

## Who Caused That Congestion? Narrating Driving and Cycling in a Changing Policy Context

### Abstract

This paper analyses attitudes to cycling and driving, using qualitative survey data from 2,128 participants in a study examining impacts of active travel schemes in Outer London. London seeks to reduce driving and increase active travel and has seen some success; but progress remains patchy.

Results show cycling attracted more support than driving, and fewer negative comments, although with differences between sub-groups. Views were more polarised in boroughs with major active travel interventions planned and under way. Car owners were more supportive of driving and less supportive of cycling than non-car owners.

The use of a 'place' rather than movement frame elicited more negative comments about driving, however, such critiques were often ambivalent or ambiguous. More generally, discourses critiquing driving remain weak, despite widespread awareness of negative impacts of car use. For instance, narratives of congestion highlighted the potential for problems associated with car use to be re-framed in support of driving.

Analysis of comments on poor driving and cycling highlighted the persistence of cycling stigma. Cycling stigma combines with the weakness of anti-car narratives to reinforce controversy obstructing active travel policies. Challenging these twin barriers may prove essential to accelerating mode shift in London and elsewhere.

## 1. Introduction

There is growing evidence that a substantial shift to walking and cycling would bring major societal benefits, largest where this shift comes from private motorised transport (Woodcock et al, 2009). Many trips could in principle be switched. Lovelace et al (2017) found that based on trip distance and hilliness, Dutch cycling propensities would mean almost 20% of trips to work in England were cycled, compared to 3% at present. Active travel potential is high in cities, with TfL (2016, 2016a) finding strong potential in London (UK) for walking and cycling.

However, achieving mode shift remains hard, with active travel policies and schemes subject to controversy and challenge (Castillo-Manzano and Sánchez-Braza, 2013). Some contexts have seen a resurgence of pro-car political popularism (e.g. Walks, 2015), while elsewhere (as in London) ambitious political strategies struggle against persistent planning and delivery challenges. Public awareness of the negative externalities of car use is high and at least in some contexts, car use is in decline (Metz, 2014). Yet pro-car discourses remain strong, as does hostility to (users of) non-car modes (Castillo-Manzano and Sánchez-Braza, 2013).

This paper seeks to examine this apparent paradox by analysing qualitative survey data from an Outer London panel study on travel behaviour and attitudes. This data is used to explore whether and how popular narratives about driving and cycling may support or block sustainable transport policies. With the survey covering areas which were and were not experiencing large-scale interventions, the paper can examine the impact of such interventions on transport narratives alongside broader views on transport modes, users, and policies. Quantitative is combined with qualitative analysis to explore both headline views and storylines supporting such views.

The research questions addressed are as follows:

- (i) How do peoples' perceptions of driving and drivers differ from perceptions of cycling and cyclists?
- (ii) How does (i) the presence or planning of a large-scale cycling and walking intervention, and (ii) car ownership or cycle use, affect these perceptions?
- (iii) How do perceptions of driving and cycling correlate with views about institutional support for the mode? (For instance, do people who dislike cyclists also tend to think there is too much institutional support for cycling?)
- (iv) How are the causes and solutions of 'congestion' and other societal externalities of urban car use narrated?
- (v) Where individual poor behaviour is cited as causing problems for other road users, how do these narratives differ for driving and cycling?
- (vi) Considering the above, in what ways are popular narratives about driving and cycling likely to support and/or block sustainable transport policies?

## 2. Literature Review

### 2.1 Policy, infrastructure, and travel behaviour change

Walking and cycling were historically marginalised in post-war transport planning, as the UK rebuilt many towns and cities around an assumption of mass car ownership. Typically, this created pedestrian-hostile ring roads and arterial routes to provide speedy and efficient car access to (sometimes pedestrianised) central business districts. If walking was marginalised, cycling was rarely considered, with Colin Buchanan's *Traffic in Towns* barely mentioning the mode, despite its accounting for almost a quarter of trips in the early 1950s.

