

Car ownership in Great Britain

Prepared by:

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The Royal Automobile Club Foundation for Motoring Limited is a charity established to promote the environment, economic, mobility and safety issues relating to the use of motor vehicles.

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Abstract

There has been a steady increase in the number of cars in the UK over the past thirty years driven by increases in the population and more so by the number of households as well increased economic prosperity. Growth has also occurred due to the increase in the number of people with driving licences; there is now nearly one car for everyone with a driving licence. Projections using different assumptions suggest a further growth of 30% by 2020.

In the first nine years of the vehicle's life, the only scrappage that occurs results from write-off accidents. Thereafter there is a steady increase in scrappage till a peak is reached at around 14 years. By 20 years most cars have been scrapped, the remainder being kept as classic cars.

Although arithmetically, an increase in the car parc equals new car registrations less scrappage, in practice scrapped cars are very rarely replaced by new cars. Vehicles slightly younger than the one scrapped normally replace them. The slightly younger car is in turn replaced by an even younger car and so on up the age chain of the vehicles so that the new car actually replaces a three year old car which is traded in usually on the basis of age but also on mileage. Used car sales are three times greater than new car sales.

Scrappage incentives have been used in a number of countries to stimulate new car demand usually with an environmental objective of removing the worst polluting cars. In the UK, the ideal age to incentive car scrappage would be for 17-18 year old cars; incentivising younger cars would only result in payment being made for cars which are going to be scrapped in large numbers anyway. Such a scheme would remove most of the last non-catalytic cars.

1.0 Introduction

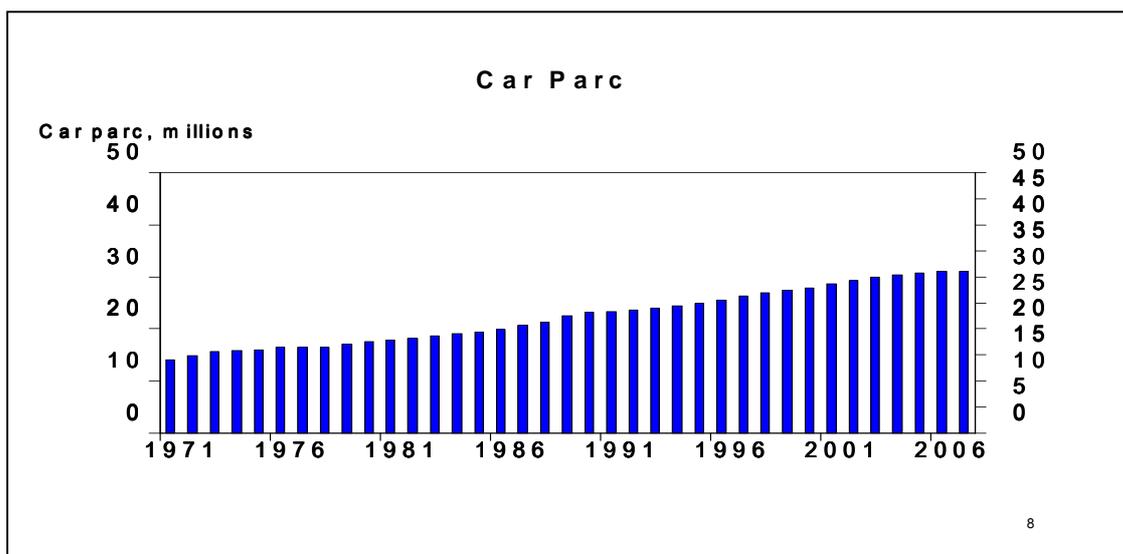
This paper looks at the historic ownership of cars in the UK¹ and makes some projections based on historic trends. It also looks at the dynamics of car ownership and scrappage.

2.0 Car ownership

The car parc² has risen from 19 million in 1971 to over 31 million in 2007, an average growth rate of 3% per annum (See: Figure 1). The increase in individual years has reflected economic conditions; during the 1973 -1978 period after the first oil shock and during the early 1990s recession, growth was less than ½% per annum. Growth has also slowed in the past three years.

Despite these fluctuations, the trend of increasing car ownership is quite clear (See: Figure 2) and if growth continues on the same linear basis by 2020 there will be over 37 million cars in the UK. More optimistic projections based on accelerating population growth suggest that there could be 44 million cars by then.

Figure 1: Car Parc (UK)

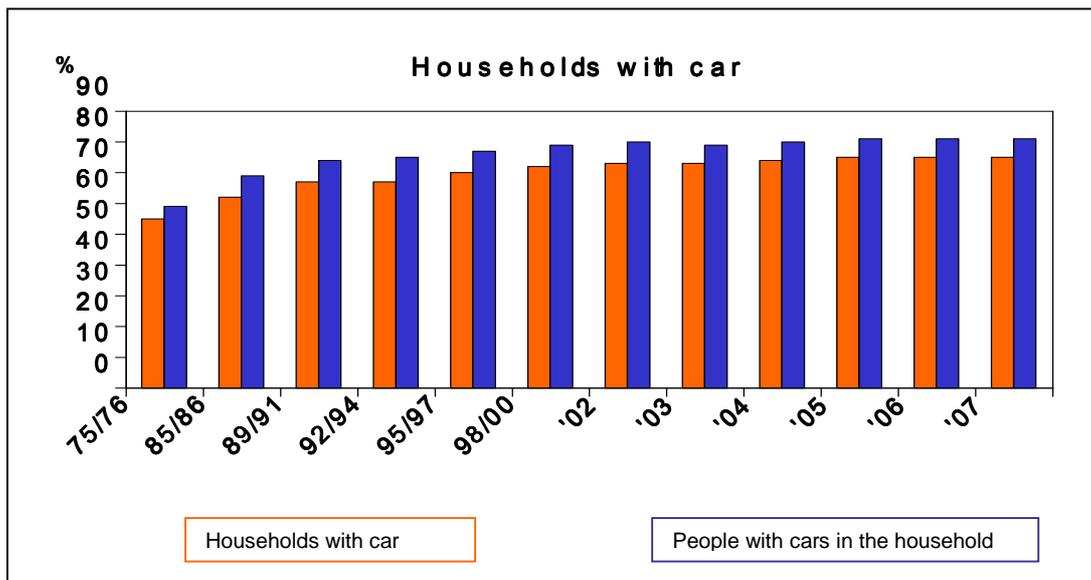


Source: SMMT

¹ Some statistics are GB only.

