The PhD thesis consists of four self-contained chapters in the area of Transport Economics. The main aim of the thesis is not to produce a single message which is supported by all four chapters. Instead, each chapter is written to make a contribution of its own. The thesis covers a wide range of issues such as modelling behavioural reactions to travel time variability, the measurement of the cost of travel time variability, the labour market implication of changes in commute costs, and the application of discrete choice models to investigate variations in willingness to pay for travel information systems across individuals and the implication of model assumptions on the estimated distribution. Chapter 1 is titled: “Testing the slope model of scheduling preferences with stated preference data”, and is a joint work with Katrine Hjorth and Jeppe Rich. This study used a stated preference data to challenge the theoretical equivalence of two methods for measuring the value of travel time variability: the slope model of the scheduling approach (Fosgerau & Engelson, 2011) against its reduced form model. The analysis is based on data from two choice experiments that are identical except one has a fixed departure time while the other allows respondents to choose their optimal departure time. According to the scheduling model, the two experiments yield the same result if travellers can freely choose departure time to maximise utility, and if the distribution of travel times is independent of departure times. It turns out that the empirical results in this paper do not support the theoretical equivalence of the two models as the implied value of travel time variability under the reduced form model is an order of magnitude larger. This finding is robust and is in line with a recent Swedish study by Börjesson et al. (2012). Because of data better suited for the analysis, we ruled out some potential explanations lined up by past research for the observed discrepancy between the two models. Although the similarity of results across studies could suggest the presence of a more fundamental problem in estimating the valuation of travel time variability based on data from hypothetical experiments, it is recommended to test the equivalence of the models based on real life data before we can rule out hypothetical bias. For the discrepancy explained by the theoretical model, the model in this chapter allows strategic interaction in scheduling choice. As a result, the slope model does not capture the effect of improved variability of travel times for one person on another. Chapter 3 is titled: “Advanced methods make a difference: A case of the distribution of willingness to pay for advanced traveller information systems”. This study is concerned with the use of discrete choice models to estimate the distribution of willingness to pay for advanced traveller information systems and the implication of certain model assumptions on the estimated distribution of willingness to pay. The study uses a flexible estimation method based on data from a stated choice experiment designed to measure the willingness to pay for several types of information that an advanced traveller information system can provide. Different models were estimates that vary in terms of restrictions embodied. While simpler and relatively more advanced models yield nicely dispersed distribution for willingness to pay, this distribution ceased to exist when some restrictions are set free. The less restrictive model fitted the data better, and in this model, which combines the latent class and mixed logit models, it turns out that there distributions do not reveal any dispersion in the willingness to pay for advanced traveller information systems. Results indicate that a significant share of individuals is unwilling to pay for advanced traveller information systems and that willingness to pay is tightly distributed among those who are willing to pay a positive amount. Findings in this study illustrate the importance of model specification testing, and that results regarding the estimated distribution of willingness to pay can be highly dependent on restrictions built into the model. (A paper based on this chapter is under review at Transportation Research Part C: Emerging Technologies, and was presented at the 94th Annual Meeting of the Transportation Research Board (TRB), Washington, D.C., 11-14 January 2015.) Chapter 4 is titled “The effect of a firm’s relocation distance on worker turnover”, and is a joint work with Ismir Mulaic, Jos van Ommeren and Ninette Pilegaard. Using a matched worker-firm model specification testing, and that results regarding the estimated distribution of willingness to pay can be highly dependent on restrictions built into the model. The analysis finds a positive and significant but moderate effect of relocation distance on worker turnover. This effect is robust to the inclusion of firm level characteristics and year and municipality fixed effects. Results in
this chapter establish that, on average, a 10 km increase in relocation distance leads to a 2–4 percent increase in the annual rate vi of worker turnover at the firm level over a period of three years, including the year of relocation. The estimated effect is stronger in the first year after relocation and pales away after the third year as workers more or less fully adjust to the relocation. It is not surprising that we obtained a smaller effect since, first most firms relocated locally. Second, the high rate of job mobility in Denmark means that workers expect to be mobile in the labour market; hence, it may matter less when their firm relocates. Moreover, it is possible that workers knew about the relocation decision and left the firm in the years and months before the relocation. The study also examines whether the distance of relocation captures the effect of changes at the firm because of the relocation. Results indicate that, after controlling for relocation distance, firm relocation has no significant effect on worker turnover.

General information
State: Published
Organisations: Department of Transport, Transport policy and behaviour
Contributors: Abegaz, D. F., Fosgerau, M., Hjorth, K.
Number of pages: 120
Publication date: 2015

Publication information
Publisher: Technical University of Denmark, Transport
Original language: English
Electronic versions:
Dereje_thesis_Essays_in_Transport_Economics_m_omslag.pdf
Research output: Research › Ph.D. thesis – Annual report year: 2015