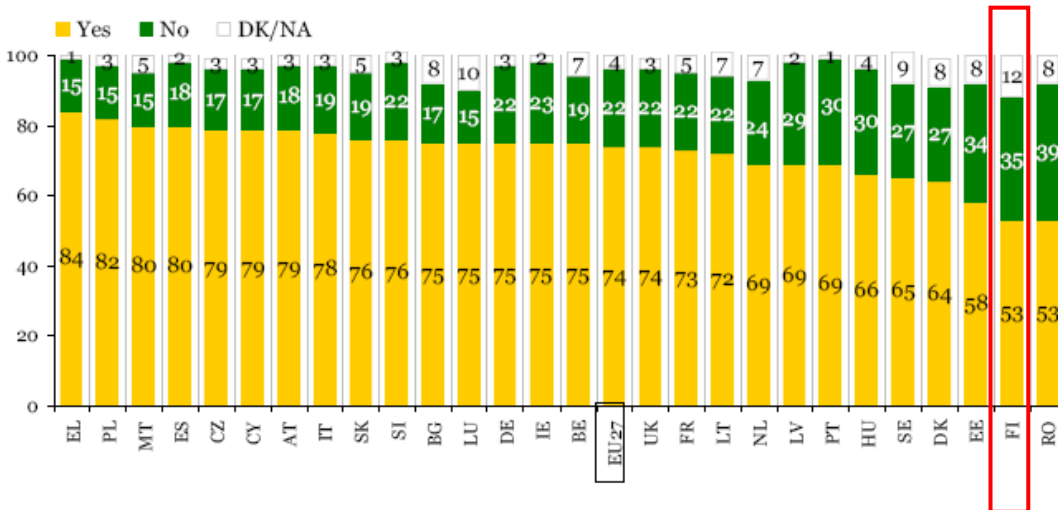


Figure 7. Share of citizens (%) responding that the type of car and the way of its usage has an important impact on the traffic situation in the respondents' area, EU-27.⁸

⁷ Source: European Common Indicators. Towards a Local Sustainability Profile. Final Project Report. Ambiente Italia Research Institute. 2003.

⁸ Source: Attitudes on issues related to EU Transport Policy. Analytical report. European Commission 2007.

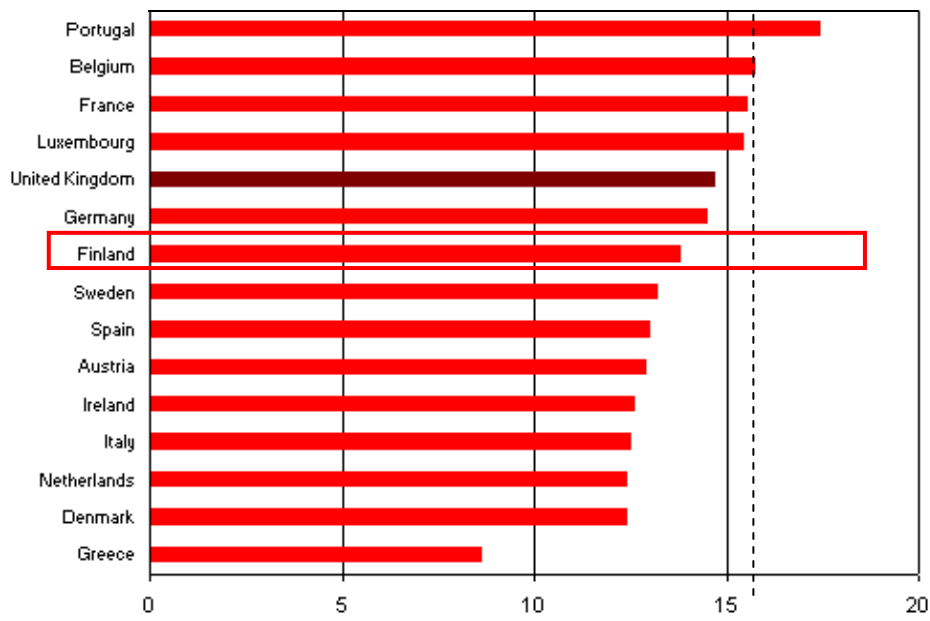


Figure 8. *Share of transport (%) of the total household consumption expenditures in 2000 (EU-15).*⁹

⁹ Source: The Office for National Statistics (ONS), Iso-Britannia.

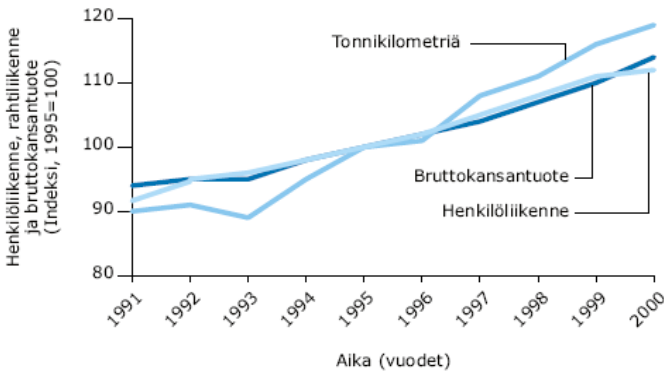


Figure 9. Passenger transport (person km), freight transport (tonne km) and Gross Domestic Product (GDP) in EU-15 1995 to 2000 (index 1995 = 100).¹⁰

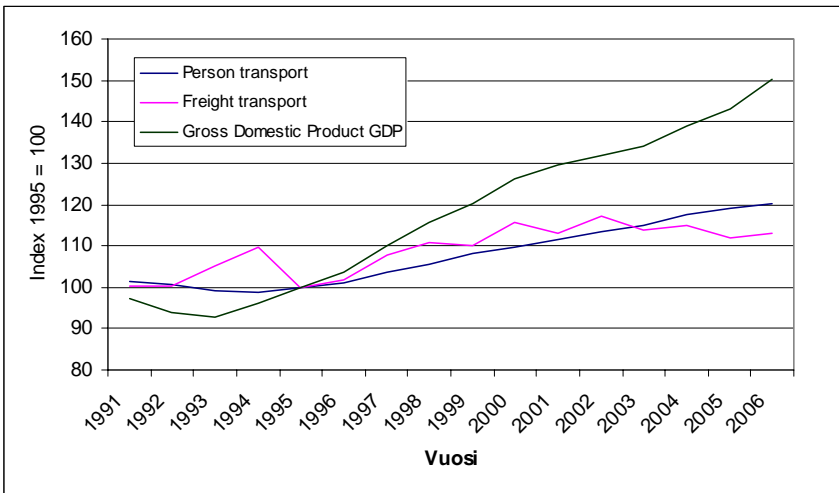
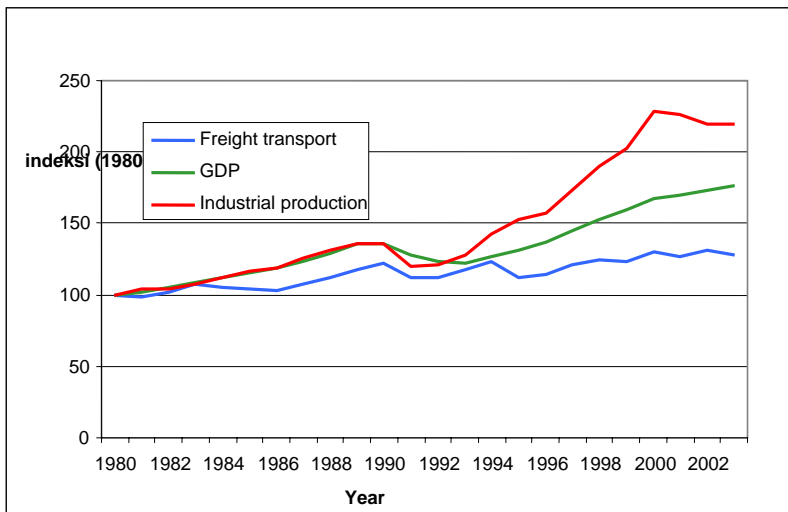


Figure 10. Passenger transport (person km), freight transport (tonne km) and GDP in Finland 1991 to 2006 (1995 = 100).¹¹



As of 2002 till 2005 freight transport has slightly decreased.

Figure 11. Freight transport (tonne km), GDP and industrial production in Finland 1980 to 2002.¹²

¹⁰ Source: EEA Signals 2004. European Environment Agency update on selected issues.

¹¹ Source: Statistics Finland, Finnish Road Administration.

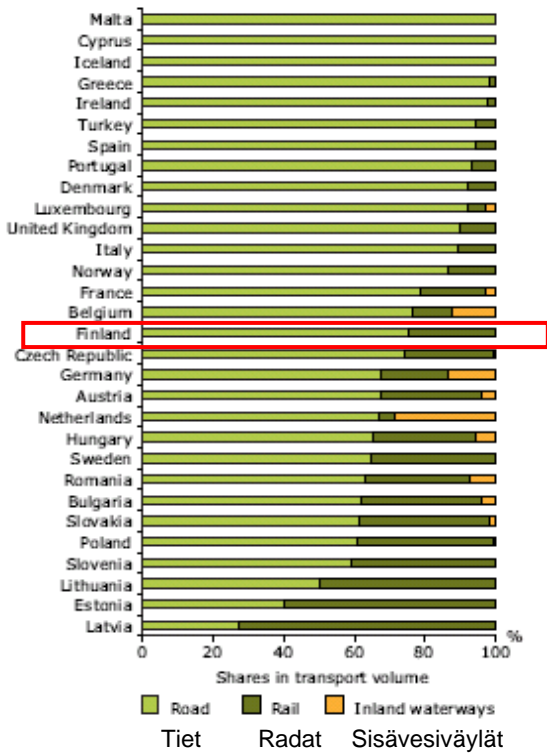


Figure 12. Modal share of freight transport (% , tonne km) in 2003, EU-15.¹³

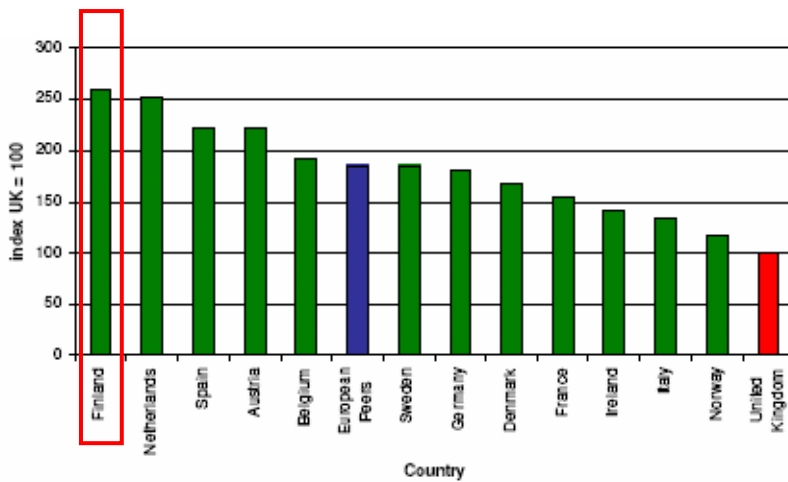


Figure 13. Freight intensity in selected countries in 2002 (index 100 = Great Britain; tonne km per GDP).¹⁴

¹² Source: Statistics Finland.

