Funded PhD opportunity available at CASA, in partnership with the UK Department for Transport.

We are looking for a highly motivated individual who has a strong interest in transport, economics, spatial analysis and urban modelling.

The deadline for application is: **29 June 2023, 23:59**

To apply, please:

- send your CV and a 500-word (maximum) letter of motivation to Carol Trent, c.trent@ucl.ac.uk ;
- indicate in the letter whether you have a UK nationality or pre-/settled status;
- use '**Application for CASA/DfT PhD [your name]**' as the subject of your email;

Interviews with short-listed candidates will be held on **5 and 6 July**. Short-listed candidates will receive an invitation during the morning of **4 July**.

Project Description:

Project Title:
Assessing socio-spatial and economic impacts of large transport infrastructure

Principal Supervisor: Dr Jens Kandt

Secondary Supervisor: Prof Michael Batty

Department & Institution:
The Bartlett Centre for Advanced Spatial Analysis (CASA), University College London (UCL)

Collaborative Organisation:
UK Department for Transport (DfT)

Large transport investments are expected to generate economic and social benefits, such as job creation, higher productivity, housing development and urban regeneration. Yet, such impacts from transport infrastructure appear to be highly dependent on geographical context, such as local socio-economic and labour market conditions. In addition, the moderating and sometimes confounding effects of displacement – the relocation of households and firms – are still poorly understood.

This PhD project will develop a novel, integrated modelling framework that is grounded in social and economic theory to robustly assess the wider spatial, social and economic impacts of large transport investments. The primary research questions will be:

- How do transport projects generate land use change; how do these changes co-constitute and advance agglomeration of activity and translate into wider social and economic impacts?

- Under what geographical conditions do transport projects inhibit or support progress towards economic prosperity, equal opportunities and environmental sustainability?
- How can wider welfare impacts of transport investments be estimated, forecast and predicted in an evidence-based and robust manner?
- How can welfare impacts be critically examined, unintended consequences be identified and social welfare be separated from economic impacts?
- What novel data sources are available and what metrics can be developed to advance research, policy and appraisal practice?

As part of addressing these questions, we envisage that the research will bring together and advance insights from Land Use Transport Interaction (LUTI) and Computable General Equilibrium (CGE) modelling. In so doing, the research will build on LUTI research conducted at CASA and economic analysis at DfT. We expect that the PhD will make contributions to the fields of transport geography, transport economics as well as transport policy and appraisal practice, thus promising strong cross-sectoral impact.

The project will be co-supervised by economists at the Department for Transport (DfT), and the applicant will work at DfT offices for part of the time. The project will thus offer a rare opportunity to conduct research with an influential government department, advance social and economic analysis of the socio-spatial impacts of transport, translate theories into modelling applications and lead on cross-sector knowledge exchange on pressing policy challenges, such as reducing environmental impacts, increasing social welfare and reducing spatial disparities.

Studentship and Stipend:

The duration of the studentship is 3 years full-time or 5 years part-time. Please note that, for part-time, a minimum time commitment of 50% is required.

The annual full-time stipend rate for 2022/23 is £19,668 and will normally increase annually. The stipend may be enhanced with an Advanced Quantitative Methods uplift of £2,000 per year.

In addition, tuition fees will be covered by the studentship and there will be access to departmental funds for conference travel, training and data licences.

Candidate Requirements:

We are seeking a highly motivated individual who has a strong interest in transport, economics, spatial analysis and urban modelling.

The candidate should have a background in transport geography, economic geography, economics or transport engineering with an economics focus, ideally with some experience in spatial analysis.

The candidate should have excellent written and oral English communication skills.

Prior work on or experience with economic models, specifically GCE modelling, LUTI or the estimation of transport-related Wider Economic Impacts will be of particular advantage.

Baseline Personnel Security Standard (BPSS) will need to be completed prior to the commencement of the doctoral research. This process is expected to take approx. 6 weeks.

Please also note the requirements by ESRC regarding the award of the studentship: https://www.ukri.org/publications/esrc-postgraduate-funding-guide/

Key References:

Batty, M., & Milton, R. (2021). A new framework for very large-scale urban modelling. *Urban Studies* 58(15), 3071–3094.

Batty, M. (2013). The New Science of Cities. *The MIT Press.*

Department for Transport (2018). *TAG Unit M5-3 supplementary economic modelling*. London: Department for Transport https://www.gov.uk/government/publications/webtag-tag-unit-m5-3-supplementary-economic-modelling-may-2018

Hansen, W., & Johansen, B. G. (2017). Regional repercussions of new transport infrastructure investments: An SCGE model analysis of wider economic impacts. *Research in Transportation Economics* 63, 38–49.

Jin, Y. et al. (2019) *UK2070 Futures Modelling*, Technical Report, The Martin Centre, University of Cambridge. https://uk2070.org.uk/wp-content/uploads/2019/05/UK2070Commission-MODELLING-TECHNICAL-REPORT.pdf

Laird, J. J., & Venables, A. J. (2017). Transport investment and economic performance: A framework for project appraisal. *Transport Policy* 56, 1–11.

Wegener, M. (2014). Land-Use Transport Interaction Models. In: Fischer, M. & Nijkamp, P. (Ed.). *Handbook of Regional Science*. Springer Berlin Heidelberg, 229–246.

Further details about the project may be obtained from:

Jens Kandt, j.kandt@ucl.ac.uk