Institute for Transport Studies

FACULTY OF ENVIRONMENT

UNIVERSITY OF LEEDS

Competition for and in the passenger rail market: Comparing open access versus franchised train operators' costs and reliability in Britain.

Alexander D. Stead, Phill Wheat, Andrew S.J. Smith, and Manuel Ojeda-Cabral

EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education

MINISTRY OF EDUCATION, YOUTH AND SPORTS

Background (1)

In recent years, the number of Open Access Operators (OAOs) has increased across Europe (e.g. Austria, the Czech Republic, Italy, Slovakia, and the UK) primarily on intercity routes. In the UK, there have been three:

- Grand Central, Sunderland – London (December 2007 – Present)
- Hull Trains, Hull – London (September 2000 – Present)
- Wrexham & Shropshire, Wrexham – London (April 2008 – January 2011)

These are compared with Franchised Intercity Operators (FIOs):

- Cross Country, Aberdeen – Penzance
- East Coast, Northern England/Scotland – London
- West Coast, Scotland – London

The current OAOs are small scale, accounting for around 5% of intercity train km on the East Coast Mainline. The UK is an interesting case, because we have comparable data on the incumbent franchised operators.

We want to compare costs, since these reflect the resources used to deliver services. Previous studies of rail costs have indicated significant economies of scale and density, which would suggest the small OAOs should have higher unit costs.

Background (2)

However Wheat et al. [Transp. Res. A, 113, pp. 114-124, (2018)] found that OAOs' unit costs were lower than FIOs' despite smaller scale and lower density of operation, and explained this in terms of lower input costs and an OAO 'business model effect'.

The latter study used data from 2008 – 2012. We wanted to update this analysis, incorporating more recent years' data. The availability of a relatively long panel of data from 2008-2018.

We combined data on OAO and FIO costs (from their statutory accounts) with published data on operations – e.g. train km, vehicle km, passenger km, employees – to create a dataset on unit costs and input prices.

We also compare published metric on service quality – the Public Performance Measure (PPM) and percentage of trains cancelled or significantly late (CaSL), both of which are measures of punctuality.

Some adjustments were needed to ensure comparability of the cost data – we subtracted access charges, etc. (which are higher for FIOs), and made an adjustment for station operation costs (two of the FIOs operate stations, while one FIO and all three OAOs do not).

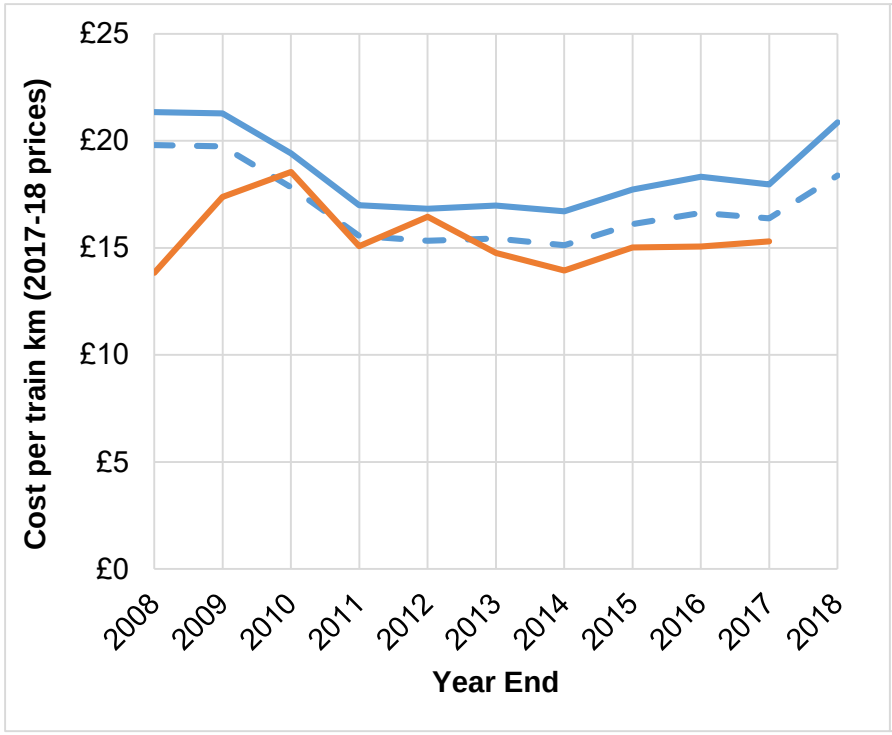
Our methods are relatively simple – visual inspection of trends over the sample period, and some statistical testing for differences in the distributions of unit costs, input prices, and service quality among OAOs and FIOs.

