

# Estimation of the Value of Time in the Czech Republic: A Comparative Study

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# Motivation

## Estimation of the Subjective Value of Time (SV) in the Czech Republic:

- There is a value reflecting the average wage (CZK 164 /hour = approx. EUR 6.50 /hour ) suggested for the CR.
- Recent research questions this approach:
  - Brůhová (2008) finds using logit models that the number overestimates the true SV;
  - Brůhová (2010) confirms this finding using a richer set of models.
- This presentation presents further robustness tests.

# Methodology

## Subjective Value of Time

is the amount that the individual is willing to pay in order to reduce by one unit his/her travel time.

- The usual way is based on discrete choice models:
  - It is assumed that individuals attach utility to each alternative (i.e., travel mode) and choose the one with the highest utility.
  - The SVT is then a marginal substitution between the cost and time of travel.
- Previous research in the CR using RP data:
  - Brůhová (2008) uses a simple logit model;
  - Brůhová (2010) compares logit, multinomial probit, and mixed logit models.

# Data

Data used in previous studies (and also in this study):

- Data on actual choice of travel mode:
  - The city of Pilsen, 2005, 2 locations (Slovany and Lochotín)
  - Population 18+, N=763, Collected on working days
- The questionnaire includes:
  - description of regular week journeys (within the city), including frequency and used modes of travel
  - a diary a description of all journeys made during the previous (reference) day (an ordinary working day in the data collection period)
  - stated motivation for the use of the particular transport mode
  - stated individual attitudes towards various aspects of transport modes and the environment
  - economic and socio-demographic characteristics of the respondents and their families
- CUBE software approximated travel times and distances for all alternative modes.

## Selected results

Our results:

- our results suggest that the value is between 35% and 42 % of average wage;
- the implied value does not differ significantly between econometric techniques;
  - however, multinomial probit and mixed logit models reveal unobserved heterogeneity.
- travel to work seems to implies higher values than other purposes (shopping, leisure);
- it seems that the value differ across income groups, but results are not stable;
- the value of traveling in car is lower than for public transport.

All in all, the average value about 40% seems to be a safe estimate.

## Comparison with other studies

### A consensus number?

Kenneth Gwilliam (World Bank) recommends that a default personal value for adult personal travel time should be 30% of household income per hour unless better local data are available.

Studies tend to find:

- greater value for inter-city and business travel: (as much as 100% of wage);
- some studies find greater value of excess (waiting, walking, transfer): can be as much as 150%;
  - but these are upper bounds, there have been reported lower numbers.
- Usually low values of travel time values are as low as 30% (car commuting).

Our results do not seem to be an outlier.

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