Transport and economic growth

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Presentation structure

Transport and economic growth:

- Policy
- Theory
- Empirical evidence
- What’s going on?
- Other impacts of transport investment
- What else could we invest in?
10. There are 3 key strategic outcomes that we must focus on to achieve this vision. They are to:

- **Improve journey times and connections**, to tackle congestion and the lack of integration and connections in transport which impact on our high level objectives for economic growth, social inclusion, integration and safety;
- **Reduce emissions**, to tackle the issues of climate change, air quality and health improvement which impact on our high level objective for protecting the environment and improving health; and
- **Improve quality, accessibility and affordability**, to give people a choice of public transport, where availability means better quality transport services and value for money or an alternative to the car.

Similar arguments for City Deal investments now
Why investment in transport should increase overall economic growth

- Greater factor productivity
  - New road or rail increases accessibility
  - Accessibility reduces transport costs
  - Costs of production decrease so more is produced, more cheaply
  - Market share and competitiveness increase
- Access to better paid jobs
- Larger labour pool for employers
- Agglomeration effects
Eddington Report – Micro Drivers of Productivity

**DIRECT IMPACTS**

- **Cost**
  - Travel cost
  - Travel time
  - Reliability

- **Quality**
  - Comfort
  - Safety
  - Security

**WIDER IMPACTS**

- Business efficiency
- Business investment & innovation
- Clusters / agglomeration
- Labour market
- Competition
- Domestic & international Trade
- Globally mobile activity

**USERS**

- Business travel
- Commuter
- Non-work/leisure
- Freight

Transport intervention

Response by Users
Agglomeration

- Agglomeration economies: positive externalities due to spatial concentration of economic activity
- “Firms derive productivity advantages from locating in close proximity”
  - Larger or pooled labour market
  - Knowledge interactions
  - Specialisation
  - Sharing of inputs and outputs

- Wider economic benefits of transport improvements: if transport increases agglomeration it should increase productivity
Labour markets

- Better accessibility – access to more jobs/staff
- People get (better) jobs – reduced benefits, increased tax take, higher wages… But:
  - For poor/PT dependent – is lack of transport main barrier? – many empirical US studies found no impact of better PT on low income employment
  - Could find no empirical studies on impact on employment overall
Transport inward investment

- Inward investment (FDI) – major business investment into one area from overseas

- 2016 study of 5 GB regions change in GDP over time:
  - Only in West Midlands manufacturing road infra important
  - Elsewhere – tax, labour costs, education, market size

- Central European countries:
  - 2009 study concluded IT and telecoms infrastructure more important than transport
  - 2016 study – market size, education, governance, corruption index most important
But is transport investment enough?

Effects of improved accessibility confusing:

- Some areas grow when congestion high e.g. London
- Some areas grow without transport investment e.g. Pendle (East Lancs); Inverness
- Some areas have transport investment but do not grow (Humberside – Humber bridge)

Transport investment may help structurally strong economy to grow but not enough in weak economy

Structurally strong economies can grow without major transport investment (Ireland in 1990s/2000s)

Removing bottlenecks in strong economies may allow faster growth (if congestion then managed)
Possible counterintuitive effects?

- Two way road effect
- Accessibility in one area improved at expense of another

Sánchez-Mateos, Héctor S. Martínez, and Moshe Givoni (2012)
Empirical evidence – economic growth in specific localities

- Skye bridge – toll removal – effects positive on some sectors, negative on others
- Borders Rail – tourism nights up in Borders – but down in rest of Scotland
- New rail stations attract new housing – but is it net growth?
- 2015 meta review found 2-3 rigorous empirical evaluations showing impact of roads at local level (up to 20km from road):
  - No clear impact on jobs
  - Positive effect on GVA – 0.4%
  - Positive effect on productivity and wages – 0.2%
Empirical evidence – economic growth in entire countries

- Considering developed countries like Scotland with developed transport networks:

- There is no high quality empirical evidence that transport infrastructure investment will boost economic growth of a country overall

(Finding of review by What Works Centre for Local Economic Growth (WWCEG), 2015 (link on last slide))
Does new surface transport infrastructure help increase GDP?

- SACTRA (1999)
  - ‘Empirical evidence of the scale and significance of such linkages is weak and disputed.’

- Eddington (2006)
  - Relieve bottlenecks – rather than providing entire new lengths of infrastructure.
  - Emphasis on charging – otherwise new infrastructure only slows rate at which congestion worsens
  - Emphasis on agglomeration benefits, based on Graham (2006)
Journey times, time spent travelling and economic growth

- Journey times -

**Switzerland**
Total Annual Time Travelling

- Sweden
- Total Annual Time Travelling

- Netherlands
Average Travel Time

- Germany
Average Travel Time

- United Kingdom
Average Travel Time
Journey times, time spent travelling and economic growth

- GDP & average journey speeds -
Journey times, time spent travelling and economic growth

- Any link between journey times, time spent travelling and economic growth - extremely weak.
- Average speed of personal travel remained remarkably constant (with exception of change in Germany between 2002 and 2008).
- Economic growth rates show no correlation with changes in average speed
- Countries travelling fastest are not most wealthy
What’s going on?

➢ Why might links between transport investment and economic growth be difficult to establish empirically?

➢ Factor productivity:
  • For most companies - transport small part of cost of production (<5%)
  • Labour and plant much more important
  • But can be 70% of transport costs in terminals (loading and unloading)

➢ So much other “noise” in economy (GDP effect of Forth Bridge closure)

➢ Ex-post evaluations – very few, poor quality, no control groups

➢ Very difficult to establish causality, additionality
Difficulties with agglomeration effects

Graham and Dender (2010):

- Predicting how much job density will increase as result of transport investment
- Many factors affect agglomeration - difficult to unpick effect of accessibility
- Agglomeration economies fall quickly with distance
- Found no relationship between accessibility and productivity over wide range of empirical data
- “For transport appraisal, this implies that the use of conventional point elasticity estimates [of density/productivity relationship] could be highly misleading.”
Other impacts of transport investment
Travel time per person per year - constant

Average travel time (hours per person per year) - DfT
Passenger transport by mode, Great Britain
Billion passenger kilometres

- Air
- Pedal and motorcycle
- Rail
- Car/van/taxi
- Bus/coach

UK transport CO2 emissions 1952-2004
(source: DTI)
.. Has investment reduced time spent travelling? ..

- Investments in big transport schemes don’t cut our total time travelling. Instead, results:
  - People travelling further
  - Larger number of potential destinations
  - Changes in land values
  - ‘Urban sprawl’

- Are ‘time savings’ reasonable proxy for economic benefits of greater accessibility ......or....

- Do ‘time savings’ over-emphasise actual economic development benefits? (Wenban-Smith (2011))
Public spending in other areas? ..

- For developed economies key factors:
  - (Corporation) tax rates
  - Regulatory framework
  - Education system and level
  - IT and comms infrastructure
  - At regional level, grants/subsidies
  - (Housing?)

- Tspt infrastructure important only if many industries in country dependent on transport (e.g. Very agricultural country)
Conclusions and caveats

Impacts of transport investment on economic growth – empirical evidence suggests these:

• Limited
• Poorly understood
• Not necessarily additional
• Other areas of public spending may have bigger impacts
• But read reports for yourself (next slide) and have a real debate with expert advisors and politicians before assuming that your new road or rail station will automatically create jobs.
Thank you for listening

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Two very good recent summaries of literature on this topic:
