RSA

Projects

Cabbies, Costs and Climate Change

An engaged approach to fuel efficient behaviour

Jonathan Rowson and Jamie Young

December 2011

Executive Summary

On average the drivers drove 20% more fuel efficiently than their baseline measures, representing cash savings of £1146 per year for each cabbie

This report features a rare study of taxi drivers in their working habitats, and presents wider lessons about the challenges of efficient fuel use in the context of rising energy prices and climate change.[1] However you conceive the climate problem, efficiency is an important part of the solution.

Petrol prices have risen by 32% since 2009. While debates about how to deal with rising energy costs through fiscal levers and regulation will continue, this report highlights the role behaviour change can play in reducing costs.

Behaviour change is central to our attempts to address anthropogenic climate change for four main reasons: First, we need all the quantitative reductions in carbon in the atmosphere that we can get. Second, the impact of technology and regulation is relative to the responsiveness of human behaviour. Third, for all its abundant complexities, human behaviour can be changed fairly quickly, and speed is of the essence. Fourth, behaviour drives attitudes, and we increase the relevance of climate change most effectively when we connect it to the processes and outcomes that matter to people on a daily basis.

To better understand this kind of engaged approach to behaviour change, the RSA sought to help taxi drivers turn helpful information about fuel efficient behaviour into enduring dispositions. This exploratory study is part of RSA's more ambitious attempt to understand how to make positive behaviour habitual, performed without conscious thought, and contagious, through which positive behaviour spreads through social diffusion between individuals and groups.[2]

Shell's fuel save tips comprise a range of pieces of advice, from

One of the co-designed modifications we tested

choice of oil, driving speed, car weight, personal comfort and journey planning.[3] We chose to focus on the challenges of implementing these tips with Hackney Carriage drivers due to their professional interest in reducing the costs of driving, their driving expertise, and because of their potential capacity to influence a large number of passengers from a range of backgrounds. We worked with twenty drivers, two from each of the following cities: London, Birmingham, Manchester, Nottingham, Bristol, Glasgow, Norwich, Sunderland, Sheffield and Portsmouth.

This was an exploratory study designed to learn about the challenges of driving more fuel efficiently, and to raise awareness of the financial and environmental value of doing so. The aim was not to test a particular hypothesis, or quantify the effectiveness of any single approach, but to better understand the challenges of changing environmental behaviour for a particular subset of energy users.

The attempts to begin to make fuel efficient behaviour habitual and contagious included:

This was an exploratory study designed to learn about the challenges of driving more fuel efficiently, and to raise awareness of the financial and environmental value of doing so.

- An incentive to participate and win in a national competition
- Continual comparative online feedback
- Specialist advice on fuel efficient driving in real time contexts
- Informed reinforcement of driving and car maintenance advice

We also hosted a deliberative workshop with some of the cabbies, where we discussed some relevant findings from behavioural science to help them address the 'action gap' between knowing what to do and actually doing it, and to become more aware of their potential influence on other drivers. During this event, four modifications to the taxi 'habitat' were co-designed with the cabbies:

- A silk money bag to prime the idea of smooth driving
- Dashboard stickers to make feedback more immediately relevant
- A passenger journal designed to stimulate discussion on fuel efficiency
- A spring device giving audio feedback on harsh braking and acceleration

Telemetry devices were installed in the taxis, which recorded four behaviours that are particularly wasteful of fuel: idling, over-revving, harsh acceleration and harsh braking. The drivers were measured over a month relative to a two-week baseline measure, and for two weeks after the competition. The fuel efficiency algorithm was weighted towards improvement in these four behaviours, relative to baseline measures, rather than overall performance, to help control for differences in vehicles and driving conditions. Four drivers were asked to keep a written diary of their fuel use in context, and two dropped out due to unforeseen circumstances, so the final quantitative data sample was fourteen drivers.

While the sample size is too small to draw conclusions about which particular interventions were most effective, the indicative results for the overall approach were promising. On average the drivers drove 20% more fuel efficiently than their baseline measures, representing cash savings of £1146 per year for each cabbie.[4]

The recommendations arising from the project as a whole are outlined in detail at the end of this report. They include making habitual behaviour (rather than just behaviour) the focus of interventions, making fuel efficiency a pass/fail criterion on the driving test, changing driving habitats to encourage fuel efficiency, incentivising taxi drivers to become ambassadors for fuel efficiency, providing more salient feedback, and making taxis greener.

Proposals

If drivers are supported in converting new learning into long-term habits, efficiency gains can be increased

1. Make habitual behaviour the focus of interventions for change

Making habitual behaviour the focus of behaviour change interventions resonated strongly with the drivers, who recognised the 'action gaps' between knowing what to do and actually doing it. Information is important, but not enough, and those currently willing to give information about fuel efficiency should consider the behavioural challenges of acting on that information. If drivers are supported in converting new learning into long-term habits, efficiency gains can be increased.