Institute for Transport Studies

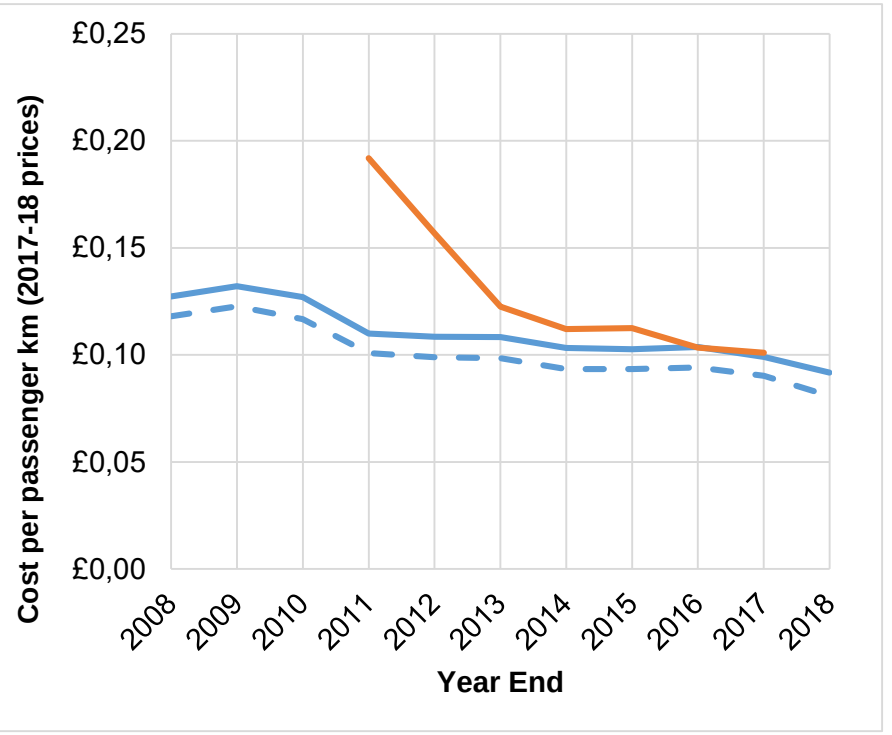
FACULTY OF ENVIRONMENT

UNIVERSITY OF LEEDS

Open Access vs. Franchised Intercity costs per train km

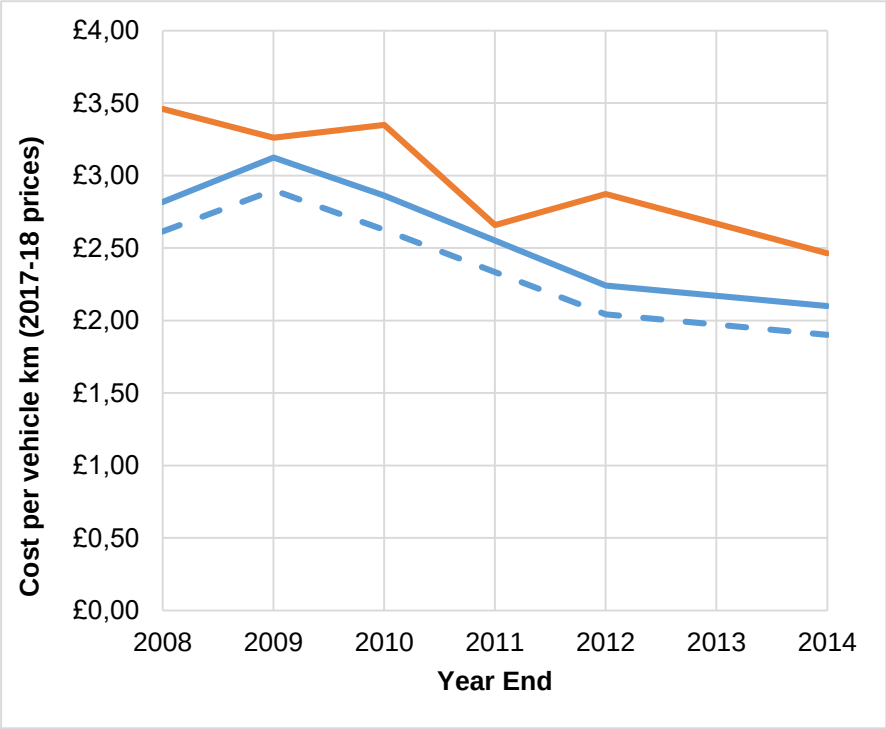


Open Access vs. Franchised Intercity costs per passenger km



Franchised Intercity — Franchised Intercity (after stations adjustment) — Open Access

