


Carsharing in Bergen – experiences and effects

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- Car sharers in Bergen have more environmental-friendly mobility than others: they walk and cycle more and they drive only about one third of what carowners do
- One in six walk and cycle and take more public transport than before, as a direct result of carsharing
- Half of the car sharers have got rid of a car, one in four has delayed or avoided buying a car, while one in five uses their own car in addition to carsharing
- One shared car is calculated here to replace ten to fifteen private cars in Bergen
- Car sharers are younger, more educated and live more urban than others
- Both practical, economic and value motives are important motivators for carsharing
- Five percent of the population in Bergen are carsharers today, another eight percent consider becoming carsharers
- The impact of carsharing on reduced car ownership is particularly important in dense urban areas

Research on carsharing has long and consistently referred to carsharing's potential for reduced private car use, because it works as an alternative to car ownership for those who only have occasional use for a car. Norwegian cars are not in use 98 percent of the time. Together with the traffic and congestion problems in dense urban areas, the development of app-based mobility services has created new expectations for the emergence of shared mobility, especially in urban areas. Carsharing replaces private cars on the roads and free up valuable space (e.g. from parking) in dense urban areas. Studies of carsharing in general show, that the typical car sharer is male, young, highly educated, living in urban areas, with good opportunities to walk or bike or use public transport. These are typical characteristics of those who in innovation studies often are called 'early adopters' – i.e. those who are early to adopt new social and technological trends. Carsharing, especially in the last decade, has shown a formidable growth



and spread. Although organized carsharing has existed in Norway since the nineties, it is only in recent years that carsharing has really taken off - also in this country.

Carsharing realizes goals along each of the sustainability dimensions: *environmentally*, through reduced car ownership and car use with less climate footprint and a better urban environment; *socially* - by providing easy access to the occasional use of a car without having to own your own, and *economically*, since carsharing is cheaper than owning a car and provides a more efficient use of a car fleet.

Investigation of carsharing in Bergen

On behalf of the Urban Environment Agency in the Municipality of Bergen, TØI has investigated experiences and effects of carsharing in Bergen. Central tasks have been to map views and experiences with carsharing in Bergen, and to analyze differences in car ownership, car use and other mobility practices. The assignment was also to assess the effects of carsharing as a contribution to social equalization and to improved urban life.

The study is based on two online surveys. The general population survey was sent by SMS to a representative sample of 20,000 of the population in Bergen (≥ 18 years). We received 3256 responses, which gives a response rate of 16 percent. The survey among car sharers was sent by email to users, the link was included in newsletters from the three largest carsharing providers in Bergen - Bildeleringen, Getaround and Hyre. We received 556 responses.

Of those who responded to the population survey, five per cent are carsharers today, while a further eight percent state that carsharing could be relevant for them. Four out of ten answer that they have very or fairly good knowledge of carsharing. At the same time, four out of ten respond that they have little or no knowledge of carsharing. For those to whom carsharing is not relevant, the need to use their own car is especially put forward as a reason. Those who know the most about carsharing are younger, men, who live centrally and with a high level of education - the same characteristics as for those who actually are carsharers today.

Key characteristics of carsharers and others

In the analysis, we distinguish between different groups: current car sharers, potential car sharers, car owners, and the general population including car owners and potential car sharers (those who in the population survey state that carsharing could be relevant for them).

Table S1: Key characteristics of current car sharers, potential car sharers, car owners and the general population.

	Current Car Sharers	Potential Car Sharers	Car Owners	General Population
Location (living centrally):	77%	50%	24%	30%
Age (mean):	44 years	44 years	53 years	51 years
High education level:	70%	55%	46%	46%
Low Income (<600000 NOK)	22%	36%	23%	30%
No car:	75%	35%	-	21%

The table shows a compilation of key characteristics of current car sharers, potential car sharers, current car owners and the general population, respectively. Car sharers differ mostly from the other groups, with a higher share living centrally; with the highest level of education, and the high share without access to a private car. Both current and potential car sharers are younger than car owners and the general population. The potential car sharers have the highest share in the low income category.