¹³ Source: Transport and environment: facing a dilemma. TERM 2005: indicators tracking transport and environment in the European Union. EEA Report No 3/2006.

¹⁴ Source: The U.K. Commission for Integrated Transport (Great Britain). 2006.

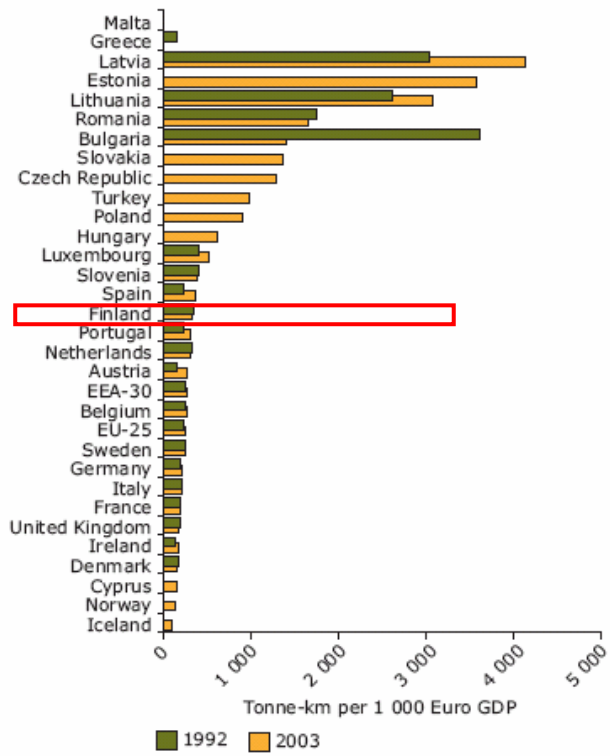


Figure 14. Freight intensity in 1992 and 2003 in selected EU member states and other European countries.¹⁵

¹⁵ Source: Transport and environment: facing a dilemma. Euroopan ympäristökeskus EEA, Report No 3/2006.

2. Public transport

- ✦ The share of public transport varies remarkably even in cities of similar size.¹⁶
- ✦ The level of service of public transport in Helsinki, and in the Helsinki metropolitan area generally, is ranked high in several international studies.
- ✦ The share of public transport in the Helsinki metropolitan area is at the medium level in European comparison. In Helsinki, the central city, the share is among the highest.
- ✦ Even though the modal share of passenger cars is generally growing in Europe, the share of public transport is not decreasing universally. The turn accomplished in certain cities is a result of active policies of promoting public transport.
- ✦ In relation to the wealth of the nation (GDP per person), monthly passes are very inexpensive in Helsinki. The price difference of single and monthly passes is in Helsinki significant. Therefore Helsinki is among the most expensive cities, when the prices of single tickets are compared.
- ✦ In the Helsinki metropolitan area the share of the operating costs of public transport financed by ticket revenues is higher than in most cities included in international comparisons.¹⁷
- ✦ In most metropolitan areas in Europe, particularly in capital cities, the national government usually takes the main responsibility of public transport. The metropolitan area of the capital of Finland is an exception: all the public funding is derived from municipalities.¹⁸
- ✦ The modal share of public transport in e.g. Turku, one of the largest cities in Finland, is smaller than in several European cities of similar size. However, there are big differences in the share of public transport in European cities.
- ✦ The prices of train tickets in short-range (100 km) and mid-range travel (400 km) vary remarkably in Europe. In Finland the prices are on average EU-15 level.

¹⁶ One of the difficulties in international comparison is caused by the fact that the modal share of public transport is sometimes based on the number of motorized trips, sometimes on the number of all trips. Particularly the modal share of cycling varies strongly (see ch. 5), making it important to distinguish the difference while comparing public transport.

¹⁷ In Helsinki the public subsidy is nearly 50 per cent, in other metropolitan municipalities over 50 per cent. In inter-municipal public transport the subsidy is about 30 per cent.

¹⁸ Source: Helsinki Metropolitan Area Council (YTV).

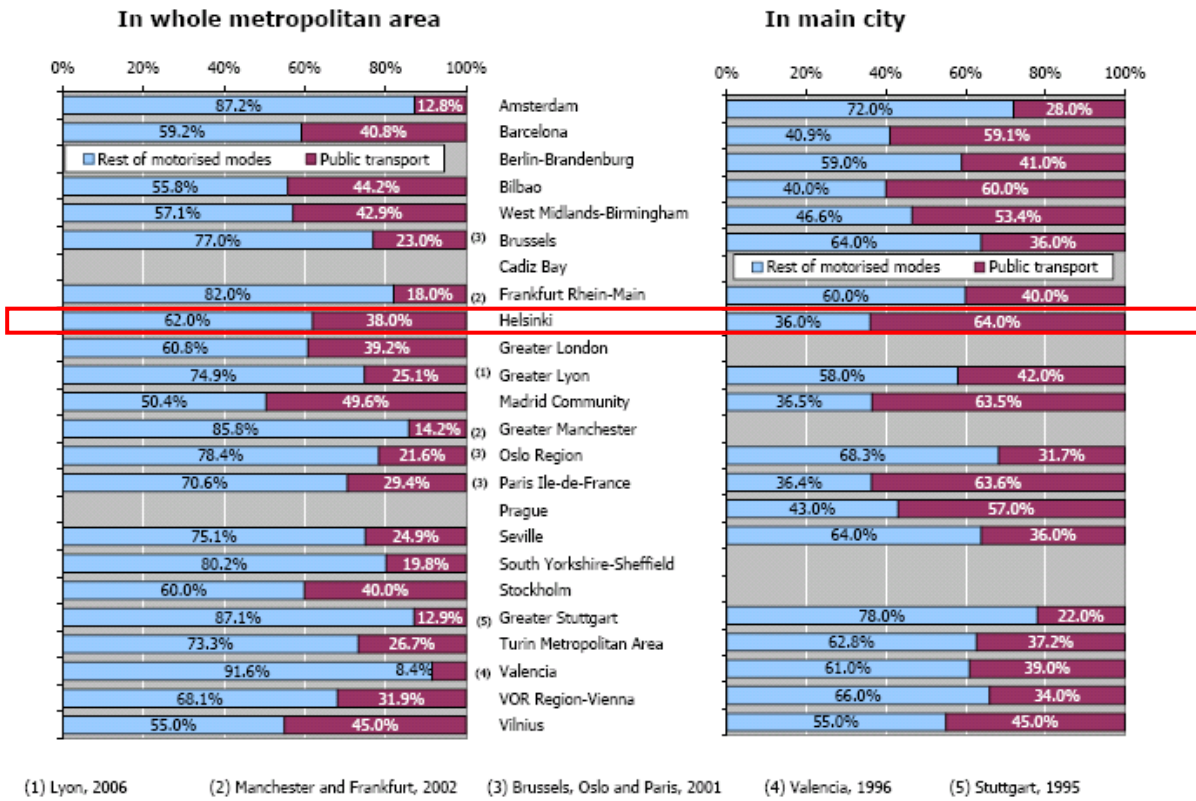


Figure 15. Share of public transport of motorized trips in selected metropolitan areas.¹⁹

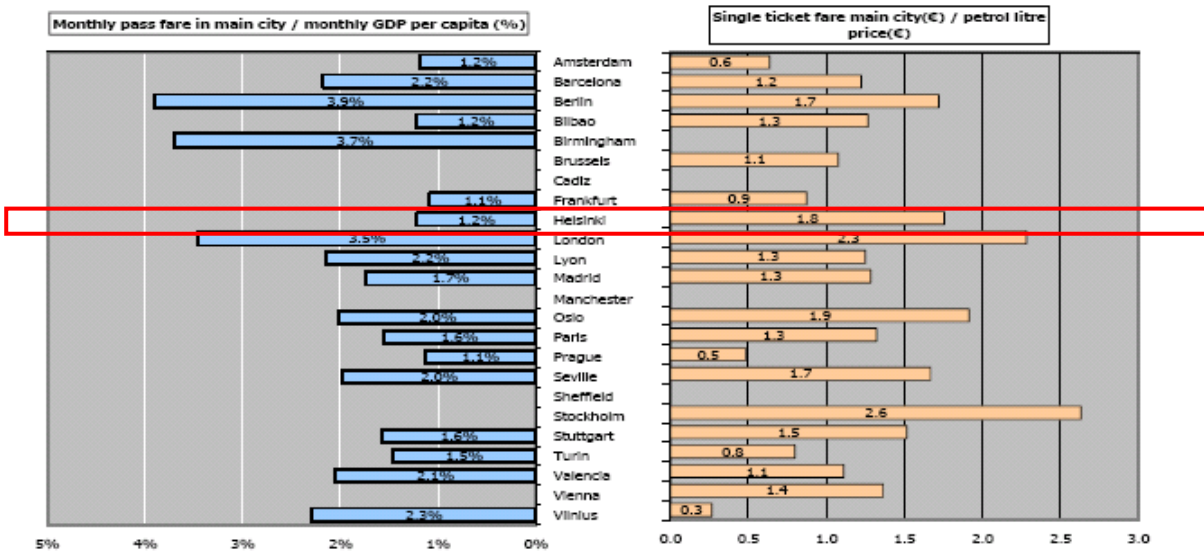


Figure 16. Monthly pass fare in relation to GDP per capita (left) and single ticket fare in relation to a litre of petrol (right) in selected metropolitan areas.²⁰

¹⁹ Source: EMTA Barometer of Public Transport in the European Metropolitan Areas in 2004. European Metropolitan Transport Authorities EMTA 2007.

²⁰ Source: EMTA Barometer of Public Transport in the European Metropolitan Areas in 2004. European Metropolitan Transport Authorities EMTA 2007.

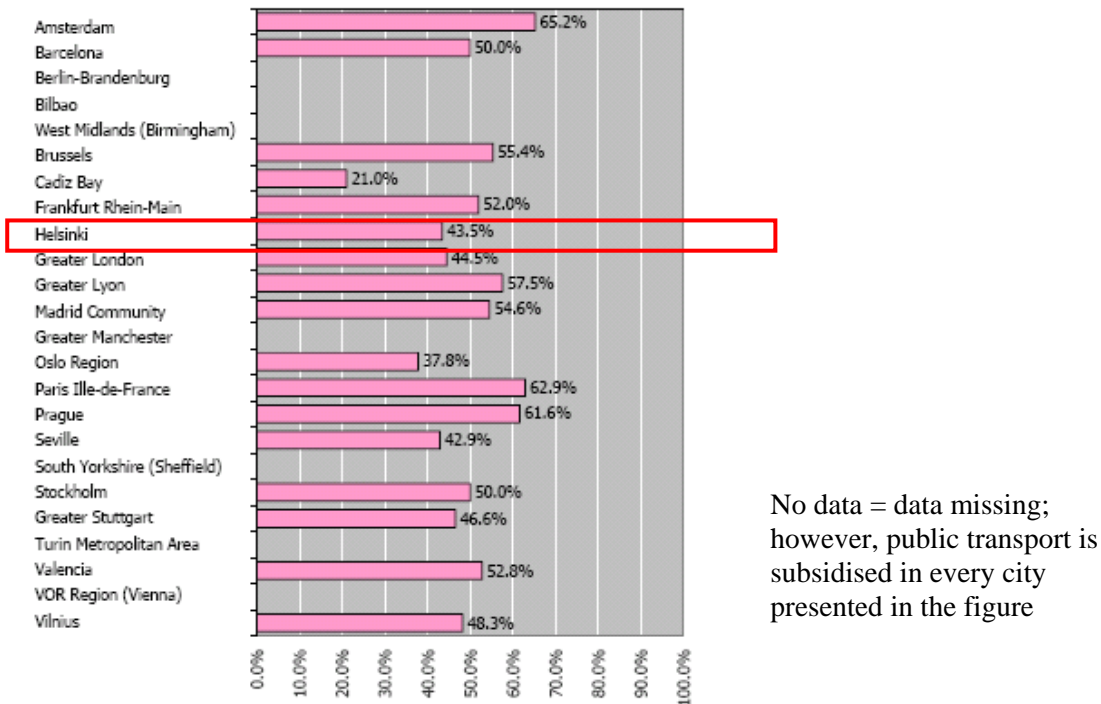


Figure 17. Share of public subsidies of public transport operating costs in selected metropolitan areas.²¹

Even though the modal share of passenger cars is generally growing in Europe, the share of public transport is not decreasing universally:²²

Vienna, Austria (population 1,6 m.)

