THREE YEARS' EXPERIENCE OF BUS SERVICE DEREGULATION IN BRITAIN

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1. INTRODUCTION

This paper aims to provide a broad overview of the effects of bus service deregulation in Britain, and follows a similar review by Roy Turner and myself presented at the First Conference in this series, at Thredbo, Australia, in May 1989 (1). The overall trends described in that paper have not changed radically, but the picture described then is updated to the present. A wider range of local case studies is now available to supplement the aggregate data at national level.

Of particular concern is the poor financial performance of the industry as a whole, despite the substantial fall in unit operating costs. The reasons for this are examined, and possible remedies.

The British government is now proposing to extend the deregulation process to London (2). Arguments for and against this are outlined, and an alternative reform suggested.

The impact of minibus operation in Britain is examined, and its possible scope elsewhere reviewed. Likewise, scope for deregulation, and/or the London-style competitive tendering system, in other countries is examined. Parallels with the experience of deregulation elsewhere, notably in Chile, are also observed.

Within a paper of this length, only a brief summary of research can be given. However, extensive references to more detailed work, both by myself, and other researchers in Britain, are provided to complement this outline.

2. MAJOR CHANGES INTRODUCED THROUGH LOCAL BUS DEREGULATION

Under the Transport Act of 1985, local bus services in Britain*
were deregulated from October 1986. It followed the deregulation of express coach services under the Transport Act of 1980 (3). This process applied to all areas in Great Britain except London (referred to in tables as 'GB excluding London' or 'Rest of GB'). Within the United Kingdom, Northern Ireland was also unaffected by deregulation.

Under the deregulated framework, route licensing was replaced by a registration system, in which operators notify the Traffic Commissioners in each area of the service(s) they propose to operate. In addition to the services operated on a commercial basis, services are provided under contract to local authorities, to cover those areas, or - more commonly - times of day, in which commercial operation is not justified. Such services are supported through a system of competitive tendering.

There is no price control on commercial services, although on tendered services local authorities may specify fare scales. Concessionary travel - notably by pensioners - plays an important role. This 'concessionary' travel is that made at fares specified by the local authorities (such as a half fare, low flat fare, or free travel), which differ from those which the operators themselves would charge on a commercial basis. Operators are compensated for the net revenue foregone, by local authorities. Local authorities may not provide general subsidies to bus operators.

Deregulation outside London was accompanied by privatization, albeit on a less specific time scale. All subsidiaries of the National Bus Company (NBC) which covered much of England and Wales were sold between 1986 and 1988 (4) and the same process is now being applied to the Scottish Bus Group (SBG). The operators owned by Passenger Transport Authorities (PTAs) in the metropolitan areas or by local authorities elsewhere have been redefined as "arm's length" Passenger Transport Companies (PTCs). Two of the PTA companies (Yorkshire Rider and Tyne & Wear) have been sold to management/employee buyouts and several of the other local authority companies privatized. The government has recently stated that it proposes, if re-elected, to compulsorily privatism all remaining publicly-owned fleets. The traditionally private 'independent' sector has also expanded its role in local bus service operation as described previously (1).

At present, a different system applies in London, where the controlling authority, London Regional Transport (generally known simply as 'London Transport' or LT) , ensures provision of about one third of bus kilometers through a system of competitive tendering, the remainder being operated directly by subsidiaries of its own London Buses Ltd (LBL) The distinction between 'commercial' and 'supported' services found elsewhere does not apply, and a common fare system applies to the whole network.

* The term 'Great Britain' is used to cover the entity of England, Scotland and Wales. The term 'United Kingdom' also includes Northern Ireland. The Isle of Man and Channel Islands are excluded from both definitions.

3. TRENDS IN RIDERSHIP AND AGGREGATE SERVICE LEVELS

Overall trends since deregulation in passengers carried and bus kilometers run are summarized in table 1. Table 2 shows the trends in real fares and average revenue per passenger trip. Table 3 shows average operating cost per bus-kilometer and per passenger trip, in real terms. Table 4 shows percentage changes in major performance indicators.

Table 1: Changes in total passengers carried and bus-kilometers run

Passenger trips : millions

Area 89/91	1985/6	1988/9	1990/91	percentage change 85/6 - 88/9	85/6-
All Great Britain	5,641	5,242	4,851	- 7.2	- 14.0
All Outside London	4,489	4,001	3,654	- 11.0	- 18.6
Metropolitan Areas	2,069	1,695	1,528	- 17.9	- 26.1
English Shires	1,587	1,499	1,396	- 5.9	- 12.0
Scotland	671	647	583	- 3.6	-13.1
Wales	163	161	147	- 1.2	- 9.8
London	1,152	1,240	1,197	+ 7.6	+ 3.9
Northern Ireland	85	82	80*	- 3.4	- 5.8*

Bus kilometers : millions

Area 89/90	1985/6	1988/9	1990/91	percentage change 85/6 - 88/9	85/6-
All Great Britain	2,076	2,386	2,444	+ 15.1	+ 17.7
All Outside London	1,803	2,101	2,140	+ 16.6	+ 18.7
Metropolitan Areas	575	634	649	+ 10.3	+ 12.9
English Shires	848	1,023	1,035	+ 21.2	+ 22.1
Scotland	285	325	333	+14.0	+ 16.8
Wales	95	118	123	+ 24.2	+ 29.5
London	273	285	304	+ 4.4	+ 11.4
Northern Ireland	54	58	60*	+ 7.0	+ 10.6*

Sources: Bus and Coach Statistics Great Britain 1990/91 (HMSO, 1991) Tables 1.1 (kilometres) and 2.1 (passenger trips)

Northern Ireland: 'Performance History: Financial Results and Related Statistics' Ulsterbus/Citybus/ Flexibus, 1990.

* Data relates to 1989/90, and percentage change 1985/6–1989–90.

Table 2: Changes in real fares

Percentage change 1985/6 to 1990/91

	On DTp Fares Index	Average Revenue Per Trip
Metropolitan areas	+ 32.8	+ 24.7
English Shires	+ 3.8	+ 2.7
Scotland	- 6.2	- 6.7
London	+ 11.4	+ 1.2
All Great Britain excluding London	+ 8.7	+ 8.7

Sources: Department of Transport fares index as quoted in ref 5, Table 3.1.

Average revenue per trip is calculated by dividing all revenue actually received from passengers (excluding CFCs) by total trips made.

Adjustment to 1990/91 by the retail prices index.

Table 3: Operating cost per bus-kilometer, and per passenger trip: great britain, excluding London

Pence, at 1990/91 prices

	1985/6	1986/7	1987/8	1988/9	1989/90	1990/91
Per bus-kilometer						
Excluding depreciation	117	104	89	84	79	77
Including depreciation	-	-	93	87	83	79
Per passenger trip						
Excluding depreciation	47	47	45	45	44	45
Including depreciation	-	-	47	47	46	46

Note: All data deduced from costs per passenger trip Table 4.2 in 'Bus and Coach Statistics 1990/91' adjusted to 1990/91 prices by reference to the retail prices index. These may therefore differ from the rounded data shown in Table 4.1 of that report.

Table 4: Changes in major performance indicators

	1985/6 to 1988/89	1985/6 to 1990/91
Operating cost per local bus-kilometer		
London	- 14	- 20
Rest of GB	- 30	-36
Local and 'other' psv-km per member of staff		
London (LBL)	+ 23	+ 29
Rest of GB	+ 21	+28
Operating cost per local passenger trip		
London	- 18	- 16
Rest of GB	- 7	- 6
Passengers boarding per local bus-kilometer		
London	+ 5	- 5
Rest of GB	- 23	- 30
Passenger trips per member of staff		
London (LBL)	+ 29	+ 21
Rest of GB	- 3	- 8

Notes: Derived from tables 1.3 (local bus-kilometers and other services, by type of operator); and data in tables 1 and 2 of this paper.

For estimation of staff productivity in terms of kilometers run, other types of service (contract, private hire, tours, express, etc.) are also included, since an estimate of staff employed in local operations as such is not available.

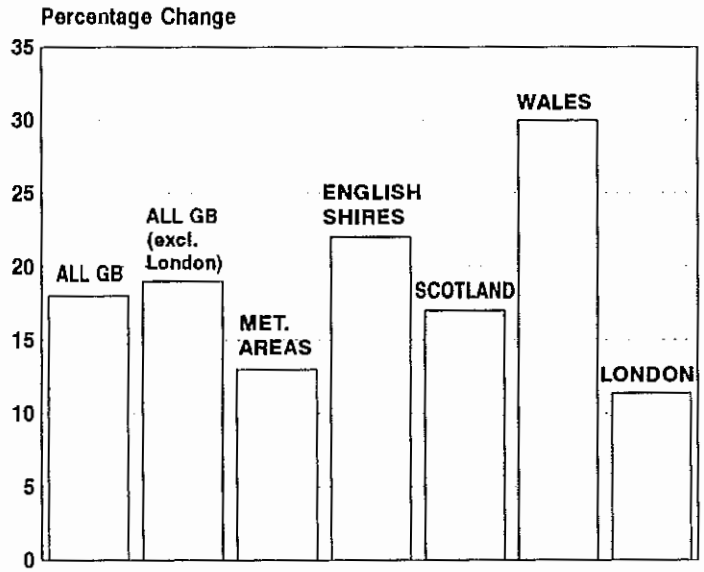

FIGURE 1 PERCENTAGE CHANGE IN LOCAL BUS KILOMETRES RUN 1985/6-1990/1

The year 1985/6 is taken as the base year for comparisons - trends over a longer period being discussed in the Thredbo paper (1). The latest year for which comprehensive figures are available is 1989/90 (5).

It can be seen that bus-kilometers have risen by 17% over this period in Britain as a whole. The greatest increase has been in Wales at 29%; and the English 'Shires', i.e all of England outside London and the six metropolitan areas (the 'Mets'), at 22%. The net increase roughly corresponds to the volume of kilometers now run by minibuses, although some minibus workings have directly replaced kilometers previously run by full-sized buses, and additional operation of full-sized buses is also found in some cases. In other area categories, the growth in kilometers run is somewhat lower, and in London (not subject to deregulation) was only 11%.

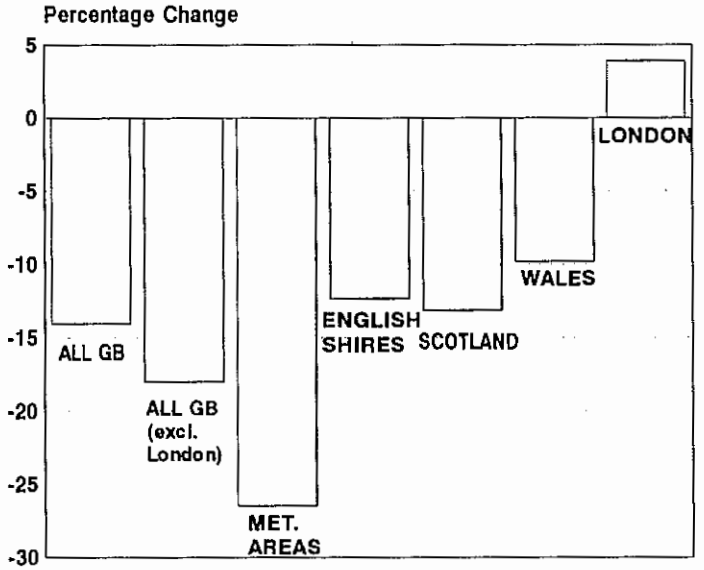

FIGURE 2 PERCENTAGE CHANGE IN LOCAL BUS PASSENGER TRIPS 1985/6-1990/1

However, if one looks at trends in ridership, measured as passenger trips, the opposite picture emerges as shown in Figure 2. In the deregulated areas as a whole (outside London) it fell by 18%, whereas in London it increased by 4%. In Northern Ireland, the two major operators which account for almost all local scheduled services -Ulsterbus and Citybus - experienced a decline of 6%, to 1989/90.

