Department for Transport

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Presentation Outline

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- The context for the use of Economic Appraisal
- What is Economic Appraisal and how it is used in the UK Department for Transport
- Forecasting and appraisal methods
- Quantifying and valuing costs and benefits
- Decision rules and prioritisation methods used by the Department

Requirements of an evidence-based policy making process

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- Widespread public and political acceptance of an evidence based process for decision making
- Extensive data, usually covering a series of years, on passenger and freight travel, by rail and other modes
- Information on the costs of transport provision, maintenance and operations
- An understanding of the wider effects, including pollution, implications for safety and economic benefits
- Data on and forecasts for the factors that have influenced the demand to travel
- Good quality analysis of the strength of these influences

Role of Government in the Provision of Rail Services

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What is the role of Government in privately owned transport sector?

- As a regulator
  - Safety, as in other transport sectors
  - Monopoly
    - provision of infrastructure
    - Provision of certain services – eg commuting to city centres
    - To increase competition - TSIs
  - Environmental regulation – noise, emissions

- As a major provider of funds
  - To buy wider benefits, including urban economic performance, road decongestion
  - Because rail is a high cost mode

What is Economic Appraisal?

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- Financial appraisal looks only at the costs and revenues that feature in company accounts – the bottom line
- Cost-benefit appraisal aims to identify all the costs and benefits of a proposed course of action
- The UK Department of Transport's standard appraisal allows a decision to be based on the size of the benefits of a proposed course of action relative to the costs incurred by government
- It involves quantifying as many costs and benefits as possible and expressing these in monetary terms where feasible
- There are limited funds available for all Government expenditure, and the Department for Transport is concerned with priorities for spending from its budget

We appraise options on a cost-benefit rather than a cost-effectiveness basis

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The Treasury recommends option appraisal using

- **COST-BENEFIT ANALYSIS**

  Analysis which quantifies in monetary terms as many of the costs and benefits of a proposal as feasible, including items for which the market does not provide a satisfactory measure of economic value.

rather than

- **COST-EFFECTIVENESS ANALYSIS**

  Analysis that compares the costs of alternative ways of producing the same or similar outputs

Department for Transport's Appraisal Framework

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- The DfT's current appraisal framework - www.dft.gov.uk/webtag
- Aims to identify the scale of all the impacts of a scheme or policy, both positive and negative
- It draws together information on performance of schemes against DfT's five main policy objectives:
  - Climate Change
  - Competitiveness and Productivity
  - Equity of Opportunity
  - Safety, Security and Health
  - Quality of Life

  - Impacts are described in monetary, quantified or descriptive terms. All monetisable impacts are summarised in a Transport Economic Efficiency (TEE) table. All impacts (monetisable and non-monetisable) are summarised in an Appraisal Summary Table (AST)

Appraisal Summary Table

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Option		Description	Outturn Cost £m	Date & Contact
GOAL	**CHALLENGE**	**KEY POINTS**	**METRICS**	**ASSESSMENT**
TACKLE CLIMATE CHANGE	Reduce greenhouse gas emissions			PVB £m
SUPPORT ECONOMIC GROWTH	Improve reliability			PVB £m
	Improve connectivity			PVB £m
	Support the delivery of housing			None/PVB £m
	Enhance resilience			
	Wider (economic) impacts			PVB £m
PROMOTE EQUALITY OF OPPORTUNITY	Improve accessibility			Verbal score
	Enhance regeneration			Number
	Reduce regional economic imbalance			None?
IMPROVE QUALITY OF LIFE	Reduce exposure to noise			PVB £m
	Minimise impact on the natural environment, heritage and landscape			Verbal score
	Improve experience of travel			Verbal score/PVB £m
	Improve the urban environment			Verbal score
	Creating opportunities for social contact and access to leisure			PVB £m
BETTER SAFETY, SECURITY & HEALTH	Reduce the risk of death or injury			PVB £m
	Improve health through physical activity			PVB £m
	Reduce air quality health costs			PVB £m
	Reduce vulnerability to terrorism			
	Reduce crime			Verbal score