The modal share of public transport (of all trips including walking and cycling):

- 1993: 29 %
- 1996: 32 %
- 1999: 33 %
- 2002: 34 %

Linz, Austria (population 180 000)

The modal share of public transport (of all trips including walking and cycling):

- 1990: 17 %
- 1998: 20 %
- 2003: 24 %

Bielefeld, Germany (population 330 000)

The number of passengers:
1990-2003: +59 %

²¹ Source: EMTA Barometer of Public Transport in the European Metropolitan Areas in 2004. European Metropolitan Transport Authorities EMTA 2007.

²² Source: Häyrynen, Juha-Pekka: Public transport in European cities. Tampere University of Technology. Tampere 2005. (Joukkoliikenne eurooppalaisissa kaupungeissa. Tampereen teknillinen yliopisto.).

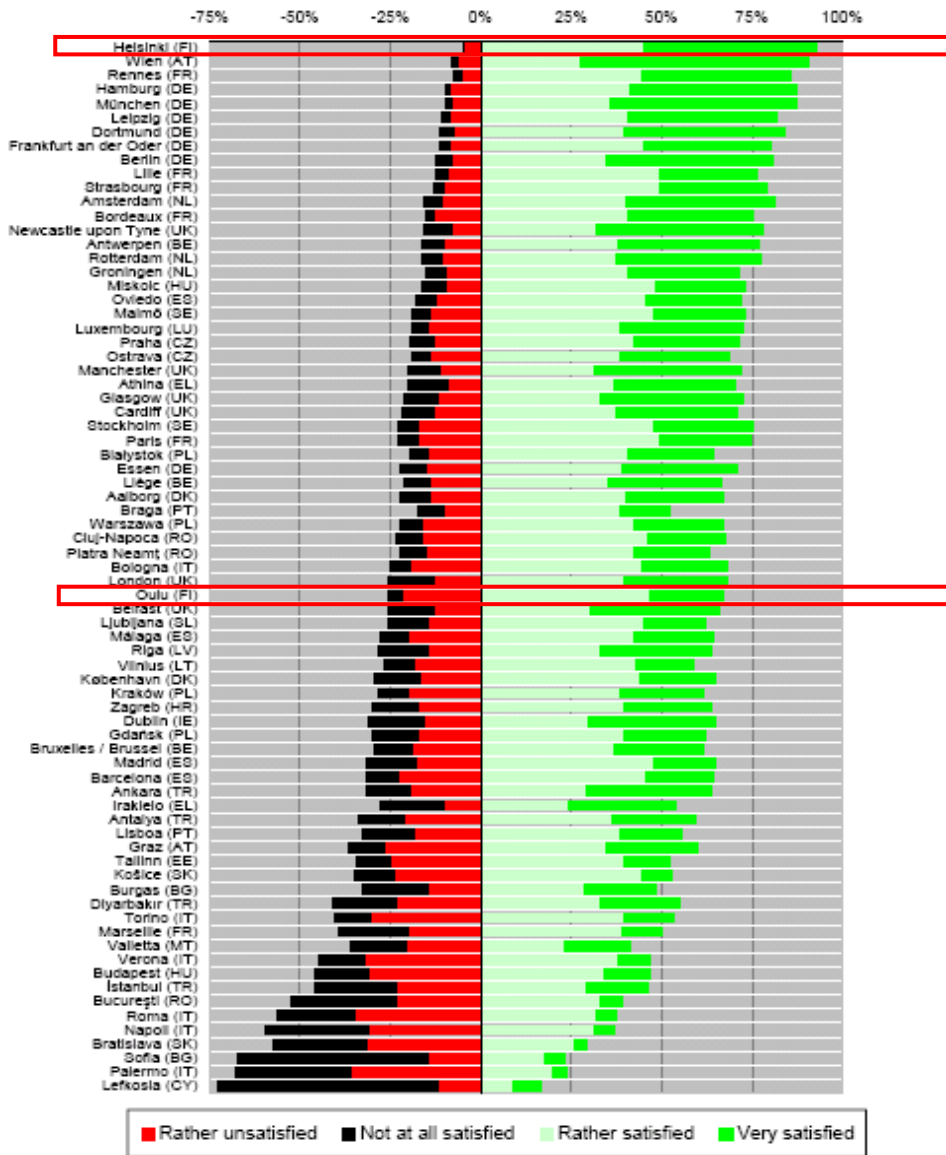


Figure 18. Satisfaction of the residents with public transport in selected cities in 2006.²³

²³ Source: Survey on perceptions of quality of life in 75 European cities. European Commission 2007. The survey was carried out in November 2006 by interviewing 500 people in each 75 cities participating in the survey. There were 23 questions on the quality of life in the respondent's area.

Other big or medium-size cities²⁴

Table 1. Modal share (of the number of trips) in selected European cities in 2001.²⁵

	Car	Motorbike	Public transport ¹⁰	Cycling	Walking
Ancona	62.1%	5.7%	18.3%	0.1%	13.8%
Provincia Torino	56.7%		16.7%		26.7%
Nord Milano	56.0%	3.5%	28.9%	2.0%	9.7%
Aarhus	55.7%	0.0%	13.8%	18.2%	12.4%
Bristol	54.9%	0.0%	13.4%	4.9%	26.8%
Reggio Emilia	53.9%	5.0%	11.5%	15.2%	14.5%
Ferrara	51.2%	4.9%	3.4%	27.6%	13.0%
Oslo ²⁰	48.7%	na	30.5%	1.0%	19.8%
Maribor	44.5%		18.5%		37.0%
Birmingham	43.1%	0.3%	32.4%	1.1%	23.1%
Turku	41.3%	0.1%	16.2%	11.3%	31.2%
Pamplona	37.0%		19.6%		43.5%
Parma	35.6%	3.0%	24.1%	21.1%	16.1%
Vilanova i la Geltru	32.8%	6.3%	20.7%	1.2%	39.0%
Bizkaia	29.1%	0.4%	26.8%	0.1%	43.6%
Zaragoza	28%	na	na	na	na
A Coruna	27.6%	0.3%	6.9%	0.2%	64.9%
Malmoe	24.0%	1.1%	31.3%	23.2%	20.5%
Den Haag	23.0%	0.0%	31.0%	34.0%	11.8%
Barcelona	21.9%	4.8%	28.8%	0.3%	44.1%
Vitoria-Gasteiz	20.7%	0.5%	7.8%	1.4%	69.6%

Please note!

In table 1 the modal share is based on all the trips, motorized and non-motorized. In figure 15 the modal share in the Helsinki metropolitan area and in City of Helsinki is based on motorized trips only.

The modal share of public transport, based on all vehicular trips, is in the Turku region 17 per cent and in the Tampere region 16 per cent. Turku and Tampere are major Finnish urban areas.

²⁴ “Big cities” here refer to other major Finnish urban areas; in European perspective the chapter deals with medium-sized or small cities.

²⁵ Source: European Common Indicators. Towards a Local Sustainability Profile. Ambiente Italia Research Institute 2003.

VAT in public transport

Table 2. Value Added Tax in domestic public transport in EU-27, May 1 2007.²⁶

Country	Standard VAT rate	Bus transport		Rail transport	Air transport
		Scheduled	Charter		
Netherlands	19	6	6	6	19
Belgium	21	6	6	6	6
Bulgaria	20	20	20	20	20
Spain	16	7	7	7	7
Ireland	21	—	—	—	—
Great Britain	17,5	0	0	0	0
Italy	20	20 / —	10	10 / —	10
Austria	20	10	10	10	10
Greece	19	9	9	9	9
Cyprus	15	5 / 15		x	x
Latvia	18	5	5	5	5
Lithuania	18	5	5	5	5
Luxembourg	15	3	3	3	x
Malta	18			x	x
Portugal	21	5	5	5	5
Poland	22	7	7	7	7
France	19,6	5,5	5,5	5,5	5,5
Romania	19	19	19	19	19
Sweden	25	6	6	6	6
Germany	19	7	19	19 / 7	19
Slovakia	19	19		19	19
Slovenia	20	8,5	8,5	8,5	8,5
Finland	22	8	8	8	8
Denmark	25	—	25	—	—
Czech Republic	19	5	19	5	5
Hungary	20	20		20	20
Estonia	18	18	18	18	18

Remarks:

— = exempted

0 = zero rate (exemption with refund of tax paid at preceding stage)

x = no such domestic transport

tyhjä = ei information

Please note!

Any double information in the table (e.g. 20 / —) is presented as it is in the original table.

²⁶ Source: VAT Rates Applied in the Member States of the European Union. Situation at 1st May 2007. European Commission. Taxation and Customs Union.

Mid-range and long-range train fares

Table 3. Examples of train fares in selected countries.²⁷

Country	Price in € per 100 kms	Price index (Finland = 100)	Price in € per 400 kms	Price index (Finland = 100)	Type of train or ticket
<i>Finland</i>	14,10	100	44,80	100	Pikajuna 2 lk. (Express train)
<i>Sweden</i>	12,62	90	47,20	105	Länståg / Övriga tåg 2 klass
<i>Norway</i>	22,82	162	96,22	215	NSB Regiontog Economy
<i>Great Britain</i>	30,60	217	90,30	202	Virgin Trains Standard Open Single
<i>Italy</i>	6,80	48	34,00	76	R / IC Plus 2 class
<i>France</i>	15,30	109	52,10	116	Transport Express Régional TER 2 class
<i>Germany</i>	18,70	133	78,00	174	Regional-Express /ICE 2 class

The fare information in table 3 is indicative only. The train types are meant to be comparable with the Finnish *Express train*, which ranks third in terms of speed after *Pendolino* and *InterCity trains*. The exact distances for the fare in the table may slightly vary.

²⁷ Sources: Internet pages of the train companies (August 2007).