The sharpest fall in ridership occurred in the metropolitan areas, at 26%. In the English Shires, Wales and Scotland, the fall was about 12%. The reduction in the Mets. took place largely in the 1985 - 1987 period, associated with sharp real fare increases in some areas, and severe instability in the pattern of services. In other areas, the changes in ridership were more gradual.

A more detailed examination of the changes to 1987/8 is given in the Thredbo paper (1), and up to 1988/9 in a welfare assessment of deregulation (6). Changes between 1988/9 and 1989/90 largely maintained previous trends. Total ridership in Great Britain excluding London fell by 3%, with little variation between areas, associated with underlying factors such as rising car ownership. Between 1989/90 and 1990/1 a larger fall occurred, especially in the Mets)7%, associated with the economic recession. This has continued to affect ridership in 1991/2.

The fall in ridership between 1985/6 and 1988/9 in the deregulated areas was largely what one would expect, if allowing solely for an underlying decline of about 1.5% per annum, and the impact of real fare increases (primarily in the Mets). However, the substantial increases in bus-kilometers operated would have been expected to offset such decline significantly, as a result of higher frequencies and shorter waiting times thereby produced. Indeed, such results are confirmed from a number of minibus conversions (see table 8). However, such beneficial effects appear to be offset by the impact of instability and poor passenger information, leading to losses of ridership which cancel out such growth.

4. TRENDS IN FARES

Overall, passengers do not appear to have benefitted from deregulation. As table 2 shows, fares have risen most sharply in Mets. (albeit from exceptionally low levels) or largely in line with inflation elsewhere (apart from a small drop in Scotland) - in contrast with the sharp fare reductions associated with express coach deregulation (3). The absence of any ridership level above that which would otherwise have been expected suggests no net benefits in terms of service quality (subject to exceptions listed below), given the elasticity of demand that would normally be expected to apply.

Fares indices derived from the Department of Transport (table 2) suggest an overall increase of 8.7% in real terms between 1985/6 and 1990/91. However this index does not necessarily reflect actual trends in average revenue per trip (i.e. fares actually paid by passengers divided by all trips, including those on concessionary passes). Hence, the real increase is somewhat lower on this indicator than in the DTp index - for example, 25% instead of 33% for the Mets. The proportion of concessionary travel has grown in many areas, notably in large cities. The study for the Association of Metropolitan Authorities by Oxford University (7) suggests that this is due not only to population structure changes, but also a sharp drop in ordinary fare-paying traffic due to service instability. Unfortunately, consistent published data is not available to show total trips made in this form.

However, in the London Transport case, it is known that journeys by pensioners on the free travel pass rose from 228 million in 1985/6 to 292 million in 1989/90 (8), or by 28% - growing from 20% to 24% of total passenger trips. Even this is probably a lower rate of growth in the share of total trips than in other conurbations, due to the instability which caused greater loss of fare-paying traffic elsewhere.

These data enable a more accurate assessment of trends in fare paid per passenger. Dividing total revenue paid by passengers by total trips made (including concessionary travel), gives in the London case, a fall of 3.7% between 1985/6 and 1989/90. However, if the pensioners' trips are excluded, the figure changes to an increase of 0.3% (a combination of cash-paid fares rising faster than inflation, largely offset by a continued shift to travelcard use). This contrasts with the Department of Transport's index of 10.8% over the same period (table 2).

Using this more precise figure for real revenue per fare-paying passenger, we may calculate 'expected' versus 'observed' trips for London, using the same method as employed in earlier papers (1), (6). Over the four-year period 1985/6 to 1989/90, a secular decline of 1.5% per annum would give a compound decline of 5.9%, plus a marginal -0.1% due to the fares effect (on a -0.3 elasticity). However, the increase in bus-kilometers of 7.4% would be expected (on a +0.4 elasticity) to give an overall net reduction of 3.2%. In contrast, the actual increase in fare-paying traffic was 1.2%, i.e. actual ridership was about 4 to 5% greater than would have been expected. This favorable result contrasts sharply with deregulated areas, in which observed ridership is about 5% less than the 'expected' figure when the same elasticities are used (6). Further work by Fairhurst in London (37) and Tyson in the Mets (38) confirms these differences.

5. TRENDS IN UNIT COST AND PERFORMANCE INDICATORS

Tables 3 and 4 show the substantial reductions in unit operating costs which would, in principle, enable a considerable reduction in publie spending, and indeed large falls have occurred in payments to operators. However, the substantial growth in bus-kilometers run has meant that total costs have fallen much less, notably in the shires.

The effect of falling ridership and growing bus kilometers is that average loadings have fallen very sharply outside London. Taking the trend in passengers boarding per bus kilometer (passenger trips divided by bus kilometers) as a proxy for that in average loadings (i.e. assuming the average trip length to be unchanged), the reduction was 30% between 1985/86 and 1990/91 (table 4). In London no significant change occurred. Hence, the large reduetion in operating cost per bus kilometer outside London of 36% in real terms over this period translates into a reduction of only 6% in cost per passenger trip. Figure 3. shows the Operating losts in Great Britain excluding London.

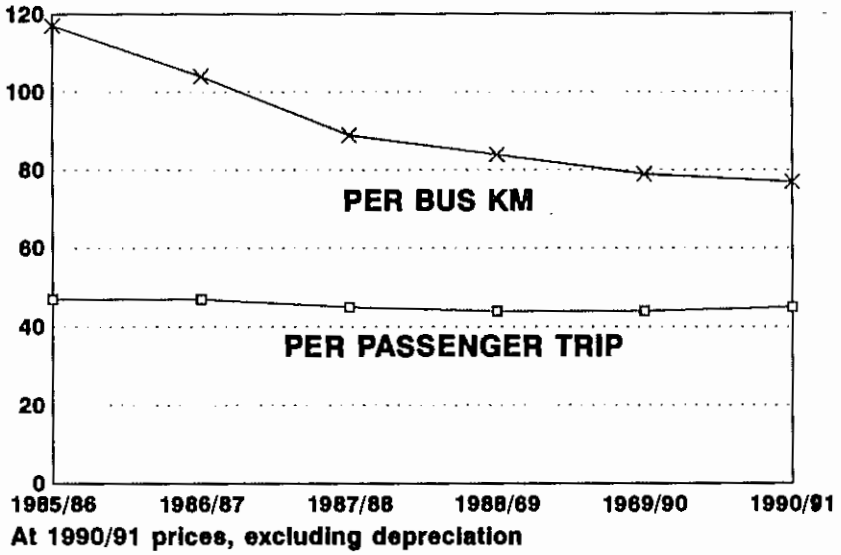

FIGURE 3 OPERATING COSTS- GREAT BRITAIN EXCLUDING LONDON

The reduction in unit operating costs per bus-kilometer may be attributed to a number of factors:

- an exogenous fall in real fuel cost per liter of 48% between 1985/6 and 1990/91 (39).
- a reduction in real weekly earnings per member of staff. For drivers and conductors - the only category for which a specific index is available - the fall between April 1986 and April 1991 was 13% (9). This represents a transfer payment from bus workers to other groups, rather than a net economic gain. Between 1985/6 and 1988/9 such reduced earnings produced total savings of about £100 million (6). In addition, some losses in terms of benefits (sick pay, holidays, paid meal breaks etc.) should also be added.
- an increase in staff productivity through more flexible operation, and, in particular, reductions in maintenance and engineering staff. This represents the main economic benefit (6).
- the rapid growth in minibuses. Total cost per bus-kilometer (including capital costs) is around 65 to 70% that of full-sized vehicles (10), allowing for lower purchase price, better fuel consumption and maintenance costs. The principal factor, however, is the lower driver wage rate, typically 20% below that for full-sized buses. This would explain much of the reduction in the average earnings for drivers in the industry as a whole mentioned above.

However, lower wages are also now being offered to new recruits for full-sized bus driving, and differentials by length of service are becoming more important than those associated with size of vehicle. As staff turnover continues, this will tend to lower the weighted average wage rate toward the minibus figure. Such

reductions would not be possible without the significant levels of unemployment experienced during the deregulation period.

Increased productivity of staff may be measured by the gain in bus-kilometers operated per member of staff: 29% in London, and 28% in the rest of Britain (Table 4). Total operating cost per bus kilometer fell more outside London (36%) than within it (20%), since average earnings of bus staff in London did not fall, and the proportion of minibus operation was less. However, due to the disastrous fall in passengers boarding per bus kilometer outside London (above), passenger trips per member of staff - the main output divided by the largest single input - fell by 8% in the rest of Britain, but rose by 21% in London.

6. TRENDS IN PUBLIC EXPENDITURE

In terms of public expenditure, substantial reductions have occurred. These are shown in table 5. 'Revenue support' includes general support to service and fare levels prior to deregulation (in 1985/86) but after 1986/7 only those payments to operators for tendered services and other costs associated with public transport activity in the local authorities and Passenger Transport Executives (PTEs). The latter include payments on administration, service publicity and - in the metropolitan area PTEs - certain inherited obligations, notably pensions. The 'revenue support' total shown here thus exceeds considerably that passed on to operators (see below).

Table 5: Public expenditure on local bus services, Great Britain excluding London

£ million at 1990/91 prices

	1985/6	1990/91	% Change
Total revenue support	465	219	- 52.9
CFCs	280	309	+ 10.4
FDR	147	145	- 1.4
Education transport (England only)	284	263	- 7.4
Total	1,176	936	- 20.4

Derived from ref. 5 (Tables 5.5, 5.6, 5.7) (HMSO 1991), and annual public expenditure White Papers (education spending).

'FDR' is the fuel duty rebate.

'CFCs' are the concessionary fares compensation payments

Education spending is for England only (the 1990/91 UK total being about £325m).

The sharp reduction in revenue support is associated with the high proportion of bus kilometers registered to operate commercially in the deregulated areas (about 85%) and low prices for tendered services. Whether it permits true long run costs to be covered is another matter.

In addition the concessionary fares compensation (CFC) payments must be included. Since deregulation, these have exceeded the revenue support payments to operators as the proportion of travel represented by concessionary pass holders (mostly pensioners) has grown, and the standard fare levels, vis a vis which compensation is paid, have increased in real terms. In rural areas, a small transitional grant was made available following deregulation to offset the probable loss of cross-subsidy. It ceased at the end of the 1989/90 financial year.

The 'Fuel duty rebate' does not represent direct public spending as such, but remission of a tax that would otherwise be paid.

The expenditure on educational travel is not normally shown in 'transport' statistics as such, nor considered as a 'subsidy' by operators, but is included here because it forms a substantial part of local authorities'

expenditure , especially in rural areas. It may take the form of buses run directly by the authority for schoolchildren, contract services by psv operators, and/or purchase of season tickets for such travel on scheduled bus and rail services. Since 1986, encouraged under the 1985 Act, such spending has been considered along with that on tendered services for public use in order to secure the best value for money. For example a tendered service in a rural area may be specified to cover schoolchild travel (otherwise met on a separate contract) and a public daytime service for shopping trips, etc. Depending on the manner in which budgets are allocated within an authority, merging of the two types of operation might appear to give lower spending on public tendered services (as 'revenue support'), or in the educational transport budget.

Given the increasingly severe pressure on local authority budgets (notably as a result of the poll tax) it is important to consider these forms of expenditure together. For example despite the substantial reduction in revenue support since deregulation operators are under pressure to accept reduced concessionary fare compensation, leading to abandonment of free travel facilities in some areas (notably in Tyne & Wear, and West Yorkshire) and increases in the cash fares charged to pass holders, thus reducing the mobility of low-income groups and affecting off-peak ridership.

7. BUS INDUSTRY CASH FLOW AND FLEET RENEWAL

From another viewpoint, such cash flows may be considered in terms of the local bus industry's income and expenditure.

