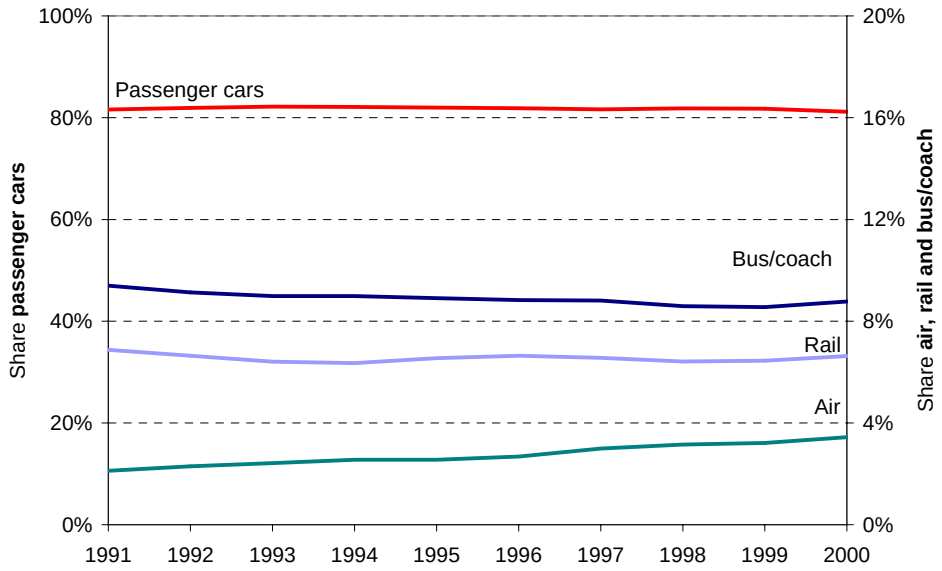
Indicator fact sheet

TERM 2003 12b EEA 17 –— Modal shares in passenger transport

☹ **Passenger transport continues to be dominated by car, with a share of 81 % ([1]) of total passenger-kilometres in the EU-15. The share of air transport continues to increase strongly. Bus/coach and rail transport slightly lost share during the 1991–2000 period, moving away from the objective of stabilising the shares of the alternative modes (CTP). However, these shares increase again slightly since 1999.**

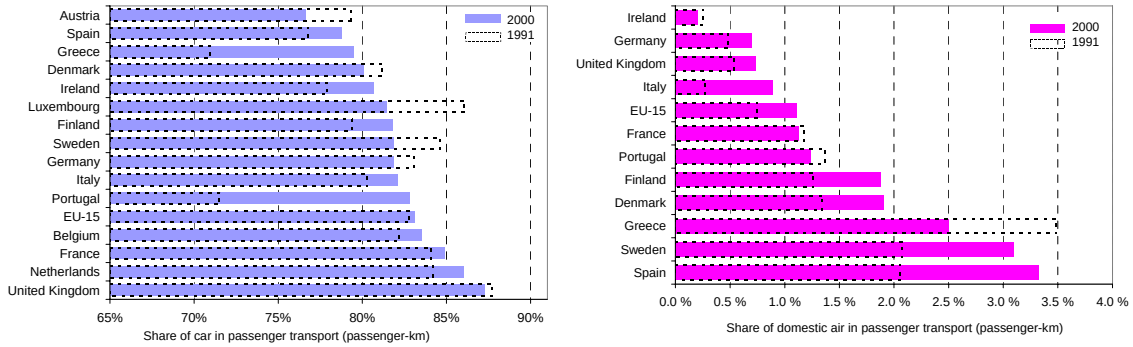
Figure 1: Modal shares of passenger transport demand in the EU-15, 1991–2000



NB: Shares based on passenger-km. Air includes domestic and intra-European only, since no modal shift on a European level is reasonably possible on extra-European flights.

Source: Eurostat, 2003.

Figure 2: a) Share of passenger car and b) of domestic air transport in 1991 (dashed) and 2000



NB: Shares based on passenger-km and relative to passenger car, bus/coach, rail and domestic air. Air includes domestic only, since no modal shift on country level is reasonably possible on intra- or extra-European flights.

