As part of the Institute for Transport Studies (ITS) Research Seminar programme you are most welcome to attend the following presentation:

**New insights into model specification and selection for composite marginal likelihood estimation: application to car availability**

Presented by [Dr Romain Crastes dit Sourd](http://www.cmc.leeds.ac.uk/people/leeds-members/), Choice Modelling Centre, Institute for Transport Studies, University of Leeds.

**Date:** Monday 20th November 2017

**Time:** 14.00-15.00

**Location:** rm1.11 [Institute for Transport Studies](http://www.its.leeds.ac.uk/map/), University of Leeds

**Abstract:**

This paper investigates the determinants of car availability in Germany using a unique life course calendar data-set that covers 27 years of data. Modelling car availability over the life course requires to account for spurious state dependence (\emph{i.e.} autocorrelation of the errors). The dimension of integration increases with the number of time periods considered which rules out Maximum Simulated Likelihood (MSL) estimation techniques. An alternative is to use the Composite Marginal Likelihood (CML) inference approach, which replaces high-dimensional integrals by a compounding of bivariate probabilities. The current paper delves into the issue of how to form and select CML functions. Indeed, CML is a flexible tool and different pairs of bivariate margins can be used, leading to different results. The typical approach consists in using the pairing combinations of temporally close choice situations. In this paper, we suggest instead to use randomly selected pairs for each individual. We estimate a series of autoregressive random effects ordered probit models built from both close and random pairs and compare the results obtained using various goodness-of-fit indicators. Our results suggest that random pairs provide better fit and are computationally much less burdensome. These promising results also allow us to unravel the important role played by spurious state dependence in car availability across the life course.

No booking required. All welcome.

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