

### **Encouraging direct reductions in car use**

Dr Sally Cairns Senior Research Fellow, TRL & UCL IEA workshop: Transport, energy efficiency and behaviour, 10/5/16, Paris.











## MOT project (2012-2016)



www.motproject.net

Information from licensing records, and periodic technical inspections (the MOT test), together with Census data, has enabled the creation of a 2011 dataset about every vehicle registered in Britain, including:

- Distance travelled in the last year by each vehicle
- Vehicle characteristics, including average emissions and fuel economy.

Vehicle location is known at a relatively small-scale – enabling the division of Britain into 'small areas' of about 700 households each\*.

\*34,753 lower super output areas in England and Wales; 6976 data zones in Scotland.





#### **`Small area' data display**

# Where are all the VW diesels?



### Variation in vehicle characteristics

Average values for private cars (class 4/4A vehicles) in each small area





### Variation in car ownership and use

Average values for private cars (class 4/4A vehicles) in each small area





# Total energy use more dependent on average mileages than types of vehicles owned

Data for private cars (class 4/4A vehicles) in each small area



toring and Vehicle Ownership Trends in the

# Underlying geo-demographic characteristics only partially determine car use



Use of a model using data about **population density**, average median **income**, and the proportion of **people aged over 65** is successful at predicting **about 70%** of the variance in the miles per person in any given small area.



Values are '000 miles per person per annum travelled in private cars for each small area (LSOA) in England and Wales

#### **International survey**

#### https://www.smartsurvey.co.uk/s/Vehicleinspections/







#### **Declining car use in urban areas**



### **London 2012 Olympics**

35% adults in London modified their behaviour on a weekday during the Olympics





#### Measure – reducing road space for cars

Evidence from about 150 sources for nearly 100 places from 14 countries. Examples included pedestrianisation schemes, bus and cycle lanes, and road closures due to maintenance, construction and natural disasters.



On average, 41% traffic reduction on the treated roads, of which less than half reappeared on other routes.

Median overall traffic reduction of 14%-16%.



# Measure – town-wide packages to encourage bus use, walking and cycling for local journeys

Evidence from national trial involving 3 English towns of around 100,000 people each

- Resident household surveys suggested car driver trips fell by 9%, and car driver distance by 5-7%
- Overall traffic fell by 2%, with reductions of 7-8% in the inner areas



Change in trip numbers per 100 people per day 2004 to 2008; weighted dataset; trips<50km

# Measure – workplace-based measures to change commuting habits

Evidence from 20 UK organisations implementing 'best practice' workplace travel plans



- 14 fewer commuter cars per 100 staff (equivalent to an 18% reduction in the share of staff driving to work)
- Plans addressing parking achieved more than double the reduction in car use than those which did not.





#### Measure – school travel plans

Evidence from 30 English schools implementing 'best practice' travel plans, including 28 with mode-change data (representing 17,800 pupils)

Weighted average reduction in car use of 23%, coupled with increases in bus use, walking and cycling.

- Two secondary schools with over 60% pupils arriving by bus
- Two schools with more than 70% pupils walking
- One primary with nearly 40% cycling; one secondary with two-thirds cycling.









### Measure – loan of electrically-assisted bikes



Evidence from surveys at two large employers in Brighton, UK, with bike loans to 80 participants

- 40% of those answering surveys interested in borrowing an e-bike
- 75% of those borrowing bikes used them at least once a week
- 20% reduction in car miles, averaged across all those who borrowed bikes.



#### Measure – providing alternative access to cars

Evidence from surveys of rental customers, car share members, ride-sharing schemes and shared taxi initiatives



- 63% liftshare customers said they would otherwise have driven alone (2010 research)
- Proportion of car club members owning a car drops from 48% to 20% after joining (London 2014/15 data)
- 23% rental customers say rental has made them less likely to buy a(nother) vehicle in the next few years (2016 BVRLA data)