So if Shell, or a car manufacturer, or the local council, currently give information on how to save fuel, they can improve the effectiveness of doing so if they also give advice about how to make such behaviours habitual. For instance, fuel efficiency tips could include advice about how to turn such behaviours into habits e.g. strive to do it for at least 66 days – the approximate amount of time it takes to perform a new task without thinking - and you will find it begins to feel automatic, or work with mental accounting, by reminding yourself how exactly the money saved through these behaviours will be used.[5]

2. Make fuel efficiency a pass/fail criterion on the driving test

A further implication of the emphasis on habit is making fuel efficiency a more prominent part of driving lessons and a more significant part of the driving test. In this respect we would go beyond the DVLA's existing commitment to give feedback on fuel efficiency at the end of practical tests and support the Confederation for British Industry's call for driving efficiently to become a pass/fail issue. Given the importance of fuel efficiency outlined above, and the challenge of

changing acquired habits, there is a strong case for doing all we can to ensure that good ones are established in the first place.

3. Change driving habitats to encourage fuel efficiency

Council officers now have to meet increasingly difficult targets with lower budgets, and behavioural insight can potentially help with that. Local Authorities should therefore have shared access to expertise in behaviour change to better understand the likely behavioural effects of their planning decisions. For instance, Local Authorities could encourage fuel efficiency by modelling traffic flows and road layouts to minimise stopping and starting. Increased use of roundabouts rather than traffic lights may help, as could strategically located signs (e.g. near traffic lights) to remind drivers about the major forms of fuel waste (e.g. idling or over-revving). Moreover, more taxi ranks would help taxi drivers to avoid wasting fuel by needlessly driving around. The cost of this waste in fuel is ultimately passed on in higher taxi charges for passengers, so the minimal costs of creating such ranks may be a legitimate use of public spending.

4. Incentivise taxi drivers to become ambassadors for fuel efficiency

Taxi ranks are often the first thing seen by visitors to a new city. We found that cab drivers are proud of their cities and tend to assume a role of ambassador.[6] City councils who are motivated to improve their green credentials could take advantage of this by partnering with local taxi firms to demonstrate and spread advice on fuel-efficient driving. Passengers could be invited to ask their drivers about tips on fuel efficiency detailed in the taxi, for instance on screens or leaflets. Incentives for participating cabbies could take the form of council tax exemption for those who drive economically and spread the word, to acknowledge their value to the public good. It might also take the form of driving-specific reductions, for instance through subsidised MOTs or reduced road tax.

5. Provide salient feedback

All drivers could be better incentivised to adopt more fuel-efficient driving. While economy gauges provide good feedback on fuel consumption, modern vehicles could aggregate data from the engine management system to present each user of a vehicle with a simple eco driving score – displayed on the dashboard or via a smartphone app. Judging by the impact of the competition on the drivers' behaviour, such a score is likely to be most powerful when it shows comparative performance with others – perhaps other users of a family car, or members of an individual's social network. It would also be useful to make the feedback as salient and personal as possible, for instance, if the same trip to the supermarket costs £3.02 one day and £2.33 the next, the driver is more likely to reflect on their driving behaviour and improve it for the better.

6. Make taxis greener

Hackney Carriages are an iconic design that suits the cabbie's informal role as city ambassador. However while progress has been made on emissions standards, these vehicles' fuel-efficiency lags behind other vehicles. While behaviour change is an important starting point, manufacturers of Hackney Carriages need to be incentivised to create public icons that embody a more environmentally friendly message, either through increased competition or government support. Existing efforts to develop hydrogen fuel-cell taxis should be supported.

If the same trip to the supermarket costs £3.02 one day and £2.33 the next, the driver is more likely to reflect on their driving behaviour and improve it for the better.

Endnotes

1. Rowson J., Young J., July 2011 Inside the Mind of a Cabbie: Beyond the Stereotypes-What drives taxi drivers? Available online: http://www.thersa.org/projects/social-brain/smarter-cab-drivers

2. Rowson J, November 2011 Transforming Behaviour Change: Beyond Nudge and Neuromania. RSA, Available online: http://www.thersa.org/projects/social-brain/transforming-behaviour-change

3. Shell Smarter Driving Top Tips. Available online: http://www.smartercabdrivers.com/Tips/

4. Measured by telemetry device installed in fourteen taxis, relative to baseline performance, and self-reports of four additional taxi drivers.

5. Lally, P, van Jaarsveld, C, Potts, H, & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. European Journal of Social Psychology, October, 40 (6), 998–1009, Available online: http://onlinelibrary.wiley.com/doi/10.1002/ejsp.674/abstract

6. Rowson J, Young J (July 2011) Inside the Mind of a Cabbie: Beyond the Stereotypes-What drives taxi drivers? RSA Interim Report. Available online: http://www.thersa.org/projects/social-brain/smarter-cab-drivers

RSA

21st century enlightenment

The Royal Society for the encouragement
of Arts, Manufactures and Commerce

8 John Adam Street
London WC2N 6EZ
+44 (0)20 7930 5115

Registered as a charity in England
and Wales no. 212424

www.thersa.org