Other European countries implemented similar policies to varying extents (Lindelöw et al, 2016) while in North America and Australia car-centric planning started earlier. UK transport planning was not monolithic, with intra-urban more diverse than inter-urban planning (Vigar, 2001), and London largely retaining its historic street pattern. More recently, some writers have identified a 'Peak Car' phenomenon (Metz, 2014) in which driving rates fall among young people, particularly men. This phenomenon, and its causes, remain contested (Bastian and Börjesson 2015); however, many countries and especially larger cities have seen at least declining rates of growth in private car use.

These shifts in travel behaviour (whether driven by economics, urbanisation, policy and/or cultural change) support increased interest in sustainable and active travel, by showing that taken-for-granted trajectories can change. However, exactly what should planners do to achieve large travel behaviour changes? A growing 'interventions' literature studies this. Evidence for mode shift to active travel has been weak, particularly for walking (Stappers et al 2018). However, high-quality studies increasingly indicate a causal link between built environment and policy interventions, and active travel uptake (Braun et al, 2016; Crane et al, 2017; Goodman et al, 2014; Panter et al, 2016; Wasfi et al, 2015; Zahabi et al, 2016).

The research literature (e.g. Pucher et al 2010) further indicates that to be most effective, policies should combine 'carrot' interventions (e.g. cycle tracks, public realm improvements, bus priority, etc.) with 'stick' interventions (e.g. reducing and/or slowing motor traffic, removing car parking, charging for road use and/or parking). Happily, the two often go together. Building or improving infrastructure for walking, cycling, or public transport often means reducing space or time for private motor vehicles, particularly in congested and space-scarce cities. Less happily, policies seen as anti-car are often controversial, by comparison to policies perceived as only involving 'carrots' (Stokes and Taylor, 1995).

### 2.2 Barriers to policy change: 'public opinion' and the car

Negative public opinion (real or perceived/feared) represents an important barrier to infrastructure changes, particularly when these are believed to threaten convenience, ease, or affordability of car use (Ison and Wall, 2002). While often cited as a problem, 'public opinion' may mean different things. For instance, the perception that public response will be negative may block certain types of schemes even being considered, let alone proposed (Banister 2005). Perhaps the classic example is removing car parking, a challenge even where only a minority of households own cars<sup>1</sup>.

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<sup>1</sup> In London, former Cycling Commissioner Andrew Gilligan referred to car parking as 'the Third Rail: touch it and you die'.

Further, what is counted as ‘public opinion’ varies. Even if consultations suggest majority support for a controversial change, this may matter less than other manifestations of ‘public opinion’ such as negative local media coverage, critical emails to decision-makers, and/or protests (Aldred et al 2017). Schemes that aim (or are perceived) to make driving harder remain difficult to implement, even with demonstrated support (Scheller, 2010). They may require strong political leadership and tenacity (as shown in many successful European cities: Melia, 2015) and/or a maverick unconcerned with party lines (Goodwin, 2004).

Post-1997 UK Labour Government transport policy offers an example of such retreat. Ultimately, decision-makers challenged by the car lobby proved unwilling to expend political capital in pushing for change (Docherty and Shaw 2008). Reacting to such experiences, many academics recommend a soft approach to demand restraint, without overtly challenging attachments to the car. For example, Morris et al (2009: 24) recommend that car-free developments ‘should provide improved quality of life but should not be perceived as ‘anti-car’’, even though such developments actively restrict car ownership.

