Oxera

Agenda

Advancing economics in business

Running into trouble? The modal effects of a downturn

What could be the impact of the economic downturn on transport operators, and how might policy-makers respond? Possible causes for concern are the lack of preparation for the consequences of a prolonged downturn for the transport industry, and the effect that this could have on future investment

The slowing of the global economy and the possibility of a prolonged downturn is likely to have an impact on transport operators. Different modes of transport have different characteristics in terms of speed, comfort and convenience, for example. Therefore, changing levels of income and employment which might arise from a recession will have different effects on each mode of travel. Given that governments have a range of competing policy objectives—eg, in the UK the government is aiming to reduce the level of taxpayer subsidy to the rail network,[1] combat climate change[2] and reduce congestion[3]—it is important to consider how current events may affect government transport policy.

This article considers a number of scenarios for the UK economy over the next few years and the impacts on transport operators and government policy.

Prospects for the economy

Before considering what may happen in the future, it is worth looking at what happened the last time the UK economy suffered a prolonged downturn, which began in 1990/91. Figure 1 shows trends in travel by bus, car and rail in Great Britain since 1980. The vertical line represents the beginning of the last recession.

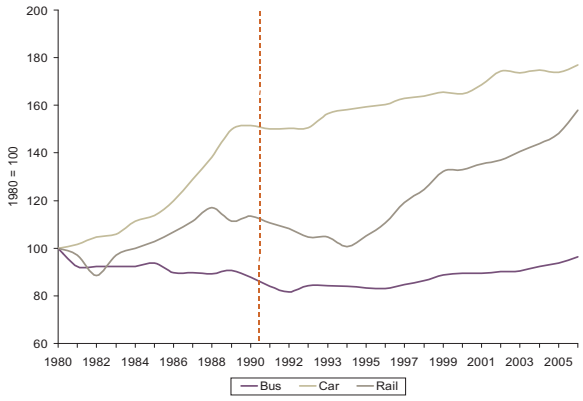
The chart shows that the demand for car travel levelled off for a number of years in the early 1990s, while demand for bus and rail travel declined (although the start of the decline appears to pre-date the beginning of the recession).

On this basis it could be expected that the current slowdown may have an impact on the demand for transport. Another factor to consider when assessing the impact of the current downturn on operators' revenues is that passengers may still travel but change their class of travel. For example, business passengers may choose (or might be directed) to travel in standard class. Such downtrading will affect some forms of transport (such as air and rail) more than others, but when examining demand forecasts, it should be remembered that revenue is likely to fall further than total demand due to this effect.

Forming a view on how the economy will evolve requires assumptions to be made on a number of fronts:

- the extent to which recent events in financial markets affecting the supply of credit will feed through to the trend rate of economic growth;
- how quickly consumer and business confidence will return, and hence the speed of recovery from the current slowdown to the trend rate of growth;
- how the composition of the labour force will change in response to the current slowdown—eg, how migration patterns will change;
- how important drivers of growth, including the exchange rate and the oil price, might evolve.

Figure 1 Growth in GB transport by mode



Source: Department for Transport (2007), 'Transport Statistics Great Britain', Table 1.1, and Oxera calculations.

Three scenarios of the future of the UK economy have been developed, each reflecting different aspects of the assumptions above.

– **High case**. GDP growth is zero in 2009, in line with the October average forecast from the Treasury's survey of independent forecasters,[4] before a rapid recovery to the Treasury's 2008 Budget trend rate of growth (2.75% per year).[5] The economy returns fully to trend by 2015.

– **Intermediate case**. GDP in 2009 falls by 0.75%, with four consecutive quarters of declining output, but recovers slowly to a trend growth rate that is 0.25 percentage points below the Treasury's 2008 Budget forecast—ie, it falls to 2.5% per year in the medium term. The economy remains below trend until 2017.

– **Low case**. GDP falls by 1.5% in 2009, with a contraction in output for six quarters. Recovery takes until 2019, with a long-term trend growth rate of 2.25% per year.

The difference in these outcomes primarily reflects the uncertainty regarding the short-term path of the economy.

