Market definition

Introduction

1. This appendix presents the analysis of market definition. It considers the appropriate boundaries for the relevant market and takes into account the parties' approach to market definition. The appendix addresses the issues of substitutability on point-to-point flows[1] as well as generally between different modes of transport. This appendix also considers issues of demand and supply substitution to assess whether it is appropriate to analyse competition on a flow by flow basis and by reference to wider 'network' markets.

Framework for market definition

2. In defining markets, one tool that the CC has regard to is the 'hypothetical monopolist test'.[2] This test entails asking whether it would be profitable for a hypothetical monopoly supplier of a particular product or service to introduce an SSNIP. This will depend in part on the extent to which customers would reduce usage in response to such a price rise and whether therefore there would be increased or decreased revenue as a result of a price change.[3] It also depends on whether the consequent reduction in output would reduce costs. If so, even if revenue were reduced, a price increase could nonetheless be profitable. If such a price increase was profitable and could be sustained, that product or service in question could be regarded as being monopolizable, and would therefore be considered a separate market.

Point-to-point flows

3. Passengers' demand is to travel from their particular origin to their particular destination. The bus stops and stations they use are likely to be reasonably close to the passengers' ultimate origins and destinations. The latest National Travel Survey (2002, updated in 2004) published by the Department for Transport states that in 2002, 86 per cent of households in Great Britain lived within 6 minutes' walk of a bus stop. The travel survey also gives the average time taken to walk to the nearest bus stop. In urban areas with a population between 25,000 and 250,000,[4] 89 per cent walk for 6 minutes or less to reach their bus stop, 9 per cent walk for between 7 and 13 minutes and only 2 per cent walk for 14 minutes or more. A report by Accent shows that between 95 and 98 per cent of bus users walk to their bus stop and between 91 and 96 per cent walk from the bus stop to their destination.[5]

4. The origins and destinations of users may also potentially be served by a number of stations or bus stops. Evidence reported below (see paragraphs 23 to 27 and Annex 1) shows that the contraction of demand that would follow a 5 per cent price

[1]Throughout this appendix the following definitions apply: 'Routes' are defined as end-to-end services. 'Flows' are defined as connections between two points but with no specific way of joining the two. Flows might correspond to an end-to-end route, but they might also correspond to shorter passenger journeys between intermediate stops on a route.
[2]More detail on the way the CC applies this can be found in the CC's *Guidelines on Merger References (CC2)*, available at: www.competition-commission.org.uk/rep_pub/rules_and_guide/pdf/15073compcommguidance2final.pdf.
[3]If elasticity is greater in absolute value than –1, the percentage reduction in usage would be greater than the percentage increase in prices and revenue would fall.
[4]The six towns where Sovereign operates have populations between 25,000 and 80,000 (source: www.hertfordshire.co.uk).
[5]'UK bus priorities modal shift' produced in January 2002, in the context of a CfIT-led study on how to increase bus patronage. See Figure 28.

increase on any particular route would not be significant. This also implies that passengers are unlikely to change their origins and destinations in response to a 5 per cent increase in price. This, together with evidence mentioned in paragraph 3, suggests that relevant markets can be expressed with reference to point-to-point journeys.

Substitutability between different modes on point-to-point journeys

5. A number of different transport services may compete for business on such point-to-point journeys. As the CC noted in the FirstGroup and NEG reports,[6] passenger choice (which can be regarded as demand-side substitution) between modes of travel is likely to depend on a number of aspects of the journey, including the cost of the journey, the journey time (including the time spent travelling between the passengers origin and destination to the station or bus/coach stop), frequency of services, and whether direct services are available. These factors, which apply equally to this inquiry, are sometimes included in a wider measure of 'generalized cost' of a journey, including a passenger's valuation of the time spent travelling (see paragraph 14).