² The car parc is the number of cars available in the UK; it includes cars which are licensed and those which are temporarily off the road which nowadays have to be registered under the SORN regulations (Statutory Off Road Notification).

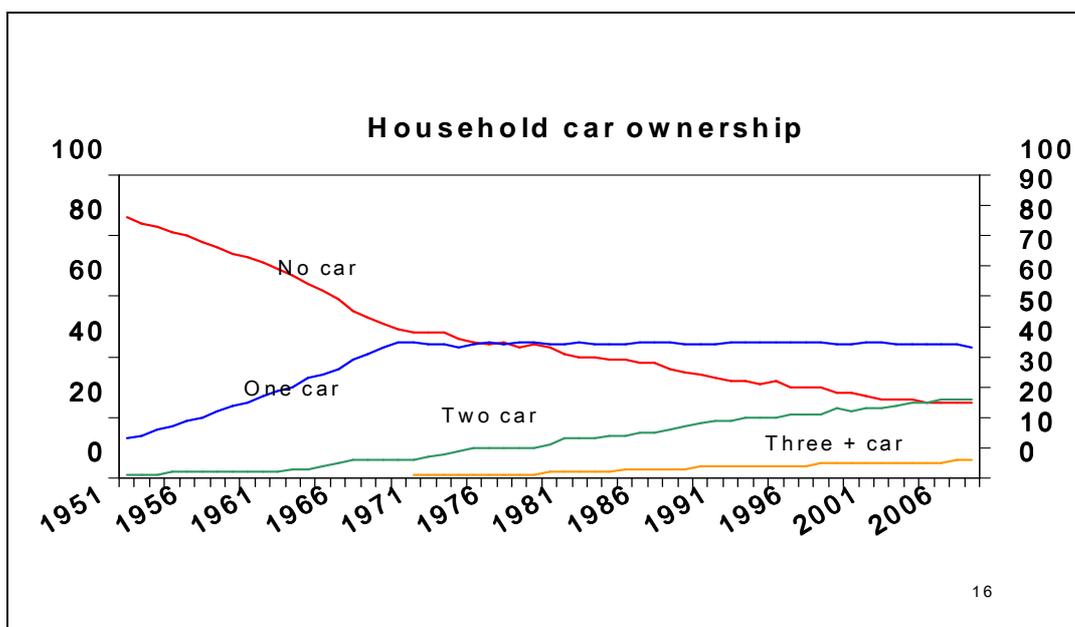
Figure 2: Household car ownership (Great Britain)



Source: National Travel Survey (2007)

Car ownership is closely related to the number of households and the number of people in the household. Over 77% of households in Great Britain have a car and because car-owning households tend to have more than one person (most non-car owning households are single person households) the number of people with access to a car in the house is 81% of the total population. Growth in car ownership has largely been through the increase in the number of households with two or more cars as the proportion of one car households has remained remarkably constant at 44% since the mid 1960's (See: Figure 3).