Examining the effect on demand

A slowdown in economic growth can be expected to affect different modes of transport in different ways. How each mode will be affected depends on the length and severity the slowdown, as well as on other important factors such as changes in the oil price. For example, if oil prices increase, substitution may occur away from modes of transport that use oil products intensively on a per-passenger basis (ie, car travel) towards modes that use oil less intensively (ie, buses or trains). The extent of this effect will depend on how pronounced the changes in the price of oil are; what the price of oil is as and when it settles to a new equilibrium level; the exchange rate between sterling and the US dollar; and the extent of cost pass-through by operators.

Train operators can pass any increase in costs through to fares only with a lag, resulting in incomplete adjustment to changes in relative prices in the short term. As they can adjust most fares only once per year (and many of the fares are regulated to increase at a maximum of RPI + 1%), a temporary increase in the price of oil can abate before a train operator can reflect this increase fully in the fare. The dynamic nature of the adjustment to higher prices should also be considered since the difference between the short- and long-run effects of a change in income can be dramatic. For example, one study has estimated that the short-run effect of a 10% increase in fuel prices is to reduce fuel use by 2.5% within a year and by more than 6% in the long run.[6]

Table 1 presents long-run income and own-price elasticity estimates for four modes of transport: aviation, bus, car, and rail.[7]

Demand for air travel is, not surprisingly perhaps, the most responsive to changes in income, given the ease of (imperfectly) substituting away from air travel for most leisure travellers—ie, if real incomes fall, it is relatively easy to substitute a foreign holiday for a national holiday that does not require a journey by air, or to reduce the number of holidays.

For the rail industry, more detailed estimates of income elasticities are available from the *Passenger Demand Forecasting Handbook*. These elasticities vary by distance of journey, market segment and geographical area, with travellers making long-distance journeys to London being the most sensitive to changes in income, and travellers making short journeys outside London being the least sensitive.

Demand for car ownership rises more strongly than the demand for car travel for a given increase in income.[8] This implies that increases in income mean that the marginal purchaser of a car is less inclined to drive than the existing average car owner (and hence is more inclined to use other modes or to travel overall), but values the option of being able to drive sufficiently highly that they purchase a car.

Of the public transport modes, demand for bus travel is the least responsive to a change in income. However, the evidence in the table suggests a departure from the received wisdom that bus travel falls as personal income rises. Econometric work by Oxera suggests that, if the

Table 1 Elasticity estimates for different modes of transport

	Aviation[1]	Bus[2]	Car ownership[3]	Car travel[4]	Rail[5]
Income	1.50	0.67	0.74	0.50	1.20
Own-price	–0.70	–1.11	–0.90	–0.30	–1.00

Sources: [1] Civil Aviation Authority (2005), 'Demand for Outbound Leisure Air Travel and its Key Drivers', December. [2] Oxera analysis. [3] Graham, D. and Glaister, S. (2002), 'Review of Income and Price Elasticities of Demand for Road Traffic', ITS Leeds, July. [4] Hanley, M., Dargay, J. and Goodwin, P. (2002), 'Review of Income and Price Elasticities in the Demand for Road Traffic', University of London, Centre for Transport Studies, March. [5] ATOC (2005), *Passenger Demand Forecasting Handbook*.