Results and assessment

Policy relevance:

The European Commission has set itself the following objectives to achieve more sustainable transport (reduction of congestion and other negative side effects):

- Bring back the shares of alternative modes (rail, water and public passenger transport) to their 1998 levels by 2010 and thus make for a shift of balance from 2010 onwards (CTP);
- Shift in transport use from road to rail, water and public passenger transport (SDS).

Policy context:

The need for action with respect to the split among transport modes can be derived from the Transport and Environment (T & E) integration strategy (European Council, 1999) that was adopted by the Council of ministers in Helsinki. In its sustainable development strategy (SDS) (European Commission, 2001a), endorsed by the European Council meeting in Gothenburg (European Council, 2001), the EU has set itself the objective to shift passengers from road to alternative modes.

In the review of the T&E integration strategy in 2001 and 2002 (European Council 2001; European Council, 2002), the Council states that the modal split should remain stable for at least the next 10 years, even with further traffic growth.

In the White Paper on the Common Transport Policy (CTP) 'European transport policy for 2010: Time to decide' (European Commission, 2001b), the Commission proposes 60 or so measures to reach this objective. The proposed action programme aims mainly at stabilising the modal shares at 1998 levels by 2010.

To shift passenger transport flows towards alternative modes, the CTP proposes measures to:

- revitalise alternative modes, in particular rail. The second railway package (European Commission, 2002a), aims at creating an interoperable high-speed and conventional railway network, is the latest development in this field;
- make targeted investments in the trans-European network. With the revision of the trans-European Network (TEN-T) guidelines, the Commission proposes to concentrate investment on the development of a high-speed rail network and the integration of air and rail (European Commission, 2001c). Because only a small number of projects have been completed to date, the guidelines for the trans-European network for transport (TEN-T), adopted in 1996, are scheduled to undergo a major review by the end of 2003(European Commission, 2002b). To assist the Commission in drafting a proposal for the review, a High Level Group (one representative from each Member State or accession country), chaired by Karel van Miert has identified a limited number of priority projects in addition to the 14 Essen projects. Amongst them are (high speed) railway lines and motorways.
- Introduce fair and efficient pricing. Internalising the external costs of transport should encourage the use of modes with a lesser environmentally impact. The revenues raised, which are higher than the costs of infrastructure use, can be used for investments in the development of new (environmentally friendly) infrastructure.

Along the lines of the CTP, the Commission promotes the development of clean urban transport by:

- The Citizen's Network, which grew out of the 1995 Green Paper (European Commission, 1995) is a programme specifically aimed at promotion and development of alternative means of urban transport. The ELTIS database (European Local Transport Information Service), an interactive guide to current transport measures, policies and practices, is one of the results of this Citizen's Network (www.eltis.org).

([1]) Taken into account passenger car, rail, bus coach and domestic and intra-European aviation.

- Initiating Civitas (City — Vitality — Sustainability), which provides funding for cities experimenting with the development of urban transport to encourage competitive alternatives to cars in city centres and to combat growing congestion and pollution (European Commission, 2000b). The Civitas initiative will support the best-integrated and innovative proposals put forward by European cities.

Environmental context:

The relevance of the modal split policy in passenger transport comes from differences in environmental performance (resource consumption, GHG emissions, pollutant and noise emissions, land consumption, accidents etc.) of transport modes. These differences are becoming smaller, which makes it more and more difficult to determine the direct and future overall environmental effects of modal shifting. The total environmental effect of modal shifting can in fact only be determined on a case-by-case basis, where local circumstances and specific local environmental effects can be taken into account (e.g. transport in urban areas or through sensitive areas).

The magnitude of environmental effects from modal shifting is limited, as modal shift is only eligible for small market segments, e.g. transport in or between city centres.

Assessment ([2]):

Overall picture

Between 1991 and 2000, the modal share of passenger cars in the European Union remained more or less stable at around 81 to 82 %. The share of domestic and intra-European aviation increased strongly from 2.1 to 3.4 %. The shares of bus/coach and rail both decreased (see Figure 1). Table 1 presents the modal shares of the main transport modes for all EU countries in 2000.

