

AGE AND GENERATIONAL EFFECTS IN TRAVEL BEHAVIOUR – GORDON STOKES (*Visiting Research Associate, Transport Studies Unit, University of Oxford*)

There is a large element of 'habit' in lifelong access to a car. This submission suggests that age cohorts will continue to use cars in ways they have learnt up to the age of 40. Forecasts should not assume that those in their 20, 30s and 40s who are using cars less will ever use them much more than they do. But it's more difficult to predict what those under 17 and those not yet born will do.

Based on NTS England data from 1985 to 2014 it notes that different generations have travelled differently, mainly in terms of their car use, and that car travel habits formed in younger years generally 'stick'. This note is a reduced version of <http://gordonstokes.co.uk/travbeh/agegen.html> and mainly addresses Question 1 of the call. For Q3, material mapping census travel to work data may be of use, but is not discussed here - <http://gordonstokes.co.uk/travcen/censusflows.html> - and - <http://gordonstokes.co.uk/travmap/testmaps.html> .

1. CHANGE IN TRAVEL BEHAVIOUR IN RELATION TO LIFE COURSE

The ages between about 10 and 20 and then from about 60 onwards are key in terms of travel behaviour change. This covers the period of 'life changes' from primary to secondary school, then through to work and established families (for most people) - and from retirement onwards. During teenage years independent travel becomes the norm. From 17 driving becomes a possibility and is taken up by many. Various factors will affect how many do drive, and how much they drive, but patterns tend to be set in early adulthood, and are then less likely to change.

2. CHANGES IN THE USE OF VARIOUS MODES OVER TIME FOR DIFFERENT AGES

Walking has declined for most age and sex groups over time. The falls have generally been greater in older age for men, and in middle age for women. Bus use has not changed significantly for many age groups, but has fallen in teenage years, especially for women. Free bus travel has not had a major impact of increasing likelihood of using a bus in later years. Rail use has been rising since around 1995 for most age/ gender groups, but while men seemed to show an increase between 1995-99 and 2000-04 the increase for women only seemed to take off after the 2000-04 period.

Car driving by age has shown quite remarkable changes for both sexes, and these changes are of a very different nature to bus, rail and walk. While for most modes any increase or reduction has been relatively uniform across ages, the pattern for driving shows some age groups increasing use while others reduce, and the changes seem to follow generational patterns.

Driving my men remains high well into old age, compared with women. While men use driving more than any other mode up to their 80s, walking is more common for women from the mid-60s. BUT rather than differences in 'taste', historical gender differences in propensity to learn to drive and run cars in past decades explains this.

For men a graph of access to a car as a main driver by age (Figure 1) looks like a wave moving forward, and that is a good description of what has happened. In the late 1990s a driving trip was made by about 80% of males up to the age of about 55 and then dropped off for older people. In 1997 (mid-point of that period) those people would have been born in the 1940s, including the baby boom period and it was this generation who learnt to drive and acquire cars in large numbers.

By 2010-14 the age of this level of 80% use had risen to 70 implying that the same generation were still as likely to drive as they were 15 years earlier.

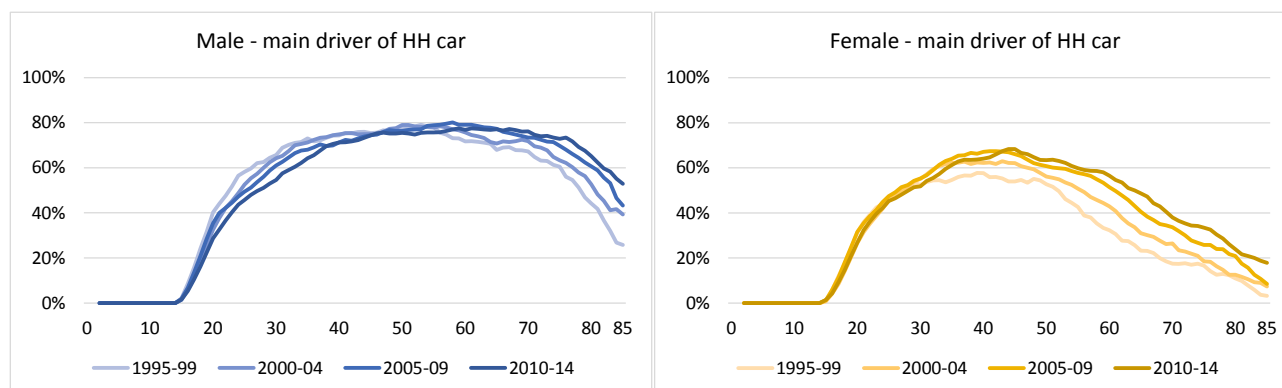


Figure 1 - % with access to a car as a main driver 1995-9 to 2010-14 (NTS data)