Table 6 shows such estimates for Great Britain excluding London. Operating costs are derived from the total bus kilometers shown in table 1, and unit costs in table 3. The 'revenue support' figure, obtained directly (11), is that for money actually passing to operators - in 1990/91 for example, some £140 million compared with £219 million on the 'public expenditure' definition. In real terms income from passengers fell substantially despite the large fare increases in the Mets., from over £1770 million in 1985/6 to £1630 million in 1990/91. Coupled with lower revenue support, total income fell from £2160 million in 1985/6 to £1770 million in 1990/91.

The reductions in unit cost enabled a drop in total operating costs (excluding depreciation) despite rising bus kilometers - from £2110 million in 1985/6 to £1640 million in 1990/91. As a result the net surplus initially rose from £50 million in 1985/6 to £70 million in 1987/8 but then to £120 million 1989/90.

Note that the operating surplus would be wiped out if local bus services had to pay fuel tax since, it is less than the fuel duty rebate shown in table 5.

On the figures which include depreciation (from 1987/8 only) a deficit of £10 million in 1987/8 rose to a surplus of £10 million in 1988/9, increasing to £90 million in 1989/90.

Given the accuracy of unit cost data, the totals and net surplus estimates can only be approximate, but nonetheless the general picture is fairly clear.

Although operators taken as a whole are covering operating costs (otherwise they would not be in business, one assumes) this picture is less rosy than at first appears. The depreciation figures are based on historic depreciation only, not current replacement cost. Furthermore the surplus over operating cost must also meet equity returns on capital.

Interest charges are included in operating cost returns, according to the Department of Transport's definitions on the statistics form completed by operators (form 'Stats 100A'). In view of the highly-geared nature of most privatizations to date, it is likely that the element of equity return as such required from the total operating surplus is relatively small. Thus, the reduction in direct operating costs as such is slightly greater than may appear in the figures shown.

The total sale price of NBC companies, excluding Victoria Coach Station, was about £170 million (4). If a 15% return were required, some £25m per year would be needed (mostly as fixed-interest payments), thus reducing the available surplus for investment. Similar costs arise from the PTC privatizations to date, and those of SBG companies now in progress.

The high debt finance ratio also applies to some of the larger companies which have acquired former NBC fleets and not only management buy-outs as such. For example the Stagecoach group had a total capital of over £80m at the end of 1989/90 but only about £1 million was represented by equity holdings by the two main shareholders (Souter and Gloag) and some £68 million was held by 'creditors', mainly banks.

Poor profitability in the industry as a whole is confirmed in the Price Waterhouse study (12) suggesting a profit margin before interest and tax of only 5% in 1988, albeit an increase from 1% in 1987 : this matches the improvement shown in the net surplus after depreciation between 1987/8 and 1988/9 shown in table 6.

In many of the PTCs a 'normal' rate of return on capital is not required by their owning authorities, and this enables them to sustain fleet replacement at a more realistic rate. However as James Isaac, Managing Director of West Midlands Travel, has pointed out, should such firms be privatized the additional interest charges

would make it difficult for this policy to be maintained.

The total fleet employed in local bus services outside London is about 30,000 of which about 8,000 are minibuses. Assuming a life of 15 years and cost of £100,000 in 1990/91 for a full-sized bus; and 7 years and £35,000 respectively for a minibus, total replacement costs per annum would be about £170m. The operating surplus shown in table 6 is clearly inadequate for this purpose, although some operators have been able to achieve profits sufficient to cover replacement cost depreciation, such as South Wales Transport (35).

Table 6: Local bus industry cash flow: Great Britain excluding London

At 1990/91 prices, £ million

	1985/6	1987/8	1988/9	1989/90	1990/91	% Change 85/6 to 89/90
Revenue from passengers	1770	1720	1670	1660	1630	- 18
(of which concessionary fares compensation)	(280)	(290)	(280)	(290)	(310)	+ 10
Revenue support to operators	390	170	160	160	140	- 64
Rural Grant	-	20	10	8	-	
Total Income	2160	1910	1850	1800	1770	- 18
Total cost excluding depreciation	2110	1840	1760	1710	1640	-22
Surplus	50	70	90	120	120	
Total cost including depreciation	-	1920	1840	1790	1680	
Surplus	n/a	-10	10	40	90	
PBIT (%)						
Price Waterhouse		1	5			
ICC			4.3	2.4		

Note: All ficures rounded to nearest £10 million. All data from ref. 5, and unit costs as shown in table 3 (which have been multiplied by the number of passengers, as shown in table 1, to estimate total costs), except for the 1985/6 revenue support at 1989/90 prices, which is calculated from data in ref. 1.

All adjustment to 1990/91 prices is by the GDP de Flator.

'PBIT' represents profit before interest and taxation as a percentage of turnover, from the Price Waterhouse study (12), and ICC report (36).

Table 7: Operator cash flow: London Transport (buses)

At 1990/91 prices, £ million

	1985/6	1987/8	1988/9	1989/90	1990/91	% change 85/6-90/91
Revenue from passengers	381	376	383	392	390	+ 2%
(of which concessionary fare compensation)	(84)	(87)	(83)	(91)	(89)	+ 6%
Capital Grant	54	25	29	30	28	+ 48%
Income before revenue support	434	401	411	421	418	- 4%
Bus Km run (m)	261	264	273	280	299	+ 5%
Cost per bus-km excl. dep. (pence)	208	183	178	169	165	- 21%
Total op. cost excl. dep. (£m)	544	484	485	473	494	- 9%
Cost per bus-km incl. dep. (pence)	225	197	192	473	494	- 23%
Total op. cost incl. dep. (£m)	587	521	524	507	521	- 11%
Net revenue support required:						
-excluding dep.	110	82	73	52	76	- 31%
-including dep.	152	120	113	86	103	- 32%

Notes: Operations covered are bus services run on behalf of London Transport, (i.e. all tendered services by operators other than LBL; and all LBL operations, except for its 'Airbus' services and some other purely commercial operations). Conversion from money prices to 1990/91 values is by the retail prices index.

The concessionary fare payments represent an estimate for that share to buses of the total LT concessionary expenditure.