3. Cycling and walking

- ✦ Country-specific data implies that cycling is somewhat more common in Finland than in the EU generally. Denmark and the Netherlands are far ahead. However, it must be noted that the data concerning cycling is not always very dependable.
- ✦ In Amsterdam the modal share of cycling is 35 per cent, that of passenger cars 40 per cent and that of public transport 25 per cent. In Copenhagen the share of cycling in work trips is over one third.
- ✦ In the Helsinki metropolitan area the share of cycling is 7 per cent (including walking). In many European metropolitan areas the share of cycling is remarkably lower.
- ✦ The data concerning walking is not always dependable, either. According to the information collected by EMTA²⁸, in the Helsinki metropolitan area slightly more than one fifth of the number of trips are made by walking. The share is one of the smallest in 24 cities included in the comparison.

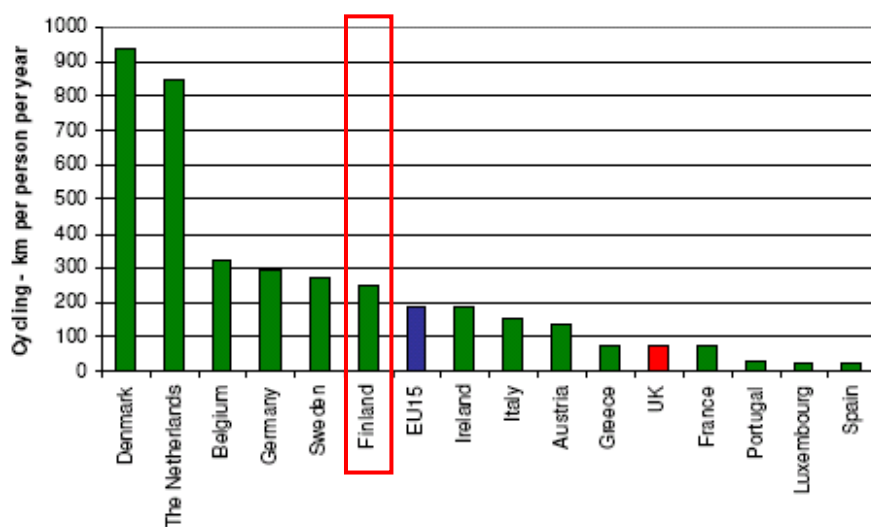


Figure 19. Cycling per person per year (km) in EU-15 in 2000.²⁹

²⁸ Source: EMTA Barometer of Public Transport in the European Metropolitan Areas in 2004. European Metropolitan Transport Authorities EMTA 2007.

²⁹ Source: The U.K. Commission for Integrated Transport (Great Britain) 2006.

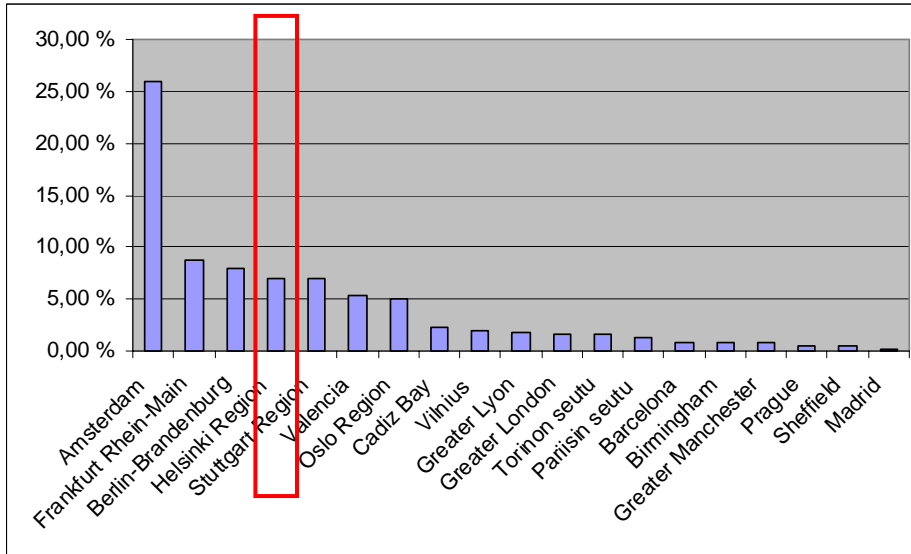


Figure 20. Share of cycling (of the number of all trips) in selected city regions.³⁰

³⁰ Source: EMTA Barometer of Public Transport in the European Metropolitan Areas in 2004. European Metropolitan Transport Authorities EMTA 2007.

4. State of transport infrastructure

- ✦ The overall level of the Finnish transport infrastructure has been assessed as excellent. The assessment is included in a study carried out by the International Institute for Management Development in 21 EU member states. IMD has carried out similar studies in 69 countries in various parts of the world.³¹
- ✦ The survey data give a useful indication of the adequacy of infrastructure and its maintenance and development. However, it should be noted that that levels of investment are an imperfect proxy for provision of infrastructure.
- ✦ There is very little relevant information on comparable qualities of the transport networks. This is due to, among others, geographical variation. In the following tables there are some key figures on road and rail networks as well as airports.

³¹ Source: Evaluation of the Performance of Network Industries Providing Services of General Economic Interest. European Commission 2006.

Table 4. Provision of infrastructure in the EU and selected other countries in 2003.³²

Indicator	Maintenance & development of infrastructure ³³		Efficiency of distribution infrastructure (roads, trains, planes, etc.)		Water transport ³⁴ (harbours, canals, etc.)		Air transport ³⁵	
	Country	Score	Rank	Score	Rank	Score	Rank	Score
Austria	7,34	4	8,36	4	7,40	8	7,84	4
Belgium	6,29	8	7,94	7	8,03	6	6,59	12
Czech Republic	5,16	12	7,35	10	5,27	18	7,44	7
Denmark	7,85	3	8,77	1	8,98	2	8,22	3
Estonia	5,26	11	6,70	12	7,89	7	6,59	12
Finland	7,95	1	8,63	2	9,00	1	8,58	1
France	7,95	1	8,24	5	7,14	9	7,69	6
Germany	7,03	5	8,48	3	8,82	4	8,34	2
Greece	4,17	15	6,06	15	6,48	11	6,11	15
Hungary	3,94	16	7,94	16	4,56	19	5,41	16
Ireland	3,19	20	4,74	20	5,89	15	5,40	17
Italy	3,76	17	4,67	21	3,76	21	4,80	20
Luxembourg	6,84	6	8,21	6	7,14	10	7,26	8
Poland	5,67	10	7,61	9	8,95	3	7,77	5
Portugal	3,13	21	5,29	19	3,82	20	5,09	19
Slovakia	4,84	13	6,42	13	6,06	13	6,39	14
Slovenia	3,56	18	6,10	14	5,62	16	3,80	21
Spain	4,35	14	5,52	18	5,62	17	5,19	18
Sweden	6,00	9	6,74	11	6,29	12	6,73	10
Netherlands	6,28	7	7,93	8	8,29	5	7,10	8
United Kingdom	3,23	19	5,59	17	5,95	14	6,68	11
EU average	5,42		6,92		6,71		6,62	
United States	6,81		8,34		8,22		7,64	
Japan	6,13		7,30		6,54		6,46	
Australia	7,38		7,82		7,93		7,56	

³² Source: Evaluation of the Performance of Network Industries Providing Services of General Economic Interest. European Commission 2006.

³³ Score of 10 = Is adequately planned and financed

³⁴ Score of 10 = Water transportation fully meets business requirements

³⁵ Score of 10 = Quality of air transportation encourages business development in your economy

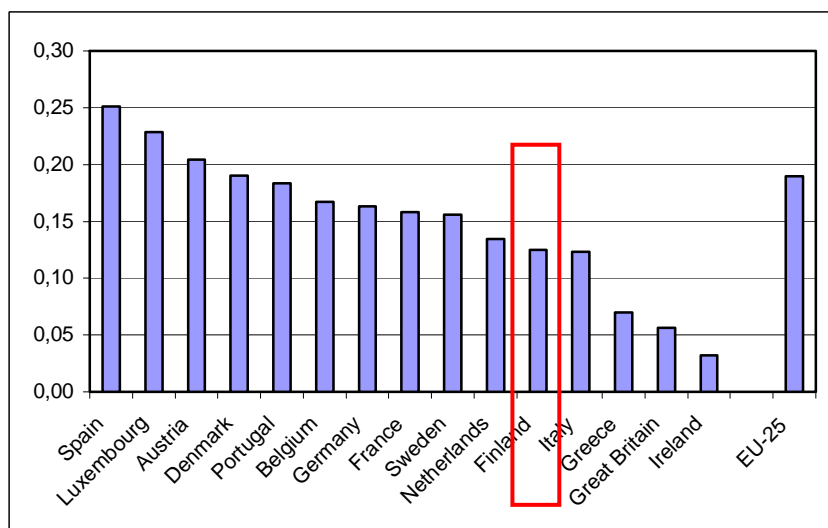


Figure 21. Length of motorways (km per 1000 inhabitants) in EU-15 countries and the EU-25 average at the end of 2004.³⁶

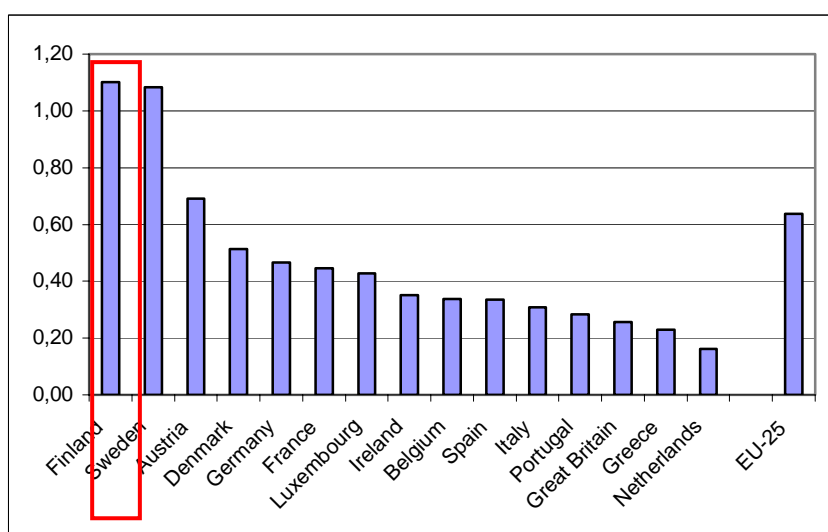


Figure 22. Length of railway lines (km per 1000 inhabitants) in EU-15 countries and the EU-25 average at the end of 2004.³⁷

³⁶ Sources: Energy & Transport in Figures 2006. Part 3: Transport. European Commission. & Living Conditions in Europe. Data 2002-2005. Eurostat 2007.

³⁷ Sources: Energy & Transport in Figures 2006. Part 3: Transport. European Commission. & Living Conditions in Europe. Data 2002-2005. Eurostat 2007.

