Institute for Transport Studies
FACULTY OF ENVIRONMENT

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Rail passenger market opening: The British experience

Masaryk University Economic Seminars group Seminar (MUES)

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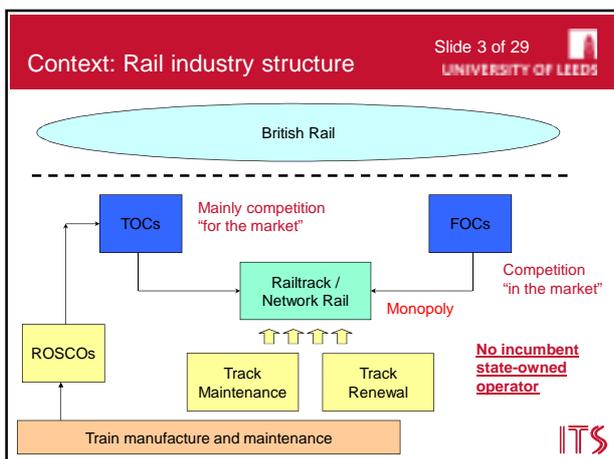Dr Andrew Smith (with acknowledgement to the contribution of Professor Chris Nash to some of the slides included)

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Agenda

- Context

- Organisation and governance

- Economic impact (demand; quality; safety; **costs**; **franchise failure**)

- Reflections: possible solutions?

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Context: Rail industry structure

British Rail

TOCs — Mainly competition "for the market"

FOCs

Railtrack / Network Rail — Monopoly — Competition "in the market"

ROSCOs

Track Maintenance

Track Renewal

No incumbent state-owned operator

Train manufacture and maintenance

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Organisation and governance (with some re-organisation…)

- **Office of Rail and Road (ORR)** – independent of government and operators; efficiency of Network Rail; fair access to the infrastructure; promote competition; safety regulation
- **OPRAF / SRA / Department for Transport** – responsible for letting and managing the franchises; determining level of subsidy and high level output specification; and strategy
- **Regional bodies**: Passenger Transport Executives (PTEs) for major conurbations in England (outside London); stronger devolution of powers for Scotland, Wales and London.
- **Other bodies**: Transport Focus ("independent transport user watchdog"); Rail Accident Investigation Branch (independent investigation of accidents); Rail Safety and Standards Board (support industry on safety, efficiency, business performance)

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Approach to competition - a very quick overview

- On-rail competition ("in the market") rejected on practical grounds

- Competition for the market chosen (**+marginal** open access)

- Infrastructure separated from operations – initially 25 operating franchises (now 18 E&W + 2 Scotland)

- Bidding based on lowest subsidy / highest premium (net cost contracts) – mainly 7 year franchises

- Plus pre-qualification; franchise specifies service levels and quality; performance regime; c. 40% of fares regulated

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Impact: Countries with fastest growth in passenger km (%)

	2000-2012
Great Britain	59
Switzerland	53
Sweden	43
Belgium	34
Netherlands	16
France	27
Germany	17
Spain	12

Source: EC (2014) EU transport in figures

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Impact: Rail Mode Share (%)

	2000	2012
Great Britain	5.3	8.0
Switzerland	13.7	17.1
Sweden	7.5	8.9
Belgium	6.1	7.1
Netherlands	9.4	10.3
France	8.6	9.3
Germany	7.7	8.4
Spain	5.4	5.6

Source: EC (2014) EU Transport in Figures

Impact: long term demand series

Figure 1: Total Franchised Passenger-km (1947-2015)

Source: Office of Rail and Road (ORR) National Rail Trends Data Portal

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Impact [4]: Quality

Figure 2: Public Performance Measure (PPM) All Operators – 1998 to 2016

Source: Office of Rail and Road (ORR) National Rail Trends Data Portal

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Impact: Safety

Source: Rail Safety and Standards Board (RSSB)

Impact: Fares

All Train Operators	1995 January	2016 January	Annual % Change Nominal terms	Annual % Change Real terms
First Class unregulated	100	287.9	5.2%	2.3%
Standard class regulated	100	188.0	3.1%	0.3%
Standard class unregulated	100	233.6	4.1%	1.3%
All standard class	100	211.3	3.6%	0.8%
All tickets	100	218.7	3.8%	1.0%
RPI (all items) (R)	100	177.1	2.8%	

Source: Office of Rail and Road National Rail Trends Data Portal

- Government policy has adopted RPI or RPI+ or RPI- at different times for regulated fares

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Impact: Government subsidy

- Initially subsidies fell in line with TOC subsidy profiles (to 2001) – from around **£3.5bn** to **£1.5bn**

- Then TOCs ran into trouble (as did Railtrack)

- Now reported subsidies are around the same as at the time of privatisation (**£3.1bn**) – total industry costs just over **£13 bn**

- TOCs **pay**, in aggregate, nearly **£700m** to the government even after paying reasonably high track access charges (**£1.5bn**)

- Most subsidy goes to TOCs in Scotland, Wales and the North (subsidy per passenger journey up to £3)

Two key problems

- Costs have gone up (TOCs and Network Rail) – by a lot!

- Franchise failure – companies bidding too aggressively (winner's curse)

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Impact: Changes in British TOC own costs,1998–2015 (%)

Table 2: Train Operating Company Real Unit Cost Changes 1998-2015)

	Per train-km	Per vehicle-km*
Staff	+44%	+34%
Rolling stock lease payments	-20%	-26%
Other	+46%	+35%
Total	+25%	+16%

(excluding payments to Network Rail)

- Very high costs is one of the key problems facing Britain's railways

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Competition with privatisation usually results in cost reductions

- Germany and Sweden rail tendering: 20-30% savings; Alexanderson (2009) and Alexandersson and Hulten (2007)

- Netherlands rail tendering: 20-50% savings; van Dijk (2007)

- Competitive tendering in other industries: savings of 20-30%; e.g. Domberger et. al. (1987)

- 45% savings in bus de-regulation 1985-1997 (Britain); Nash (2008)

- 4-6% p.a. savings in utility privatisations (Britain); see e.g. Oxera (2008)

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Why have costs not come down?