The distribution of passenger transport over the main modes is diverging from the CTP policy objectives on the preservation of these alternative modes. The main reason for that is the (real and perceived) advantage of private transport over public and alternative transport modes: private transport is generally faster and more flexible (in particular outside urban areas) and perceived more luxurious and cheaper than public transport. The current transport charging structure (with fixed annual vehicle taxes rather than flexible charges linked to transport usage) does not contribute to remove such perception, as car users often only take the additional fuel costs into account when deciding on a trip.

In urban areas, the situation can be somewhat different. Public transportation is often well developed in the central parts of urban areas and competitive with cars in terms of time and costs. Introduction of a congestion charge, like in London, significantly influences the competitiveness of the various modes by favouring public transport over private car usage. The effects are huge (see Box 2). In the outskirts of urban areas, where public transport is much less accessible, accessibility to basic services by public transport, cycling or walking decreases. This leads to more car usage and subsequent traffic bottlenecks around and in cities. Hence, urban sprawl — the expansion of cities — could lead to more car dependency and usage, and more urban congestion. In the longer run, however, urban congestion could shift passengers from cars to public transport, walking and cycling, provided that public transport and walking and cycling facilities are sufficiently available and public transport is not affected by congestion.

Private car transport

Commuting and leisure are important transport purposes, and often require movements between cities, to cities or from cities to surrounding areas. The car is by far the favourite means of such

([2]) Walking, cycling, motorcycles and tram/metro are not included in the assessment, since no reliable EU wide data is available for the 1991–2000 period. The assessment includes passenger cars, bus/coach, rail and domestic and intra-EU air traffic. Extra-EU air traffic is left out of the discussion of modal split in the EU. At the country level, intra-EU air transport is also left out of the discussion of modal split. In both cases, a mode shift is not possible on the level of the assessment (EU of country level).

transport because of its higher accessibility. Indeed, at Member State level (excluding extra- and intra-EU aviation), the share of private car transport ranged between 77 and 87 % in 2000. The United Kingdom shows the highest share (87 %) of private car transport in total passenger transport, Austria the lowest (77 %).

Economic growth and increasing welfare results in more commuting and leisure travelling, for which the private car is the favourite transport mode. The modal share of passenger car transport has increased between 1991 and 2000 in most EU Member States, most prominently in Greece and Portugal (about 10 %), reflecting the strong growth in welfare in these countries. Austria, Denmark, Sweden, Germany and the United Kingdom all show a decrease of the share of road, in favour of rail, bus/coach or domestic air transport ([3]). Relatively high fuel prices, congestion and lower airfares could be explanations for this observation (see also Figure 2a).

Air transport

Air transport is the fastest transport mode. Consequently, the share of air transport continues to increase. The share of air (domestic and intra EU) in total transport in the EU as a whole increased from 2.1 to 3.4 % between 1991 and 2000. On the Member State level, the modal share of *domestic* air transport slightly decreased in four Member States between 1991 and 2000 as is depicted in Figure 2b: Ireland, France (probably due to the high-speed rail connections), Portugal and Greece.

Bus/coach transport

On average, in the EU the share of bus transport declined in the 1991–2000 period, from 9.4 to 8.8 % in 2000. The share of bus transport is the highest in Ireland, Greece and Austria, around 15 % in 2000. In the Netherlands, France and the United Kingdom the modal share of bus transport is the lowest. In Austria, the share of bus/coach transport increase markedly over the past decade, mainly at the expense of passenger car transport. The strongest decreases in the modal share of bus/coach transport can be observed in Greece (– 32 %), Portugal (– 23 %) and Finland (– 18 %). In Greece and Portugal, passenger car transport increased its share considerably.

Rail transport

The share of rail transport was the highest in the Netherlands, Germany and Austria in 2000, around 9 %. Ireland, Portugal and Greece show the lowest share of rail in total passenger transport (around 4 %). Rail transport reduced its share during the 1991–2000 period. The share of rail transport only increased in Sweden, Germany and the United Kingdom, at the expense of the share of passenger car transport. An explanation for this modal shift could be found in high levels of congestion and increased fuel prices. All other EU countries show a decrease of the share of rail in this period. Portugal (– 59 %), Greece (– 47 %) and Ireland (– 34 %) show the greatest decline of the modal share of rail transport and increase of passenger car transport, corresponding to a fast increasing welfare in these countries.

