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Summary of Results: Economic Impact Review of HS2 in Chilterns AONB

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Richard Hindle - credentials

- Trained in economics
  - BA Economics & economic history, Durham University
  - MSc Regional economics, University College London
- Director with SQW Limited, an economics-based consultancy operating across the UK and internationally
  - Policy review and impact assessment – spatial as key theme
- Experience includes
  - Presenting the case for public investment in Leeds Arena, at the Government's Central Policy Review Group
  - Expert witness at Public Local Inquiry for new University campus in York
  - Leading a wide range of other business cases, economic impact projects eg Oxford BioEscalator; Millennium Community housing in Milton Keynes; major inward investment in North East; strategic employment sites; new road in South Wales

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Economic impact review

- SQW's remit
  - To review, assess, integrate and where possible, extend existing evidence on the relative impact of the existing HS2 Ltd proposal for tunnelling in the AONB, compared to locally developed alternatives for further tunnelling
- Process
  - Literature review
  - Exploration of potential approaches; iteration with stakeholders and other experts
  - Topics: **Environment and landscape; Property blight; Traffic and transport; Tourism; Health and wellbeing; Business productivity**
  - Quantification – NPV of key impacts for the various alternatives

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Our approach to quantifying HS2 impact in the Chilterns

- Starting point: HM Treasury Green Book with guidance from Government Departments; our, others, experience
- Iterative process to develop thinking, test emerging conclusions with Steering Group, other experts
  - Aim where possible to quantify the benefits from tunnel options, relative to HS2 proposal through the Chilterns
- Identify key topic areas: review where substantial impacts can be expected and there is a strong basis for quantification
- Put the benefits and costs on a consistent basis
  - Values discounted over time, in line with Government guidance
- Sense-check the results

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Issues in valuing landscape/environment

- A particularly difficult area for quantifying costs & benefits
  - Key question: how do we assess the costs of damage – these aren't the same as/limited to price-based losses to an economic asset
- Techniques exist, based on proxies for valuing this for users/ stakeholders, but wider issues are also involved
  - How landscape is valued on behalf of future generations, as well as for those 'utilising' it now
  - The implicit value in a landscape that might be placed by others who have no direct interest in it as residents or visitors
  - Should environmental impacts be considered within a more holistic framework – contributions and damage to ecosystems, wider effects on interdependent natural systems
- Wider policy provides some guidance
  - Government's designation as an Area of Outstanding Natural Beauty – AONBs and National Parks are 'Protected Landscapes'

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Economic impact review:(1) Environment/Landscape

(£m 2011 prices, NPV)	Total Cost of HS2 Ltd Proposal	Savings with a Long Tunnel	
		CLT	T3i
Value of landscape	£206m	£196m	£185m

Methodology

- Starts with DfT 'Central' case
- Adjusts "*Amersham to AONB boundary*" area for:
  - Classification of land type using DCLG values (but this still lacks any AONB value)
- Not adjusted for:
  - Zone of visibility
  - Mitigation factors

Key assumptions

- 25% of *'Amersham to AONB Boundary'* already tunnelled in 2012 route
- CLT saves 95% of value: T3i saves 90%
- This approach recognises the difficulties - corrects for just one deficiency in DfT's landscape methodology

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Economic impact review: (2) Property Blight

(£m 2011 prices, NPV)	Total Cost of HS2 Proposal*	Savings with a Long Tunnel	
		CLT	T3i
Value of blight	-	£124m	£100m

Methodology

- Starts with PwC work on
  - estimating blight impact of HS2 on property values by distance
  - values and real price inflation
- Reviews and adopts HS2AA's tunnel options framework for properties from Mantles Wood to Wendover
- Estimates differences in asset value of affected property stock for taking different tunnel decisions (in 2015)

**HS2 proposal not costed: methodology assesses how the difference in tunnel options affects the future profile of property prices, from imputed longer tunnel decision, 2015*

