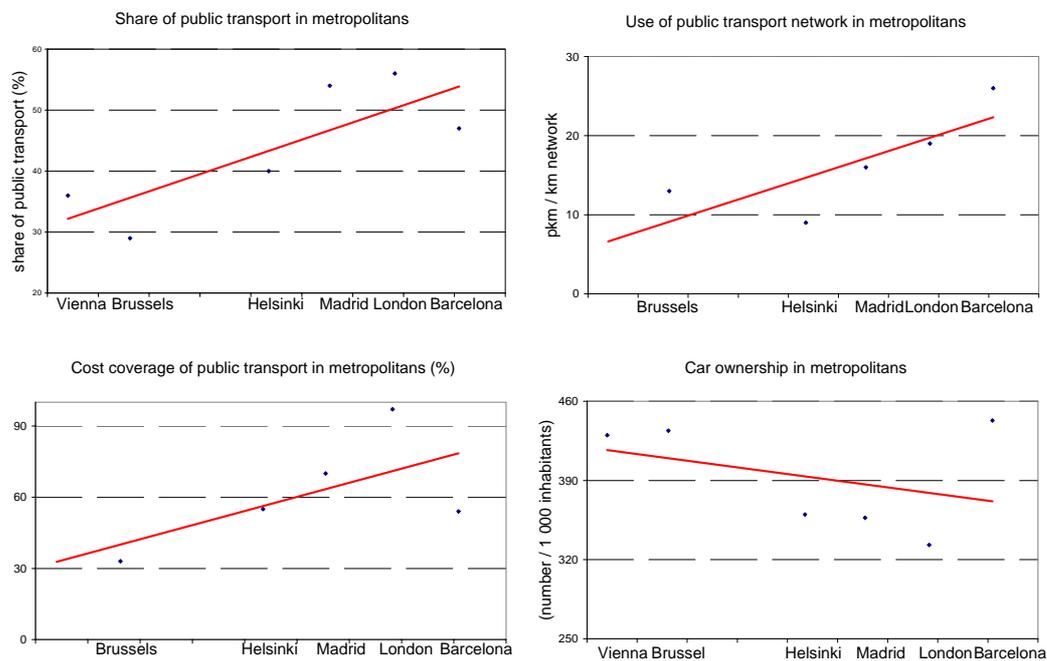


Indicator fact sheet

TERM 2003 14 EEA 31 — Urban spatial characteristics and transport

Ⓜ **The high concentration of transport demand in urban areas offers a high potential for an efficient use of collective transport. The proximity of many activities, services and people also makes walking and cycling attractive in urban areas. However, the ongoing retreat of basic services (such as shops and healthcare) out of urban neighbourhoods poses a threat to these advantages.**

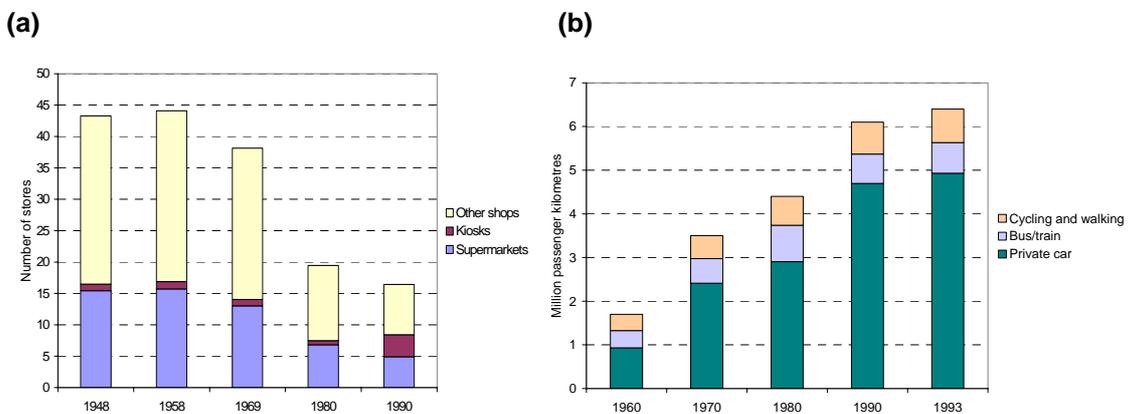
Figure 1: Concentration of residents in European metropolans (x-axis, in increasing order) versus transport characteristics



NB: The European metropolitan cities are ordered on the x-axis by their population density expressed in inhabitants per built surface. This is more relevant than the population density of the whole metropolitan area.