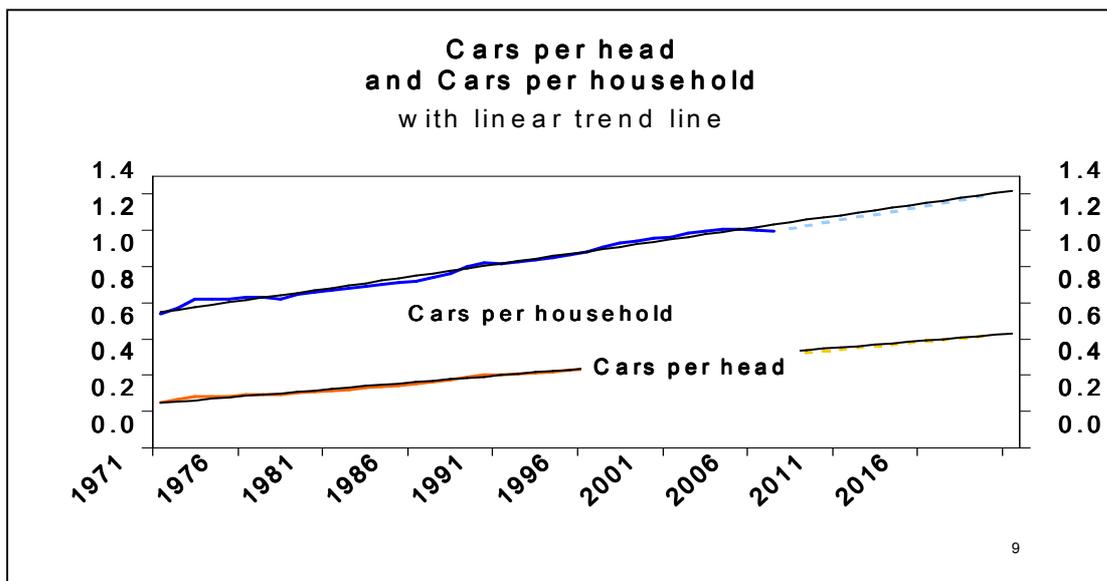
Figure 3: Household Car Ownership



Source: Transport Statistics Great Britain

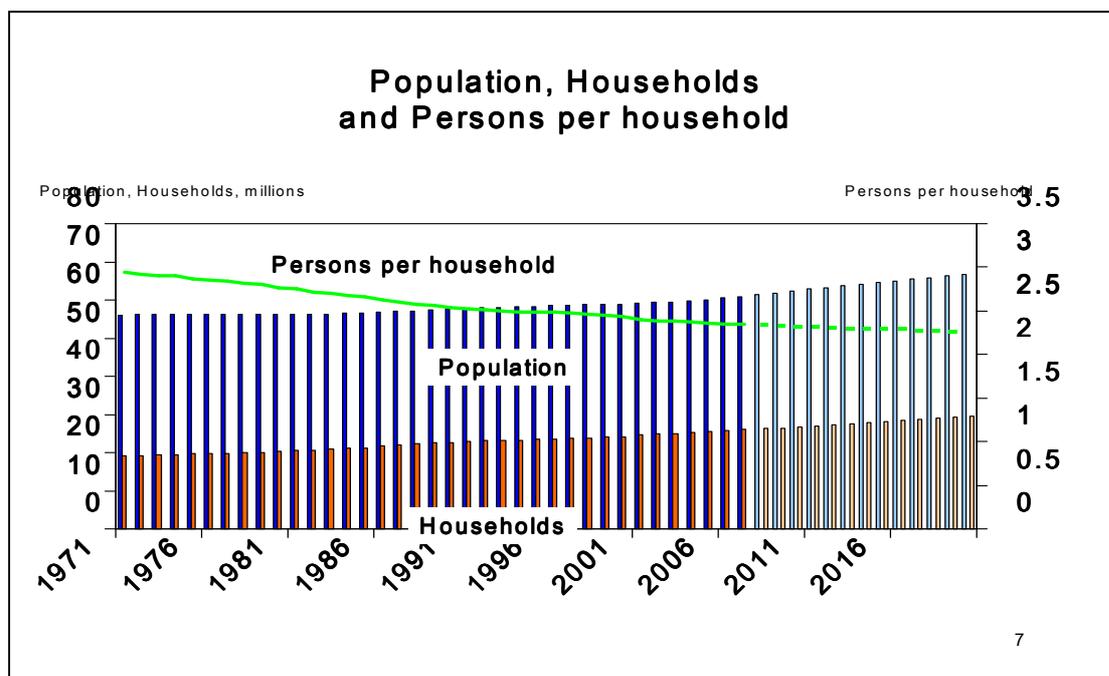
The number of cars per head of the population (all ages) and per household have grown almost linearly since 1971 (See: Figure 4), although the UK is only average in terms of cars per head compared with the rest of the pre-accession European Union. The size of households has declined as people are getting married or cohabiting later, there are more divorces and separations and people are living longer in single person households. The need for a car is mainly related to the number of households, so two people sharing a car in a household may require two cars if they split up and form two households (See: Figure 5).

Figure 4: Cars per head and cars per household (UK)



Source: Calculated from car parc and population/household estimates. Population and household projections are from the relevant government departments.

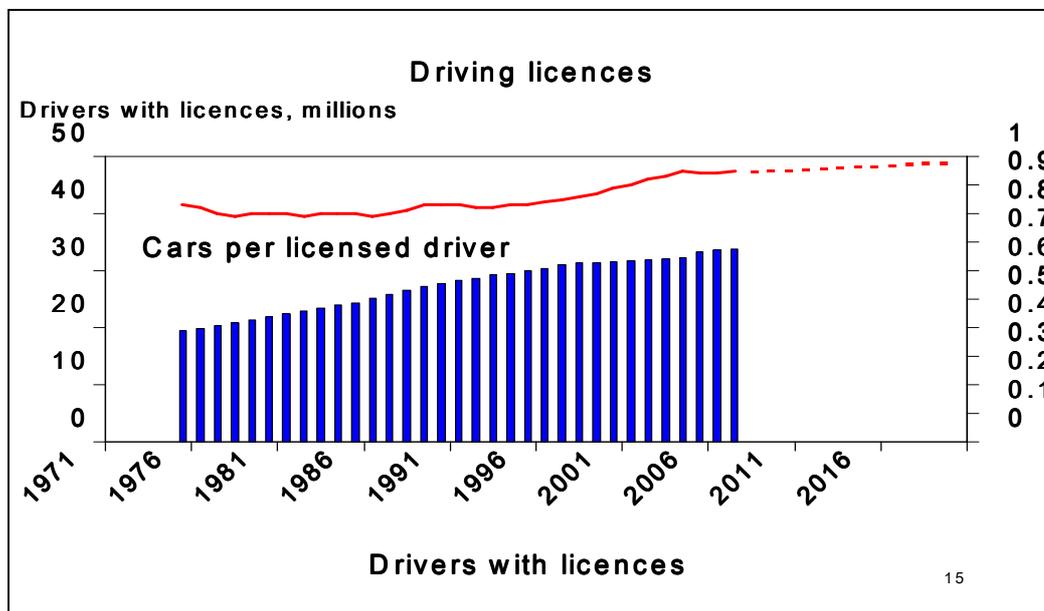
Figure 5: Population, households and persons per household (UK)



Sources: Government Actuary's Department, Department to Communities and Local Government

The other factor affecting demand for car ownership is the possession of a driving licence. At present nearly 34 million people have a valid driving licence in Great Britain (See: Figure 6), slightly more than the number of cars. Research for the Lex/RAC Reports on Motoring shows that most people (around 93%) who have a licence drive at least once a month, the vast majority (80%) driving most days.

Figure 6: Driving licences



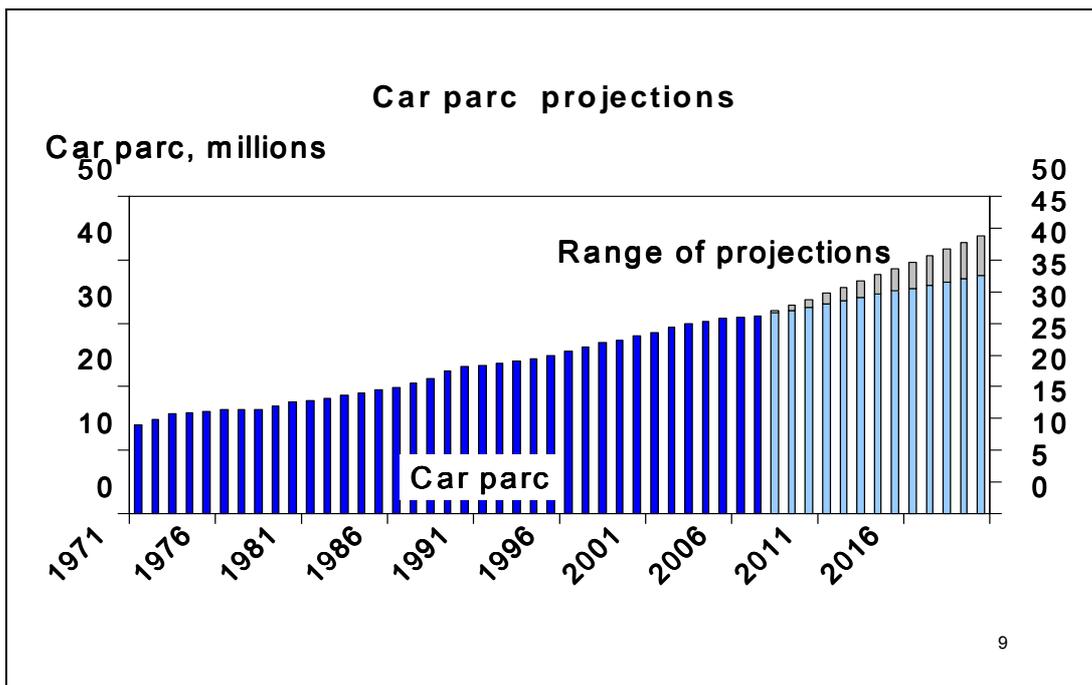
Source: Transport Statistics Great Britain from the National Travel Survey

