



**HOUSEHOLD SATELLITE ACCOUNT
(EXPERIMENTAL)
METHODOLOGY
Chapter 3 Providing Transport**

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3. PROVIDING TRANSPORT

Output

Concepts

The household transport account includes all transport provided by the household, using the third party criterion – if the activity can be delegated to a third party, it is productive. For example, if you choose to travel from your house to a friend's house by bus, you pay for that journey and this is picked up in the National Accounts in the output of the bus industry. If you choose to make the same journey on foot instead of by bus, the same output has been achieved, but rather than being an output of the bus industry, it is an output of the household. The same would be true if you used your car or bicycle. Because you have provided the mode of transport and not paid for the journey, it is household production of transport. However, when the travel is an end in itself, e.g. walking for exercise or pleasure, it cannot be delegated and is therefore not included.

The cost of 'business travel' is usually claimed back from employers, and is therefore included in the National Accounts, and should be excluded from the HHSA. Business travel, as recorded in our data source, may include some commuting where a respondent does not have a permanent place of work, such as builders who work on different sites. As it is not possible to split this code at present, all business travel has been excluded from our estimates. Those modes of transport which people pay to use, such as bus, coach, train and taxi, are also not included, because they are measured in the National Accounts.

Just as a proportion of the output of housing is an input to some productive activities, so a proportion of the output of transport services will be an input to other principal functions. This will occur when the market prices used to value other outputs in the Household Satellite Account include transport costs.

Inputs

Intermediate consumption

This includes all domestic consumption of car fuel, as well as other consumables related to domestic transport.

Household capital consumption

Cars, vans, motorbikes, bicycles and other private vehicles should all be included.

Related services

This includes shopping for transport-related items, where it can be identified, and maintenance of vehicles.

Labour

This includes time spent on all journeys which have a purpose i.e. where the travel is not for its own sake, but excluding business travel.

Methodology

Data sources

The National Travel Survey (NTS) is carried out by the Social Survey Division of the ONS, on behalf of the Department of Transport, Local Government and the Regions (DTLR). The NTS has been a continuous survey on personal travel in Great Britain since 1988. During the period January 1998 to December 2000, individuals in 9,390 households completed a seven-day travel diary, covering all travel over 50 yards in distance. Details collected include purpose and method of travel, time of day and length of trip, numbers in parties and the cost of travel. Only travel within Great Britain is included. Journeys to other places are included only up to the ticket control point at which the boat, plane, or the train using the Channel Tunnel is boarded. More details on the survey can be found at www.transtat.dtlr.gov.uk/personal.

It should be noted at this point that as the NTS is a sample survey the results are subject to sampling variability, which can be quite large particularly when looking at travel data broken down by purpose and mode. The effect of this has been examined in our sensitivity analysis.

Personal travel data is not available in the same form for Northern Ireland. Our results therefore assume that Northern Ireland has the same travel patterns as the rest of the UK. A survey was started in Northern Ireland this year, so data will be available in the future – details of Northern Ireland transport data can be found at www.doeni.gov.uk/statistics/transport.

Mode

The modes of travel included in this project are *walk, bicycle, car or van, motorcycle* and *other private*. However, *just walk*, which is walking as a leisure activity, has been excluded as explained above. Private hire buses have been excluded from the NTS category *other private*, as these are paid for and are therefore included in the National Accounts.

Purpose

The NTS data is broken down by purpose of travel. In the HHSA, transport is an input to other projects, the main areas being education and shopping. For this reason, the results in this article, have been aggregated into four purpose categories, with the escort trips classified to those purposes to which they most closely relate:

Education

Education work
Escort Education

Shopping

Shopping
Escort shopping / personal business

Work

Commuting
Escort Commuting
Other work

Leisure & other (incl.voluntary & care escort)

Day trip
Eat/drink with friends
Entertainment/ public activity
Holiday: base
Other social
Sport: participation
Visit friends at private home
Other non-escort
Escort home (not own) and other escort
Personal business medical
Personal business other

The survey estimates have been grossed to the UK population, using data derived from the Labour Force Survey, which exclude people living in institutions.