Open Access vs. Franchised Intercity costs per vehicle km



OAOs appear cheaper on a per-train km basis – but they run smaller trains. When we compare per-vehicle km or per-passenger km costs, FIOs come out cheaper (though these differences do not appear significant with respect to per-vehicle km costs.)

Institute for Transport Studies

FACULTY OF ENVIRONMENT

UNIVERSITY OF LEEDS

Unit cost comparisons (1)

Measure	W	P-value	Significance
Cost per train km	2.5350	0.0112	**
2008 – 2012	1.9030	0.0570	*
2013 – 2018	1.7573	0.0789	*
Cost per train km (with stations adjustment)	1.9189	0.0550	
2008 – 2012	1.2199	0.2225	**
2013 – 2018	1.7071	0.0878	
Cost per passenger km	-1.3523	0.1763	***
2008 – 2012	-2.0732	0.0382	**
2013 – 2018	-1.4561	0.0067	***
Cost per passenger km (with stations adjustment)	-2.6544	0.0079	***
2008 – 2012	-2.0732	0.0382	**
2013 – 2018	-2.7113	0.0067	***
Cost per vehicle km	-1.3093	0.1904	
2008 – 2012	-0.9238	0.3557	
2013 – 2018	-1.1547	0.2482	
Cost per vehicle km (with stations adjustment)	-1.9203	0.0548	*
2008 – 2012	-1.4434	0.1489	
2013 – 2018	-1.1547	0.2482	

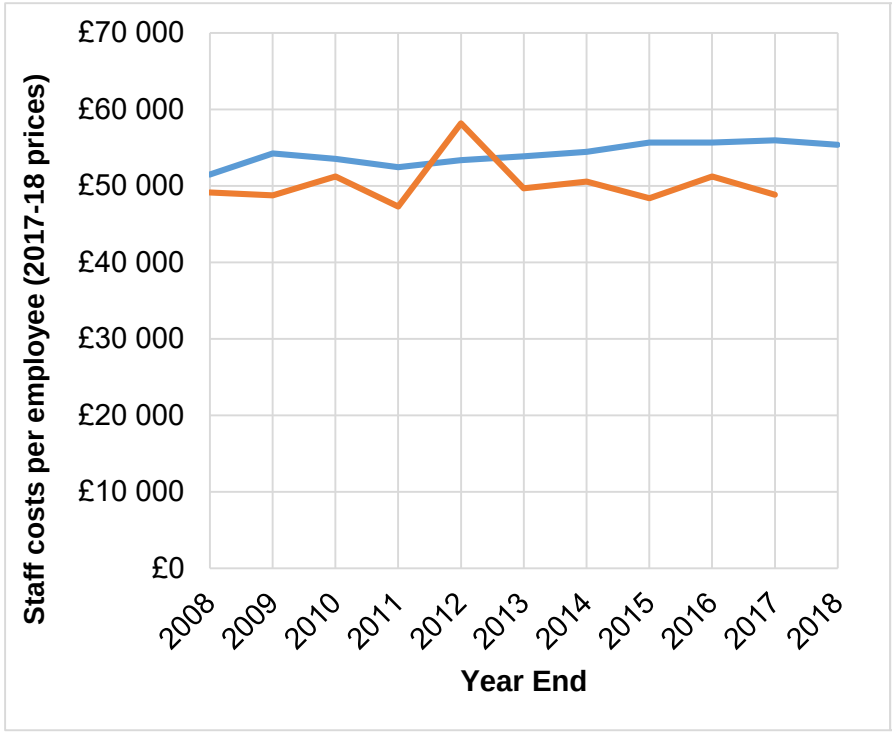
Significant at the: * 10% level **5% level ***1% level