The number of cars expected in 2020 can be estimated using these different measures of car ownership:

Time Line	Cars (Millions)
Current	31
Projected 2020	
Linear projection of current trends in number of cars	37
Linear projection of cars per head based on government projections of population	41
Linear projection of cars per household based on government projections of households	40
Linear projection of number of driving licences and cars per licence holder	43
Logarithmic projection of number of driving licences and cars per licence holder	37

Source: Authors own

Figure 7: Car parc projections (UK)

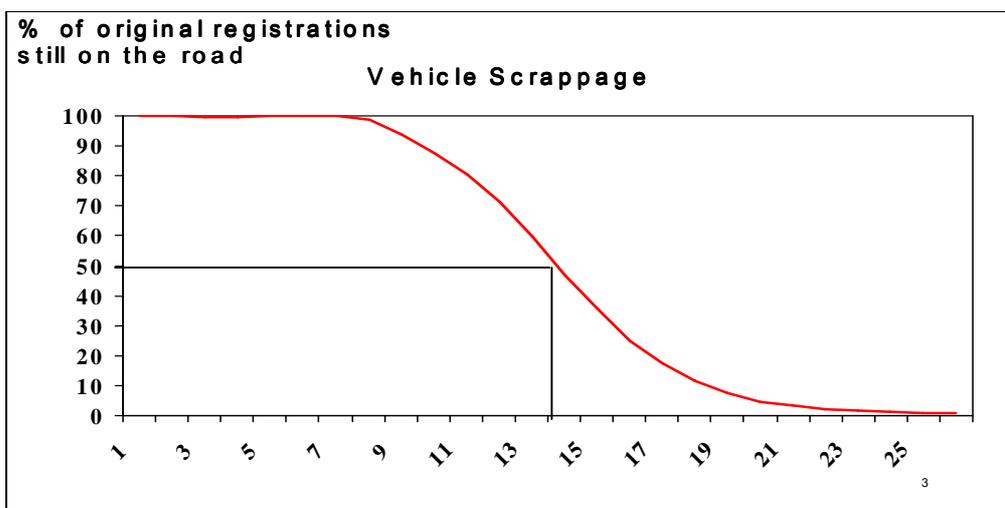


Source: SMMT and authors own projections

3.0 Vehicle scrappage

The number of vehicles scrapped in the first 9 years of their life is very small, the only scrappage being attributable to vehicles being written off after crashes³. From the ninth year on there is a smooth decline year by year. 50% of cars are still on the road after 14 years (See: Figure 8). By the twentieth year more than 95% have been scrapped with the remainder likely to be retained as classic or heritage cars for many years. About 1% of the total parc is over 25 years old.