Price

In order to value the output of transport provided by the household, the nearest market equivalent has to be identified. As the objective is to value a trip from one particular point to another, i.e. 'door to door', a private hire vehicle (PHV) is the closest equivalent. (This is a taxi which is booked in advance and collects you from wherever you specify.) If a train or bus were used, for example, a trip to the station or the bus stop would still be required.

The NTS collects information on the cost of PHV trips. Respondents report the length and cost of each journey, so an average cost per trip and an average cost per mile can be calculated. This data is available separately for London and the rest of Great Britain (RoGB). The cost of PHVs may be a flat rate or may be metered irrespective of the number in party, luggage etc. When people share a PHV, the cost reported in the NTS should be the total, split between the number in the party. However, this does not appear to have been calculated correctly by all respondents. To ensure the estimates are as accurate as possible, only single occupancy trips have been included in the PHV costs used in these calculations.

The NTS also collects data for taxi travel. Both the PHV and taxi rates are wholly dependent on the survey respondent to record this information correctly. There may be some doubt among respondents as to whether they are travelling in a PHV or a taxi. If the vehicle has been booked in advance the respondent will usually know (most likely a PHV) or if it has been hailed in the street and has therefore been plying for trade it will be a taxi. However, if for example you walk out of a station and get in a vehicle at the taxi rank it could be either a taxi or a PHV. This is because the taxi rank is normally on private property and the PHV is able to operate here, as it is not plying for trade on a public road. Respondents are more likely to misclassify PHVs as taxis, rather than taxis as PHVs. The NTS 5-year average cost for a PHV centred on 1997 is £1.39 per mile in London and 87p per mile in the rest of Great Britain. The corresponding taxi costs are £1.63 and £1.17 respectively.

School buses were investigated as a possible market equivalent for education trips. The DTLR 'Surveys of concessionary fares schemes for children and students in 1999'¹ showed that, of the 101 education authorities who responded, 60 had no scheme for children and 53 had no scheme for students. Those authorities with schemes had wide variations in terms of flat rates, photo passes, permits, different age ranges and time of day limitations. As a guide, from those authorities who responded, the average term travel fee per child was £19 and for students £58. Given that the availability and types of scheme vary so widely, it would be inappropriate to use an 'average' approach for the whole of the UK. Also there would still be the problem that children or students have to get to the bus stop. As education (including escort trips) was the reason for 4 per cent of total travel in 1999, using a different pricing system for education trips, if an option were available, would have a fairly small effect on the total.

Provision of transport for the ill and disabled also varies widely, as do subsidies for the elderly. The 'Mayor's Draft Transport Strategy'² indicates that in London, Dial a Ride, funded by Transport for London (TfL), provides 1.2 million trips per year. In 1999/2000 the

1 Transport Statistics Bulletin: *Concessionary Fares Schemes* SB(99)19 Department of Transport, Local Government and the Regions

2 Chapter 4N: *Improving London's Transport System: Taxis and Minicabs, Community Transport and Door-to-Door Transport*

service cost £12.5m, which implies a cost of £10.42 per trip. However this will also cover the overheads of running the service. TfL also provides subsidised taxi travel - approximately 700,000 trips per year at a cost of £7m in 1999/2000, giving an average of £10 per trip.

The report on concessionary fares also covers schemes for the elderly, disabled, registered blind and those with impaired mobility. In London, all travel on public transport for elderly residents is free after the morning peak. Outside London, there is often some form of reduced fare, sometimes tiered, with different rates for the over 75s, and take up rates vary. As with school travel, these subsidies have wide variations throughout the country and usually apply to bus and train travel, so are not 'door to door'.

Volume

Due to the level of detail by mode and purpose required from the NTS for this analysis, it is not sensible to look at individual year data, because of the large sampling errors around the estimates. The estimates are based on 3-year centred averages, so 1997 is the average of 1996 to 1998.