Table 5. Roads in EU-25 at the end of 2004.³⁸

	Motorways	State roads	Provincial roads	Communal roads	Year	
EU25	58 519	=====	4 734 314	=====		EU25
EU15	55 343	=====	3 830 561	=====		EU15
BE	1 747	12 531	1 349	134 940	2004	BE
CZ	564	6 154	48 792	72 300	2005	CZ
DK	1 032	641	9 690	60 894	2005	DK
DE	12 174	40 969	178 298	413 000	2004	DE
EE	98	16 442		36 441	2002	EE
EL	742	8 588	28 826	75 600	2002-03	EL
ES	10 747	17 688	68 094	68 623	2004	ES
FR	10 383	26 625	359 644	604 308	2004	FR
IE	176	5 255	11 607	78 773	2003	IE
IT	6 487	45 696	119 644	496 894	2002	IT
CY	268	2 380	2 641	3 577	2004	CY
LV	-	20 309	31 787	7 338	2003	LV
LT	417	20 928	57 986		2004	LT
LU	147		2 747		2005	LU
HU	542	30 536	53 749	75 930	2003	HU
MT	-	1 439		647	2002	MT
NL	2 342	6 650	57 500	59 400	2000-04	NL
AT	1 677	10 280	23 086	71 059	2000-04	AT
PL	405	18 253	157 044	201 992	2003	PL
PT	1 836	10 564	4 500	62 528	2002	PT
SI	589		19 628		2005	SI
SK	313	3 335	3 729	10 396	2003	SK
FI	653	78 197		25 000	2003	FI
SE	1 591	15 341	82 915	40 000	2003	SE
UK	3 609	9 466	38 462	364 689	2003	UK
BG	331	2 969	4 012	11 976	2005	BG
RO	113	9 141	35 853	27 817	2001	RO

³⁸ Source: Energy & Transport in Figures 2006. Part 3: Transport. European Commission, 2006.

Table 6. Railway lines in EU-25 at the end of 2004.³⁹

	Area (1000 km ²)	Length of railway lines (km) (2004)			Railway lines density (length of lines/area) m/km ²	
		km	of which: electrified km	%		
EU25	3 974.6	197 937	100 156	51	50	EU25
EU15	3 236.3	150 213	79 845	53	46	EU15
BE	30.5	3 536	2 950	83	116	BE
CZ	78.9	9 612	2 982	31	122	CZ
DK	43.1	2 785	620	22	65	DK
DE	357.0	34 732	19 340	56	97	DE
EE	45.2	971	131	13	21	EE
EL	132.0	2 449	83	3	19	EL
ES	506.0	14 395	8 156	57	28	ES
FR	544.0	29 246	14 645	50	54	FR
IE	70.3	1 919	52	3	27	IE
IT	301.3	16 236	11 241	69	54	IT
CY	9.3	-	-	-	-	CY
LV	64.6	2 270	258	11	35	LV
LT	65.2	1 782	122	7	27	LT
LU	2.6	275	262	95	106	LU
HU	93.0	7 950	2 848	36	85	HU
MT	0.3	-	-	-	-	MT
NL	41.5	2 811	2 064	73	68	NL
AT	83.9	5 675	3 545	62	68	AT
PL	312.7	20 250	11 910	59	65	PL
PT	91.9	2 849	1 372	48	31	PT
SI	20.3	1 229	504	41	61	SI
SK	48.8	3 660	1 556	43	75	SK
FI	338.1	5 741	2 619	46	17	FI
SE	450.0	11 050	7 638	69	25	SE
UK	244.1	16 514	5 258	32	68	UK
BG	110.9	4 259	2 854	67	38	BG
RO	237.5	10 644	3 929	36	46	RO

³⁹ Source: Energy & Transport in Figures 2006. Part 3: Transport. European Commission, 2006.

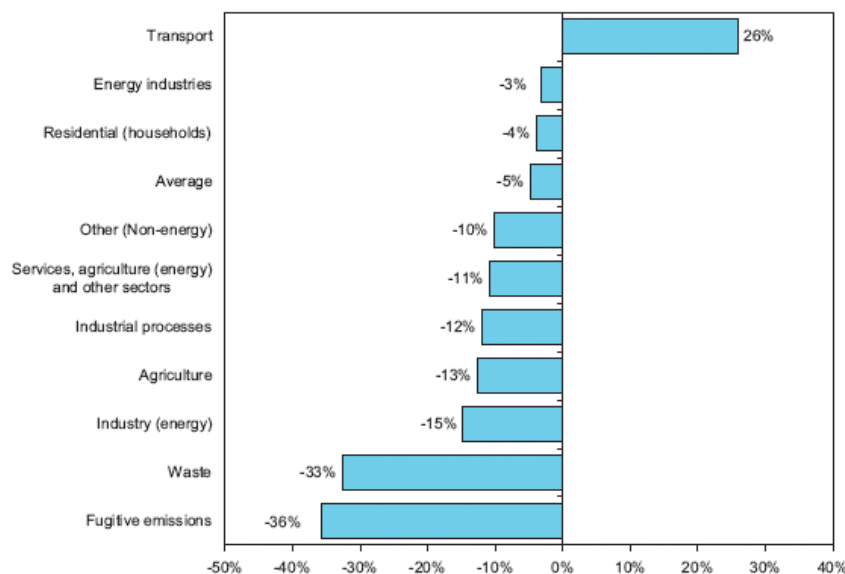
Taulukko 7. Number of airports at the end of 2004 by number of passengers carried per year.⁴⁰

	more than 10 million	5 to 10 million	1 to 5 million	500,000 to 1,000,000	100,000 to 500,000	15,000 to 100,000	
EU25	27	24	85	46	102	88	EU25
EU15	26	21	79	44	95	80	EU15
BE	1		1		3		BE
CZ	1				2	1	CZ
DK	1		1	2	3	2	DK
DE	5	4	8	5	2	14	DE
EE			1				EE
EL	1		6	2	12	10	EL
ES	4	4	16	3	6	5	ES
FR	2	4	9	8	23	16	FR
IE	1		2	1	2	4	IE
IT	2	3	15	4	6	5	IT
CY		1	1				CY
LV			1				LV
LT			1			2	LT
LU			1				LU
HU		1				2	HU
MT			1				MT
NL	1		1	1	2		NL
AT	1		1	4			AT
PL		1		2	3	3	PL
PT	1		3	1	3	2	PT
SI			1				SI
SK					2		SK
FI	1			2	9	9	FI
SE	1		4	2	15	8	SE
UK	4	6	11	9	9	5	UK
BG			3			1	BG
RO			1		3	5	RO
HR			2	1	1	2	HR
MK				1		1	MK
TR	1	1	5	1	7	10	TR
IS			1				IS
NO	1		5	3	8	23	NO
CH	1	1	1		1	2	CH

⁴⁰ Source: Energy & Transport in Figures 2006. Part 3: Transport. European Commission. 2006.

5. CO₂ emissions and other environmental issues

- ✦ Greenhouse gas (GHG) emissions from transport are steadily increasing in the EU, although total greenhouse gas emissions have decreased 15 per cent in 1990 through 2004.
- ✦ In the transport sector in the EU, the GHG emissions from aviation are rapidly increasing. The growth in road transport also continues.
- ✦ In Finland greenhouse gas emissions from transport have increased less than on average in the EU. The share of transport of the total GHG emissions is about one fifth in Finland, in parallel with the average level in the EU.
- ✦ The average specific fuel consumption and thus also CO₂ emissions of the new passenger car fleet is higher in Finland than on average in the EU.
- ✦ The urban form of Finnish cities is characterised by urban sprawl. This results in i.e. the high level of fuel consumption in transport.
- ✦ The Finns have least faith among the EU citizens in that the type of car or the use of car has an important impact on the environment in their own area.



Source: European Environment Agency

Figure 23. Evolution of total greenhouse gas emissions by transport mode, EU-25, 1990-2004 (in %).⁴¹

⁴¹ Source: Panorama of Transport. Eurostat 2007.

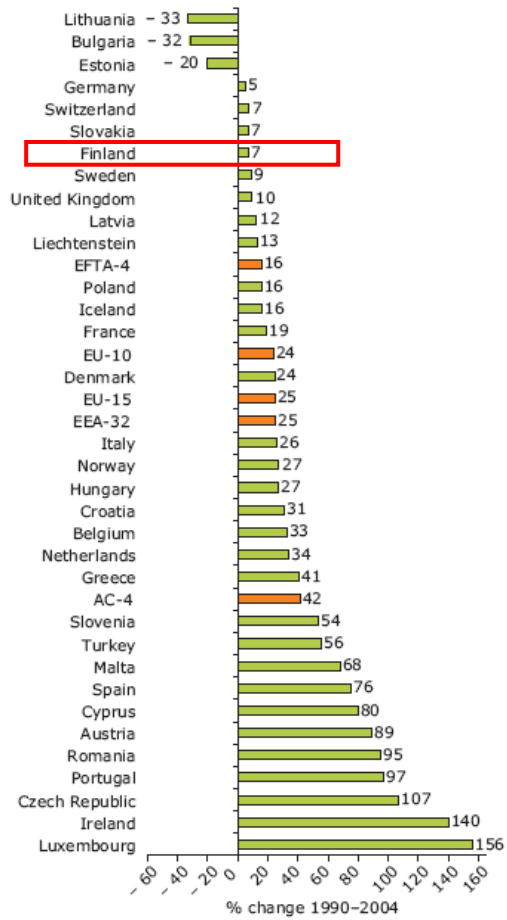


Figure 24. Evolution of greenhouse gas emissions in transport sector, EU-25, 1990–2004 (%).⁴²

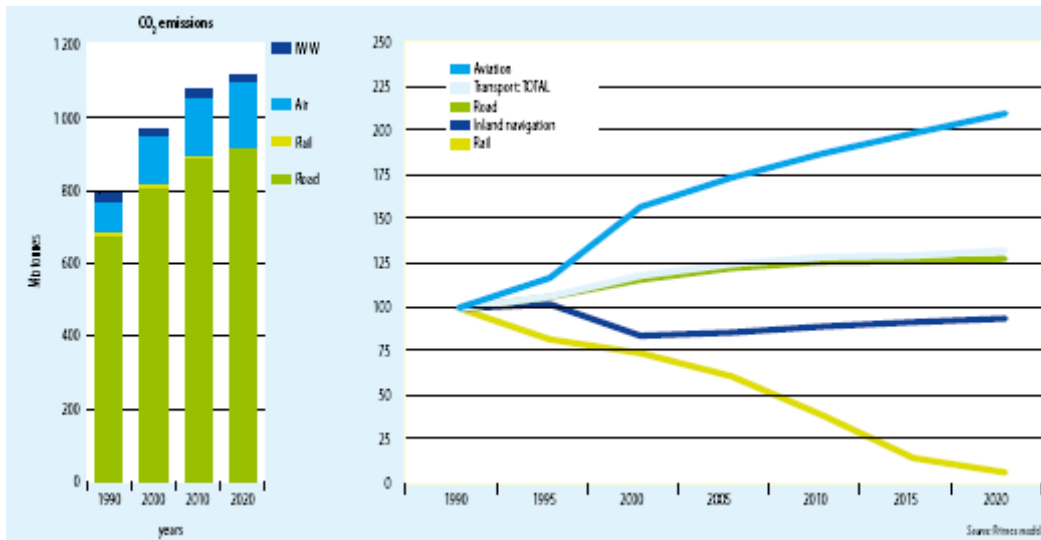


Figure 25. Expected evolution of CO₂ emissions from transport by mode (1990 = 100), EU-25.⁴³

⁴² Source: Transport and environment: on the way to a new common transport policy. TERM 2006: indicators tracking transport and environment in the European Union. EEA report 1/2007.