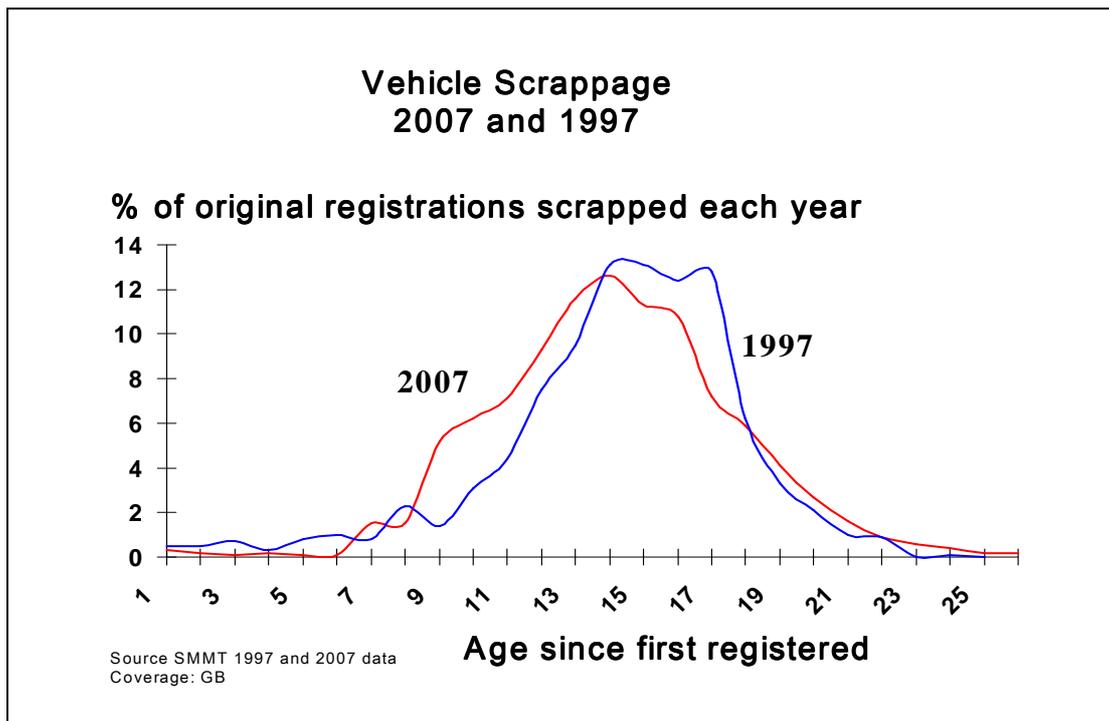
Figure 8: Vehicle scrappage



Source: SMMT

³ This analysis ignores the small number of cars which are imported or exported

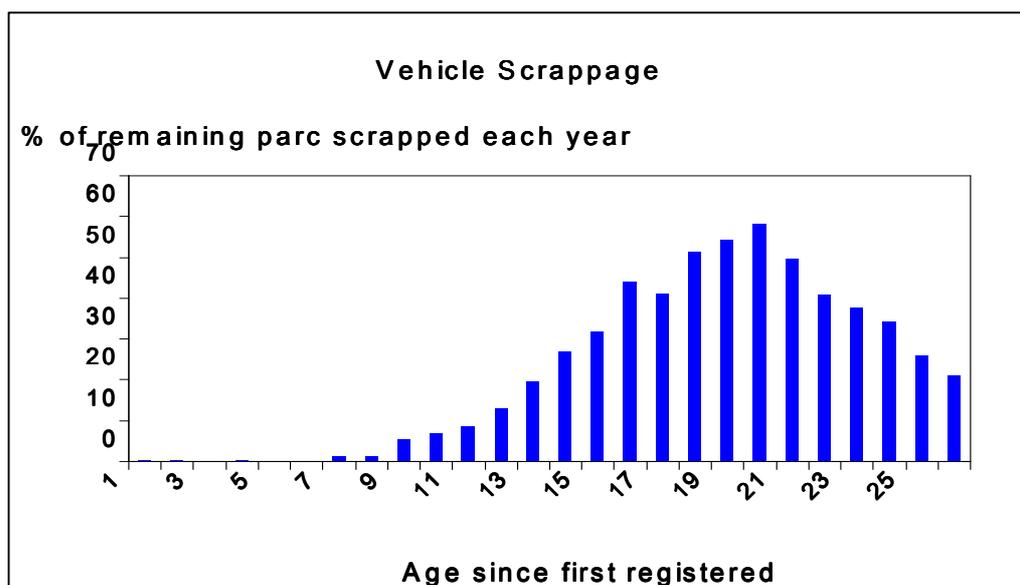
Figure 9: Vehicle Scrappage



Source: SMMT 1997 and 2007 data. Coverage GB.

Figure 9 shows the proportion of the original registrations scrapped each year, which peaks at around 12% in year 14. The scrappage curve for 2007 being slightly to the left of that for 1997 suggests that vehicles are being scrapped slightly earlier than 10 years ago, possibly because cars are cheaper and therefore replacements are more affordable or the durability of cars has declined over the past 10 years.

Figure 10: Vehicle Scrappage



Source: SMMT 2007

Figure 10 shows the proportion of each age of car, which is scrapped each year. The maximum scrappage occurs in the twentieth year when nearly 60% of the cars of that age still on the road are scrapped. The classical research on the reasons for and timing of the decision to scrap a vehicle focuses on the cost of repair versus the cost of replacement and the mileage of the vehicle (See Greenspan and Cohen 1999).

ITS Leeds with Hague Consulting carried out a major study in 1999-2002 for the then Department of Environment, Transport and the Regions assessing the factors that influence owners' decisions when they scrap cars and heavy goods vehicles. Besides analysis of DVLA data similar to that in Figs 8-10, they looked at identifying vehicles scrapped because of accident damage and vehicle scrapped as a result of "natural" deterioration. They carried out a survey of car owners, car dealers and insurance industry specialists to quantify the factors that influence decisions to scrap and, in particular, to focus on the influence of policy sensitive variables including: vehicle excise duty, new and second hand car prices, fuel prices and existence of scrappage schemes. The output was used to create a model of vehicle scrappage for the DfT's Vehicle Market Model.

The study suggested that less than 10% of scrappage occurs after an accident. Scrappage of such vehicles is governed by a code of practice used by Motor Assessing Engineers for insurance companies. The code has a flow chart to guide:

- Whether the vehicle should be repaired at the insurance company's expense (an insurance repair) or disposed of (and the value of the vehicle paid out to the insured);
- If the vehicle is disposed of, deciding which of four categories it should be allocated to:
 - a. Scrap only, with no economically salvageable parts and which is of value only for scrap metal;
 - b. To be broken up for spare parts with the chassis/frame crushed;
 - c. Repairable but repair costs exceed the vehicle's pre accident value (PAV);
 - d. All other repairable vehicles.

Vehicles put in categories A and B should never reappear on the roads. Categories C and D include vehicles which are likely to be repaired rather than scrapped.

The survey of car owners was concentrated on owners of vehicles over 7 years old, recruited via windscreen drops on cars of this age (200 useable responses) and on owners who had scrapped a vehicle in the past two years recruited by a random telephone survey (38 responses).

20% of owners of older cars intend to scrap their car in the next two years. A large majority of them will do it because their car will be too old (47%). 28% expect that the car will fail the MOT test and 84% of the respondents who intend to scrap will replace their car, mainly by a used one. Those scrapping vehicles did so because the vehicle was too old or it had been a write-off after a collision.