All of the NTS data used is for the average distance travelled per person per year. Distance has been used rather than the number of trip stages, as this is more appropriate, given the price information available for valuing the results. The distance of all trip stages provided by the household has been included. For example, if, on a trip to work, an individual got a lift to the station, caught the train and then walked to the office, the lift to the station is commuting as a car passenger, the train trip is excluded and the walk to the office is commuting by walking. The car driver would also record an 'escort commuting' trip as a car driver.

The distance per person per year data has been calculated separately for 0-16 year olds (children) and 17+ (adults) and also for London and the rest of Great Britain (RoGB). In order to get the total distance travelled by everyone in the UK, the average distance per person has been grossed to the appropriate population totals. As we are assuming that travel patterns in the rest of the UK (RoUK) are the same as those in RoGB, the average distance per adult in RoGB has been grossed by the adult population of RoUK. This has been done separately for motorised and non-motorised modes of transport. Motorised modes include *car, van, motorcycle* and *other private* vehicles and non-motorised modes are *walk* and *bicycle*.

As a PHV trip is the 'unit' of travel, we assume that if people travel together they would also share a PHV. The total distance travelled by all people in the UK therefore needs to be adjusted by the average number of people travelling together. The numbers in party for motorised and non-motorised modes by purpose have been averaged over eight years (1992 to 1999) from the NTS data. Each year's data has then been divided by this average number in party. As adults and children travel together, it is not possible to keep child and adult trips separate when looking at the party data. Between 1992 and 1999 approximately 7 per cent of all child trips and 49 per cent of all adult trips were undertaken alone. The average number in party for motorised modes ranges from 1.4 people per party for 'other work' travel to 3.0 people for holidays. The average for non-motorised parties ranges from 1.1 for commuting to 2.7 for holidays.

As the HHSA account is for the year 2000 and the transport results are based on a three year rolling average, data is not yet available for a three year period centred on 2000. Data for

2000 therefore had to be forecast from rolling averages available for 1993 to 1999. The series forecast were the number of mile travelled per person per year by purpose, broken down into motorised and non-motorised and then further subdivided by under 17 years, 17 and over, and by London and the rest of Great Britain. A total of 144 series were forecast. 138 series were forecast using the Holt exponential smoothing method. For 5 series the Holt method gave negative results, which was interpreted as evidence of a lack of trend and a simple exponential method was therefore used. The remaining series had been zero since 1994 and this was therefore repeated in 2000. It should be noted that six years of data is a very limited series on which to base a forecast, and this should be borne in mind when looking at the results.

Value

The NTS PHV cost per mile data is available for 1995 onwards, separately for London and the rest of Great Britain (RoGB). We have again had to assume that Great Britain is representative of the UK. Due to the relatively small number of respondents, this data has been averaged for 1995 to 1999, giving a value centred on 1997. As noted earlier the centred average cost of a PHV in London in 1997 was £1.39 per mile, and in the rest of Great Britain 87p per mile. The year on year changes in the retail price index for taxis in London and outside London have then been applied to the 1997 values, to create a price series from 1993 to 1999. The separate London and RoUK prices are then applied to the appropriate totals by purpose, still split between motorised and non-motorised modes. This assumes that the trips made by Londoners outside of London are balanced by the trips made by RoUK respondents in London.

The cost of hiring a PHV includes a charge to cover the time that the PHV (and driver) are not in use or 'dead time' during the working day. In the absence of information on what proportion of the charge covers this dead time, we have assumed it to be 5 per cent in our results.

Sensitivity analysis

We have tested the sensitivity of our estimates to potential range of volume estimates due to sampling variability, the use of a five-year rather than a three-year rolling average. We looked at the effect of changing the assumption about 'dead time', by assuming that PHV drivers spend no time waiting for fares, or that 10 per cent of their charge covers dead time. We also started to look at the effect of travel patterns changing if there were a switch from household to market production of transport, by removing 50 per cent of single person escort trips.