TRANSPORT & LAND VALUE UPLIFT - Evidence and implications for Appraisal, Modelling and Strategy.

Research aims

The study was designed to investigate the potential for methodological improvements to the quantification of land value uplift in transport appraisal (especially in the context of current Webtag appraisal guidance on treatment of land values effects within transport appraisal).

The study specifically addressed how a more coherent approach to the modelling of property market effects and transport accessibility could be developed.

The researchers undertook a theoretical review, examined current models, explored data availability and developed a prototype model framework.

Throughout the research project the aim was to clarify the links between accessibility, land and property values, social welfare and project funding.

The final step was to identify what research would be helpful to fill knowledge gaps and provide more useful tools for decision-makers in future.

Background

The work was funded by the West Yorkshire Transport Research Innovation Fund (TRIF), and carried out in the second half of 2016. A consultation and research dissemination workshop was held in December 2016 with a range of national (government), Northern and local partners to present the key research findings and consider next steps.

The phase 1 study outputs led to the development of a phase 2 study project (to be funded beyond the initial TRIF phase 1 research and outside of the TRIF budget) designed to:

- Assist in developing land value capture (LVC) strategy as part of the project business case for Northern Powerhouse Rail (NPR) and other interventions, by producing quantitative estimates of land & property value impact;
- Enhance the economic appraisal of transport investments: to estimate the benefits that can be included in the Benefit: Cost Ratio (BCR) in the Economic Case as a result of the changing pattern of accessibility and economic activity, as well as the implications of value capture for the cost to the broad transport budget and other public budgets;
- Describe and clearly summarise distributional effects: by spatial area; income groups; and for renters versus owners of residential property;
- Improve the temporal treatment of transport investments in traditional economic appraisals: bringing investments forward / optimising timing, given time lags involved in economic impact.

Research questions

Phase 1 research project

The research questions addressed through the phase 1 TRIF funded work focused on:

- **The theory and evidence around land value uplift and transport investment**
- **The modelling approaches and techniques which can be used to predict and model land value uplift.**
- **Considering land value modelling improvements in the context of transport strategy development and transport appraisal**

The research concluded that it would be feasible to build a more coherent modelling approach to forecasting property and land value uplifts which could be applied directly in the economic case elements of transport appraisal, whilst simultaneously incorporating and modelling the effects of accessibility and place quality (these effects relative to land value uplift vary significantly across the UK at local level due the very different local property market supply and demand relationships at work).

The central question the research wanted to address was could these very different local property market effects be captured in a coherent way and could they be incorporated into economic appraisal – the answer was that methodologically this could be addressed within current theory and practice and recognising improvements in key data required to support such modelling.

The Phase 1 study and stakeholder workshop held on 14 December 2016 identified that there is need for a capability to predict the land value change arising from transport, accessibility and place quality changes. There seems to be widespread agreement that any predictive model should be grounded in evidence of land value relationships up to the present, and that there is interest in ex post evaluation of past / recent improvements in its own right.

Methodology

A mixture of theory and evidence review combined with technical proof of concept testing (in the development of a land value forecasting model) was pursued by the research team (based on their experience developed on similar work in London) headed up by Dr John Nellthorp Senior Research Fellow at the Institute for Transport Studies at Leeds University.

The detailed phase 1 report funded through the WYTRIF explored a range of modelling approaches looking at the relationship between improvements in transport accessibility and property market effects and recommended the development of a model which estimates property prices as a function of changes in the typical hedonic characteristics (property, neighbourhood, accessibility, amenity) over time and space. The model would also employ a Geographically Weighted Regression (GWR)-based approach. This provides a way of accommodating the local geography of residential property values-transport relationships.

Phase 2 research

The phase project proposal which flowed from the research findings and recommendations of the TRIF funded research is designed to:

- Fast track the development of Northern Property Market Model (including model build and testing) within the envelope of the development of the Strategic Outline Business Case (SOBC) for Northern Powerhouse Rail (which is being led by Transport for the North);
- Innovating and evolving transport business cases under the “5 Cases” approach exploring and recommending approaches that could be used to integrate property market effects directly with the economic and financial case elements.

Meanwhile the academic goals of the phase 2 project are to develop and publish innovative modelling and appraisal methods in the following areas (identified in Phase 1 as important gaps):

- Land value modelling to include transport & accessibility measures and place quality as explanatory variables;
- Incorporating property market supply-demand conditions into the models, to address the wide range of different local property markets found in the North of England (and elsewhere);
- Addressing the time dimension, so that property market dynamics – including the time lags between infrastructure opening and land value changes – are captured;
- Measuring welfare change as well as value growth in the property market, and GVA impacts;
- Describing the distributional effects: by spatial area; income groups; and for renters versus owners of residential property;
- Connecting the potential land value uplift to specific Value Capture mechanisms and reporting the potential financial flows.