

## Summary

# Park and ride – before- and after analysis of parking demand

TØI Report 1749/2020

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Oslo 2020 70 pages Norwegian language

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*Park and ride as a mobility measure has been debated. On the one hand, this provides an opportunity to use public transport (PT), even for those living far from a PT service. On the other hand, it becomes much easier to use a car on parts of a trip that one would otherwise conduct by foot, bicycle or PT. In this report, we investigate whether parking fees contribute to a change in the use of parking spaces at fifteen railway stations in Norway. The results show that fees have a clearly dismissive effect and that the demand for parking goes down in most cases. At the same time, the fee has not led to a change in the influence area of the parking lots. The usage pattern and the distance users travel are unchanged.*

## Park and ride – a debated measure

In order to achieve overall targets for reduced emissions from the transport sector, targeted measures are needed to increase the proportion of daily transport made by foot, bicycle and public transport (PT). Park and ride (P&R) is a widely used measure to make it easier to travel by PT, especially for those who live far away from a PT stop or for various reasons have trouble getting to the stop without a car. At the same time, the measure has been debated because it also makes it easier for people to choose a car over other means of transport to the station or bus stop.

To ensure that P&R is offered to the right target group – i.e. those who cannot travel to the station in other ways – various measures can be considered, such as increasing the number of parking spaces or introducing pricing or other forms of regulation.

In this project we have mapped the use of 15 rail based P&R services in Norway. We have registered parked cars in the parking lots before and after a parking fee was introduced or an increase in the fee level was implemented. By obtaining information about the home address of the owners of the cars, we have been able to map the effect the parking fee has had on the use of the parking spaces.

## Low stability among P&R users

Initially, we have carried out an analysis of how stable the users of the car parks are. By charting usage on two different days within a short period of time (with no changes in parking fees), we have the opportunity to say something about how many are daily users and how many are more occasional users. During 2018, we conducted such "double counts" in sixteen parking spaces. The analyzes showed that only 36 per cent of the cars observed were so-called stable users who were registered at both times. Thus, about two-thirds of users can be called occasional or unstable users

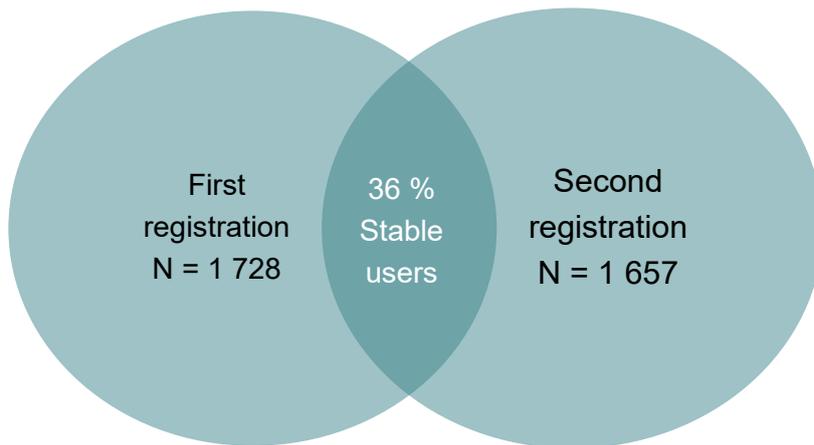


Figure S.1: Share of «stable» and «unstable» users on sixteen P&R locations (N=2 494).

## Parking demand is reduced when a parking fee is implemented

Our survey shows that the demand for parking is reduced in most parking spaces after the introduction of a fee (see figure S.2). At several of the parking lots there was over one hundred percent utilization at the first registration. After the levy has been introduced, we see that utilization is declining in most parking lots. The exceptions are Sande and Nittedal where there is a weak and not statistically significant increase in the demand.

At the second registration there is also free capacity in most parking spaces, which means that it will be easier to find space for those arriving at the stations later in the day. At the same time, there is still high pressure on some of the parking lots, with occupancy of around 100 per cent. These variations indicate that there is different willingness to pay in the different parking lots. The price level is probably too high in some places, such as Grorud, Blommenholm and Stokke, while it may be too low in places like Hvalstad, Nittedal, Øksnavadporten, Ganddal and Sande. A more dynamic pricing model, where the price varies according to local conditions, may therefore be appropriate.



Figure S.2: Capacity utilization in the parking lots at both registration times.

When we examine how far the users drive from their residence to the parking space, we find little change between the two registration times. At the same time, there is a wide variation in the median mileage between the various parking lots. At Nittedal and Hvalstad the median mileage is around one kilometer, while it is at almost eight kilometers on Sande. Although the demand is significantly reduced, it is uncertain whether the introduction of a fee has led to a greater reach of the relevant target group for P&R. There is a lower demand and more vacant parking spaces, but we have not seen any change in the influence area of the parking lots. The median distance travelled to the P&Rs remain unchanged. All in all, our analysis shows that a parking fee makes it easier for users to find free parking spaces later in the day.