Source: LT annual reports, and LT group revenue accounts, with estimates from M H Fairhurst, Principal Economic Advisor.

The low level of demand for new buses confirms this picture. Given a full-sized bus and coach fleet of about 55,000 (5) one would expect about 4,000 new vehicles per year to be delivered, on the 15-year life typically assumed. However, data from SMMT - which exclude minibuses - show only 2630 buses and coaches delivered in 1990, with falling to 1861 in 1991 (13). Local bus deliveries as such, of full-sized single- and double-deck types, were about 1300 in 1990, including vehicles for service in London (25), giving a fleet renewal rate of about half the normal figure. This represents an investment of about £110m by operators and lessors. Current orders for new vehicles remain at a very low level, with severe effects on the manufacturing sector.

While it could be argued that the bus industry is in decline anyway, and hence full replacement levels are not needed, this was certainly not the stated aim of the 'Buses' White Paper in 1984. Given the growing interest in the role that buses might play in reducing urban traffic congestion, then at the very least the industry needs to be able to maintain the quality of its rolling stock, let alone invest in other facilities. An ageing fleet will lead to poorer passenger standards, and rising maintenance costs which will offset some of the savings made since deregulation. Innovations such as low-floor buses, and reduced energy consumption through lighter materials, will be introduced very slowly at the present rate of fleet renewal.

8. THE LONDON CASE

Table 7 shows a parallel cash flow estimate for bus services under the aegis of London Transport. In this case, a somewhat different financing structure is adopted. Although a similar mechanism applies for concessionary fares compensation, a capital grant is also paid. Revenue support for buses as such is difficult to determine from published reports, and the table therefore adopts the pattern of showing income from passengers plus the capital grant, and comparing this with costs, to show the net revenue support required to break even. As mentioned above, London experienced a growth in ridership, compared with substantial decline elsewhere. This was also associated with a marginal growth in real total revenues (including concessionary compensation), which partly offset a virtual halving of the capital grant, to produce a 4% rise in real income before revenue support over the period analyzed.

Cost per bus-kilometer fell by 21% (excluding depreciation), or 23% if depreciation is included. As a result of the growth in bus-kilometers run, a reduction of about 9% in total costs was obtained. Hence, net revenue support required fell by 31% (excluding depreciation) or 32%, including depreciation. This was not as sharp a fall as that in revenue support to deregulated operators (table 5), but represents a much greater reduction in cost per passenger (as shown in table 4).

Given the better performance shown in London, it seems surprising that the government is now proposing to extend the deregulated approach found in the rest of Britain to the capital (2). The consultation paper makes misleading references to trends outside London in an attempt to justify this, and ignores the major problems of fleet renewal mentioned above. In many respects, London itself would seem a better model to follow, and this would appear to be the case elsewhere in Europe (see below).

Having said this, some changes in London may be necessary. The present system remains highly centralized, and managers of the local subsidiaries of London Buses Ltd. undoubtedly would prefer greater autonomy. The tendering and planning system has evolved from a small unit at the center and has become a de facto regulator. Other operators may only participate in the Travelcard and concessionary fares schemes by agreement, even after obtaining local bus service licenses through the Traffic Commissioner.

However, it is hard to see why such problems could justify wholesale deregulation on the pattern found elsewhere, especially given the dangers of instability in the pattern of service, and the exceptionally large decline in passenger trips (even after allowing for real fare increases) found in the metropolitan areas, the closest equivalent to London in type of network. Within the existing system, allocation of travelcard revenues (both to LBL subsidiaries, and newcomers) at local level, coupled with a requirement for all operators to participate in the Travelcard scheme, could alleviate the minor problems now found without risking the damage that complete deregulation would probably cause.

9. LOCAL CASE STUDIES

Table 8 extends the national aggregate trends shown earlier, by assembling a range of published case studies, covering both 'on the road' competition, and service enhancement through minibus conversion. Much of the material is derived from work by Prof. Andrew Evans of University College London. Most cases fall within the 'English shires' category, in which the overall changes between 1985/6 and 1989/90 comprised a growth in bus-kilometers of 23% and fall in patronage of 8%, leading to a fall in bus occupancy of 25%.

Table 8: Case-studies of bus competition: changes in service levels, patronage and bus occupancy

Area or Route or Operator	Service Level %	Patron -age %	Bus Occu- pancy	Fare Reduc tion?	Bus Type	Period	Notes
Competition Case-Studies							(a)
Preston	+118	+4	-52	No	m	87-88	(b)
Stockton	+76	+0	-43	No	F	86-87	(c)
Morecambe	+107	-2	-53	No	m	86-87	(c)
Lancaster	+111	-8	-57	No	m	86-87	
Whitehaven							(d)
- Woodhouse	+c225	+c55	-c40	No	m	86-87	
- Egremont &							(e)
Cleator Moor	+c480	+c190	-c40	Yes	F	86-87	(f)
-combined result	+237	+99	-41				
							(g)
Hereford	+60	+30	-18	Yes	F	83-85	(h)
Inverness	+173	+25	-54	Yes	m	88-89	
Glasgow-							(i)
Easterhouse	+50	+21	-20	No	F	86-87	
Blackburn-							(j)
Accrington	+57	-7	-41	Yes	F	86-87	(k)
Portsmouth	+20	-35	-46	No	F	86-89	
							(l)
Maidstone	0	-20	-20	No	F	86-88	
Minibus conversions							(m)
Bristol City Line	+69	+25	-26	No	M	85-88	(m)
Badgerline	+51	+10	-28	No	M	85-88	
South Wales Tpt							(n)
- West Glamorgan	+22	-1	-18	No	M	86-89	(o)
- West Swansea	+143	+73	-29	No	M	87-88	(p)
Newbury	+100	+40	-30	No	M	87-88	

Notes: The change in service level is that in bus-kilometers per period. The change in patronage is that in passenger trips observed per period. Note that data for service level is generally more reliable than that for patronage, given the short survey periods used. 'Bus Occupancy' is the passenger trips divided by bus kilometers. Under 'fare reduction', "yes" indicates significant reductions by some or all competing operators. Unfortunately, an overall index is not available.