Supply-side substitution

6. Supply-side considerations—including whether already-established suppliers could move from one route into another within a short period of time (usually a year) with little additional investment required—suggest that the relevant markets cannot be regarded as consisting of individual flows or routes.

7. Bus companies organize themselves around bus depots and fleets and the wider networks they operate; within these networks, existing operators can easily switch buses between routes. These factors point toward a network market (which we consider later). Entry lags in the bus industry are sufficiently short to make it reasonable to consider at least some entry as a possible supply-side response to the actions of a hypothetical monopolist. In practice, however, entry at a route level by a new operator may encounter a number of obstacles (see Appendix H); furthermore, operators are able to charge different fares on neighbouring routes. These factors indicate that, as the CC noted in the First Group report, it is important to analyse some routes or parts of them, particularly overlapping parts of routes.

Evidence on elasticities

8. As the CC noted in the FirstGroup and NEG inquiries, there is an extensive and complex array of evidence available on the demand for different modes of transport used for such point-to-point journeys.

9. In the First Group inquiry, the CC commissioned a study from OXERA summarizing available studies on bus (and rail) elasticities.[7] The OXERA study showed that short-term bus usage elasticities in the UK as a whole were generally estimated to be in the range –0.35 to –0.5, but with long-run elasticities approaching –1. Arriva noted that the OXERA report was prepared for an inquiry that was concerned with a

[6] *First Group/Scotrail* (published on the CC web site www.competition-commission.org.uk/inquiries/current/first/index.htm) and *National Express and Greater Anglia* (published on the CC web site: http://www.competition-commission.org.uk/inquiries/completed/2004/natexpress/index.htm).
[7] OXERA's work took account of an extensive study by Wardman and Shires from the Institute for Transport Studies (ITS) at the University of Leeds, and a summary of both studies is in Appendix 1. The OXERA study is available at: www.competition-commission.org.uk/inquiries/current/first/oxera.pdf; the study by Wardman and Shires is at: www.its.leeds.ac.uk/working/downloads/WP573.pdf.

more urban area than Hertfordshire; furthermore it stated that some of the individual studies reviewed by OXERA did report higher elasticities. On the basis of the short-run elasticities identified by OXERA, an increase in fares in either market would lead to a less than proportionate reduction in demand in that market and increase the revenues of bus or rail operators respectively; even on the basis of long-run elasticities approaching –1, although the increase in fares may result in a proportionate reduction in volume, and little or no change in revenue, it would still be profitable to increase fares if the reduction in demand led to cost savings. Based on these elasticities, the SSNIP test for the use of bus transport separately is clearly satisfied. The same conclusion would also apply on the basis of longer-term elasticities given a small reduction in costs. Such reductions can occur in markets where a high proportion of firms' costs are variable, which applies to Arriva and Sovereign (see Appendix B, paragraph 16, and Appendix C, paragraph 30). Arriva objected to this and stated that there was little scope to reduce costs without vehicle withdrawal.

10. With regard to substitution between private car and public transport, the First Group and NEG inquiries gave the following reasons why there is limited substitutability between public and private transport in response to price changes. The reports did note that the extent of substitutability between public and private transport may vary depending on the specific characteristics of the area considered. However, Arriva said that it had no evidence to suggest that elasticity in services considered in this inquiry differed from its UK perception of own price elasticity (see paragraph 24):

(a) The own-price elasticities of bus at least in the short term are significantly below 1. Hence, the extent of competition from car (together with the extent to which, if prices increased or services decreased, passengers would stop travelling altogether) is insufficient to constrain fare increases or any reductions in service levels.

(b) Trends in fares of public transport have differed significantly from those in the costs of using car. Over the past 20 years, for example, bus fares have increased in real terms by some 40 per cent, whereas the inflation-adjusted cost of using private cars has been broadly unchanged, suggesting that the cost of using private cars has imposed little competitive constraint on changes in bus fares.

(c) A large number of users of buses do not have access to a car, or there are problems in parking at their destinations.

