Pricing road noise in Sweden

Stefan Grudemo
ASEK (Method of analysis and economic calculation values for the transport sector)

- The principles and values are recommended to be used in cost-benefit analyses (CBA) in the Swedish transport sector.

- Based on scientific results or well-known and commonly accepted procedures and facts
The noise costs were produced by VTI (The Swedish National Road and Transport Research Institute, VTI 2014) in the VÄSMAGE-project.

• Hedonic model of property prices to estimate the cost of road noise
• Data of property sales from seven geographically distinct regions (municipalities) of Sweden (Västerås, Nacka, Borås, Vellinge, Umeå, Örebro and Falun)
• The regions are chosen to represent Sweden in an adequate manner
• Follows closely to a former study where cost of rail noise was estimated
Data sources

- Register data of all property sales from 2002 to August 2012 (almost 10 000): living space, property area, quality index...
- Road noise calculated by the Nordic Method. 24-hour equivalence level of noise
- Socio-economic data from Statistics Sweden linked with property data: income, education, household size..
Model

- Hedonic model where two steps are estimated

- Step 1: Price of a good estimated as a function of the characteristics of the good.

- Step 2: Demand for a given characteristic is estimated.
Cumulative health effects – unaware disorder

Impact pathway approach

• Premature death
• Heart diseases - risk of myocardial infarction etc.
• Production losses – when hospitalized
• Medical expenses

Sources: the World Health Organization (2011 and 2012) and the ExternE-project (Bickel and Friedrich, 2005)
Indoor costs (SEK, dBA), 27 dB average facade noise reduction - assumption that the cost of the outdoor noise is 50% of the total cost
Outdoor costs (SEK, dBA) - assumption that the cost of the outdoor noise is 50% of the total cost
Thank You!