Source: graphs composed by CE on the basis of data from EMTA, 2002

Figure 2: (a) Number of convenience goods shops, Denmark, 1948–90; and (b) Transport for convenience goods shopping, Denmark 1960–99



Source: Danish Technical University, 1996.

Results and assessment

Policy relevance

Policy-makers can influence the location where economic activities and residential areas are planned. This has an effect on the accessibility of e.g. persons and jobs and on the potential of and demand for the various transport modes by e.g. lowering travel distances or increasing the attractiveness of collective transport, cycling and walking. Especially in urban areas, where 80 % of all Europeans live, the potential of collective transport modes and non-motorised modes can be significant as transport demand is high, the collective transport network is of high quality, distances are relatively short and getting around by car is relatively difficult.

Policy context

Easy access to work, education, shopping and leisure is an essential component of economic and social development. Providing maximum accessibility at the lowest cost to the environment and society should therefore be a key objective of any transport policy.

Accessibility is governed by many factors. Spatial (land-use) planning (i.e. urban and regional planning) and transport planning (public and private) can influence travel times and distances, for people and goods, and the modes used. A better integration of spatial and transport planning is therefore a key to achieving maximum accessibility and managing the need for travel.

European Commission

The European Commission communication 'Sustainable urban development in the European Union — A framework for action' (European Commission, 1998) and the proposal for a decision on a Community framework for cooperation to promote sustainable urban transport (European Commission, 1999a) address the link between spatial planning and sustainable urban transport.

The European spatial development perspective (ESDP) (European Commission, 1999b) was endorsed by the European ministers for spatial planning at an informal meeting at Potsdam in May 1999. Its objectives and measures should be implemented at the EU and all subsidiary levels. It identifies the economic and social cohesion of Europe as a key objective. Measures proposed as options in the ESDP imply that access to basic services should be improved without creating more (car) transport than necessary:

- 'Promotion of better accessibility in cities and metropolitan regions through an appropriate location policy and land-use planning that will stimulate mixing of urban functions and the use of public transport.'
- 'Maintenance of a basic supply of services and public transport in small and medium-sized towns in rural areas, particularly those in decline.'
- 'Better coordination of spatial development policy and land-use planning with transport and telecommunications planning.'

The Commission has taken information exchange initiatives such as:

- the car-free cities network (<http://www.22september.org/>);
- the European Local Transport Information Service (<http://www.eltis.org/>);
- MObility SErvices for urban Sustainability (<http://www.moses-europe.org/>)

UN-ECE guidelines

UN-ECE guidelines on sustainable human settlements planning and management (UNECE, 1996), recommend two main principles to be implemented through transport planning and management:

- protecting and promoting the modes which are most energy saving, pollution free and least dangerous to others: cycling, walking and public transport;

- linking land-use and public transport planning as closely as possible to the goal of limiting developmental and operating costs for public transport and discouraging competition from private vehicles.

ECMT

The Seminar '*Managing the fundamental drivers of transport demand*' (ECMT, 2003) that was held to prepare the ground for a debate between Ministers on sustainable transport policies at the Council of Ministers on 23 and 24 April 2003 identified measures to integrate spatial development and transport policy:

- Provide a very attractive public transport service, from national rail networks down to regional and local feeder buses, and by providing priority treatment to public transport on urban roads;
- Give railway stations a key role for structuring settlement patterns, by master plans that allow for high-density developments;
- Engage transport operators, public authorities and private developers in cooperative procedures and negotiation in view of locating urban functions and dense private investment at station areas and their immediate surroundings;
- Link land-use regulations and building permits in such well-accessible areas with restrictive rules for car traffic and parking and to engage businesses with authorities and transport operators in mobility management in view of making best use of public transport services;
- Link business parks and shopping centres that have been placed around highway interchanges by means of feeder buses or light railway systems with suburban railway stations and to oblige such centres to charge for parking;
- Back all these efforts by guidelines and financial incentives from *national* governments, in the frame of re-urbanisation policies;
- Improve *urban* governance by way of institutionalising close interaction between transport and land-use policies. This interaction must by all means rely on further developed networking capabilities of the authorities and on more dynamism in the sense that planning should not only look for spatial order but also for the activation of processes that can lead to sustainable urban performance. Pertinent urban transformation does not simply occur by chance — it must be led by political will.

Spatial planning actions at national level

Some countries (and cities) have taken initiatives to improve the coordination of regional, urban and transport planning by increasing accessibility while reducing the demand for car transport. This can be done, for example, by mixing urban functions, introducing zoning and parking policies and improving public transport.

