



INFRASTRUCTURE CHOICES FOR A SUSTAINABLE ECONOMY

By

Patrice Muller

Managing Partner – London Economics

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Structure of the presentation



- Findings from economic growth literature
- Findings on investment impacts by sector: transport, renewable energy, ICT, early years, higher education, tourism & events, housing, health care, primary & secondary education
- Quick review of NI economic and social context
- Methodology for assessing investment proposals
- General conclusions

Findings from the economic literature



□ Key issues:

- What are the main determinants of a country's long-term economic growth?
- Do different economies converge in terms of GDP?

□ Number of models in economic literature

- Solow (1956) neo-classical growth model
 - Key long-run driver: technological progress, conditional on savings rate
 - Differences across countries or time due to differences in physical capital per worker and effectiveness of labour

Findings from the economic literature



□ New Growth Theory

- Important focus: differences in labour effectiveness
- Many variants but number of recurring themes
 - R&D
 - Human capital (years of education ,but also school quality, on-the-job training, informal human capital acquisition, etc)
 - Social infrastructure (tax policy, legal environment, the State as a parasite)

Findings from the economic literature



□ Empirical findings:

- R&D support
- Investment in human capital
- Openness of economies
- Strong and efficient financial markets
- Public investment in infrastructure (transport and communication in particular)
- Property rights
- No corruption
- Political stability

□ Caveats

- Weaknesses in statistical analysis
- Measurement of certain variables
- Endogeneity and causality



Impacts by sector



□ Transport

- Broad agreement that adequate transport is a necessary precondition for economic development but necessarily sufficient
- Investments in transport infrastructure can increase business efficiency through lower transport cost, increasing the potential for economies of scale, expanding competition by increasing the size of the geographical markets
- Also key for creation and maintenance of clusters and agglomeration effects
- Review of empirical evidence regarding road, rail and air transport investments in Europe, Australia, North America is mixed

Impacts by sector



□ Renewable energy

- Very topical issue but much less studied
- Certain themes emerge for literature
 - Commercial case often weak (private versus social benefits)
 - In some cases risk associated with emerging technologies
 - Specific nature of energy produced (intermittency, connections etc)
 - But major potential benefits (GHG, SoS)
 - Rural / urban aspect



Impacts by sector



□ ICT

- Many findings that ICT investment is generally beneficial to the performance of firms, provided complementary action is taken (business process re-engineering, training, etc)
- Also impact at economy-wide level (USA, somewhat less strong in Europe)
- Broadband investment has been studied separately – generally positive impact on firms – also regional dimension
 - Impact may be indirect – lower input costs

Impacts by sector



□ Early years

- Wide range of US literature finding wide range of positive impacts
 - Human capital, reduction in crime, higher wage income and lower welfare dependency
- Not clear that conclusions carry over to UK – initial findings of Sure Start show mixed results



Impacts by sector



□ Higher education

- Numerous studies finding that net private and social benefits widely outweigh private and social costs
- Direct and indirect economic impacts much exceed by human capital impact of HEI
- Less robust evidence about HEI as drivers of firm location
- Also many non-monetary benefits
 - Health, civic participation, attitudes, parenting



Impacts by sector



- Primary and secondary education: significant long-run positive impacts (human capital)
- Health: positive impact on economic performance, especially in developing countries, some more limited evidence in developed countries
- Housing: potential long run impact through increased labour mobility
- Tourism/events: positive impact but doubts about some of the estimates, especially related to “big” events



The issues and challenges



- Output per capita (GVA per capita) in NI about 20% lower than UK average and gap has widened marginally since 2000
- Large public sector – public services account for almost 30% of GVA
- Per capita public expenditures in NI 30% higher than UK average
- Pressure on physical infrastructure (roads, ports, water, health)



The Investment Strategy for NI ISNI

- The first strategy covers the period 2005-15.
 - It collated individual departmental investment plans into a coherent programme that was consistent with government priorities and deemed affordable
 - Total value of projects in ISNI 1 of £14.4 billion with potential for total investment of £16 billion over 10 years
- Second strategy – 2008 to 2018
 - SIB has developed an ISNI Investment Framework to support the development of ISNI 2
 - As is typically, departments' proposals or bids exceed available funds
 - At issue how to assess various proposals and relative merits when impacts can be very different and difficult to compare

How to assess competing investment projects



- Cost – Benefit Analysis
- Cost – Effectiveness Analysis
- Macroeconomic modelling
- Input-output analysis
- Multi-criteria decision analysis



How to assess competing investment projects



- MCA is a decision-making tool used to make a comparative assessment of alternative and heterogeneous measures
- Key inputs are:
 - Range of options
 - Set of criteria (quantitative and/or qualitative) to assess consistently each option
 - Weights of each criterion
 - Scoring scale of each criterion
- Participative process – teases out relative ranking of very different options based on agreed set of criteria



How to assess competing investment projects



- Have applied MCA in providing advice to SBI on merits of various investment proposals submitted by government departments as part of preparations of second ISDNI
- Work involved considerable consultations with officials of various government departments
- Results will be available soon
- Criteria: rationale, robustness of business case, consistency, existence of alternative options, effectiveness and likely return

Conclusions



- Many worthwhile investment proposals put forward
- MCA helped assessment of relative merits
 - Not a black box – but participative and transparent process/framework
- Valuable contribution to addressing NI's numerous challenges