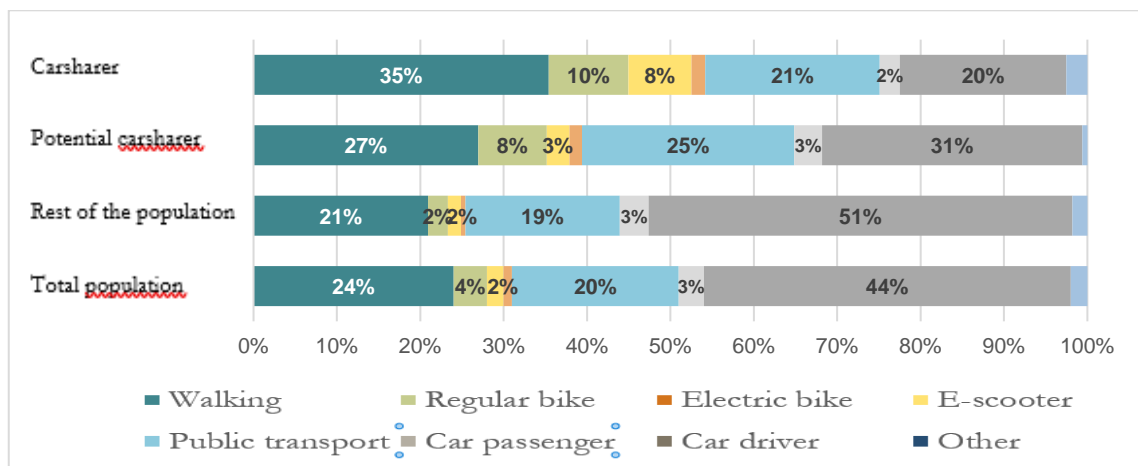
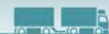


Figure S1: Modal split for travels among car sharers (N=700), potential car sharers (N=257) and the rest of the population (N=2848) in Bergen

Figure S1 shows the mobility practices among the different population groups in Bergen. The car sharers walk and bicycle more, and drive a car far less often as the others. They have a particularly high share of bicycling. The potential car sharers also drive a car less often and walk and use public transport more than the total population, whereas they drive more often and bicycle less than the current car sharers.

Economic motives important for potential car sharers

When it comes to motives for using or considering carsharing, almost three out of four car sharers state that it is important to avoid the practicalities and maintenance



necessary if owning a car; that it is cheaper than owning your own car, that fewer cars provide an improved urban life, and that carsharing is important due to climate or environmental concerns. The potential car sharers state mostly the same motives as important - but to a somewhat lesser extent. However, for them, the argument that it is cheaper than owning your own car is ranked the highest. A multivariate analysis of these motives among car sharers shows that, gender in particular is crucial in the sense that women agree more with the statements than men - especially the value-based statements, such as consideration for climate and environment and the urban life. Quite obviously, having a low income gives greater support for the argument that car sharing is cheaper than owning your own car.

Important features to make a car sharing scheme attractive, are good access to a vacant car of the desired type; a simple booking system, and a short distance from where you live to the nearest shared car. Most people want to use a small city car, and some state a van and station wagon. There is less expressed need for larger sharing cars, such as SUVs and 9-seater.

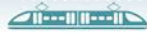
The substitution effect of car sharing

Facilitation of car sharing has become an increasingly important issue in a political context, especially as a traffic regulation measure. Carsharing can replace private automobilization in two ways - each car journey can be replaced by a different type of mobility, reduced car use, or by reduced car ownership. Our study confirms the research literature that carsharing reduces car use by a third. We find that 34 percent use a car less often than before, while one in six both walks and bikes and takes public transport more often than before they started with carsharing.

Half of the car sharers in our survey state that they have not bought a car, as a result of having started carsharing, while a quarter state that they have got rid of a car. In the research literature, the estimates about how many private cars a shared car can replace vary from around five to 15. In our study, it is estimated that a (station-based) carsharing in Bergen replaces five to seven private cars.

We find that carsharing may have reduced the number of cars with between 2600 and 3900 in Bergen. As a car occupies about 10 square meters, a direct consequence is that carsharing in Bergen can free up an area between 26 or 39 acres. Since more than three out of four of the carsharers live centrally, the possible freed up area from carsharers (who have either got rid of or avoided buying a car) will for a large part be in these central urban areas. This gives reason for the assumption that carsharing frees up areas that can be used for other purposes in the city - green areas, urban parks or other open urban spaces, which in turn can lead to improved urban life. The fact that carsharers to a far greater extent than others walk and bicycle for shopping and cultural activities, also means that they move more locally and contribute to urban life in their urban areas.

There is also a question of whether carsharing might contribute to social equalization. We find that those in the lowest income category put forward economic motives more often than others, at the same time as they are also potential carsharers to a greater



extent. Since carsharing seems to be most relevant for younger people, carsharing can also help to even out age differences in car-access.

Carsharing can be seen as a welfare service for those who cannot afford to own their own car, but it also involves a new type of freedom to utilize new mobility services, where carsharing is often integrated in a mix with other types of mobility, mostly active and other types of shared mobility. Carsharing can also be associated with having a special 'cultural capital' that involves quickly absorbing new knowledge and ideas, and lifestyles that are considered particularly acknowledged, future-oriented and 'street-smart'. Carsharing is still currently most relevant for trendsetting groups: younger, urban, highly educated people, who already have or especially appreciate the transition to more environmentally friendly mobility. However, there are knowledge gaps in understanding these relationships between carsharing and social and cultural factors. There is therefore every reason to continue presenting carsharing, not only as a tool for reduced car ownership, car use and environmental deterioration, but also to highlight other aspects - such as the relationships between carsharing and social equalization, sustainable lifestyle and a less congested and a more vibrant urban life.