Development in methods to estimate the economic impacts of transport

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THE ECONOMIC ROLE OF TRANSPORT
ASSESSMENT OF ECONOMIC CONTRIBUTION OF TRANSPORT

The economic contribution of transport interventions and transport policy can be assessed from various perspectives. These include:

• effects on aggregate economic welfare (that is, the sum of consumer and producer surplus), which is the focus of cost-benefit analysis, as applied to transport policies or projects
• micro-economic, for example, enterprise or household-level productivity effects
• macro-economic, for example, contributions to GDP, investment or employment, and the spatial patterns of economic activity.
OVER-LAPPING ECONOMIC IMPACTS

Transport investments have multiple over-lapping economic impacts, with the initial impacts rippling through the economy both spatially and over time manifesting through:

• Direct mechanism – reduction in transport costs offering improved accessibility to markets and resources and changes in the supply and demand for labour.

• Indirect mechanism – secondary entities supplying inputs to directly affected businesses.

• Dynamic mechanism: Changes in residential and industrial location, property prices.

• Differential effects on the economy in any given area/region relative to other areas/regions
SOCIAL VALUE OF TRANSPORT INVESTMENT

### METHODS TO ESTIMATE ECONOMIC IMPACT

<table>
<thead>
<tr>
<th>Welfare benefit</th>
<th>Modelling welfare benefits</th>
<th>Modelling GDP effects</th>
<th>Modelling spatial effects</th>
<th>Plausible reasons for effects to exist (1)</th>
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<tbody>
<tr>
<td>Transport user benefits</td>
<td>EEM</td>
<td>(2)</td>
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<td>Low (or zero) utility is gained from time spent travelling (hence reduced travel time is of value)</td>
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<td>Externalities due to intra-urban urbanisation and localisation</td>
<td>SCGE MODEL</td>
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<td>Increased competition.</td>
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<td>Improved coordination.</td>
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<td>New firm nursery.</td>
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<td>Better job matching.</td>
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<td>Increased skill specialisation.</td>
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<td>More knowledge exchange.</td>
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<td>Externalities due to inter-urban localisation</td>
<td>SCGE MODEL</td>
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<td>Specialisation around existing industry.</td>
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<td>Increased innovation derived from higher international trade &amp; investment.</td>
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<td>Changes in land use</td>
<td>SCGE MODEL</td>
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<td>Better able to match work–residence locations with preferences, leading to changes in locations of firms and households.</td>
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ECONOMIC IMPACTS OF CONNECTIVITY: GVA AND SCGE MODEL

Source: Byett, Stroombergen, 2016 Forthcoming
FINDINGS – 5 KEY RESULTS

• Excluding agglomeration effects Regional GDP increases by 0.2%. Similar to productivity increase associated with shorter travel times.

• An increase in regional labour supply of 1% adds a further 0.7% to GDP, which is more than the share of labour in GDP which is 0.6%. The additional 0.1% is gain from an improved allocation of work and residence locations. Would not be captured in standard CBA.

• Productivity increase within GVA model adds another 0.1% to GDP. Not captured by standard CBA, but WEBs framework can partially capture.

• Combined 0.4% lift in GDP equivalent to $380 million per annum or $4.7 billion (pv)

• Consumer utility exceeds increases in GDP.
WHAT DECISION ARE YOU MAKING?

• Context of models and level of uncertainty is important – match the tool to the purpose.
• Economic models are a useful as a method for investigation – “What if”
• How well do scenarios match reality?

Source: Mackie et al, 2014