

Summary

Calculation of economic benefits of planned bicycle highways with the tool EkspressEffekt

TOI Report 1561/2017

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Oslo 2017, 32 pages, Norwegian language

EkspressEffekt is an user-friendly tool for demand and cost-benefit calculations of bicycle highways. The tool is based on the willingness-to-pay for travel time savings and comfort improvements (reduced number of crossings and increased share of separated cycle path). For 6 of 10 studied bicycle highways, a positive net benefit is calculated with the given assumptions.

The Institute of Transport Economics (TOI) has on commission from, and in cooperation with, the National Public Roads Administration (SVV) developed a simplified tool for demand and cost-benefit calculations of bicycle highways (BH).

An important objective in the model development was to distinguish between transferred demand from car/public transport and changes in cycle route choice. This identification is important for the calculation of health gains. Users of BH that already cycle prior to the implementation of BH have no health benefits given that they cycle the same distance as before. Therefore, the demand model in EkspressEffekt has the structure of an (incremental) nested logit model.

EkspressEffekt has not been estimated on - or calibrated against - empirical demand data. Users can calibrate the model based on the expected sensitivity (high, medium, low) in both the first step (travel mode choice) and the second step (route choice) of the model.

In numerical examples, we show that the applied demand calibration has strong impact on the estimated demand effects, health benefits and cost-benefit calculations. Additional sensitivity analyzes show that other key assumptions include: Amount of traffic in the studied area, the unit value of health benefits (kr per km) and the willingness-to-pay for travel time savings and comfort improvements (reduced number of crossings and an increased proportion of separated cycle path).

With input from the National Road Administration we have calculated costs and benefits of 10 different BHs. For 6 of the BHs, a positive net benefit is calculated under the given assumptions. Sensitivity analysis show that the results are very sensitive to changes in the underlying assumptions. With a conservative value on health benefits, only one of the BHs (Stavanger- Sandnes) is calculated as economically beneficial.