Institute for Transport Studies

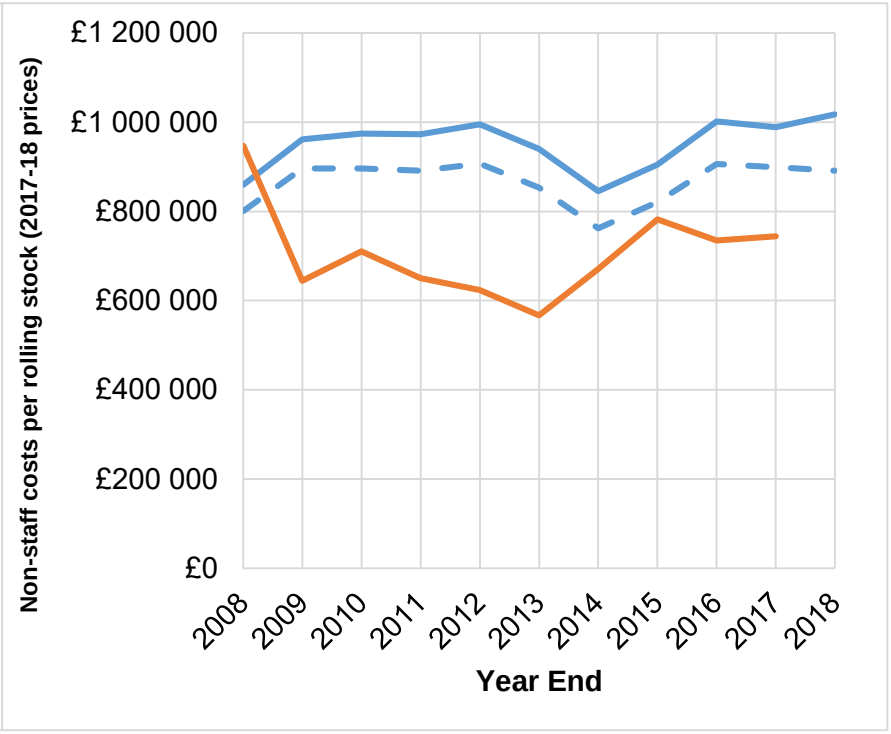
FACULTY OF ENVIRONMENT

UNIVERSITY OF LEEDS

Open Access vs. Franchised Intercity staff costs per employee



Open Access vs. Franchised Intercity non-staff costs per vehicle



Franchised Intercity — Franchised Intercity (after stations adjustment) — Open Access

Factor price comparisons (1)

Measure	W	P-value	Significance
Staff costs per employee	-0.6514	0.5148	
2008 – 2012	-0.4880	0.6256	
2013 – 2018	-0.9038	0.3661	
Non-staff costs per vehicle	3.1160	0.0018	***
2008 – 2012	2.8301	0.0047	***
2013 – 2018	1.3055	0.1917	
Non-staff costs per vehicle (with stations adjustment)	2.5526	0.0107	**
2008 – 2012	2.2446	0.0248	**
2013 – 2018	1.2552	0.2094	

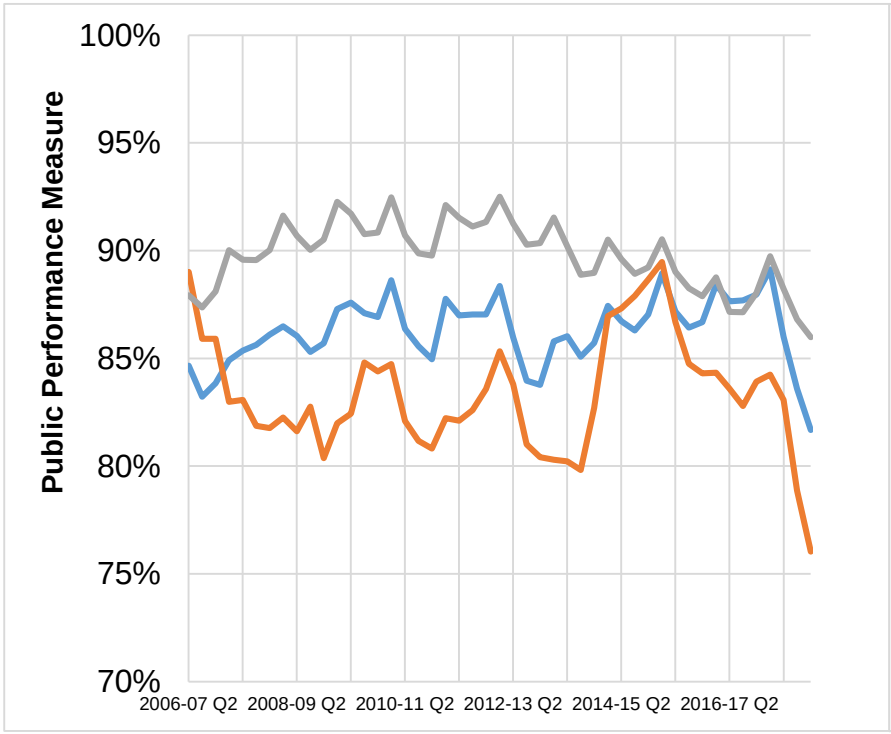
Difference in staff costs do not appear significant, and non-staff costs per vehicle also appear greater for FIOs – differs from the picture in Wheat et al. (2018).