Key assumptions

- Properties in distance bands from surface route for:
  - construction phase
  - operation phase (takes account of protection with green tunnels)
- Blight beyond 1km not included
- Real house price inflation (1.46%). Other long term estimates (2.9%) increase savings shown by 50%
- A decision to extend the bored tunnel restores currently blighted property to their unblighted value

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Economic impact review: (3) Road Transport

(£m 2011 prices, NPV)	Total Cost of HS2 Proposal	Savings with a Long Tunnel
Congestion and delays	£25m	£4m -19m

Methodology

- Starts with OE estimate for Bucks
- Adjusts for:
  - Chiltern corridor
  - Non-local residents
  - Phasing of traffic over the construction period
- Uses ES traffic data to compare HS2 proposal with tunnel options
- Two methods tested

Key assumptions

- For long tunnel option
  - Rail head at new north portal for spoil removal, bulk materials; rings arrive by rail
  - Non-AONB traffic from tunnel sites included
- Removal of Hunts Green not included in HS2 proposal, so savings underestimated

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Economic impact review: (4) Tourism

(£m 2011 prices, NPV)	Total cost of HS2 Proposal	Savings with a Long Tunnel CLT	T3i
HS2 Corridor	£271m	£210m	£198m
Net (50% local transfer)	£135m	£105m	£99m
Jobs impact (at peak construction)	250+	c.200	

Methodology

- Starts with TSE research for HS2 corridor in AONB
- Tourism 'at risk' = £106m pa, 2,750 jobs
- Estimates of losses by local area, using PBA survey and representative group input:
  - during construction and then during operation

Key assumptions

- Real expenditure increase (2%pa)
- 50% of 'lost tourism' transfers elsewhere in AONB
- Impact during construction and operation
  - **Construction**: 15% loss (HS2); 5% long tunnel
  - **Operation:** 4% loss (HS2); small loss long tunnel
- Loss of choice, scale effects, not monetised; no benefit assumed from contractors' spend

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Economic impact review: (5) Health and well-being

	Total Cost of HS2 Proposal	Savings with a Long Tunnel
Value of H&W benefits	-	-

Methodology

- Start point: wide recognition of economic effects of ill-health
- Examined CCB Health survey
- Examined UKNEA report on monetised H&W benefits of living near trees and greenspace
- Considered HS2 Ltd's tree-planting proposals

Conclusions

- Clear evidence of current health effects of HS2 Ltd's proposals have been identified, including pre-construction
- Greater benefit from long tunnel than short tunnel but not easily or reliably monetised

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Economic impact review: (6) Business Productivity

	Total Cost of HS2 Proposal	Savings with a Long Tunnel
Value of business productivity	-	-

Methodology

- Reviewed PBA report based on surveys of local businesses
- Reviewed OE work on 'indirect business losses'
- Considered wider implications

Conclusions

- Potentially significant factors of disruption and displacement include:
  - Small business impact
  - Disincentive to invest
  - Damage to reputation of area
- Some of lost efficiencies included elsewhere (e.g. tourism, transport)
- Other productivity impacts difficult to quantify

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Quantified impact (Net Present Value) of T3i

Net Present Value of activity / impacts	
	Cost / **Benefit** of T3i
	(£m, 2011 prices)
Wider economic savings *(conservative estimates)*	
Landscape and Environment	**185**
Property Blight	**100**
Transport	**4-19**
Tourism	**99**
Overall savings	**388-403**
Additional engineering cost of T3i	**204-286**
NET PRESENT VALUE OF T3i	**£102-199m**

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Conclusions

- SQW drew on available information, explored different methodologies, reviewed and assessed differing scale of impacts
- Quantification is difficult in some areas, notably landscape impacts and value of an AONB
- Overall conclusions:
  - Significant impacts across a wide range of factors
  - Material impacts identified, and potential for overall economic benefits: not all these have been monetarised
  - Longer tunnel alternatives bring identifiable savings to set against any extra tunnelling costs, even before other non-monetised factors are considered

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