Public attachment to the car runs deep, although different national and even regional mobility regimes shape the framing and reception of policies (Aldred and Tepe, 2011). Many people are habitual users (Domarchi et al, 2008) who may perceive other modes negatively (Şimşekoğlu et al, 2015). They may make biased comparisons with other modes: for instance, seeing ‘normal’ driving time as time in free-flow traffic, but counting delays as part of ‘normal’ public transport time (Gardner and Abraham, 2007). Beyond biased perceptions or habit, attachment to the car has affective and symbolic dimensions, from forming part of taken-for-granted pleasures and identities (Sheller, 2004) to synergies with broader political concepts such as ‘freedom’ (Rosen, 2002). Yet pro-car discourses may be under stress (Manderscheid, 2014) due to societal trends affecting car use and/or policies to reduce car use. Cities increasingly link transport policy to health goals<sup>2</sup> with widespread awareness of negative externalities of car use, even among users (Beirão and Sarsfield Cabral, 2007).

However, we should not underestimate the power of pro-car discourses to adapt to new political realities and adapt storylines supporting car use (Walks, 2015). These may draw on negative images of (users of) other modes. For instance, the image of the bus as the ‘loser cruiser’ (Fitt, 2018) can deter bus use and if decision-makers share such perceptions, potentially also investment in bus services. Freund and Martin (2001) have noted how pedestrians who are not ‘able-bodied, alert adults’ are often blamed when injured by cars, drawing on a tradition of stigmatising a large minority of pedestrians as inadequate road users (Luckin, 2010). Such stigmatisation is often more generalised in relation to cyclists, where they form a small minority (English and Salmon 2016). Despite its many benefits, it remains easy to ‘hate the bicycle’, particularly when pro-cycling initiatives are introduced in low-cycling contexts (Castillo-Manzano and Sánchez-Braza, 2013).

### 3. Background

London offers an excellent context to study public attitudes towards transport at a time of attempted policy shift and ambitious, contested interventions. The city has already seen a shift away from car use. Between 1993 and 2009, public transport journey stages grew from 6.9 to 11.6 million daily, while private motorised trip stages remained stable (10.7 to 10.4 million daily)<sup>3</sup>. Governed by the Greater London Authority (GLA), London is divided into 33

<sup>2</sup> <https://www.london.gov.uk/press-releases/mayoral/plan-to-persuade-londoners-to-reduce-car-use>

<sup>3</sup> <https://data.london.gov.uk/dataset/travel-patterns-and-trends-london>

districts: 32 boroughs and the City of London. The overall transport authority for London is Transport for London (TfL) while districts are also transport authorities, controlling all their minor and some major roads.

While London's mode shift is impressive, it is concentrated in Inner London, with Outer London lagging. Cycling is at 2% mode share, despite very high volumes of cyclists in some Central London streets at peak. TfL's 'mini-Holland' programme seeks to address this gap, with Enfield, Kingston, and Waltham Forest sharing £100 million of funding. The programme was part of a commitment that former (2008-16) Mayor of London, Boris Johnson, made as part of the TfL Vision for Cycling (2013) and now sitting within the Healthy Streets approach (TfL 2017a), which aims to use street design and engineering to enable mode shift. Schemes include both 'carrot' (e.g. pedestrian crossings, cycle tracks) and 'stick' aspects (e.g. closure of residential streets to through motor traffic, removal of car traffic lanes on main roads).

While most work would take place between 2016 and 2021, the winning boroughs were announced in 2014; and controversy was never far away even before any changes on the ground. For instance, an off-road scheme proposed in Kingston in 2015 was attacked on the grounds that it would enable terrorists to poison the water supply, according to one local academic (Burford, 2015; this scheme then did not reach formal consultation until 2017). Much opposition to schemes however had an anti-cycling slant. One local headline read 'Drivers call for reversal of mini-Holland scheme run by 'cycling Taliban'. ' (Chandler, 2016).