Institute for Transport Studies

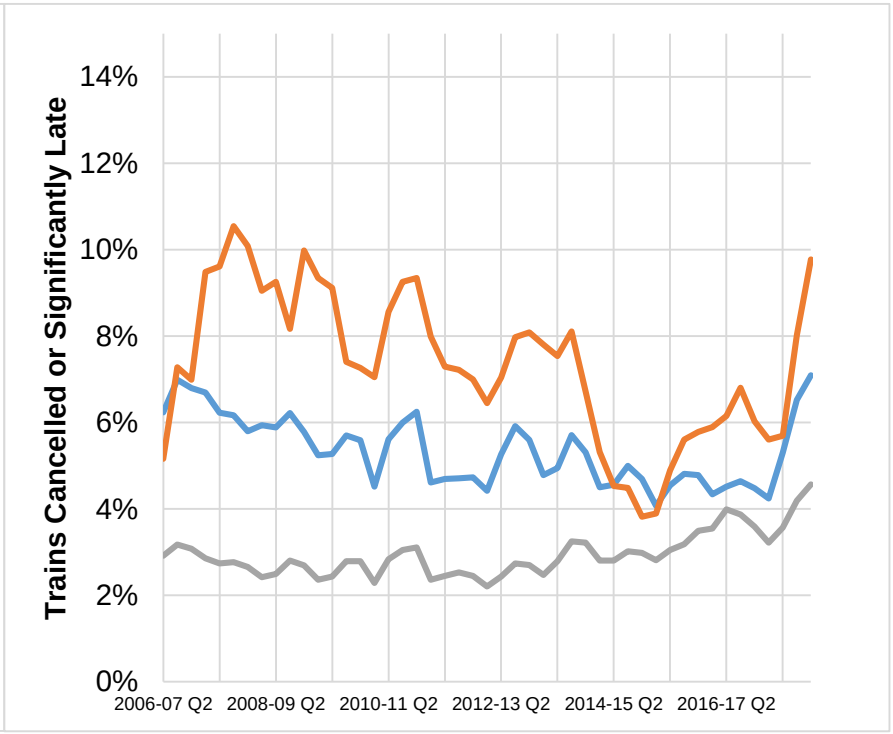
FACULTY OF ENVIRONMENT

UNIVERSITY OF LEEDS

Open Access vs. Franchised Intercity non-staff costs per vehicle



Open Access vs. Franchised Intercity non-staff costs per vehicle



Franchised Intercity — Open Access (excluding Heathrow Express) — Franchised

Punctuality and cancellation comparisons (2)

Measure	W	P-value	Significance
Public Performance Measure	5.3083	0.0000	***
Percentage of trains Cancelled and Significantly Late	-6.1445	0.0000	***

Very clear picture with respect to PPM and CaSL – FIOs perform significantly better on both metrics. This surprised us, as the high passenger satisfaction with OAOs is often emphasised.

From the graphs, it does seem that intercity operators do perform worse on both PPM and CaSL, but there is an additional underperformance by OAOs compared to their FIO counterparts.

Summary and Conclusions

We used an extended dataset on OAO vs. FIO costs, factor prices, and service quality from 2008-2018, to update the analysis of Wheat et al. (2018). We found:

- OAO per-train km costs lower, but FIO costs lower per passenger km and per-vehicle km – the difference is down to the smaller trains run by OAOs.
- Differences not dramatic, however, despite literature suggesting significant economies of scale and density which OAOs cannot exploit.
- Average staff costs comparable between the two groups, non-staff costs may be higher for FIOs – can't explain broadly comparable unit costs.
- OAOs perform significantly worse than FIOs on punctuality and cancellations (PPM and CaSL) – this may explain comparability of costs.
- In light of the above, however, why is passenger satisfaction with OAOs high?