At the younger end of the male chart the picture is different. The 'slope' upwards to a high level of likelihood of driving started rapidly in 1995-99 but by 2010-14 showed a similar start at age 17-19, but then slows much more. Whereas in 1995-99 around 80% were driving by age 30, this level wasn't reached till age 45 by 2010-14. Becoming a regular car driver has become less likely for the generations born after about the mid-1960s.

For women there are elements of the same trends, but in the 1960s women were still much less likely to learn to drive and acquire cars. For them the rise in car use came later, and the overall wave has got bigger.

3. POSSIBLE REASONS FOR CHANGES

There are many explanations for these changes, but the most plausible ones relate to the situations generations were brought up in and what we might call 'habit'. Ideas include:-

- Men born in the 1940s, and 50s grew up at a time when cars were seen as 'the future', gaining a driving licence and car was a sort of 'rite of passage' into adulthood, and driving was 'fun'. Men's propensity to drive may well have been greater than the utility offered.
- Men born from about 1970 onwards grew up belted in a car with less independent travel, when congestion was increasing. 'Motoring' was less enthralling than for the older generation. They were very much more likely to go to university or college, in big cities where having a car was not an advantage, or where cars were restricted. If anything was replacing the car as a status symbol it was technology - computer games and, more recently, smart phones. The cost of insurance for younger drivers increased rapidly, and the driving test became more complex. People accepted that drinking and driving was, to say the least, unwise. In recent years student debt, high youth unemployment rates (or 'zero hours contract' type work) combined with worsening housing affordability has placed financial strain on many people aged up to about 35.
- For women the historical situation was different. Up to those born in the 1940s driving was often seen as a 'male' activity, and few learnt to drive. But with increasing gender equality and working rates the practical advantages of driving became apparent. Driving amongst younger women increased. Since around 2010 the likelihood of men and women being the main driver of a car has reached 'equality' up to the age of about 40.

- Older women were less likely to have ever got a driving licence or a car. Few people gain a licence after about the age of 30 (see below). So we are left with an older generation of women who are never likely to drive. In the 1990s this meant that women over the age of 50 were much less likely to drive but by the 2010s this age has reached nearer 70.

Once people have access to a car they tend to not give it up. Cars are useful (for most people in most situations) and few people voluntarily decide that they might as well do without. It is usually ill health that stops people driving. Added to this, NTS data shows many more elderly people report having difficulty walking or using public transport than using a car - driving is easier on a failing body than walking to a bus stop. This is compounded by facilities getting larger and more distant from home, with bus services are under threat in many areas.

4. HOW HAVE COHORTS/ GENERATIONS CHANGE OVER TIME?

Figure 2 follow each age cohort in terms of how they use a mode throughout the survey years. Each line in the chart is a trajectory of how a cohort (or generation born at a set time) changed their travel behaviour between different survey times from 1985-9 to 2010-14. The early years (from 1985) have to be treated with caution, since uniform weighting of NTS data is only available from 1995. But with a simple measure of whether or not people used a travel mode, it is felt that as long as the graphs are taken as 'pictorial', they provide more insight than omitting them.