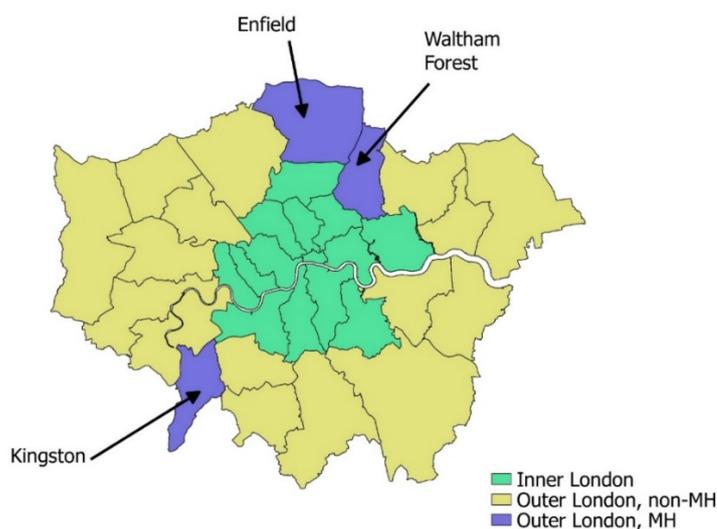


Figure 1: Inner and Outer London, showing mini-Holland (MH) boroughs

## 4. Methods

### 4.1 The Survey Data

The TfL-funded People and Places study (see *Author reference removed*) examines the impact of the programme, comparing year-on-year changes in the three mini-Holland boroughs and in 'high-dose' intervention areas to changes among participants in a 'control group' of other Outer London areas. Administered using Qualtrics software, the baseline survey was open between May 6<sup>th</sup> and June 12<sup>th</sup>, 2016, and the first wave between May 4<sup>th</sup> and June 10<sup>th</sup>, 2017. Participants were asked for demographic and social-economic information, and about travel behaviour and attitudes, including a past-week travel diary.

Quantitative first-year results found a rise in cycling participation and time spent walking and cycling, and improved perceptions of cycling environments.

The sample includes participants responding to postcards sent to cluster sampled households, with additional respondents from TfL’s Oyster and Cyclist databases<sup>4</sup>. It is not demographically representative (most notably in an age skew to older Londoners<sup>5</sup>), so views expressed may not be statistically representative of Outer Londoners. However, travel patterns are like the broader population, with high use of cars, public transport, and walking, and low cycling levels. At baseline there were 3425 respondents: 1519 from mini-Holland boroughs and 1916 in the rest of Outer London. There were 1712 valid responses at Wave 1. At baseline, very little had happened on the ground, but the mini-Hollands were already controversial, while at Wave 1 some schemes were partially and some fully implemented, but most were not. (Consultation processes in the UK are often lengthy).

The survey invited respondents to comment on travel and their local area, and over 60% did so. In relation to six modes of transport (Figure 2), respondents were asked: ‘Please tell us whether you think Transport for London and your local authority are doing enough to support the following types of transport in your area.’ This question was aiming to capture not just views on monetary investment, but also prioritisation of street space (for instance, did people think too much roadway was being allocated to cycle tracks? Too much space for car parking?) Figure 2 illustrates the particularly controversial nature of driving and cycling, showing >5% saying that there is too much institutional support for each. By contrast virtually no one (~1% or less) said there was too much support for public transport or walking. A majority (>50%) believed support was about right for public transport and walking, but only a minority (<50%) for private car use and for cycling.<sup>6</sup>