⁴³ Source: Keep Europe moving. Sustainable mobility for our continent. Mid-term review of the European Commission’s 2001 transport White Paper. European Communities 2006.

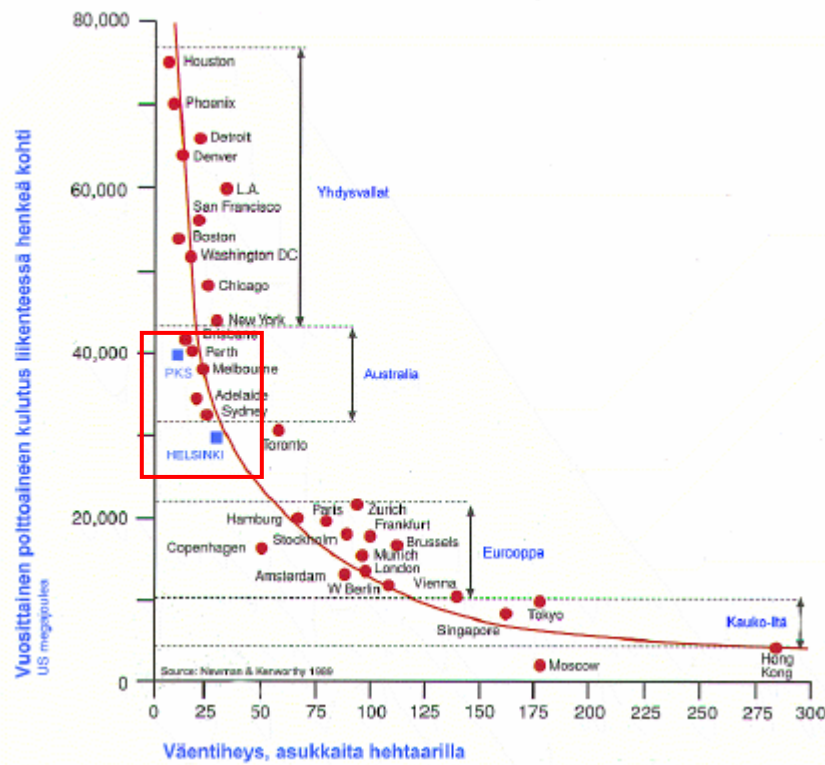


Figure 26. Urban form (density, residents her hectare) and transport energy consumption in selected metropolitan areas.⁴⁴

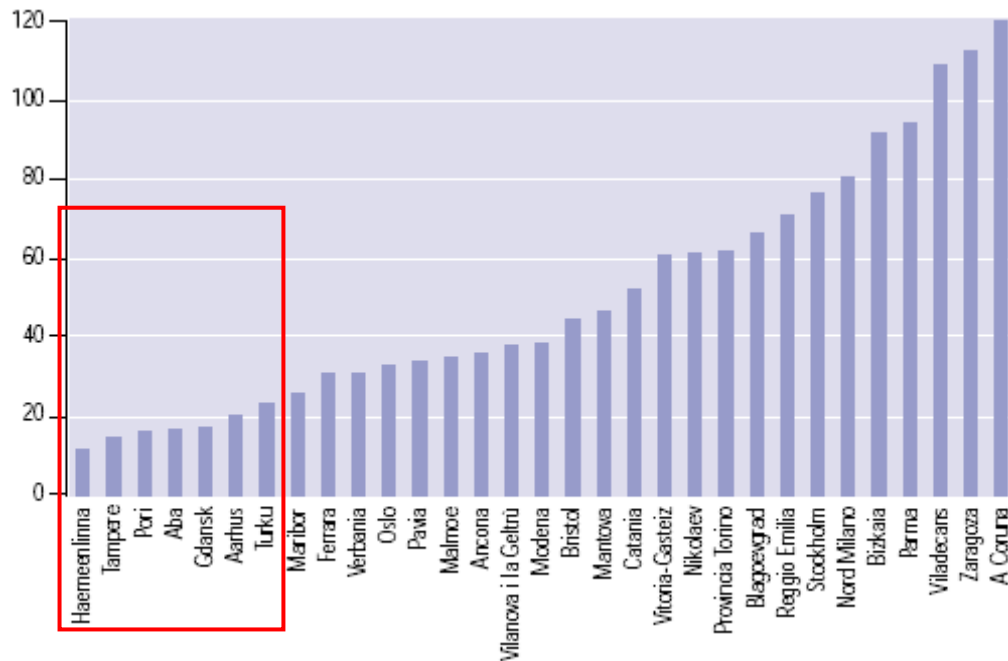


Figure 27. Urban density (inhabitants per hectare of urbanised land) in selected small and medium-sized city regions.⁴⁵

⁴⁴ Source: YTV; Towards an Urban Renaissance. Urban Task Force 1999.

⁴⁵ Source: European Common Indicators. Towards a Local Sustainability Profile. Final Project Report. Ambiente Italia Research Institute. 2003. Finland: Finnish Vehicle Administration AKE.

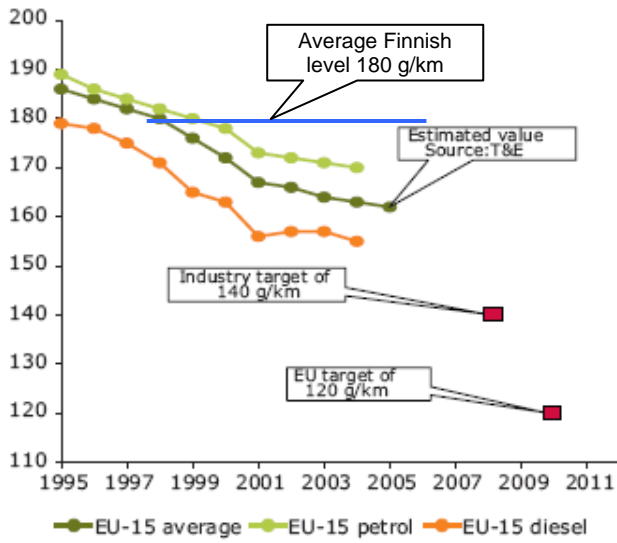


Figure 28. CO2 emissions from new passenger cars, EU-15, and EU emission targets.⁴⁶

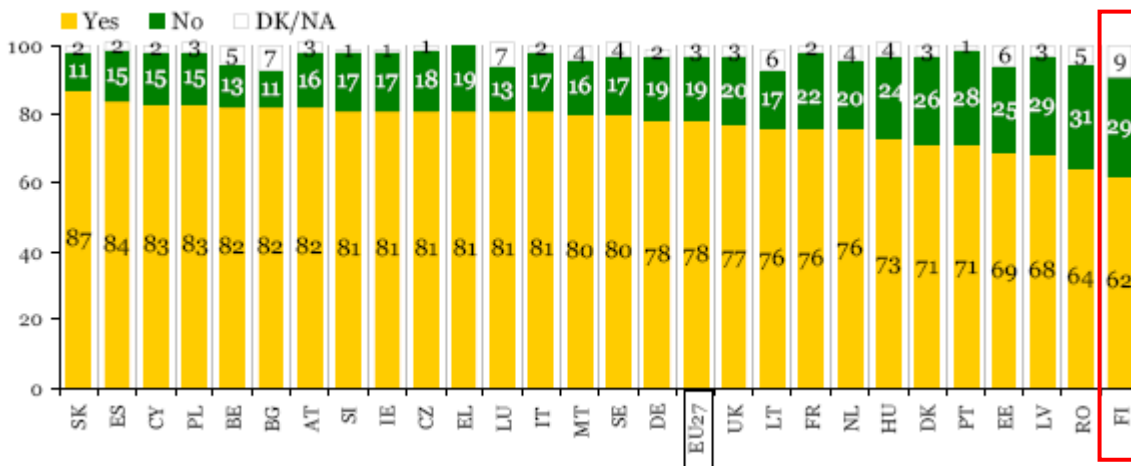


Figure 29. Share of citizens (per cent) responding that the type of car and the way of its usage has an important impact on the environment in the respondent's area, EU-27.⁴⁷

⁴⁶ Source: Transport and environment: on the way to a new common transport policy. TERM 2006: indicators tracking transport and environment in the European Union EEA report 1/2007.

⁴⁷ Source: on issues related to EU Transport Policy. Analytical report. European Commission 2007.

Other environmental impacts of transport system

- ✦ There are no comprehensive comparative studies on the extent of the impacts of noise pollution. The implementation of the EU directive on environmental noise (2002/49/EC) will change the situation in the near future.
- ✦ It looks evident that the share of the population exposed to traffic noise is somewhat smaller in Finland than in other European countries. A comparison between Sweden and Finland shows very similar results, indicating that the share of people exposed to traffic noise is in Finland 14 per cent and in Sweden 16 per cent of the total population.⁴⁸
- ✦ Based on earlier studies, the number of people exposed to traffic noise in the Helsinki metropolitan area is 160 000 to 170 000 people, or 16 to 17 per cent of the population.⁴⁹
- ✦ According to a recent study, complying with the guidelines of the EU directive on environmental noise, the number of people exposed to traffic noise is remarkably higher, in the municipality of Helsinki alone over 300 000 people out of the population of 560 000.⁵⁰
- ✦ Other than CO₂ emissions decrease as the vehicle fleet is renewed. In Finland the decrease is slower than in most other EU countries, as the vehicle fleet is on average older.

Table 8. Exposure to noise or noise disturbance in Finland, Germany and the Netherlands.⁵¹

	Finland	Germany	Netherlands
	Exposure to noise (>55 dB)	Serious noise disturbance	Noise disturbance
	1992-1996	1994	1999
Road traffic	17 %	22 %	28 %
Air traffic	1,3 %	9 %	18 %
Rail traffic	0,7 %	3 %	6 %

⁴⁸ Source: Exposure to traffic noise in Finland. Review 2005. Ministry of Environment Finland. (Altistuminen ympäristömelulle Suomessa. Tilannekatsaus 2005. Suomen ympäristö 809. Ympäristöministeriö.)

⁴⁹ Source: Impact assessment of the Helsinki metropolitan area transport plan PLJ 2007. Helsinki Metropolitan Area Council 2006. (Pääkaupunkiseudun liikennejärjestelmäsuunnitelma PLJ 2007. Vaikutusten arviointi. YTV 2006.)

⁵⁰ Source: City of Helsinki, Strategic noise mapping 2007. (Helsingin kaupungin meluselvitys 2007. Helsingin kaupungin ympäristökeskuksen julkaisuja 6/2007.)

⁵¹ Source: Traffic noise: exposure and annoyance. EEA 2001.

Table 9. Exposure to traffic noise by noise level in selected cities.⁵²

L _{dn}	55-59 dB(A)	60-64 dB(A)	65-69 dB(A)	70-74 dB(A)	≥ 75 dB(A)
Tampere ³³	97%	0%	3%	0%	0%
Blagoevgrad	87%	2%	2%	7%	2%
Stockholm ³³	80%	0%	20%	0%	0%
Helsingborg ³³	53%	35%	12%	0%	0%
Torino	40%	31%	20%	8%	1%
Aarhus ³³	38%	31%	23%	8%	0%
Modena	24%	25%	33%	15%	2%
Vitoria-Gasteiz	16%	18%	30%	29%	7%
Viladecans	11%	37%	34%	16%	2%

Please note!

