

TRICKS AND GUESSES: THE HS2 STAGE ONE BUSINESS CASE

HS2 Ltd claims a positive Benefit to Cost Ratio (BCR) of **2.71**: that the taxpayer gets £2.71 of return for every £1 of tax spent. Whilst **superficially solid**, it is actually **highly risky** due to the large number of unprovable assumptions required. These issues were communicated to the Secretary of State on 23 September 2010; **he refused to respond**.

Financial tricks

To get a positive BCR, as with many transport projects, the **benefits need to be inflated** and the **costs shrunk**. Before the BCR itself can be analysed, there are some financial **tricks** and technical **manipulations** to note. These are **not commonly understood by Ministers, other MPs or the public**.

- **Present Value (PV)**: the way of showing the current value of money spent or received in the future. Each year's costs and benefits have a discount rate applied of 3.5% till 2055, then 3%. These rates have **no relation** to actual bank interest rates. A low rate favours uncertain distant future benefits over upfront costs. All BCR values are Present Values. They are **not real cash**. For example, **£1000 cash** in 2086 equals **PV £88.59** in 2011.
- **Value of Time Growth (VoTG)**: as we get richer, the value of time saved by HS2 **grows in real terms**. HS2's case collapses without VoTG as the **BCR is 1.09 without it** (1.31 if economic benefits are included). VoTG increases the **employment cost** of a HS2 business passenger from **£66,300** in 2009 to **£227,138** in 2085.
- **Tiny changes in journey time**: the VoTG enhanced benefits mean the **30 minutes** saved on the journey time are worth **PV £12.5bn**. This **heavily biases route choices**, a time saving of **15 minutes** makes the **BCR 1.88**
- **Reduced Crowding** is **17%** of benefits. It is an **intangible non-cash** benefit but treated as real cash in the BCR. Crowding on trains is mostly a political and financial decision: **trains are crowded because DfT demands it**.
- Demand **modelling** is based on an **optimistic** 20 year GDP forecast (**no recessions**) combined with a **simple projection** of the fluctuating demand between c 1995-2008 (as the West Coast Main Line (WCML) was modernised). Social and work patterns for the 21st century are ignored.
- **Passenger numbers**: DfT allows the first 7 years of a project to show rising demand but HS2 grows demand till 2026 (HS2 start) plus 7 years to 2033; if projected growth continued after 2033, **1 million people a day** try to travel by **2090**. **Lower passenger** numbers mean that many European HS lines and HS1 are in **financial trouble**.

The BCR structure (total benefits divided by total costs)

Benefits are intangible (and for crowding theoretical) but are treated as tangible cash. They are divided by the costs less incremental fares omitting operator profits, interest and environmental degradation. As it is a ratio, **small benefit increases and small cost underestimates give big marginal shifts**; less than 1.5 is bad, over 3 is good.

Business: 30% of passengers assumed

- The PV to business is **£17.6bn**. Of this, **93% is rail, 7% road**; **negative air** benefits show air is still faster.
- Business benefits are **higher profits** for employers. They are based on 2002 wages inflated by VoTG at 1.9%.
- HS2 assumes, but **does not justify**, 30% business passengers, up from 25% today (more business, better BCR).

Leisure: 70% of passengers assumed (including a few long-distance commuters)

- The leisure PV is **£11.1bn** (**93% rail, 7% road**) with **negative air** benefits; air is faster.
- Benefits are based on how a small sample of 1990's passengers **claimed** they valued time inflated at 1.5% VoTG.
- The values of **less waiting** for trains and **faster access** have their time rated **3-fold higher**: 13.4p vs 4.5p/min.

Other benefits

- The "**wider economic benefits**", **£2bn PV, are all local**. These go to Birmingham (**36%**) and West London (**46%**).
- **National benefits** from linking Birmingham and London by HS2 are estimated at only **£8m per year**.
- **North-south gap: no evidence** has been presented showing that this **inflexible system** can be transformational.
- **Imperfect competition** (£1.6bn) **guesses** that businesses using HS2 are **10% more profitable for 60 years**.
- **CO₂**: HS2 **increases** transport emissions by **0.5%**; profitable long-haul flights will use any freed domestic slots.

Costs

- Stage One **construction and renewal** PV is £17.8bn but this is not cash. The current parliament **bill to 2015** is **£750m** to pay consultants, lawyers and quangocrats. The **post 2016 cash** invoice could easily rise to **£34bn**.
- **Fares** (PV **£15bn**) only relate to the **61,000 new passengers** predicted to travel but **only 60% use HS2**. HS2 strips the fares of **83,000** passengers per day from the **WCML** worth PV **£20bn**.
- The **heavy subsidy** to support the 2027 high-capacity **WCML stripped of 80% of passengers** is not in the BCR.
- As **fare income** is the only cash offset against the **£40bn+ debt** of HS2, **premium fares** will be **irresistible** to the 2027 treasury. **Premium** fares of **22%** from Manchester cut **leisure** travel by **34%** and **business** travel by **31%**.
- **Operator profits** are normally over **10%** so HS2 Ltd will have yearly **£250m profits** for its Directors to share.
- **Operational costs** are an **unrealistic 20%** of income. **Virgin** costs in 2009 were £511m, **83%** of income.
- **No cost of money** is assumed. HS2 Ltd. wants "free" tax money, a **massive hidden subsidy** that DfT is hiding.

Conclusions

HS2 Ltd is incentivised to use extreme passenger forecasts. Claims about transformational benefits and removing the north-south divide are empty rhetoric. There are cheaper alternatives which could improve services in the biggest demand regions years earlier. **HS2 multiplies unknowns by uncertainties for 83 years**.