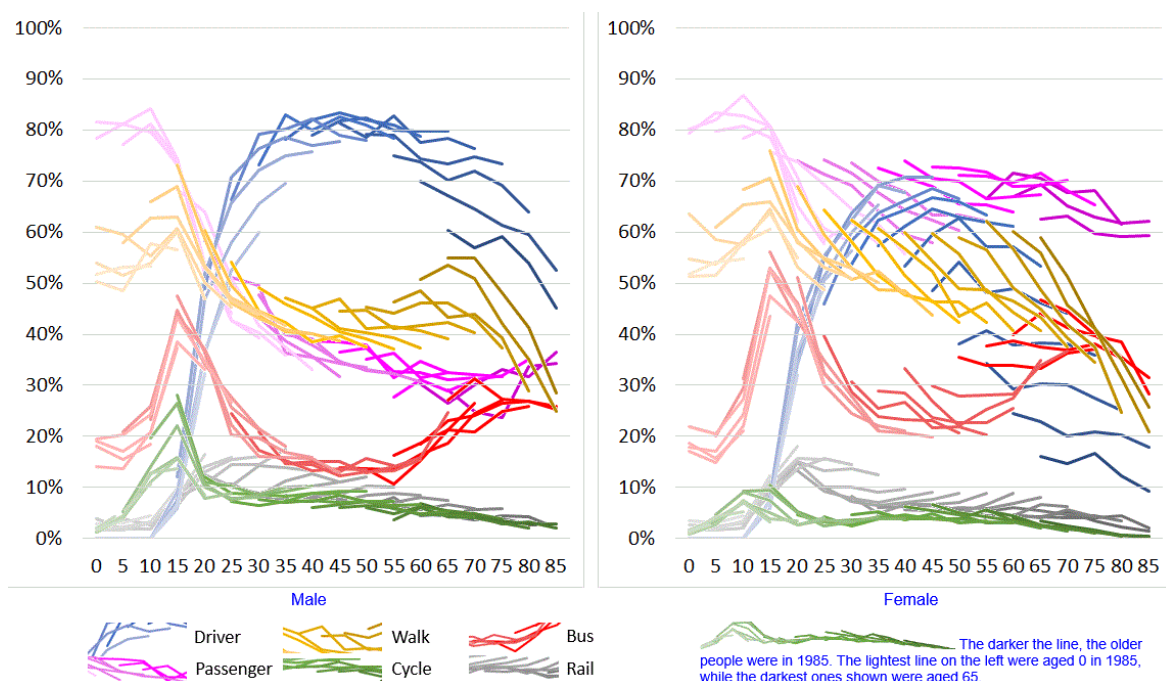


Figure 2 – How cohorts have changed their use of modes between 1985 and 2014 (NTS data)

[HTTP://GORDONSTOKES.CO.UK/TRAVDYN/COHORTMIX.HTML](http://GORDONSTOKES.CO.UK/TRAVDYN/COHORTMIX.HTML) shows a version where modes can be selected

Driving (blue lines) for men:-

- In middle age, likelihood of driving remains fairly steady while in older age the likelihood does reduce.
- For all younger age groups the likelihood grows, but tracking up vertically for those aged, say, 30, it's apparent that those born in 1980 are less likely to drive than those born in 1970. By age 30, 72% of males born in 1970 were driving, while only 60% of those born in 1980

were. At age 70, 57% of males born in 1920 were driving, but 72% of those born in 1930 were.

Driving for women:-

- Older women seem just as likely to have carried on driving over the survey periods. Only for those born in 1930 and earlier was there a significant fall, and this was much less than for men. This may relate to living longer than men.
- The distance between the parallel lines from about age 40 onwards (in 1985) points to the increasing likelihood of driving for those born up to about 1970. For men these lines only diverge from about age 60 (in 1985)
- The trajectories in younger life are relatively similar for men and women.

The charts for travelling as a *car passenger* very roughly mirror the charts for driving (in terms of being opposite). The male chart then dives much lower to around 30% in mid-life years, while the female reduces much less. Women from the age of 20 to about 50 to 60 show a trend towards much less likelihood of being a passenger over time. While, around 1985, about 74% of women aged 30 travelled as a passenger, by 2010-14 the figure was around 58%.

Walk journeys have fallen for just about all cohorts of different ages. The only exceptions are for young children, who are at a stage of life when we would expect increasing likelihood of walk trips. While falls from age 20 to age 35 might be regarded by some as an inevitable consequence of a move from 'youth' to a busier lifestyle, the consistent falls for other ages are almost shocking.