The recent noise mapping in Helsinki indicates that the situation in Tampere is not quite so good as presented in the table. The share of the population exposed to noise levels exceeding 60 dB(A) is most likely greater.

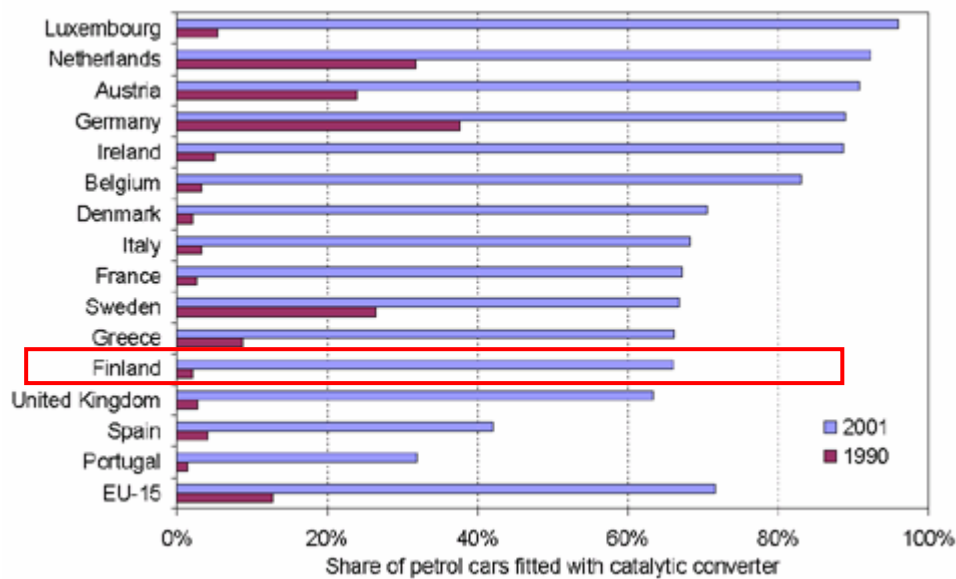


Figure 30. Share of petrol cars fitted with catalytic converter, EU-15, in 1990 and 2001.⁵³

⁵² Source: European Common Indicators. Towards a Local Sustainability Profile. Final Project Report. Ambiente Italia Research Institute. 2003.

⁵³ Source: European Environment Agency EEA.

6. Traffic safety

- ✦ The level of road traffic safety is remarkably higher in Finland than on average in the EU countries, both in relation to the number of vehicles and to the population.
- ✦ The number of fatalities has in Finland decreased during the 1990s and the first decade of the new millennium with the same pace as in other Nordic countries. In the entire EU traffic safety is improving. Nevertheless there were 41 600 fatalities in road traffic and more than 1,7 million injured in 2005 in the EU countries.
- ✦ Since mid-1990s the number of fatalities has in Finland decreased slower than on average in the EU. This is partly due to the fact that the level of road traffic safety was in mid-1990s much better than the EU average.
- ✦ The number of road fatalities has started to increase simultaneously in 2006 both in Finland, Sweden, Norway, and Denmark.
- ✦ There is no dependable comparative data on fatalities caused by drunken driving.
- ✦ The level of safety of rail passengers is good in Finland.

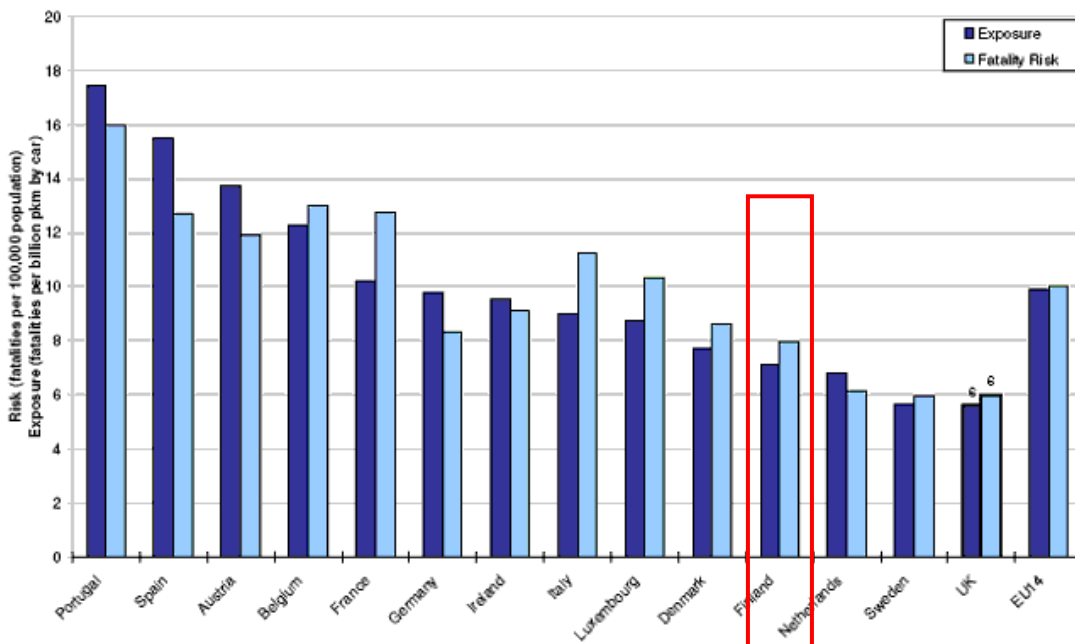


Figure 31. Road traffic fatality exposure and risk, EU-15, in 2002.⁵⁴

Exposure = Fatalities per 1000 million passenger-km

Fatality risk = Fatalities per 100 000 inhabitants

⁵⁴ Source: International Road and Traffic Accidents Database (IRTAD), 2005; EU Energy & Transport in Figures 2004, Eurostat.

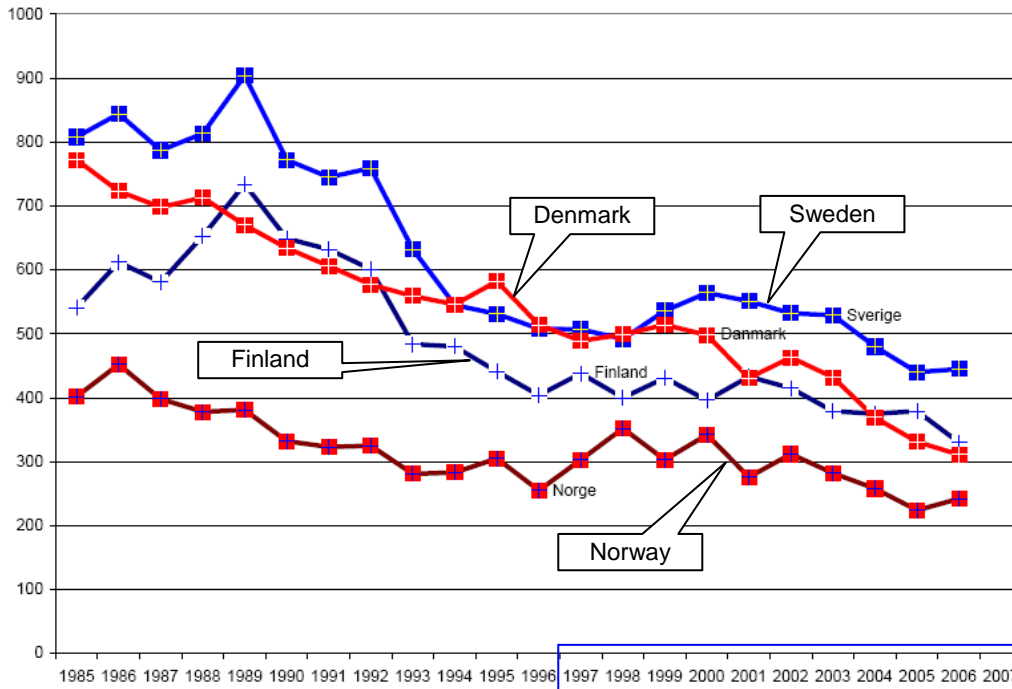


Figure 32. Road traffic fatalities in Nordic countries in 1985–2006.⁵⁵

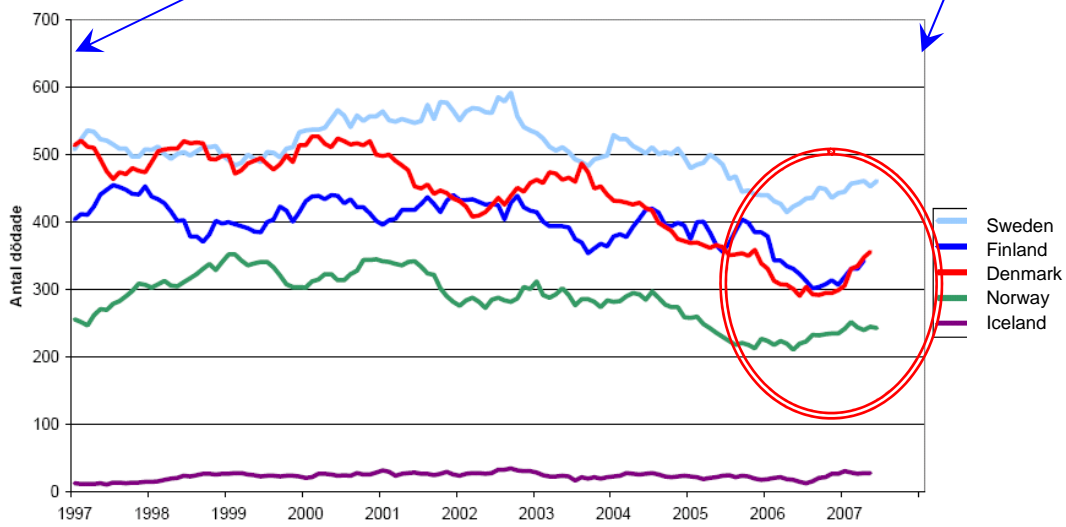


Figure 33. Road traffic fatalities in Nordic countries in 1997–2007, 12-month sliding average.⁵⁶

⁵⁵ Source: Nordic Road Association NRA

⁵⁶ Source: Nordic Road Association NRA

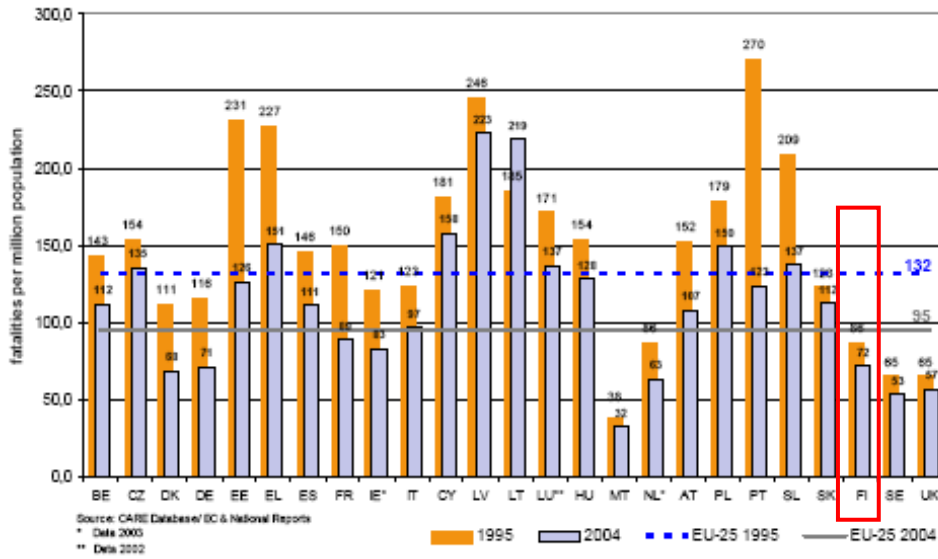


Figure 34. Road traffic fatalities per million inhabitants in 1995 and 2004, EU-25.⁵⁷