Intra-EU rail transport competes in time and costs with air transport. The continuing fall in airfares has made rail transport less favoured for longer distances. Besides, international rail connections are still slowed down by border-crossings. High-speed rail lines are developing quickly to better compete with air transport, but, without fair pricing of air transport, its growth may continue to outpace growth in long-distance rail transport.

Other

Cycling and walking have the potential to increase their modal share at the expense of cars, especially in urban regions (see box 1). Half of all car trips are for less than 6 km, for which cycling could often be faster than driving (in urban areas); 10 % are for less than 1 km, an ideal walking distance (European Commission, 2002e). The argument that cycling is a lot more dangerous than driving a car is not valid for those aged between 18 and 50 (see TERM 2002 09

([3]) The decrease in share of passenger car transport in favour of bus/coach transport observed in Luxembourg is due to a break in trend between 1994 and 1995, which is probably related to changes in the statistical system.

EU — transport fatalities). Box 1 provides additional information about the potential of these environmentally friendly modes.

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Data

Table 1: Modal shares of passenger transport demand in 2000

Unit: % shares in passenger-kilometres (modes included are the modes listed)

	Car	Bus/coach	Rail	Domestic aviation
Belgium	84 %	10 %	6 %	0 %
Denmark	80 %	12 %	6 %	2 %
Germany	82 %	9 %	9 %	1 %
Greece	80 %	14 %	4 %	3 %
Spain	79 %	13 %	5 %	3 %
France	85 %	5 %	9 %	1 %
Ireland	81 %	16 %	3 %	0 %
Italy	82 %	12 %	5 %	1 %
Luxembourg	81 %	13 %	5 %	0 %
Netherlands	86 %	5 %	9 %	0 %
Austria	77 %	15 %	9 %	0 %
Portugal	83 %	12 %	4 %	1 %
Finland	82 %	11 %	5 %	2 %
Sweden	82 %	8 %	7 %	3 %
United Kingdom	87 %	6 %	6 %	1 %
EU-15	**83 %**	**9 %**	**7 %**	**1 %**

Source: Eurostat, 2003

Meta data

Technical information

1. Data source:

   Passenger-km from Eurostat Structural indicator data (Eurostat, 2003):

   http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=1-structur-EN&mode=download#Emploi)

   Trip length from the Energy and Transport DG Pocketbook 2000 (European Commission, 2001e).

2. Description of data:

   Data contains the number of passenger-km by private cars, buses and coaches, rail, tram/metro, domestic, intra- and extra-European aviation. Data on motorcycles, waterborne, walking and cycling are limited available. Passenger-km: unit of measure representing the transport of one passenger over one kilometre (the distance to be taken into consideration is the distance actually run).

3. Geographical coverage:

   EU-15 (Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden and the United Kingdom).

4. Temporal coverage:

   1991–2000

5. Methodology and frequency of data collection:

   Passenger-km by mode: annually collected by a common questionnaire developed jointly by Eurostat, UNECE and ECMT

   Data on trips is based on the results of national mobility surveys. Eight EU countries carried out passenger mobility surveys in the 1990s (continuous/regular surveys: Denmark, Netherlands, Sweden and the United Kingdom. Periodic surveys: Germany. Other surveys: France, Finland and Austria)

6. Methodology of data manipulation, including making 'early estimates':

   Passenger car and bus/coach data for Belgium, 1991–94 is taken form TERM 2002, since the data was not available.

   Quality information

7. Strength and weakness (at data level):

   The data on passenger-km is calculated rather than directly measured. However, since the same methodology has been used for many years, the trends give a good indication of the passenger transport demand.

8. Reliability, accuracy, robustness, uncertainty (at data level):

   Data is considered to be fairly reliable and consistent.