Transport Economic Efficiency table

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Consumers	ALL MODES		ROAD	BUS & COACH	RAIL	OTHER
User benefits	TOTAL		Private Cars and LGVs	Passengers	Passengers	
Travel time						
Vehicle operating costs						
User charges						
During Construction & Maintenance						
NET CONSUMER BENEFITS		*(1)*				

Business							
User benefits			Goods Vehicles	Business Cars & LGVs	Passengers	Freight	Passengers
Travel time							
Vehicle operating costs							
User charges							
During Construction & Maintenance							
Subtotal		*(2)*					

Private sector provider impacts						
					Freight	Passengers
Revenue						
Operating costs						
Investment costs						
Grant/subsidy						
Subtotal		*(3)*				

Other business impacts						
Developer contributions		*(4)*				
NET BUSINESS IMPACT		*(5) = (2) + (3) + (4)*				

TOTAL		
Present Value of Transport Economic Efficiency Benefits		*(6) = (1) + (5)*

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.
All entries are discounted present values, in 1998 prices and values

Forecasting and Appraisal Methods

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- Specify a base case and the option to be appraised in terms of performance and impacts on safety and other operations
- Identify the required inputs to the transport forecasting model – demographic and land use changes, employment and income growth, changes in the costs of using other modes.
- The forecasting model contains relationships between changes in these inputs, the transport service provided and changes in transport demand
- Derive forecasts of demand from the transport model for the base case and for each 'with project' option, taking into account the effect of capacity on forecast growth.
- Multi-modal models can show impacts on other modes or provide inputs into rail only models – these can include safety and changes in accident rates.
- The transport model can also provide the information needed to estimate the external costs
- Compare the outputs and outcomes of the base case with the 'with project' option
- Sensitivities to changes in the assumptions

Valuing the Costs and Benefits

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- Quantified benefits and costs are not always immediately comparable;

  e.g. a new scheme may cost £200m and provide 2,000,000 hours of time savings
- Therefore, where possible, all benefits and costs are expressed in monetary terms
- Valuation methods include;
  - Revealed preference from observing behaviour
  - Stated preference survey methods
  - Damage/mitigation costs
  - Market analysis/hedonic pricing
- Typical values;
  - Commuting time savings
    - Uncrowded around €5.00 per hour
    - Crowded – up to €15 per hour
  - CO2 – around €20 per tonne

Comparing the Costs and Benefits

- Costs and benefits occur at different points in time. Comparison of the effects is made by
  - Discounting future year costs or benefits at a rate of 3.5% (3.0% after 30th year)
  - Deciding on an appraisal period (up to 60 years), beyond which costs and benefits are small or uncertain enough to be ignored
  - Expressing as many costs and benefits in money terms
  - Providing a result in terms of the Benefit-Cost Ratio (BCR)

- The DfT definition of the BCR is essentially benefits to society divided by costs to government:

$$\frac{\text{Present value of overall impact}}{\text{Present value of cost to government}}$$

- This use of the BCR helps to maximise returns to society for the total Government budget. If the BCR is greater than 1 then benefits exceed costs

Combining the of Monetised and Non-Monetised Impacts

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- Some impacts cannot be valued in monetary terms – e.g. impacts on heritage. These impacts do not feed into the standard BCR. However they should be fully described in terms of their relevance and direction (positive or negative) line with the DfT guidance
- Impacts against the sub-categories is considered and summarised in an Appraisal Summary Table (AST)
- This information is then used alongside the standard DfT BCR to inform advice given to Ministers at the Department
- DfT's Value for Money framework sets out how this is done

Overall Assessment – Value for Money: DfT's Guidelines

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- Using the monetised NATA BCR the initial categories are:
  - BCR < 1 : poor value for money (VfM)
  - BCR = 1 to 1.5 : low value for money
  - BCR = 1.5 to 2 : medium value for money
  - BCR > 2 : high value for money

- The extent to which any of the non-monetised impacts are likely to change the VfM category is then reviewed. Departmental economists provide advice on the likely scale of these non-monetised impacts and their potential to change the VfM category

- It is only one factor in decision making; we need to consider others, e.g.:
  - affordability;
  - equality and distributional issues; and
  - public acceptability.