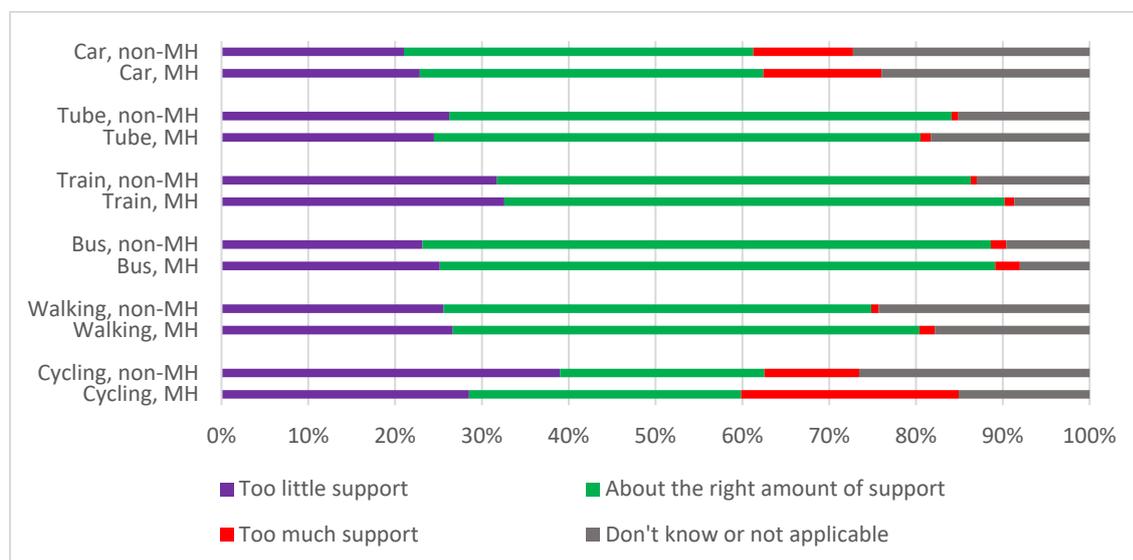


Figure 2: views on institutional support for different modes, at baseline, mini-Holland and non-mini Holland boroughs

<sup>4</sup>People registered as customers either of TfL’s Oyster (public transport smart card) or cycling services. There were proportionally more ‘Cyclist’ respondents in control boroughs, affecting the results shown here, although when these are removed a substantial gap remains.

<sup>5</sup> This is likely to make attitudes towards cycling more negative; however, this demographic is often also well represented among consultation respondents.

<sup>6</sup> Private modes (car use, cycling, walking) differed from public modes in tending to have higher proportions saying ‘don’t know or N/A’: suggesting it is harder for people to judge institutional support for private modes.

## 4.2 Data Analysis

Data was imported into NVivo 12 survey software. All individuals were retained even if they did not participate at Wave 1, as the analysis here is not primarily longitudinal. Coding was inductive and thematic, with the paper's research questions developed in parallel with coding. This process started by automatically coding paragraphs with any reference to terms related to driving or cycling. Inclusive definitions were used so as not to miss any references. All text was then read and non-relevant references removed manually, alongside the development of an inductive coding structure.

As coding progressed, cycling and driving references could in most cases be categorised as negative and/or positive (towards drivers or driving, or towards cyclists or cycling). Negative and positive references were not exclusive, so for instance someone could express a need for new cycle paths and complain that cyclists behaved badly. People could also, for instance, request support for *their* driving (e.g. complaining about lack of car parking spaces at local shops) while criticising other people's driving (e.g. blocking their driveway).

A minority of references were neutral (e.g. 'council offers cycle training, have not tried it') or ambiguous/ambivalent (primarily references to 'congestion'; see below) and these were coded separately. However, within 'positive' and 'negative' comments, clear themes were visible. In many cases there were similarities between the two modes; for instance, complaints both about (impacts of) poor driving behaviour and poor cycling behaviour, which could be coded into sub-themes. Following coding, and iterative re-organisation of sub-themes, new nodes were created summarising presence of different types of theme.

## 5. Results

### 5.1 Responses received

In total, 2,128 individuals (62.0% of all respondents) provided comments at baseline and/or Wave 1 in response to one or more of the following questions:

- Is there anything you would like to add about travel in your local area?
- Is there anything you would like to add about your area?
- Is there anything you would like to add about the cycling the child or children may do? (respondents with children in the household)
- Is there anything you would like to add about how travel or your local area has changed since May 2016 (Wave 1 only)

54% (1149) of commenting respondents were from control, and 46% (979) were from intervention boroughs.