Figure 2 High case

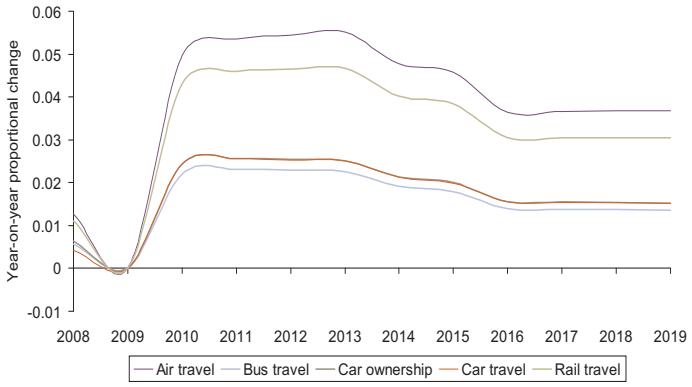


Figure 3 Intermediate case

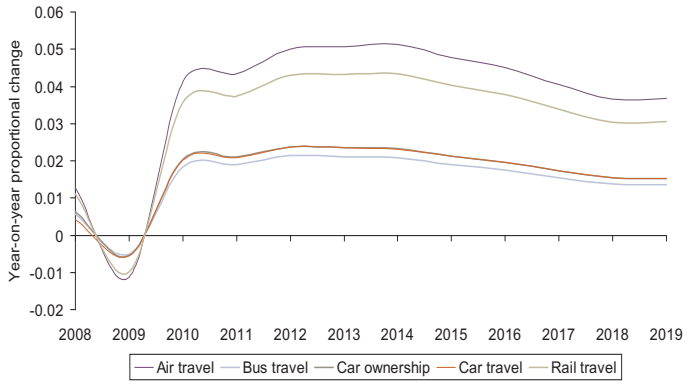
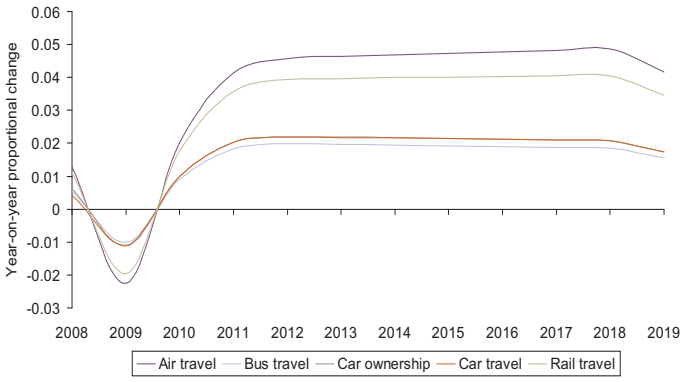


Figure 4 Low case



Source: Oxera calculations.

impact of changing car ownership is taken into account, bus use tends to increase with income (ie, the table shows that the income elasticity is positive, not negative).

The same hierarchy holds for falling incomes, although there is evidence that income elasticities are asymmetric—ie, that consumers react differently to rising incomes compared with falling incomes.[9] In addition, elasticity estimates derived from a period of sustained economic growth can be subject to bias.

Oxera has forecast how changing incomes may contribute to changing demand for different modes (see Figures 2–4). The charts are based on the assumption that all other factors will remain constant throughout the forecast period. This is not intended to be accurate, but serves to highlight the effect of changing incomes on the demand for transport. All scenarios are similar in that the contribution is flat or falling over the next two years and rises strongly after that. The demand forecasts may not achieve these changes for a number of reasons—for example, capacity constraints on the relevant networks, or large changes in other variables such as the oil price or the introduction of demand management.

These scenarios are based on the assumption of a fairly rapid return to trend growth. However, the possibility of a longer, deeper downturn cannot be entirely discounted.

Policy implications

What does this imply for government policy? The scenarios set out above do not indicate a substantial fall in demand for public transport; however, a more severe downturn cannot be ruled out. The trend rate of growth depends on a number of other factors such as the size and productivity of the labour force, oil prices, the level of investment, and the degree of entrepreneurial activity in the economy. A lower trend rate of growth will result in lower tax revenues (for a given tax rate), thus allowing less government spending on, for example, transport-related infrastructure.

Given the degree of uncertainty regarding the extent to which the real economy will be affected by the financial crisis, it is useful to consider what the impacts of a deep downturn may be. A number of aspects might be relevant in these scenarios.

– As mentioned above, the government's budget will be affected by the slowdown, both now and in the near future. The government has announced that it will bring forward spending allocated for the 2010/11 financial year to boost the economy. However, this will increase public sector debt and thereby reduce possible spending in the future.

– The government's priority could change to supporting the labour market in the face of rising unemployment, relative to other policy objectives. In the short term, less emphasis might be placed on environmental objectives, although to the extent that demand for transport could fall in a downturn, carbon emissions would follow suit.