The CfIT report

11. The CfIT, as a result of its involvement in the NEG inquiry, commissioned The TAS Partnership (TAS) to provide advice on competition in the provision of public transport services in the UK. The report, published in October 2004[8] (CfIT report), contains analysis which is relevant to this inquiry and in particular to market definition.

12. In its report TAS stresses the importance of conducting any analysis of inter-modal competition on the basis of the generalized cost of a journey (see paragraph 5 above) as this is the variable consumers take into account in their transport decisions.

[8] *Competition in the UK Passenger Transport Industry, A Final Report to CfIT*, August 2004, The TAS Partnership Limited, www.competition-commission.org.uk/inquiries/current.

13. TAS presents an example of inter-modal competition based on the generalized cost. Here the generalized cost is expressed as time in minutes. The fare is converted into time based on an estimate for average values of time of 435p per hour at peak time. The results of this study will vary if different values of time are used.

14. In detail the components of the generalized cost are:[9]

(a) In-vehicle time (IVT): the time on the public transport vehicle from boarding at origin to alighting at destination. IVT measurements may be varied between modes to reflect such factors as comfort, passenger environment, etc. For the purposes of these indicative examples, IVT for the private car is valued at 1 x actual, and public transport modes at 1.1 x actual.

(b) Walk time: to and from the bus stops/stations at either end. Assumed to be 5 minutes at either end for the bus, 20 minutes for a railway station and 2 minutes for the car at the destination.

(c) Wait time: time waiting at the bus stop—typically calculated as half the advertised frequency, but then doubled to reflect customer perceptions.

(d) Interchange penalty: reflecting any need to change services or modes to complete the journey—typically a fixed penalty of 10 minutes per change.

(e) Fare: the fare paid for the journey, expressed in minutes by reference to the assumed value of time. In the case of the car, this is estimated by reference to perceived costs only (ie fuel).

(f) Mode penalty: this represents the 'immeasurable' aspects of a public transport journey compared with the car. Relevant factors include convenience, reliability and 'image'. For the purposes of these examples, the mode penalty for bus is set at 7.5 minutes, for rail or tram at 5 minutes and 0 for the car.

15. In the report TAS calculates predicted shares of car, bus and rail in an example based on a real-life transport corridor.[10] Car has the lowest generalized cost and is therefore predicted to capture around 76.6 per cent of total demand, as summarized in the following table.

TABLE 1 **Generalized costs and predicted shares in the TAS example**

Mode	*Walk time*	*Wait time*	*In-vehicle time*	*Fare £*	*Generalized cost*	*% use for each mode*
Rail	20	17	8	1.70	74.24	11.3
Bus	10	10	28	1.00	72.09	12.2
Car	2	0	11.4	0.44	19.52	76.6

Source: CfIT report.

16. In this example, the contribution of the bus fare to the overall generalized cost is small. Although it is difficult to predict exact demand responses from the TAS model, the figures in Table 1 suggest that small but significant variations in the bus fare would not have much effect on consumers' choices since they would only lead to small changes in generalized cost.

[9] CfIT report, p 13, paragraph 3.3.3.
[10] Origin and destination are 3.8 miles apart. The two are linked by a bus service every 10 minutes, with a single fare of £1. The bus takes 28 minutes, the car 11.4 minutes and a half-hourly rail services takes 8 minutes, with a single fare of £1.70.

17. This base scenario is compared with alternative ones. In one of these, the bus fares are reduced by 10 per cent and the frequency of the bus service doubles. This change in fare and non-fare elements of the offer increases the bus share to 14.8 per cent (an increase of 2.6 percentage points and an increase in bus usage of 21.3 per cent), while cars still account for 74.3 per cent of the market. TAS described this scenario as providing at least a chance that the outcome will be sustainable.[11] TAS does not analyse the mirror case, that is where fares are increased by 10 per cent and frequency halved. However, assuming the same demand response,[12] given the high level of variable costs of Arriva and Sovereign (see Appendix B, paragraph 16, and Appendix C, paragraph 30), an increase in the generalized cost along these lines would in our view be profitable as lost revenue would be offset by a reduction in costs.