9. Overall scoring (give 1 to 3 points: 1=no major problems, 3=major reservations): 2

   Relevancy: 2 (Vehicle-km provides a better unit of measurement, since it is more directly linked to environmental impact of transport movements)

   Accuracy: 3 (Passenger-km figures are estimated (more uncertainty for cars than for bus/trains etc) rather than measured and vary by source (Eurostat, ECMT, UNECE etc))

   Comparability over time: 1

   Comparability over space: 1

Further work required

Further work is needed to develop reliable and comparable statistics on vehicle-km used for passenger transport, since such data is closer connected to the environmental consequences of transport. A shift from private car transport to alternative transport will probably result in less vehicle-km by car but not necessarily in more vehicle-km by bus/coach or rail.

Shifting passenger transport flows towards cleaner transport modes in urban or rural areas or international trips requires different policy approaches. It would therefore be valuable to be able to monitor the modal split for these specific areas and trips.

Box 1: Short car trips and walking and cycling trips

The average European makes about three trips per day. The share of cycling in Europe is around 5–10 % of all trips, with much higher rates in the Netherlands (29 %) and Denmark (17 %).

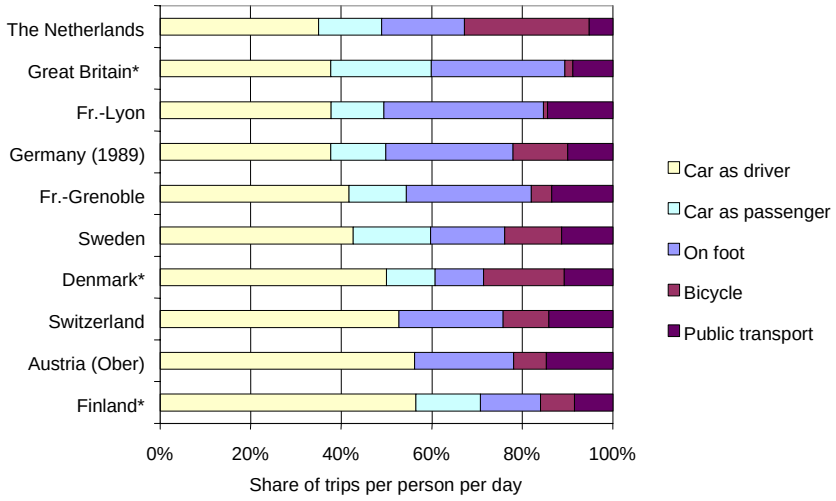
Many car trips are quite short; a change from car to walking or cycling for trips shorter than 3-5 km could replace half of all car trips in many European cities. *Trip chains* (a sequence of trips to travel between origin and destination) could only explain some of the car use on short trips. There

are important differences between men and women, young and old, car-owners and those without a car, workers and non-workers.

Some other findings about walking and cycling:

- Walking and cycling are often done as a purpose in themselves.
- Women walk more than men.
- People working part-time make most trips.
- The larger the city, the more people walk.

Figure 2: Modal split of all trips in 9 European countries



NB: Share based on number of trips. Great Britain, Denmark and Finland based on trips longer than 200-500 m.

Source: European Commission, 2000d.

Box 2: London access charge

In February 2003 the city of London introduced a flat congestion charge to alleviate congestion. The congestion charge applies for central London (20 km^2) from 7.00am to 6.30pm, Monday to Friday, excluding public holidays. The charge does not apply at weekends. Drivers pay GBP 5 (EUR 8) per day. The system is secured by camera observation. The penalty for non-payers is GBP 80. The revenues are expected to be at least GBP 130 million per year which, by law, will have to go back into the capital's transport system. The revenues will be used for investments in buses and road safety, such as street lighting and better-marked road crossings.

There are a range of exemptions and discounts for certain categories of drivers and certain categories of vehicles and individuals. Residents and crucial staff receive a 90 and 100 % discount respectively. Drivers of alternative fuel vehicles, vehicles with nine or more seats and taxis are allowed to enter the zone without charge.

Since its launch in February, the UK capital's congestion charge has reduced traffic in central London by one-fifth.

Source: www.cclondon.com; Environment daily, 2003.