<center>**PhD in choice modelling**</center>

Topic: Behavioural flexibility in choice modelling - bridging the gap with behavioural economics and mathematical psychology

Supervisors: Professor Stephane Hess & Dr Charisma Choudhury

Host school: Institute for Transport Studies
(with cross-university collaborations through the Choice Modelling Centre).

Start date: flexible, available from 1 December 2014.

Funding and duration: an enhanced stipend of £17,859 per year (figure for 2014/2015) is available for a duration of up to 3.5 years.

Eligibility for funding: UK/EU students.

Entry requirements: A first class (or equivalent) undergraduate degree related to mathematics or statistics from a reputed university is desirable. Candidates with an upper second class (or equivalent) degree from excellent universities will also be considered, especially if the candidate has a Masters degree and/or practical experience in a highly relevant area. Experience of mathematical modelling and/or computer programming skills is also desirable.

Background: We are looking for a highly motivated student to conduct PhD research in the field of choice modelling. Choice modelling is a key analytical tool used to understand consumer decisions and valuations and forecast choices across a range of topic areas, including transport, environmental and health economics, and regional science. Their outputs form a key component in guidance underpinning government and industry decisions on changes to policy, infrastructure developments or the introduction of new services or products.

This role provides an exciting opportunity to contribute to a major cross-disciplinary research programme at the heart of the new Choice Modelling Centre (www.cmc.leeds.ac.uk) set up within the University of Leeds. The five year DECISIONS project, funded by the European Research Council (ERC) seeks to make a step change in choice modelling. The project aims to develop a new framework which realigns modelled behaviour with real world behaviour, incorporating links between long term decisions and day to day choices, and accounting for the growing importance of virtual social networks and the role of joint decisions.

Topic: Choice models are used very widely to understand and predict consumer decisions across a variety of different areas. However, the core emphasis in this work has very largely been on short term decisions, with for example typical transport choices such as commuting decisions. More medium term decisions, such as residential location and car ownership, are also studied, though less frequently, while long term decisions, such as education, migration, career and lifestyle choices, have received very limited or no attention, despite their obvious importance. The fact that such decisions are likely to be made in a very different way from regular short term choices makes this a challenging and exciting area for research. However, the need for research in this area is increased further by the fact that there are obvious links and dependencies between these different types of decisions; improving our understanding and modelling of long term decisions is thus likely to also lead to greater accuracy in modelling short term choices. The topic of this PhD is to develop new methods for modelling long term decisions and to study the linkages with short term and medium term decisions.

Tentative research questions: The research is likely to evolve over the course of the PhD, but will for example seek to address the following questions:

- How can we model the timing of long term decisions?
- Are long term decisions based on decision paradigms that differ from short term decisions?
- How can we model rare-event decisions, such as lifestyle choices, and what are data requirements?
- What are the relationships between long and short term decisions and how can we model them?

Enquiries, including on how to apply and funding details, may be made via telephone/email to Professor Stephane Hess www.its.leeds.ac.uk/people/s.hess