18. TAS also analyses a different scenario where the journey is longer, the public transport passenger is required to change and waiting times are longer. In this case the car is predicted to have an even higher share at 92.9 per cent. This scenario is also analysed with respect to a reduction in the total journey fare (through ticketing) and a reduction in waiting time (improved interchange). This improves the performance of public transport but not dramatically. After a reduction in the fare of 25 per cent and of 10 per cent in wait time, the bus share increases from 4.5 per cent to 5.9 per cent. All results are summarized in Table 2.

TABLE 2 **Generalized costs of interchange journeys**

Mode	*Walk time*	*Wait time*	*In-vehicle time*	*Fare*	*Generalized time of each mode*	*% use*
Current situation						
Rail/bus	20	27	29.7	3.7	135.7	2.6
Bus/bus	10	20	49.7	2.0	119.7	4.5
Car	2	0	20.4	0.8	33.4	92.9
With improved interchange and through ticketing						
Rail	20	25	29.7	2.2	113.0	5.5
Bus	10	18	49.7	1.5	110.8	5.9
Car	2	0	20.4	0.8	33.4	88.7

Source: CfIT report.

19. This analysis suggests that fares do not have a strong impact on bus journeys made by customers. This is consistent with the available literature on elasticities. The implication is that buses would be found to constitute a separate relevant market from other modes of transport.

20. However, in its report for the CfIT, TAS argues against this view and states that cars, in particular, should be viewed as the main competitors of buses. This view is based on the idea that short-run elasticities are not the appropriate ones as they fail to take into account the long-run horizon of the management of bus companies.

21. Bus companies, TAS suggests, have been investing above the level of net profit earned since 1991 (although the data series shows that they have invested below this level in 2002 and 2003), indicating a long-run perspective. Also, bus companies cannot avoid the threat posed by increasing car ownership and shrinking demand for public transport and the opportunity that derives from the fact that even attracting a small percentage of car users would mean a substantial increase in demand for bus

[11] In the sense that the operation of these services would be profitable.
[12] This assumption is likely to overestimate the amount of customers that would switch away from the use of the bus. While all car users face a clear alternative between car and bus, many bus users do not have the same choice.

services. TAS also states that a substantial proportion of bus journeys is made by people with access to a car. Finally, TAS points out that in particular contexts (such as 'park-and-ride' sites) public transport competes with cars very closely.

22. On the points raised by TAS it should be noted that:

(a) Long-run demand elasticities for buses are also consistent with a relevant market not wider than buses.

(b) The opportunity of attracting car users has to be measured against the likely response of car and bus users to a variation, for example, in bus fares. TAS's own analysis indicates that fare movements have very little impact on the choice of a mode of transport.

Fare elasticities and inter-modal competition in Hertfordshire

23. HCC told us that in Hertfordshire, private cars do not compete directly with bus services. Although there may be reductions in demand associated with fare increases, this does not seem to be linked to people switching to private cars, as a high proportion of people travelling on buses are a fairly captive market. As for taxis, HCC did not consider them as competitors to buses primarily because customers are not prone to sharing a taxi and thereby taxi fares are much higher than bus fares. HCC noted the presence of some rail connections serving similar routes to the ones operated by some bus service providers, and noted that there could be a degree of competition between them, but on the other hand highlighted the significant differences in the level of fares and in the journey times. Other operators held a different view and considered private cars as competing with buses.

24. Arriva stated that it did not have in place a systematic monitoring of price demand elasticity. However, it said that experience across the Arriva group indicated that, except in the short term, price elasticity exceeded –1 (in absolute terms) for fare increases above the rate of inflation (RPI) while it is approximately –0.5 in the short term. Arriva also pointed out that it had no evidence to suggest that the impact of fare increases on services in this inquiry differs from its UK perceptions of own-price elasticity.