### 5.2 Quantitative analysis

This section is primarily quantitative, giving an overview of the frequency of pro- and anti-car and cycling comments, and how they related to selected other variables (being in an intervention or not, whether the question prioritised 'travel' or 'area', whether the person owned a car or cycled frequently, and responses to the quantitative survey question shown in Figure 2). The aim here is not to predict attitudes to different modes, but to set the context for a qualitative discussion of how support and opposition to driving and cycling are narrated in a context of controversial policy change.

### 5.2.1 Negative and positive attitudes towards driving and cycling

Many respondents mentioned driving and/or cycling, with both controversial. For brevity, comments relating to negative impacts/perceptions/the need to reduce use or support for the mode have been labelled ‘anti’, with comments relating to positive impacts/perceptions/the need to better support the mode labelled as ‘pro’.<sup>7</sup> Example pro- and anti-car themes are shown in Table 1 along with examples of types of comment/concept that might mention cars but is neither pro- nor anti-, or is ambiguous.

Table 1: examples of pro- and anti-car themes

Pro-car themes (examples)	Anti-car themes (examples)	Neither/ambiguous (examples)
Drivers are unfairly penalised	Cars cause air pollution	States there is congestion or complains about it.
Cyclists delay people driving	Noisy motor vehicles cause disturbance	States (without comment) change in driving/car ownership
Speed bumps/traffic calming obstructs drivers	People drive too fast	Mentions car infrastructure changes, e.g. new junction sliproad (without comment)

Table 2 summarises numbers of pro- and anti-car and -cycling comments, showing numbers of comments made, numbers of people commenting (some commented multiple times), and what proportion of all people commenting expressed those views. Pro-cycling (30%) and anti-car (26%) views were more prevalent than pro-car or anti-cycling views (both 17%). Examples of ‘anti’ and ‘pro’ comments include:

‘There are no cycle routes along the main routes in our area, instead the speed of car travel is increased further despite a problem with speeding.’ (anti-car, pro-cycling)

‘Travelling by car is too highly restricted and penalised.’ (pro-car)

‘Too much attention to cycling to the detriment of motor vehicles, e.g. they have no insurance, no road tax no wing mirrors but have their own roadway which they do not contribute to.’ (anti-cycling)

Table 2: Pro- and anti-car and -cycling comments, summary

	Pro-car	Anti-car	Pro-cycling	Anti-cycling
Number of comments	484	747	934	503
Number of people commenting	368	550	630	368
% of all people commenting	17%	26%	30%	17%

<sup>7</sup> However, note that most respondents would probably not describe their comments in such terms, and that it is possible to express anti- and pro-views in a single statement. ‘Car’ is also shorthand: while mostly people referred to cars, there were also complaints about HGVs, vans, motorcycles, and buses.

Table 3 highlights key anti-car and anti-cycling themes and subthemes, some of which are discussed further below. Complaints about driving and cycling both included general complaints (e.g. driving causes noise pollution, or cycle infrastructure delays drivers), and specific complaints about anti-social behaviour.

Table 3: Key anti-car and anti-cycling themes and sub-themes (each with >50 references)

Theme/subtheme	Number of references
Anti-car	1327
Antisocial/dangerous driving	296
Problematic parking	170
Speeding	155
Negative impacts of motor vehicles	766
Air pollution	143
Excessive use of motor vehicles deters cycling	142
Deters public transport use	63
Deters walking	108
Noise pollution	175
Rat running	60
General road danger/injury risk	75
Anti-cycling	1051
Cycling/cycle infrastructure causes delays to motor vehicles	268
Delays cause congestion and/or pollution	126
Driving too difficult	103
Opposes cycle infrastructure	279
Cycle infrastructure is not needed or unused	137
Cycle infrastructure is poor quality	63
Generally too much focus on cycle infrastructure	79

Anti-social/dangerous cycling	450
Road danger/injury risk	94
Footway cycling	97
Cycling causes problems for pedestrians	81