– Bus and airline operators can alter their networks relatively quickly in response to changing profitability. A decline in income may make some bus services commercially unviable, leading in some cases to bus operators ceasing to run them. To the extent that these services are then tendered by local authorities in return for subsidy, local authority budgets will be negatively affected. The option to reduce core services will not be available to rail operators, which in the UK have minimum service requirements built into the franchise agreement. In these situations, operators would face revenue losses, although beyond a certain fall in demand they would be protected from the full impact by revenue protection clauses in the agreements.

It is also useful to consider what might occur in the event of a financial failure of a large transport operator. While such an event could be considered unlikely, it is worthwhile testing what mechanisms might be required in order to ensure ongoing provision of services. In the rail sector, the government has access to a designated operator of last resort in the event of franchise operators ceasing to fulfil the terms of their contracts. However, given that this has been tested for only one franchise thus far (Connex South Central),[10] it remains open to question whether this arrangement would be able to cope if an organisation with multiple franchises were to experience financial distress. There are no comparable measures if a bus operator ceases to operate. In one sense, it might be considered that barriers to entry are relatively low, and that an alternative operator could enter a market vacated by a failing firm.

In principle, some government- or market-led alternatives to addressing a financial failure could be considered. These include recapitalisation (as recently applied in the case of the banks), or setting up a special administration regime, as is common in utility industries such as electricity and water, which would enable administrators to run the operation as a going concern while the financial issues are resolved and debt commitments restructured. However, these steps might be seen as excessive relative to their cost, especially if they prevent the process of entry by rivals.

An alternative to either of these measures would be for another operator to merge with the failing firm, with the possibility that it would be in the public interest for the matter not to be referred to the Competition Commission following investigation by the Office of Fair Trading.

Conclusions

The current economic downturn will inevitably have some effect on transport operators and the ability of the government to finance investment in the future. However, the effect is likely to vary across modes of transport, leaving businesses with operations across multiple modes in a better position to survive the downturn. There is an unresolved question as to what would happen if a large transport operator were to experience financial difficulties. The operator of last resort/franchise replacement regime for rail could potentially cope, but what would happen in the bus sector? While it may be the case that rivals might enter where a market is vacated by a failing firm, other, more radical options, such as implementing a special administration regime might preserve services with greater certainty.

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[1] Department for Transport (2007), 'Delivering a Sustainable Railway', July.
[2] For example, the proposed Climate Change Bill will commit the UK to reducing CO_2 emissions by at least 60% by 2050, from a baseline of 1990.
[3] Department for Transport (2004), 'The Future of Transport: A Network for 2030', July.
[4] HM Treasury (2008), 'Forecasts for the UK Economy: A Comparison of Independent Forecasts', October.
[5] HM Treasury (2008), 'Budget 2008: Stability and Opportunity—Building a Strong, Sustainable Future', March.
[6] Hanley, M., Dargay, J., Goodwin, P. (2002), 'Review of Income and Price Elasticities in the Demand for Road Traffic', University of London, Centre for Transport Studies, March, p. 3.
[7] An income elasticity of demand measures how much demand changes when income alters, while an own-price elasticity of demand measures how much the quantity demanded of a good changes in response to changes in its price.
[8] This result is commented on in Hanley, M., Dargay, J. and Goodwin, P. (2002), 'Review of Income and Price Elasticities in the Demand for Road Traffic', University of London, Centre for Transport Studies, March, p. 4.
[9] Dargay, J. (2004), 'The Effect of Prices and Income on Car Travel in the UK', February, presented at the World Conference on Transport Research, Istanbul.
[10] Connex South Central was given notice by the Strategic Rail Authority (SRA) on June 27th 2003 that the SRA was terminating the franchise. Reasons given included Connex failing to deliver improvements and failing in the provision of short-term financial stability for its customers and staff. Source: Strategic Rail Authority (2003), 'Strategic Rail Authority Terminates Connex Rail Franchise', June 27th, www.dft.gov.uk. Another train operator, GNER, encountered financial difficulties but the Department for Transport ran a franchise replacement exercise.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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