

Summary:

Settlement and daily mobility. An analysis of transport conditions and travel behaviour in cities and peripheral areas in Norway

Objectives and background

Different kinds of trips are important in order to tie together the activities in everyday life. The conditions for these daily trips are not the same everywhere. The objective of this study is to find out how the Norwegian settlement patterns influences upon the daily mobility. How do transport conditions and daily travel behaviour vary in different groups of communes, and what can explain these variations? The analysis is based on the national travel survey from 1997/98.

Mobility, welfare and settlement

Access to goods and services and the possibility to attend to different activities is important for people's welfare. Transport is especially important for access to different arenas where welfare is created.

The main focus in this report is on how settlement patterns effects the daily mobility. Settlement patterns can also be seen as a result of daily mobility in general. How does increased mobility effect welfare and settlement in sparsely populated areas? With reduced importance of distance more people are able to stay in or move to such areas because they can have access to important services from where they live. This can have significant implications for political aims of stability of settlement patterns. Another aspect of increased mobility is that people get access to services outside the local community and a lot of communities therefore are considerably affected by "absence". Combined with reduced local service the result can be that even more people move from sparsely populated areas.

Mobility is important for welfare and thus also for regional policy. Transport politics will therefore be an important part of the general regional policy. Measures in the transport sector will be of great importance to establish "robust regions" in order to expand the housing and labour markets.

Theory and framework

The theoretical perspective is based on an activity-based approach of travel behaviour and on time geography. The activity-based approach focus on activities as motivation for every trip. Time geography focuses on restrictions people meet when they carry out their activities and trips. People have to be present at different "stations" simultaneously in order to carry out "projects". Several restrictions influence the possibility to carry out projects and trips. They are related to the fact that one person can not be present at two places at one time. It also has to do with the accessible transport resources.

Four aspects of daily mobility are discussed. The first is *travel need*, which is the main reason why trips are carried out. This is related to a person's activities, and will be affected by employment, age, family and lifestyle. *Transport conditions* are concerned with the basis for travel behaviour. Ambient factors such as transport standards and physical locations of activities constitute parts of this. This is closely related to where people live. Distance to different "stations" and the quality of public transport services are focused. The other parts of transport conditions is the capability of being mobile defined as access to transport means, financial situation, health, time and other available resources. A close connection exists between travel need and transport possibilities. Those with a significant travel need usually possess a car, and transport possibilities influence what activities people participate in. Based on travel need and transport conditions a person makes a *choice* of when, where and how to travel, if he wants to travel at all. This evaluation varies according to whether it is a routine trip or not. The *travel behaviour* is a result of this choice, and the main focus in this report is on travel length and mode of transportation.

The data

The analyses is based on the national travel survey from 1997/98. 6,061 individuals 13 years or older have been interviewed regarding their travel habits and transport resources. The interviews contain information about income, occupation, family, and distances to different "stations". The respondents have also been asked about their access to transport means. Length, duration, time, purpose and mode of transportation are registered for every trip they made the day before the interview. A trip is defined as any movement outside the respondent's house and limited by the purpose of the trip.

Categorising the communes

In order to compare mobility in different groups of communes the 435 Norwegian communes are divided into 6 categories, based on a centrality index and data of urban settlements. *Oslo* is one category. *Urban communes* consist of the next seven largest urban areas. *Semi-urban communes* are communes with settlements between 15 and 50 thousand inhabitants. *Surrounding communes* lie within the commuting zone to the six largest cities. *Semi-peripheral communes* are a hybrid group with all communes within commuting zone to a settlement with at least 5,000 inhabitants. *Peripheral communes* are the 215 least central communes.

Variations in transport possibilities

When analysing the transport possibilities, distances and access to car and public transport service are focused. The distances to different stations (e.g. grocery, community centre and workplace) vary a lot among the different groups of communes. Average distance to the nearest grocery shop and to the community centre are, as expected, shortest in Oslo (0.8 and 3.9 km) and longest in peripheral communes (3.4 and 12.4 km).

The distance to work is longest in the surrounding communes (26.3 km). The variations between other categories are small. This can be explained by the fact that the surrounding communes are typically commuting communes, and that three out of four work outside the commune where they live. The work trip distance is shortest in Oslo (10.3 km). A large number of those in peripheral communes have short distances to their workplace even if the average distance is quite long (19.9 km).

The quality of the public transport service varies. It is best in Oslo and lowest in peripheral communes, especially when we consider the frequency of services. In Oslo 88 % have good or very good public transport where they live and most of them have several alternatives. Very good public transport is defined as: Least four departure per hour and less than one km to the bus stop/station. In peripheral communes 78 % have poor or very poor public transport, and 15 % have no public transport services at all.

Car ownership is lowest in Oslo, where 75 % have access to car in the household, and urban communes (88 %) and consistently high in the other groups (92-95 %).

Variations in daily travel behaviour

In average people undertook 3.2 trips per day, and the differences between the different groups of communes are small. In Oslo 9 % did not travel, in peripheral communes the share was 16 %. The reasons do not vary between the communes. Most of those who did not travel said they had no need. The oldest, youngest and those without work or car travel least.

People living in surrounding communes have the longest daily travel distance (43.5 km). Total daily time use is about 70 minute, but this is only two minutes more than people living in Oslo, who have the shortest daily travel distance (28.2 km). People living in peripheral communes do not travel more than 32.9 km on an average day. This takes one hour. Variations in the number of trips is smaller, the largest average number of trips are found in urban communes and the smallest in peripheral communes. The work trip distance explain much of the differences in total travelled distance. Access to a car also influences on the travelled distance. The effect of this variable is most important in Oslo and urban communes.

Those who live in Oslo (and urban communes) are the most frequent users of public transport. However, they do not travel long distance. This has mainly to do with the fact that the trips are short and the public transport services are good. It is mainly travelled distance by car that explains difference in total travel length. People in surrounding communes travel more by car than people in other categories (30.5 km vs.16.8 - 22.3 km). The differences in total travel length by other transport means are small.

In order to be able to analyse different kinds of trips separately, the trip to the grocery, the visiting trip, and the journey to work are analysed in more detail. The trips to the grocery are shortest in Oslo and longest in peripheral communes but the differences are small. However, those with many children and those who travel far go by car. The visiting trips are often long and do not vary systematically. Therefore the differences in mode of transport are small.

The journey to work last almost as long in Oslo as in surrounding communes where the average distance is longest. People in Oslo use public transport for their journey to work more often than people in other communes. In all groups of communes three out of four of those who could use public transport modes drove a car. Women, people with flexible work-hours and those without access to a car tend to use public transport on their journey to work.

Transport opportunities and travel behaviour

How important are the transport conditions for the travel behaviour? Very good public transport services, low car ownership and short distances in Oslo is basically the reason why people there use public transport more than people in other areas. It also explains why their total travel length are shortest. Distance to work influences very much on the total travel length.

People in the surrounding communes travel farthest during an average day. This is partly explained by the location close to a larger city. In the peripheral communes the distances are long and public transport services poor, which means that people are more dependent on the car. In spite of relatively long distances in peripheral communes people do not travel particularly far during a day. Is this because they do not need to travel any further or because they are not able? Based on these data we can not find any indications on whether the relatively short total travelled distance in peripheral communes is due to a desired situation, or if people would like to travel more if the transport possibilities were better.