25. Arriva the Shires & Essex has found that over the last few years [✂] increases in fares have led to an increase in revenue of [✂]. In terms of costs, Arriva observed that the reduction in demand following a [✂] price increase would be too small to provide an opportunity for reducing costs, which would therefore remain unchanged.

26. Sovereign stated that it would not expect to see any passenger resistance to a 5 per cent annual price increase. More precisely, Sovereign would expect demand to contract by a maximum of 3 per cent. This reduction in demand would be too small to allow any reduction in operating costs.

27. This evidence clearly points to increases in fares of 5 per cent being profitable, implying a product market no wider than bus services.

Arriva's view on inter-modal competition and the relevant market

28. Arriva stated that conducting an SSNIP test based on the bus fare is not an appropriate way to define the relevant market in this case because:

(a) The demand for bus services is determined by factors other than fares and an SSNIP test based on fares fails to identify substitutability.

(b) A 5 per cent price increase for relatively low sums of money is inappropriate as customers will not change mode of transport on the basis of such a trivial sum.

29. On the first of these two points, Arriva stated that its own experience indicated that for both users and non-users of buses, fares were placed much lower in importance than punctuality, frequency, convenience of stops etc. Arriva also stated that further evidence on the unimportance of fares relative to other aspects of the offer lay in the substantial investment which all bus operators were making to improve the service factors which consumers, in Arriva's view, have ranked as important. Arriva also stressed the fact that it faced both the need to retain current bus users and the opportunity to attract current car users. These incentives, according to Arriva, determine their current level of investment in quality of service, reliability, and aspects of the offer other than fares.

30. Arriva stated that in general, consumer surveys showed that price was not a significant determinant of demand. The NOP survey that Arriva submitted to us does not include the fare price as one of the elements to rank. On the other hand, the survey shows that satisfaction ratings are lower for 'ticket price' than for 'reliability'. Furthermore, we have seen examples of fare competition indicating that fares can influence customers' travel choices to some degree (see Appendix H, paragraphs 6, 50 and 78). Finally, investment in aspects of the offer other than price is not an indication that customers find car and bus closely substitutable.

31. Accepting that fares are not the only factor taken into account by customers does not in our view invalidate the SSNIP test. In merger cases, the SSNIP test starts, on the whole, by considering the existing demand for a product, which is based on both price and non-price factors. The test then holds these non-price factors constant and asks what would happen to demand if prices were raised by a small amount, normally 5 per cent.[13] All available evidence suggests there would be very small changes in demand in response to changes in fares in the short term. Furthermore, in our analysis of market definition we have not just relied on the SSNIP test. We have looked at likely demand responses to changes in both price and non-price factors (for the latter, see paragraphs 17 and 18), and we have taken into account the views of the parties and third parties, and the CfIT report.

Segments of the passenger transport market

32. There are some differences in the characteristics of users and their ability to use alternative modes of transport. The Hertfordshire County Travel Survey 2002 indicates that most bus users are either retired or below the age of 18 and are more likely to be female. They are more likely to travel during weekdays and slightly less inclined to travel during the weekend. The trip is often for travel connection and shopping. The typical bus user travels between 1 and 5 miles.

33. By contrast, for car users, the driver is more likely to be male and the passenger (if any) female. Car, as compared with the bus, is used by passengers more during the weekends, whereas there is no difference for car drivers. In addition, there is no 'specific' trip purpose. 65 per cent of the car passengers travel between 1 and 3 miles (ie less than the average bus journey) and again there is no 'specific' travel

[13] Arriva believes that buses and cars are in the same market together with all other modes of transport. This means that cars exert a competitive constraint on the behaviour of bus operators. As a result, small changes in the competitive offerings of a bus operator should lead to a demand response. This being the case, we would expect to see a 5 per cent increase in fares lead to a reduction in passenger usage which made such a fare rise unprofitable.

