

Recreational costs of new infrastructure

**Abrha Teklay Abay, Dept. of Food and Resource Economics, KU,
Mette Termansen, Dept. of Food and Resource Economics, KU,
Søren Bøye Olsen, Dept. of Food and Resource Economics, KU,
Maria Agertved Madsen, COWI, Mette Dalsgaard, COWI & Morten
Raun Mørkbak, Danish Road Directorate**

Prior to investment in major infrastructure projects in Denmark, it is mandatory to conduct cost-benefit analyses (CBA) to determine whether a given project is beneficial from a socio-economic point of view. Despite the foundational analytical principle in CBA being that all welfare effects of a project should be included, at present, there are several environmental consequences that are typically not included in the CBAs of new Danish infrastructure projects. This is to some extent due to insufficient physical quantification and/or missing economic valuation of the environmental impacts.

The purpose of this project is to assess the loss of recreational values from affected nature areas resulting from the establishment of new infrastructure projects. We estimate a joint revealed preference and stated preference model (RP-SP) to examine the impact of motorway traffic noise on open-access nature recreational choices. RP data are derived from a site choice travel cost survey, while SP data come from a discrete choice experiment. The econometric model allows us to estimate preferences for a range of different types of nature along with preferences for avoiding deterioration of the quality of such areas due to traffic noise. Alongside the preference model, we also use a model estimating the participation frequency. This function accounts for differences in population density and the proximity and quality of recreational opportunities near the home of individuals.

The result is a comprehensive econometric and geographical model setup, which enables us to quantify the overall loss of recreational values due to specific infrastructural projects. The model setup is applied on a case study of building a new motorway in the central part of Jutland (den Midtjyske motorvej).