Under 'bus type' , "F" indicates that operation before and after the onset of competition, or change in service level, was wholly or largely by full-sized vehicles; "m" indicates that some minibus conversion was introduced ; typically by one operator in a competitive situation; and "M" indicates complete minibus conversion, by the same operator.

'Period' shows, in years, the period over which observations occurred.

Specific notes :

(a) From Preston & Mackie (22). New minibus operator 'Zippy' (United Transport) in competition with incumbent Preston Transport (PTC), who also introduced minibuses.

(b) From TRRL Report 283 (23). Intensive competition between incumbent Cleveland Transit (PTC) and United (ex-NBC), and newcomers (TMS, Delta). Combined data for the two observation sites (North Tees Hospital and Bishopton Lane).
(c) From Evans (24), using data provided by TRRL. Lancaster City (PTC) in competition with Ribble (ex NBC) who converted some routes to minibuses during this period.
(d) From TRRL Report RR 282 (26). Competition between incumbent Cumberland Motor Services (ex NBC) and independents, with CMS converting to minibus on Woodhouse route (town service). Data from graphs, comparing October 1986 with October 1987.
(e) As (d), on routes to Egremont and Cleator Moor.
(f) Weighted average from Whitehaven, from A.W. Evans.
(g) From Mills (27), covering competition between Midland Red West (NBC) and independents, all using full-sized buses, under 'Trial Area' status before general deregulation.
(h) From MMC study (28). Incumbent Highland Omnibus (SBG) and newcomer Inverness Traction, the latter with minibuses.
(i) From Scottish Development Department study (29). Intensive full-sized bus competition on route between high-density housing area and Glasgow city center.
(j) From Alamdari and Cross (30)
(k) From MMC Study (31),pp 20,38,60. Service level and patronage data is for Portsmouth City Bus (PTC) and Stagecoach (Southdown) in the Portsmouth & Havant reference area. However, the patronage data exclude the Red Admiral minibus operation. This leads to some exaggeration of total patronage loss in the area (which was probably around 30%), and also of the drop in occupancy rate.
(l) Data from Turner & White (33). Results of a household trip frequency survey to produce weighted average trip rate change. Similar service level along Tonbridge Road was provided by Maidstone Boro'Line (PTC) and Maidstone & District (ex NBC), but no longer as a joint service: loss of co-ordinated timetable and common ticketing.
(m) MMC study (34). Extensive conversions by ex-NBC operators (subsequently re-merged) to minibuses, with little direct competition.
(n) From publication by operator (35) and data supplied by Managing Director A.D.Kreppel. Operations in whole West Glamorgan area by this ex-NBC company, comprising Swansea and adjoining region. Many routes converted to minibuses.
(o) Conversion of West Swansea network wholly to minibuses.
(p) Conversion of cross-town service by incumbent Bee Line Berks Bucks (ex-NBC) from full-sized bus to minibus.

The sample is not necessarily a representative one, since those cases covered in detailed case studies are mainly those in which on-the-road competition developed, and/or intensive minibus conversion took place. Relatively stable service levels are thus under-represented.

Although high service increases are found, there are far fewer case of ridership increases. Encouraging growth in total ridership is shown in Whitehaven, Hereford, Inverness and Glasgow-Easterhouse. However, bus occupancy generally displays a greater loss than the national average, except in the cases of Hereford and Easterhouse. But in the Hereford case, fare reductions also occurred, which would have caused revenue per bus-kilometer to fall substantially more than the occupancy rate.

In many other cases, total ridership fell or displayed only a very modest increase (Preston, Stockton) despite a large growth in bus-kilometers, leading to very sharp falls in bus occupancy, typically around 50%. Exceptionally severe instability in Portsmouth produced the worst total ridership decline, of about 30%.

The Maidstone example offers an illustration of the effects of removing co-ordination (rather than competition per se), with a broadly unchanged service level. Simply removing common public timetabling, and interavailable tickets, caused a ridership loss of about 20% (most remaining passengers still took the first bus to arrive, but in order to do so while making a round trip, shifted from returns or travelcards to single cash-paid fares : in effect, a real fares increase for the same service level).

However, where services were converted largely or wholly to minibus operation by the same operator, a much more positive picture is generally found. Under the same overall organizational efficiency, minibus costs per km. (including capital costs) are around 65 to 70% those of full-size buses, assuming that the usual driver wage differential of 20% applies (10). Where high-frequency minibuses replace full-size buses to give a growth in total ridership, a bus occupancy loss of about 25% to 30% is perfectly acceptable as part of this trade-off, since

profitability is maintained. This is the case in the Bristol area, Swansea and Newbury.

The evidence would seem to suggest that service level increases in a fairly stable environment may produce substantial traffic growth, as one might assume through typical elasticities of about +0.4. However, where the service level increase is from a high initial base, and/or coincides with instability associated with on-the-road competition, and frequent changes in routes and timetables, the result in terms of average loadings can be disastrous.

A further notable example of ridership growth due to minibus conversion is the pioneer network of Devon General in Exeter. Since the first conversions in 1984, total ridership has risen from about 14,000 to about 40,000 per day, or almost 200% (14).

These results do not necessarily indicate that minibuses will produce the same effect in all instances : the growth is likely to be greater where previous service levels were very low. In particular, high-density corridors in large cities already enjoy good frequencies, further enhancement of which is unlikely to produce much growth.

There is also evidence of successful minibus conversions in Swansea and Newbury producing substantial diversion from the car - about 50% of the additional minibus passengers in these cases were former car occupants (15).

Application of cost-benefit methodology to minibus conversions of low-frequency full-sized operation confirms substantial economic benefits (32).

10. PARALLELS AND CONTRASTS WITH OTHER COUNTRIES

Few countries seem inclined to follow the British model directly. The main exceptions are New Zealand, which is currently introducing a similar system, albeit with some changes in the light of British experience, and the Republic of Ireland, in which a de facto deregulation of long-distance coaches has already occurred. However, there are few signs of major industrialized countries following this trend.