Table 10. Railway passenger fatalities in EU-27 and selected other countries in 1970, 1980, 1990 ja 1996–2004.⁵⁸

	1970	1980	1990	1996	1997	1998	1999	2000	2001	2002	2003	2004	
EU25								149	86	156	116	105	EU25
EU15	381	318	165	93	134	186	122	117	75	121	91	75	EU15
BE	3	4	0	6	1	3	3	3	10	0	4	1	BE
CZ				2				1	0	4	2	5	CZ
DK	7	3	1	0	-	-	2	3	0	2	0	0	DK
DE	151	74	50	25	28	114	26	38	13	26	23	25	DE
EE													EE
EL	1	1	0	0	2	-	1	20	4	4	0	0	EL
ES	17	17	4	0	20	1	-	0	0	3	16	0	ES
FR	54	33	30	14	22	14	12	15	11	24	7	6	FR
IE	0	16	1	0	1	-	-	2	2	1	0	0	IE
IT	41	48	9	14	16	16	21	8	9	17	9	11	IT
CY	-	-	-	-	-	-	-	-	-	-	-	-	CY
LV													LV
LT											0	0	LT
LU	0	1	0	0	-	-	-	0	0	0	0	0	LU
HU			33	11				11	11	12	9	8	HU
MT	-	-	-	-	-	-	-	-	-	-	-	-	MT
NL	10	8	2	1	-	-	1		0	0	0	0	NL
AT	26	9	6	3	1	4	8	4	3	13	7	2	AT
PL	20		21	0				20	0	16	11	15	PL
PT	19	29	22	10	14	8	8	2	11	8	15	8	PT
SI				0				0	0	1	1	0	SI
SK				0				0	0	2	2	2	SK
FI	5	4	0	3	1	10	1	2	2	0	0	2	FI
SE	6	25	3	0	2	-	-	0	0	0	0	2	SE
UK	41	46	37	17	26	16	37	20	10	23	10	18	UK
BG				0					3	0	26	26	BG
RO				0				0	8	4	0	1	RO
HR											5	5	HR
MK													MK
TR	7	44	17	12				9	11	7	8	46	TR
IS	-	-	-	-	-	-	-	-	-	-	-	-	IS
NO	1	1	4	0				32	2	0	0	0	NO
CH	13	7	8	14				2	3	4	9	1	CH

⁵⁷ Source: Annual Statistical Report 2006. SafetyNet. Building the European Road Safety Observatory. Workpackage 1 – Task 3. Deliverable No: D 1.9. 2007.

⁵⁸ Source: EU Statistical Pocketbook Transport 2006.

7. Logistics and competitiveness

- ✚ Based on so-called *Logistics Friendliness* index, the quality of logistics in Finland is at the bottom end of the EU-15. Regarding the index, there is a positive relationship between the GDP and logistics friendliness index.
- ✚ It seems evident that there is very little international comparative data on logistics.
- ✚ The European Commission has in 2006 announced in the Communication to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions that "the logistics performance of the European transport market needs to be monitored and benchmarked internally and against other continents. Statistical and other relevant indicators need to be developed to have a reliable picture of the situation and its evolution over time. The Commission plans to work on devising suitable methodologies and indicators for this purpose."

Table 11. Inland transport modal split, EU-27, in 2005 (tonne-km in %).

	Road	Rail	Inland waterways
BE	72%	14%	14%
DK	92%	8%	0
DE	66%	21%	13%
EL	97%	3%	0
ES	95%	5%	0
FR	80%	17%	3%
IE	98%	2%	0
IT	90%	10%	0
LU	92%	5%	3%
NL	66%	5%	29%
AT	64%	31%	5%
PT	95%	5%	0
FI	76%	24%	0
SE	64%	36%	0
UK	88%	12%	0
EU 15	82%	13%	4%
CY	100%	0	0
CZ	74%	25%	1%
EE	35%	65%	0
HU	69%	27%	4%
LV	30%	70%	0
LT	56%	44%	0
MT	100%	0	0
PL	69%	30%	1%
SK	70%	29%	1%
SI	77%	23%	0
EU 25	77%	20%	3%
BG	70%	27%	3%
RO	67%	27%	6%
EU 27	76%	21%	3%
HR	76%	22%	2%
TR	94%	6%	0

See also Fig. 12 with the same information arranged by the share of road transport.

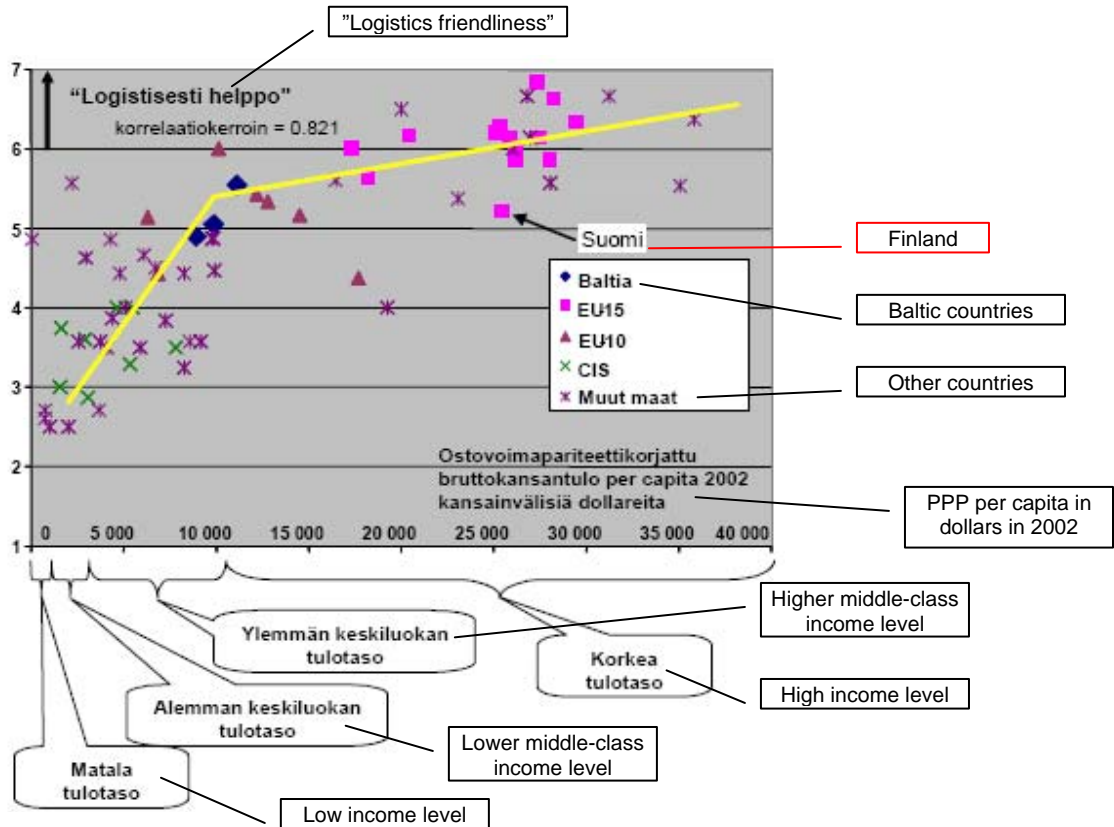


Figure 35. Logistics Friendliness 2002 –index, based on purchasing power parity (PPP).⁵⁹

Distance-related charges (2002)

Distance-related charges (fuel taxes and infrastructure charges) levied on lorry transport are well below the minimum estimate of marginal external cost for most states (the red line in the figure). This minimum estimate relates to an average Euro-class lorry on a high-class road (low accident rate) in rural areas (few people exposed to pollutants). External costs are much higher in urban areas. For passenger car traffic, distance-related charges are better aligned with minimum estimates of marginal external cost levels, but still well below average and maximum estimates. Charge levels do not generally reflect the significant difference in costs between various Euro-classes and urban vs rural areas. For diesel passenger cars, the gap between marginal external cost and distance-related charges is generally larger than for petrol cars (see Data annex, Figures 16 and 18).

Source: EEA, see also metadata section.

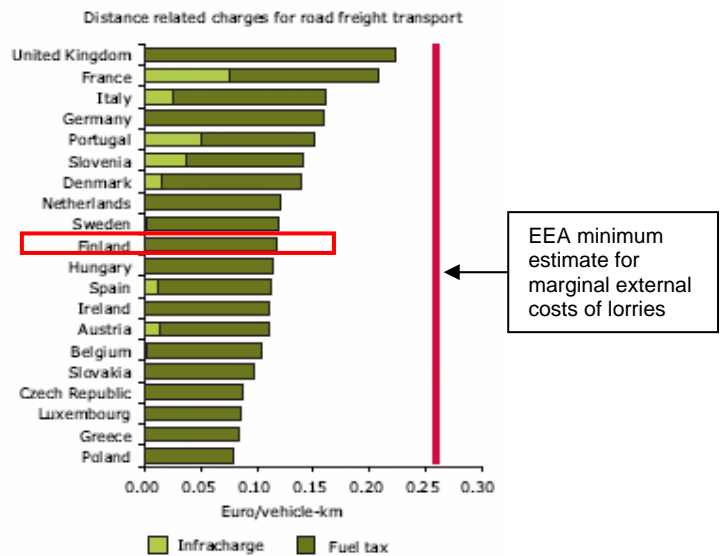


Figure 36. Distance-related charges levied on lorry transport, EU-15, in 2002.⁶⁰

⁵⁹ Source: Logistics 2006. Ministry of Transport and Communications Finland. (Logistiikka 2006. Liikenne- ja viestintäministeriön julkaisuja 35/2006.)

⁶⁰ Source: Transport and environment: facing a dilemma. TERM 2005: indicators tracking transport and environment in the European Union. EEA Report No 3/2006.

Annex: Abbreviations

European Union:

EU-15:	The 15 member states of the EU as of 1995 till 2003
EU-25:	The 25 member states of the EU as of 2004 till 2006
EU-27:	The 25 member states of the EU as of 2007
EEA-30:	The 30 member states of the European Environment Agency (EEA)

The member states of the EEA (in 2007):

- The 27 member states of the EU
- Turkey
- Iceland, Liechtenstein and Norway (member states of the European Economic Area)
- Switzerland

Country abbreviations:

BE	Belgium
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FR	France
IE	Ireland
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
SI	Slovenia
FI	Finland
SE	Sweden
UK (GB)	United Kingdom (Great Britain and Northern Ireland)