Bus generally shows less generational cohort change. The lines for men follow roughly the same trajectories by age. For women, however, there has been a 'level' use of bus by those born from about 1935 to 1945, but with each cohort starting from a lower rate. For *rail* the rates are low, but the growth in patronage that has occurred since 1995 can be seen to have been strongest amongst those of working age. Unlike any of the other modes most cohorts are increasing their likelihood of travelling by train.

So 'habit' is observable in NTS travel data for driving, but much less so for other modes. This raises the question of whether there is something in car use that encourages habitual behaviour (e.g. it's 'too convenient' to stop or reduce car use) or whether other modes have not yet gained a 'lifetime' habit status. Cycling is a mode that many see as a 'lifestyle', but few would say the same about buses. Rail doesn't serve enough journey needs to be a lifestyle choice.

5. CAN WE PREDICT WHAT WILL HAPPEN TO THE GENERATION WHO ARE DRIVING LESS IN THEIR YOUTH?

Accurate forecasting is never possible, or maybe even sensible or desirable. The best forecast is more likely to be wrong than right, and lead to wrong decisions, and, at worst, accusations such as "we don't need experts". Far more important is to formulate a plan that is robust to the range of plausible and likely futures that we can identify. If you take one thing away from this submission, I hope that will be it.

The slowdown in younger people acquiring licences and cars begs the question of whether they will do so at some point in the future. Some argue that when people have families, gain wealth, and likely move from cities to small towns and rural areas, they will acquire cars. Others argue that once

younger people are in the habit of not using cars they will tend to steer life so they don't need a car. Of course, some will get cars, some won't - the question is 'how many'?

Current evidence based on past behaviour points to a reduced likelihood of gaining a licence in later life, and that those who acquire a licence later in left tend to drive less – Figures 3 and 4.

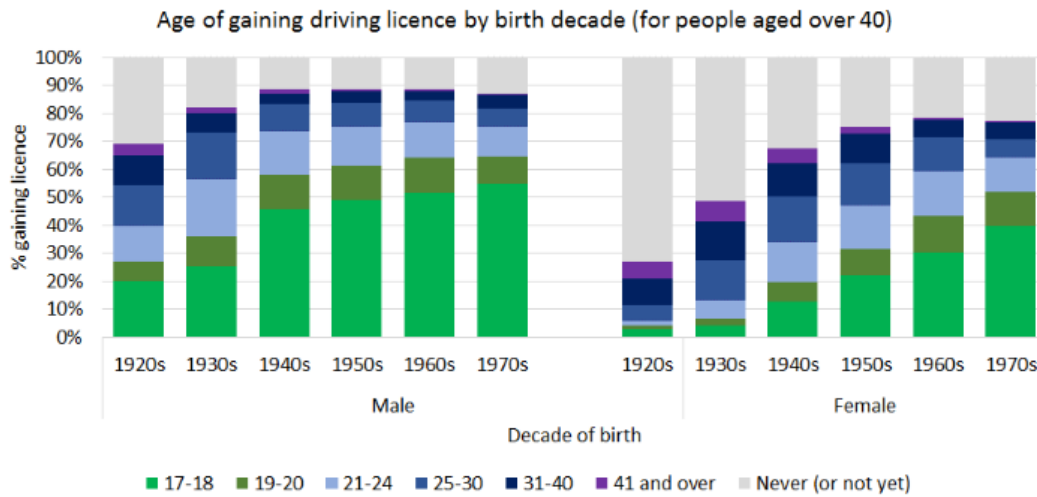


Figure 3 – Age at which licences were gained by decade of birth (NTS data)

In generations in which most people drive, most get a licence when quite young. For men born since the 1950s, by the age of 40 and over, around 85% have a full licence, and over half of these gained their licence aged 17 or 18. The proportion gaining a licence after the age of 30 is very small (around 5%). For women the situation is somewhat different, with many more born in the 1940s and 1950s getting a licence later, but still less than 15% getting one after the age of 30. By the time of those born in the 1970s the profiles look very similar to that for men.

A question in past NTS surveys implied that many without licences intended to get one within the next one or five years. However, there is often a difference between intention and action. An interviewer asking such a question is likely to encourage a 'positive' answer.