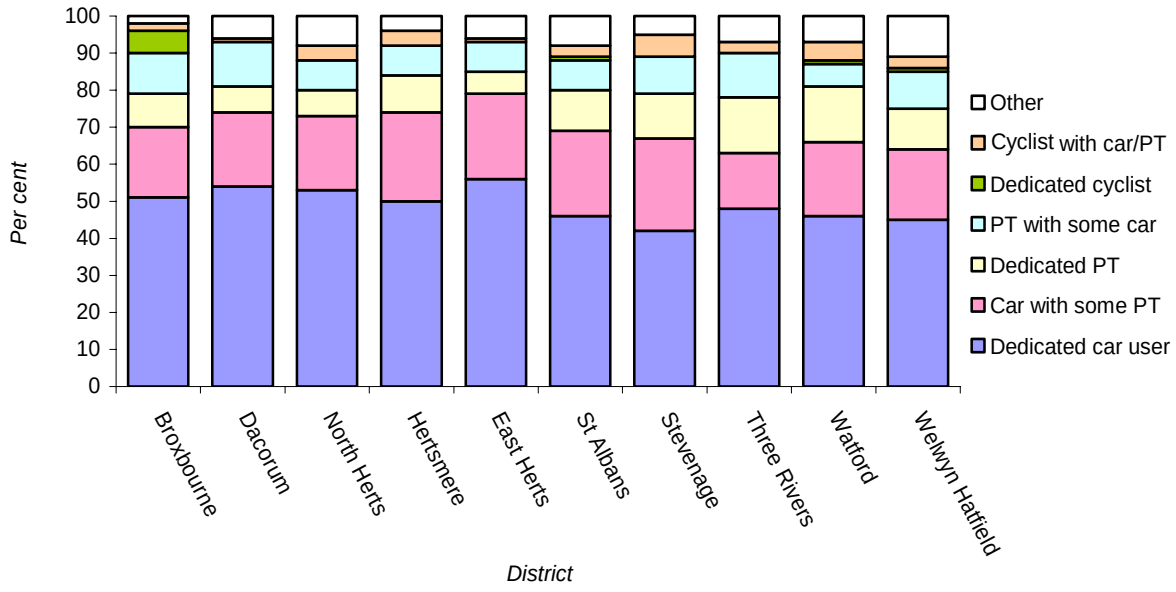
destination. However, the areas with high bus usage tend to show lower car usage compared with the other districts.

34. HCC conducted a similar survey in 1999 and compared some of the results in the 2002 survey with its previous findings. In terms of journey purpose, the 2002 survey shows some changes. The percentage of people travelling to work who use the bus for the longest part of their journey has increased from 4 to 6 per cent of all people travelling to work. The car has remained the most popular means of transport but its use for travelling to work has decreased from 67 to 65 per cent, while use of the train remained stable, at 14 per cent. The data for travelling to school shows a percentage point decrease in bus usage (from 10 to 9 per cent), with the most popular modes, walking and taking the car as a passenger, together totalling 76 per cent. Travelling for food shopping does not display marked changes in this period, the percentage of bus users being one percentage point lower than in 1999, at 7 per cent.

35. The HCC travel survey also analysed travel choices by district. In 2002, the differences between districts appear smaller compared with 1999, as shown in Figure 1.

FIGURE 1

Overall travel choices by district in 2002



Source: Hertfordshire County Travel Survey 2002.
Note: PT= Public Transport.

36. Figure 1 shows travel choices across Hertfordshire. The most significant differences appear to be the prevalence of dedicated car use in east Hertfordshire and of public transport in Stevenage compared with other districts.