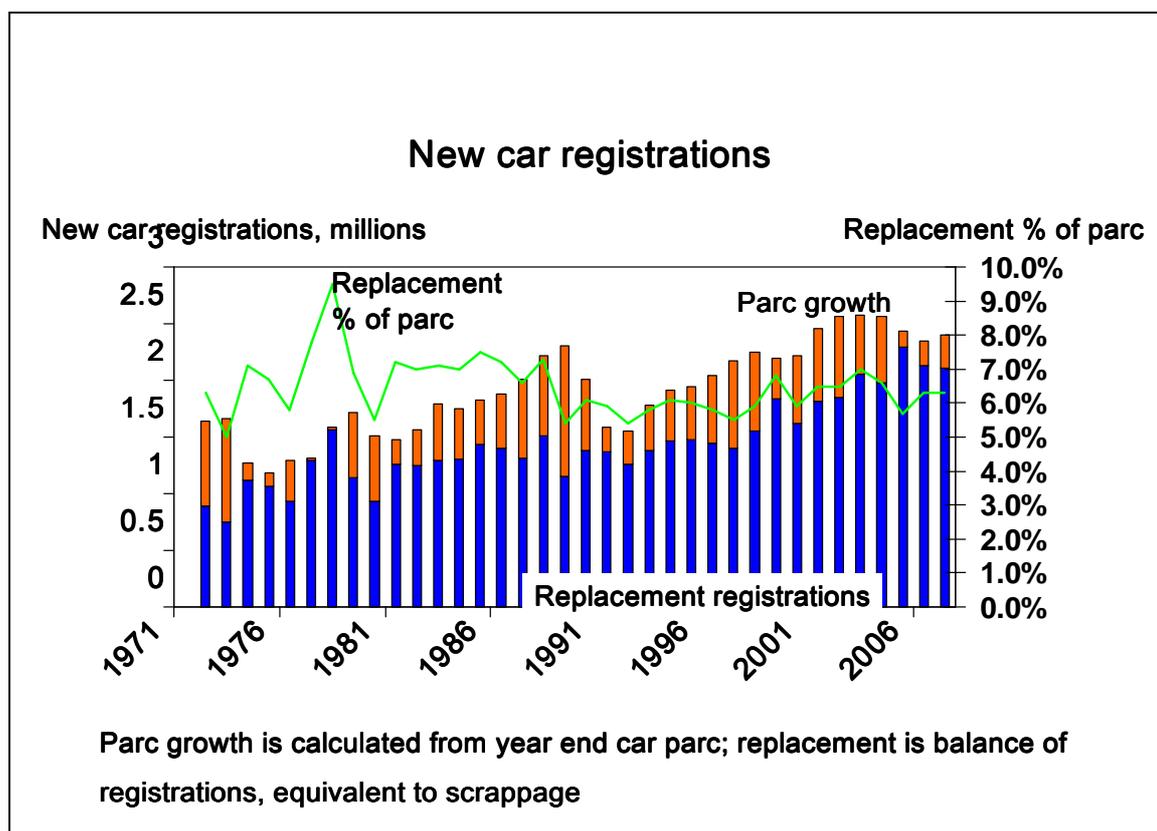
Using stated preference technique the study then produced a model showing how scrapped cars would be influenced by road tax, government subsidies for scrapping the vehicle (£ per vehicle), scrap value of vehicles and vehicle running costs.

Research for the Lex Report on Motoring 1997 showed the reasons for scrapping a vehicle were:

Too expensive to repair	40%
The car had been in an accident	18%
The car was not worth very much money	15%
It failed the MOT/ It stopped working	13%
N=89	

4.0 Changes in car ownership

Figure 11: New car registrations



Source: SMMT

Over the past 30 years, around 6% of the parc is replaced each year. Replacement vehicles are equivalent to about 75% of all new car registrations and the growth in the car parc to the remaining 25% (See: Figure 11).

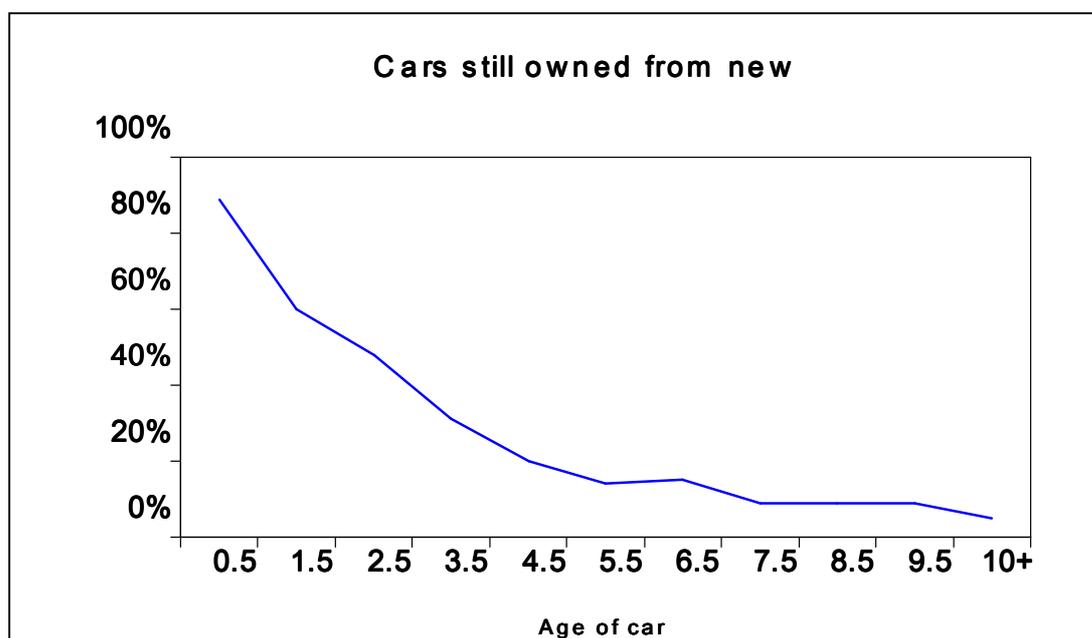
Arithmetically:

Increase in car parc = new car registrations less scrappage

This is not how the market works in practice as scrapped cars are very rarely replaced by new cars. They are normally replaced by vehicles slightly younger (typically three to four years) than the one scrapped, the exception being new cars written off in accidents. The slightly younger car is in turn replaced by an even younger car and so on up the age chain of the vehicles so that the new car actually replaces a three year old car which is traded in usually on the basis of age but also on mileage. This effect is accentuated in the UK by the high proportion of new cars on the market (around a half) driven by the company car market where replacement cycles tend to be according to a rigid formula. This is in sharp distinction with many European countries, where owners are much more likely to buy a car new and keep it for a number of years before scrapping it and replacing it with another new car.

Most new cars are traded in within 4 years (See: Figure 12) with very few owners keeping cars bought from new for more than 7 years.