- Management contracts in the early years after privatisation – though cost rises resolved by competitive re-franchising (see Smith and Wheat, 2012) – **DfT no longer re-negotiates**

- Franchisees take over a new franchise so take the existing staff and rolling stock:
  - Combined with short franchises and loss of revenue from industrial disputes weakens incentives for cost reductions

- Limited incentives for innovation in rolling stock

- Misalignment of incentives due to fragmentation

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Franchise size by country (train-km)

	Mean	Range
Britain	26.5	3.23-44.89
Germany	3.3m	0.1-95m
Sweden	2.6m	0.8-6.3m

Source: Nash et. al., 2013 p. 199

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Franchise failure

- Nearly half the sector ended up on temporary contract arrangements 2000-2004 – **too optimistic on cost reduction**

- East Coast Intercity route has failed twice in a few years – and has been run by the state for a time – the current private operator may be in trouble (anecdotally) – **revenue optimism**

- Assessing risky bids and capital requirements

- Capability and capacity of franchising body (DfT)

- Cost of bidding, franchise size, risk and new entry…time for change?

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Possible solutions

- Reforms (again!) of the franchise model and the structure of rail franchises

- Open access competition?

Risk sharing and cost reductions

- **Gross cost contracts** more common in Sweden / Germany
- Appropriate where regional authority planning / marketing services
- Needs strict targets / incentives on quality
- But gives a **focus on cost reduction**
- Should permit greater freedom to tackle cost base
- Could be short franchises
- For commercial services net cost contracts more appropriate – though longer franchises could be considered to incentivise cost reduction
- Though balance against risk / flexibility

Dealing with optimistic bids

- Key to distinguish exogenous from endogenous risk (e.g. through GDP link)
- However, uncertainty over GDP elasticity
- Increased capital requirements – linked to risk assessment
- Requires strong capability within franchising authority
- Signs of waning interest in franchising bidding:
  - High bid cost - £10m per bidder
  - High capital requirements
  - Large franchises
- How to incentivise new entrants whilst ensuring franchises do not fail?
- Franchise size?

Franchise size

- Evidence from GB is of decreasing returns to scale (DRS) but economies of density (EOD)
- DRS suggests smaller franchises; but increased overlaps of franchises could push up costs (loss of EOD)
- But EOD maybe limited where specific rolling stock used for specific services
- So balance of evidence could be that smaller franchises may reduce unit costs (or at least not raise them)
- Smaller franchises would have other benefits:
  - Less risk (less failure)
  - Encouraging new entrants
  - Competition between services on some routes

A greater role for open access?

- Intercity services in GB are currently mainly provided by franchised operators

- A few, very small open-access operators have emerged providing a small part of the market (c. 5% of intercity market)

- The anti-trust body wants more competition

- But given economies of density, will costs go up?

- Or might OA operators have a lower cost model?

GB Case Study: economies of density

- Using a previous model (Wheat and Smith, 2015) we have:
  - RTD all train operators = 1.178
  - RTD franchised intercity operators =1.058
  - Open access intercity operators =3.026

- These come from the model which only comprised franchised operators (so doubts about the open access RTD)

- See Rasmussen, T., Wheat, P.E., and Smith, A.S.J. (2015)

GB Case Study: unit cost comparisons

- Based on actual data
  - Costs/train hour (per day) franchised IC operators **£959**
  - Costs/train hour (per day) open access **£757**

  - Costs/vehicle hour (per day) franchised IC operators **£402**
  - Costs/vehicle hour (per day) open access **£423**

- Note we have used the model to strip out station costs from franchised operators (as OA do not run stations)

- So OA are cheaper per train-hour (statistically significant) by **21%**. Difference per vehicle hour not statistically significant

Comments

- Given economies of density and the small size and density of OA operators it is surprising that they are cheaper – or not more expensive - than franchised operators

- OA advantage partly achieved through lower labour and rolling stock prices

- The balance of the cost difference can be attributed to:
  - OA suffer from diseconomies of density (higher unit costs)
  - Offsetting business model effect (lower unit costs)

Decomposition

- Using the previous econometric model we can predict costs for franchised TOCs and open-access operators

- In an auxiliary regression we regress the prediction error on a dummy variable (1=OA; 0 otherwise)

- This suggests a business model effect of about 63% - so OA actual costs are about 63% lower than predicted

- We repeat the calculation with a more conservative estimate of RTD (1.059)

- **Then the business model effect is around 34%**

Conclusion

- OA are cheaper than expected given they do not benefit from economies of density as do franchised operators

- Therefore, they probably benefit from a business model effect which offsets the above disadvantage – hard to be precise but on a conservative estimate this could be around **34%**

- In addition they secure cheaper labour and rolling stock prices (currently)

- Conclusion: expanding open access on the routes envisaged – East and West Coast Mainlines, would probably reduce overall costs (some caveats though)

Final remarks

- On paper Britain's railway reforms have positive aspects
- Competition for the market for all services – private operators
- Strong, independent regulator
- However, a significant cost problem
- Franchise model to date has not encourage cost savings
- Large franchises – optimistic bidding – waning interest?
- Solutions: some gross cost contracts; + smaller franchises?
- Longer, net cost franchises for long distance (splitting franchises; and more open access)?
- How to "glue" the separated system together? Vertical integration!!

Thank you for your attention

Andrew Smith

References

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