37. Precise price elasticities may well differ among particular local areas (however, Arriva had no evidence to suggest that elasticity in its Hertfordshire operations would be different from its UK perception—see paragraph 24) depending on their circumstances, by purpose of travel, and by characteristics of passengers (concessionary bus passengers, for example). The OXERA study, for example, showed that fare elasticities (for the UK as a whole) for buses are higher in off-peak than in peak periods, and for leisure travel than for commuting.

Network markets

38. In considering point-to-point public transport journeys as a relevant market we need to consider the routes which serve them. In the FirstGroup case, the CC identified the existence of wider public transport network markets.[14] These markets were also acknowledged in the NEG case but were not investigated as there were no network issues. Network markets were identified in the FirstGroup case for the following reasons:

    (a) First, this was because of the role of the public sector[15] in supporting rail and, in that case, local bus services, and in evaluating the appropriate balance between the two.

    (b) But secondly in that case, the CC considered wider networks as of relevance to the operators of the services, for example allowing them to allocate resources between individual routes, and to offer network tickets to passengers.

    (c) Thirdly, the CC also considered networks to be relevant to passengers, who benefited from the availability of such network tickets.

39. Arriva stressed that the Hertfordshire topography was very different from Glasgow, which was the focus of the FirstGroup inquiry. In Glasgow, frequencies and the degree of connectivity and interavailability of services was much higher than in Hertfordshire. Arriva also stated that the move to new routes by either a new entrant or an operator with a network would usually require some new investment in fixed assets. Finally, Arriva argued that if network markets were seen to exist in Hertfordshire, there was little ground for defining the networks wider than individual towns.

40. On the demand side, the same considerations for passengers who buy flow- or route-specific tickets apply to passengers who buy network tickets. These will not use other networks in response to a small price rise on one network unless these other networks include their origin and destination and the same set of flows or routes they want to use. This suggests that for this group of passengers the relevant market is a network. As suggested by Arriva, for fare-paying passengers in Hertfordshire, network markets are unlikely to be wider than towns and their surrounding areas as there was little evidence of inter-urban travel by bus: Arriva told us that Sovereign's inter-urban Centraline service, running between Hitchin and Hemel Hempstead, was operated as no more than a series of interconnected feeder services from villages into the nearest town. One example of a network is the town of Stevenage and the areas around it.

41. As mentioned above in paragraphs 6 and 7, supply-side considerations suggest that the relevant markets cannot be regarded as consisting of individual flows or routes. Existing operators can easily switch buses between routes that are within the range of their existing depots. An operator who serves a network of routes can easily alter the allocation of resources among its individual routes, and offer network tickets to passengers. These factors may point toward a network market around particular depots, for example Stevenage.

42. As far as tendered services are concerned, local authorities may seek tenders for non-commercial bus services on a route-by-route basis and/or for a collection of

[14] As the CC said in that report, a network (a collection of interconnected services) could be defined in relation to a particular operator's services or a wider geographical area.
[15] In the FirstGroup inquiry, the CC identified two sets of customers—passengers who pay for journeys and public sector bodies, local authorities that pay for subsidized services (for example, tendered services).

routes or services. Unlike commercial services, competition for tendered services takes place in the bidding for the contracts and not ‘on the road’, ie it is competition for the market and not competition in the market. Price rises for services operating at a route level (for example, particular tendered services) and services operated at a network level (for example, a collection of tendered services) are unlikely to lead to the local authorities using other routes or networks unless these alternatives include the same origins and destinations. These demand-side reasons suggest that the relevant markets for local authorities are also based on or around routes and networks. However, given their finite budgets, local authorities have to make trade-offs between support for services in different parts of their areas, and therefore network markets for local authorities may be wider than towns and their surrounding areas and may include the county of Hertfordshire. Also these demand factors indicate that tendered services and commercial services are not in the same market.

43. Supply-side considerations also suggest that commercial services and tendered services are in the same market, as commercial bus operators are able to participate in the next tender round in response to an increase in the bid prices for tendered services. However, there are different pricing mechanisms for tendered services (bidding for contracts) and commercial services (posted prices)—competition for the market as opposed to competition within the market. This would require analysis of tendered services separately from commercial services.