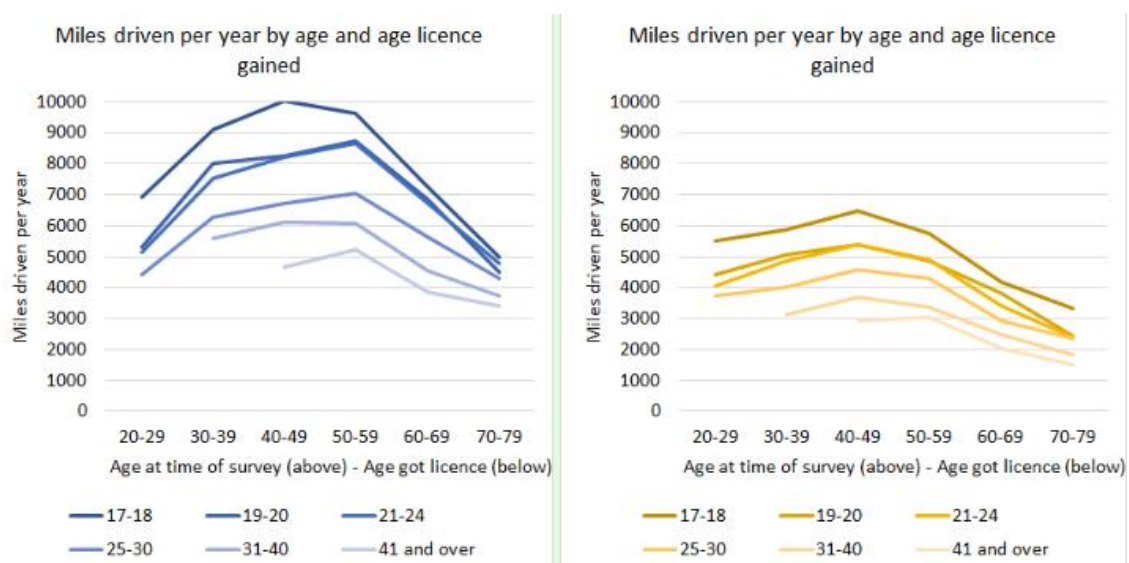


Figure 4 – Driving mileage per year by age at which licence was gained (NTS data)

Figure 4 strongly suggests that the later one learns to drive, the less mileage one drives. Each line shows the mileage driven per year by people who gained their driving licence at similar ages. Those

who gained licences at age 17 or 18 consistently drive further than others. For both men and women the lines for those aged 19-20 and 21-24 are similar, but those who gain their licence later show markedly lower mileage.

There are a number of possible explanations for this, including:-

- those who are smitten by the idea of driving will learn early.
- those who live in areas where a car is 'a necessity' such as rural areas will learn early.
- those who learn later have learnt other 'habits' for travel which mean that they are likely to use them more selectively.
- driving may be an activity for which learning is 'best' done when the cautiousness of adulthood has not yet become ingrained. For those who learn later 'excitement' may be replaced by 'anxiety' - differing reactions to the same stimuli.

7. CONCLUSIONS

- That age affects how we travel is beyond any reasonable doubt. We use different modes at different ages because of our changing travel needs.
- When one was born has a separate effect. Driving a car has been related to birth decade. Nearly all men still alive (and most women) grew up at a time when car driving was 'the norm'.
- There are now younger generations who have been brought up when driving is not seen as such a 'natural thing to do' as those born earlier. This has been happening for long enough to not be a 'blip'.
- There's strong evidence that having a car is 'difficult to give up' in that once people have a car and drive, they tend to carry on, even into old age and relative infirmity. There is much less evidence of 'life habit' formation for other modes.

Younger generations are not using cars to the extent 'baby boomers' did. The question is whether they will get 'stuck' on public transport and/ or cycling habits that they have learnt while in 'formative' years, whether they will start using cars as much as the 'boomers' once they have families and get rid of debt they may have accrued, or whether they will do whatever is most convenient, dependent on their circumstances?

The only sensible answer to that question is "we don't know". But it does seem unlikely that they will embrace car use to the extent that many of the 'baby boom' generation did. If we assume that those over, say, 35, will continue with their current car access level to age 85, and will drive at rates that follow current age patterns we may have a better forecast than one based on level of economic growth. What is more difficult to predict is what today's children and those not yet born will do!