A more common pattern lies in attempts to reduce operating costs and improve efficiency through a system of competitive tendering, as found in London. This can be seen in a number of American cities, current plans for Oslo, and policies already implemented for Copenhagen. It is of particular interest to note that the Copenhagen authority, HT, recently advertised in the bus and coach technical press in Britain, inviting British operators to bid for the next 10% of the network being contracted. The EC is also working on a common standard for competitive tendering in public transport.

The overall experience of deregulation in Britain clearly suggests that direct imitation is unwise. However, certain specific applications may be worth following, in particular the use of minibuses to improve services where current frequencies are low, and unemployment enables workers to be recruited at lower wages than standard bus rates. While large cities elsewhere in Europe often compare favorably with their British counterparts in terms of public transport, this is not necessarily the case in smaller towns, where full-size buses offer poor frequencies. Many European regions currently have high unemployment, and creating additional jobs in this way (even at low wages) may be preferable to the economic and political consequences of high unemployment - in the eastern lander of Germany, for example. Such a policy need not be permanent, since minibuses have a relatively short life. However, greater flexibility in agreeing wages and working conditions will be necessary for such innovation to occur.

One of the most interesting parallels with Britain is in Chile, where bus deregulation was introduced in the late 1970s. However, in Santiago the effects as documented by Fernandez et al (20) appear very worrying. A static total market is now served by many more operators, leading to a halving of passengers carried per vehicle per annum - an extension of the trend in bus occupancy already found in Britain. Despite an ability of the operators to act as a cartel in pushing up prices, profitability is insufficient to justify adequate fleet replacement, and "re-regulation" is now proposed. A further analysis (21) suggests that an equilibrium situation does not necessarily develop. Dependent upon the passengers' value of time, it may be possible for operators even in a highly competitive situation to push up real fares, leading to considerable losses in consumer surplus.

11. OVERALL CONCLUSIONS ON DEREGULATION IN BRITAIN

Both the aggregate statistics, and individual case studies, indicate that the general effect of deregulation has been to produce useful savings in unit operating costs. However, despite substantial growth in total bus-kilometers run, ridership has fallen by roughly the percentage that would have been expected, given the real fares increases and underlying trend decline. In other words, the net aggregate benefit of additional kilometers run seems to be zero. This growth in kilometers offsets much of the reduction in unit costs, so that total cost reductions have been much smaller.

Two notable contrasts exist. First of all, successful minibus conversions, and some other cases of increased frequency, have stimulated greater ridership. These are offset by the effects of instability elsewhere. Clearly, the stimulus given by competition (or, more often, the threat thereof) to the improved service levels has produced worthwhile results, but the instability associated with 'on the road' competition has been very damaging.

London, in which a system of competitive tendering under a regulated framework has been adopted, forms an experimental case in which much better aggregate results can be seen - a net growth in ridership, and much greater reduction in cost per passenger trip than elsewhere.

Despite the fall in unit costs, profitability in the deregulated sector of the industry is poor. This is a result of revenue losses through instability, and higher service levels which often result in very low occupancy levels. As I suggested at Thredbo, an 'optimistic' outcome could be one in which some of the unproductive excess service is cut out, leading to improved profitability for the remainder, with, hopefully, little loss of ridership.

Although the aggregate data indicates that net growth in total bus-kilometers was still occurring up to 1989/90 inclusive, cases can now be seen of a 'shake out' in excess mileage - for example, in the Manchester area. The rapid growth in total bus-kilometers run has tailed off, with a very marginal drop of under 1% (outside London) between 1989/90 and 1990/91.

This 'shake out' may take several forms:

- one operator withdrawing entirely,
- a joint working agreement (although OFT rules tend to discourage this),
- the de facto equivalent,
- or an agreed merger between operators.

Unfortunately, some government policies tend to discourage such natural processes. Investigation of mergers and anti-competitive behavior quite rightly aims to identify cases of predatory competition, in which a newcomer is unfairly treated by an incumbent. However, it is difficult to see why the same attention should be paid to agreed mergers where both operators need to improve profitability, save for the sake of competition as a dogmatic objective its own right. For example, the Monopolies and Mergers Commission has recently investigated such agreed mergers in Sheffield (16), the Warwick/Leamington area (17), and Teesside (18) - generally some time after services had been rationalized and operations restructured. In the Warwick/Leamington case, the merger of ex-NBC area operator Midland Red South, and local independent G&G Travel was approved. In the Sheffield case, the acquisition by South Yorkshire Transport (the PTC) of several independents was judged against the public interest, and SYT ordered to divest itself of the acquired companies. In the Teesside case, Caldaire North East had acquired Trimdon Motor Services (TMS). This left substantial competition remaining in Cleveland (which includes the Stockton case shown in table 7), but less so in parts of County Durham. However, the MMC were content to suggest certain restrictions on Caldaire to discourage anti-competitive behavior, rather than require divestment.

The Secretary State for Trade and Industry overruled the MMC in the Caldaire case, as his predecessor had done in Portsmouth, requiring divestment. Both the Sheffield and Caldaire cases are subject to judicial reviews requested by the operators concerned. Caldaire, in particular, has stressed the need to improve profitability as a means of funding adequate fleet renewal, and protested strongly at the Secretary of State's decision (19). In the Sheffield case, a judgement has been given, invalidating the whole basis of the MMC enquiry, in that it did not relate to a 'substantial' area. An appeal against this judgement also found in favor of SYT. The government has to consider whether an appeal to the House of Lords would be justified. No further MMC studies have been completed since the appeal case.

Such divestment, if imposed, will lead to further service instability, and adversely affect operator profitability. By discouraging other similar mergers, it may have the effect of causing smaller operators to withdraw entirely, where the market is not sufficient to sustain competition at adequate profitability levels.

Greater encouragement to voluntary co-operation between operators in the deregulated region would also assist in providing better passenger information, through ticketing and more efficient timetabling.

POSTSCRIPT

The original text of this paper as delivered at Tampere, has been updated to include 1990/91 data, and cross-references to recent published work. However, these do not change the conclusions reached.

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