The OXERA report and the Wardman and Shires meta-analysis

1. The OXERA report reviews the broad literature on public transport elasticities available in the UK and summarizes its findings. The report covers both bus and rail elasticities. We will report here only the results for bus services.

2. The Wardman and Shires study is a survey of studies and reviews of studies conducted in Great Britain between 1951 and 2002. It covers inter- and suburban rail travel, as well as urban bus travel and London Underground. The study does not cover suburban and inter-urban bus travel. The most relevant aspect of the study is the elasticity for urban bus travel which comes from 41 studies, with 305 values of elasticities calculated.

3. Wardman and Shires also attempt to identify cross-sectional variations with respect to area, distance, and other market features. The findings of this study are taken into account by OXERA in its report. OXERA also often refers to another major study: the *Demand for Public Transport* (DFPT).[16]

4. The main findings of the OXERA report are that short-run bus usage elasticities for the UK as a whole were generally estimated to be in the range –0.35 to –0.5. Long-run elasticities are estimated to be higher and approaching 1. As mentioned above (see paragraph 9), these findings are consistent with buses being in a separate market from other modes of transport, and indicate, more generally, limited competition from modes other than buses.[17]

5. It is important to understand how much individual estimates provided by specific studies can vary around the UK average and for what reasons.

6. OXERA reports figures obtained by Wardman and Shires for elasticities in Passenger Transport Executive (PTE) areas versus non-PTE areas. Hertfordshire is a non-PTE area. The figures are reproduced in the following table by journey purpose.

TABLE 1 **Short-run fare elasticities by journey purpose and PTE/non-PTE area**

	PTE	*Non-PTE*
Bus Leisure	–0.43	–0.49
Bus Commute Not South East	–0.28	–0.33

Source: Wardman and Shires (2003), p15.

7. As widely confirmed in the literature, leisure travellers tend to be more responsive to fare changes. Commuters, presumably, have less of a choice when fares increase. The other element is that non-PTE areas seem to display a marginally higher elasticity. Wardman and Shires attribute this difference to the fact that in non-PTE areas public transport has a relatively low share and prices are higher. They also argue that for the same reason bus fare elasticities tend to be 60 per cent higher in rural areas.

[16] TRL, Centre for Transport Studies University College London, TSU University of Oxford, ITS University of Leeds and Transport Studies Group University of Westminster (2004), *The Demand for Public Transport: A Practical Guide*, forthcoming.
[17] This is not inconsistent with certain particular routes displaying closer inter-modal competition.

8. OXERA also reported that ‘elderly passengers paying full fares are more price-sensitive than other adults, although those who receive concessions are relatively price-insensitive (as would be expected)’.

9. Additional breakdowns of elasticity values are given by OXERA for car ownership, income, city size and concessionary travel, as well as other less relevant sub-groups. The results reported are the following:

   (a) Car ownership—the generalized cost (GC) elasticity (ie where cost is defined as total disutility associated with using public transport, including that associated with journey time) for car-owning and non-car-owning households is reported as –0.60 and –0.46 in one study; in another study, the fare elasticities are –0.35 and –0.38.

   (b) Income—fare elasticities are higher for higher incomes but income figures are only reported in DFPT as low, medium and high.

   (c) City size—DFPT reports variations in fare elasticity by city size. The breakdowns given are for cities where the population is more than 1 million, 0.5 to 1 million, and less than 0.5 million; the elasticities are –0.24, –0.30 and –0.35 respectively.

   (d) Concessionary travel—passengers that receive concessionary travel benefits from local authorities (eg pensioners) were analysed in the meta-analysis. For this category, elasticities vary between –0.24 and –0.62.

10. These figures show that one can expect some variability across regions as these factors differ across the UK. However, these estimates are all significantly lower than 1.