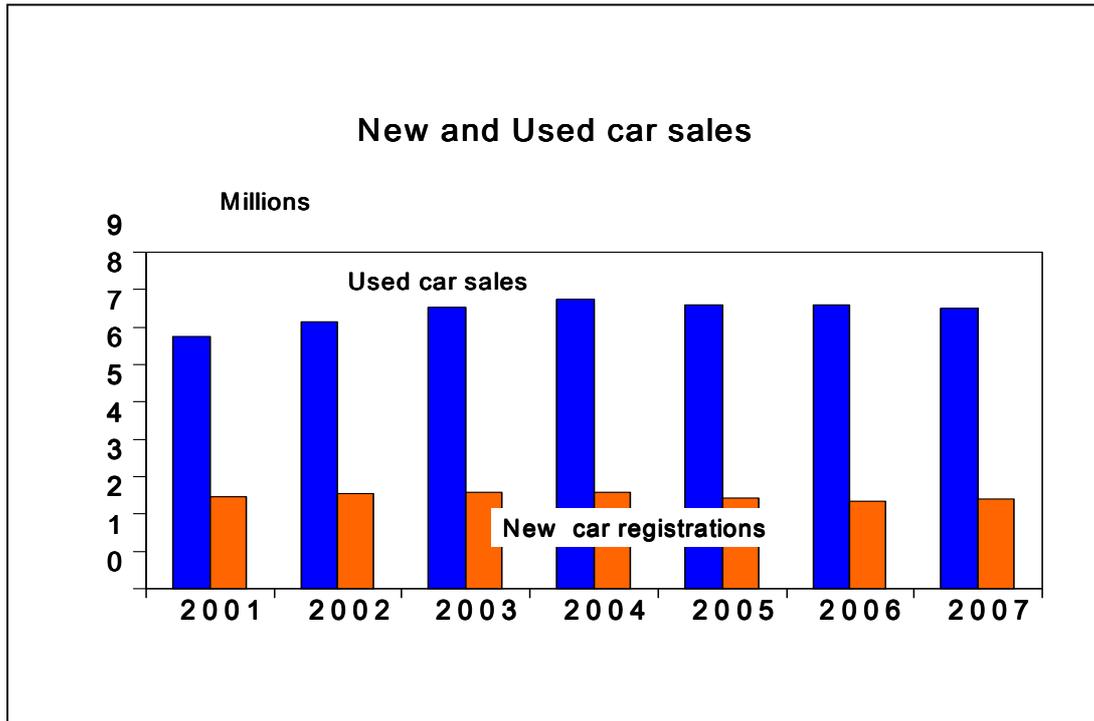
Figure 12: Cars still owned from new



Source: Lex/RAC Reports on Motoring. Average 1997-2003

The extent of the churn in car sales is demonstrated by Figure 13, which shows the number of used car sales which is based on vehicle transactions recorded by DVLA. Over 7 million used cars are sold each year around 3 times the number of new car sales. This implies that each car has around four owners before it is scrapped at around 16 years, the average length of ownership being around 4 years.

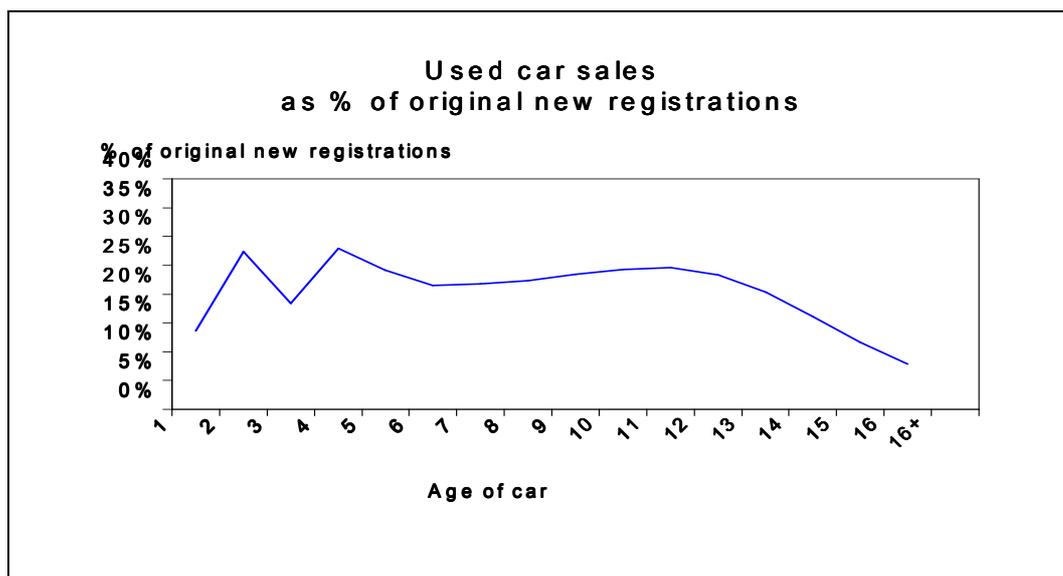
Figure 13: New and used car sales (GB)



Source: SMMT from DVLA

Figure 14 shows that 15% of cars originally registered change hands within a year, 25% after a year, only 20% after 3 years, 25% after 4 years and around 20% for each year after that till the 13th year when the churn falls off considerably as cars are scrapped and the small number which remain are held for a long time as classic cars.

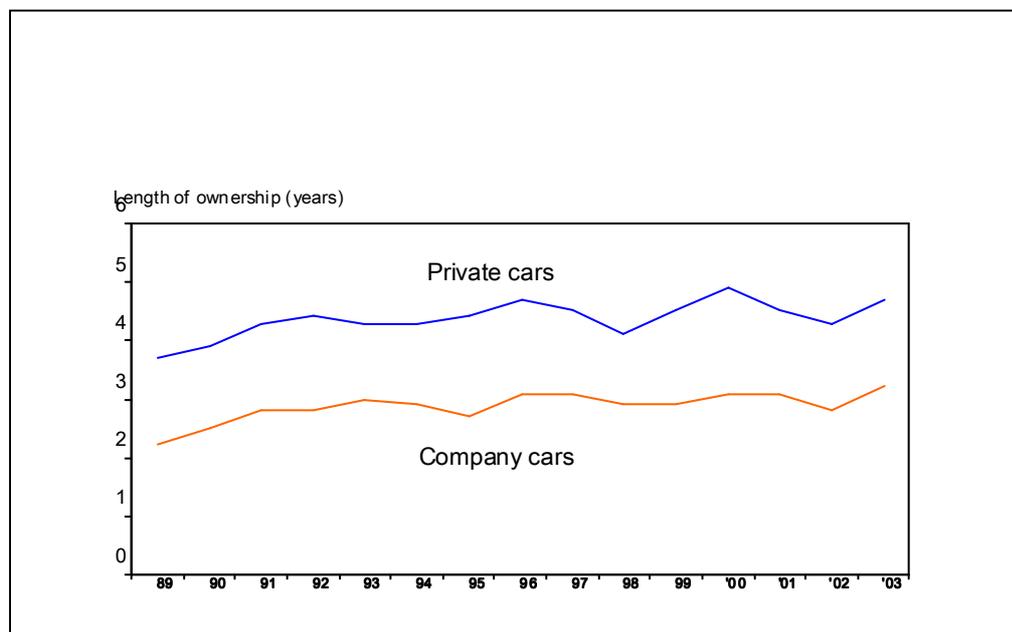
Figure 14: Used car sales as a % of original new regulations (GB Average over 2004- 2007)