- The UK Government has a policy of reducing demand for transport through appropriate land-use and development planning. The government encourages local authorities to take account of the need to improve accessibility when determining the location of new developments and the need for improved public transport infrastructure (DETR, 2000).
- The UK also aims to achieve a one-third increase in the proportion of households in rural areas within about 10 minutes' walk of an hourly or better bus service by 2010 (DETR, 2000).
- Accessibility is an important part of the proposed Finnish national public transport strategy, which aims to ensure access to public transport services for all citizens by creating 'door-to-door' public transport services. The Ministry of Transport and Communications, in cooperation with regional councils and municipalities, will ensure the balanced regional availability of public transport services, although these services are initially being planned and operated by transport companies.
- Germany aims to reduce transport demand by improving urban and regional planning through integrated spatial and transport planning. Transport flows can be reduced by combining different functions (work, leisure, living, shopping) in concentrated areas.

- In Denmark, offices and commercial services must be shifted towards the points that are best served by public transport (Danish Ministry of Transport, 1996).

Environmental context

Especially in urban areas transport poses serious problems for the environment and human health. Stimulating a high share of walking, cycling and collective transport can reduce emissions per passenger kilometre. In urban areas the potential for these modes is relatively high, as transport demand and activities are concentrated and distances are small. A favourable travel time ratio for public transport vs. car also adds to the potential of these modes. However, a potential threat for the success of a modal shift away from the car is the retreat and concentration of basic services away from the residential areas to the urban edges of major cities.

It appears from a German theoretical study that the energy consumption could be on average 17 % lower if the urban spatial structure was optimised for transport purposes (Albrecht, 1985). This implies that spatial planning can seriously contribute to saving transport energy consumption and to cut transport pollutant emissions by concentrating origins and destinations within urban areas. This reduces transport demand and increases the possibilities for public urban transport or walking and cycling.

Assessment

Possibilities for public urban transport, walking and cycling

The share of public transport and the intensity of its use generally increases with increasing density of the population of an urban area (see Figure 1). Also the coverage of the costs for public transport is favoured by a concentration of travel demand and activities. Due to this concentration accessibility of public transport — but also by walking and cycling — can approach that of cars. The latter is also due to congestion on urban roads and limited (parking)space, which make it harder to get around in a car. Because of this, car ownership generally decreases with increasing population density.

Spatial planning related transport

However, access to services and activities tend to become increasingly dependent on the car. Working places and shopping areas are increasingly located on greenfield areas at the edges of urban areas, where more (parking)space is available and ground prices are lower. As a result basic services tend to retreat from the residential areas. In addition, budget cuts in government services such as health care and education has led to a concentration of these services in a smaller number of large-scale locations. The relationship between socioeconomic activities and transport volume is illustrated by shopping patterns in Denmark (see Figure 2). Between 1960 and 1993, the number of shops decreased by 60 %, while shopping-related transport increased by a factor of 3.8. Shopping-related car transport increased even more — by a factor of 7.

In the UK the length of the average shopping journey increased from 4.2 km in 1985–86 to 6.2 km in 1996–98. The average education trip increased from 3.2 km in 1985/86 to 4.4 km in 1996–98. (DETR, 1999) Thus the concentration of shops into larger units led to increases in transport volumes.

In the Netherlands the number of hospitals decreased from 169 to 137 between 1990 and 1999, mainly due to fusion. The number is expected to diminish further in the near future (RIVM, 2003). The effect on transport demand is clear, it will increase.

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Metadata

Technical information

1. Data source: miscellaneous, several studies.
2. Description of data: no standard data for this indicator
3. Geographical coverage: various (DK, UK, NL) but assessment applies to all EEA's Member States.
4. Temporal coverage: various
5. Methodology and frequency of data collection: not applicable due to lack of standard data sets for this indicator.
6. Methodology of data manipulation, including making 'early estimates': not applicable due to lack of standard data sets for this indicator.

Quality information

7. Strength and weakness (at data level): not applicable due to lack of standard data sets for this indicator.
8. Reliability, accuracy, robustness, uncertainty (at data level): not applicable due to lack of standard data sets for this indicator.
9. Overall scoring (give 1 to 3 points: 1 = no major problems, 3 = major reservations): 3
Relevancy: 3 (No good data set for this indicator.)
Accuracy: 3 (No good data set for this indicator.)
Comparability over time: 3 (No good data set for this indicator.)
Comparability over space: 3 (No good data set for this indicator.)

Further work required

Data for this indicator is very scarce. Data collection for this indicator will have to be set up and could be focussed on the relationship between urban characteristics (such as building and population density) and transport. Effort could also be put in finding evidence for intuitively felt trends in urban spatial developments, such as concentration and location of schools, hospitals, offices and shops, being important destinations for transport in the urban area.