Source: SMMT

Figure 15 shows the length of ownership for private and company cars which has gradually increased from just under 4 to nearly 4 ½ years for private cars over the period 1989 to 2003 and just over 2 to around 3 years for company cars.

Figure 15: Average length of private and company car ownership



Source: Lex/RAC Reports on Motoring. Based on the average number of years the current car has been owned and is expected to be owned. Coverage: GB

5.0 Scrappage incentives

At various times governments have offered scrappage incentives; in the 1990s these were largely motivated by a desire to stimulate new car demand although the environmental argument was also quoted in that scrappage would remove older, less fuel efficient cars or those without catalytic converters (compulsory from around 1992). A report for the European Conference of Ministers of Transport (CEMT) in 1999 lists the following as having had a policy:

- Greece (1991-1993)
- Hungary (1993 -present)
- Denmark (1994-1995)
- Spain (1994 -present)
- France (1994-1996)
- Ireland (1995-1997)
- Norway (1996)
- Italy (1997-1998)

Various local governments in the United States of America and the Canadian Provinces have also implemented such schemes.

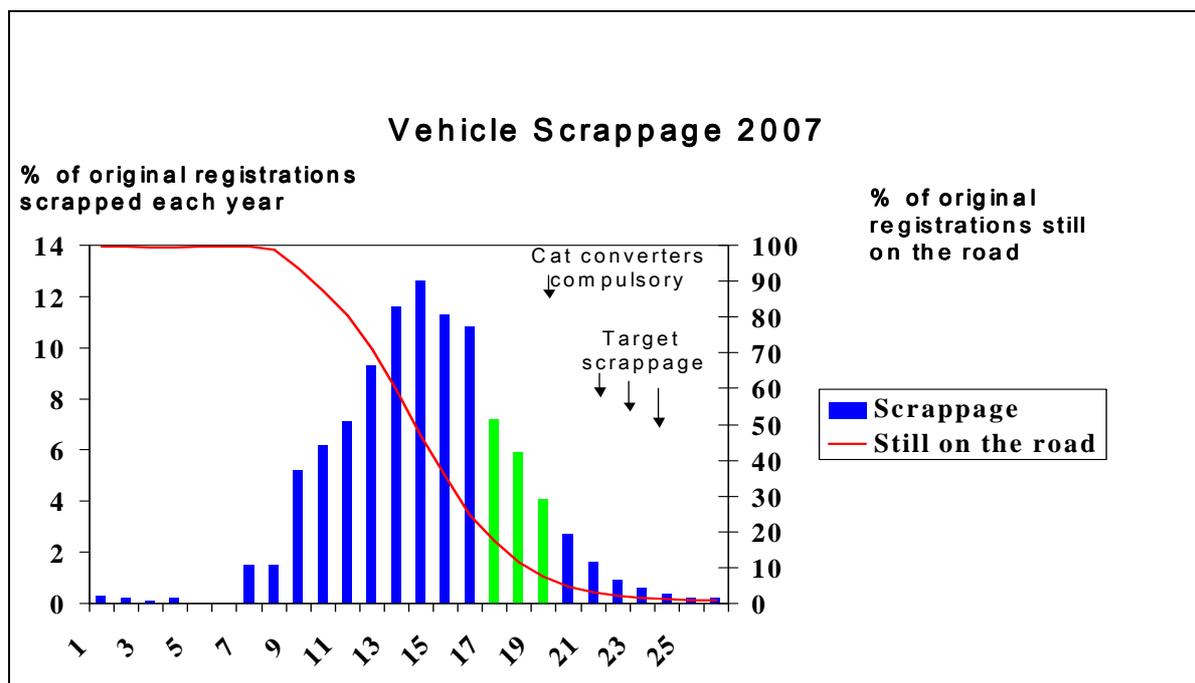
“The Government of Canada is committed to improving air quality across the country and reducing the health and environmental effects of air pollution. Accelerated on-road vehicle scrappage programs are positive steps in the right direction. These voluntary programs are developed and run by local organizations in communities across Canada and supported by partners, including Environment Canada. They are designed to improve air quality and to help reduce smog-forming and climate change emissions by permanently removing older, high emitting vehicles from Canadian roads.” (The Green Lane 2003)

There are two broad types of scrappage schemes that have been identified:

- a. Cash for scrappage where the payment is not dependent on any further action by the car owner
- b. Cash for replacement where the incentive payment is conditional upon purchase of a (normally) new less polluting car.

These schemes work only if a limited number of cars are scrapped and they can distort the market by bringing forward the replacement cycle. In the UK, the ideal age to incentive car scrappage would be for 17-18 year old cars (See: Figure 16); incentivising younger cars would only result in payment being made for cars which are going to be scrapped in large numbers anyway. Such a scheme would remove most of the last non-catalytic cars.

Figure 16: Vehicle Scrappage



Source: Derived from SMMT data

It would not be necessary to link the incentive to buying a new car as the natural dynamics of the car market would lead to the owners of scrapped cars buying a car three or four years younger than the one scrapped which in turn would lead to a ripple of car purchases up the age chain of the vehicle parc.

Alternative mechanisms for encouraging scrappage are higher taxes on older cars on the basis of their emissions which has been successful in Germany or more rigorous annual inspection routines which make older cars more expensive to maintain to an acceptable standard.

6.0 References

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Acknowledgements

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