### *5.2.2 Attitudes towards driving and cycling by question type*

TfL’s recently announced Healthy Streets approach (TfL 2017) widens the remit of a transport authority not only beyond its traditional focus on motorised modes, but beyond ‘transport’ itself to prioritise street activities. This draws on a critique of the prioritisation of (motorised) movement over streets as places (DfT 2007, CIHT 2010, Jones and Boujenko 2009, RTF 2013), often rooted in the work of Jane Jacobs (1961). The hope is that focusing on ‘place’ will encourage support for measures to control driving, by encouraging people to see themselves as residents or shoppers (for instance) rather than primarily as motorists.

This was tested by comparing ratios of pro- to anti-car comments for the two different question types. For questions about ‘local area’, there were 78 pro-car and 244 anti-car comments, while for questions about ‘transport in your area’, there were 201 pro-car and 189 anti-car comments. Thus for cars, talk about travel was finely balanced between positive and negative comments, while ‘local area’ questions were more likely to elicit negative than positive comments about cars. For cycling, there was no clear difference between the question types. Area-based questions evoked similar balances of pro- and anti-cycling comments (111 pro, 77 anti) as did travel-based questions (312 pro, 182 anti).

### *5.2.3 Attitudes towards driving and cycling by area and by car ownership and cycle use*

Analysis examined how attitudes varied by whether respondents lived in control or intervention areas, and car ownership and cycle use. Figure 3 demonstrates clear differences between control and intervention areas. The main differences related to pro-car and anti-cycling views, both more common in intervention areas. Substantial differences in attitudes to cycling existed between control and intervention areas even at baseline, when few on-street changes had been made. This likely reflected the large amount of controversy that plans and proposals attracted from 2014 onwards, and the gap widened further at Wave 1 (Aldred et al 2018). Note that at Wave 1 a number of schemes were partly built (e.g. a main road cycle track in Enfield) and hence this may have heightened controversy where benefits were not yet apparent but disruption was continuing.

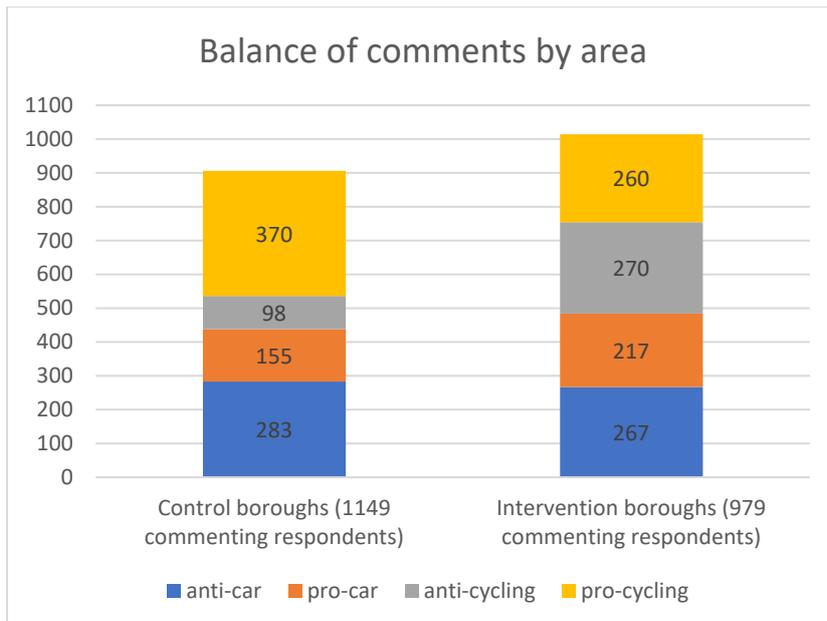


Figure 3: balance of pro- and anti-car and cycling comments, by area

Views also differed based on car ownership and cycle use<sup>8</sup>. As car ownership increased, people were more likely to express pro-car views, compared to anti-car views. Specifically, owners of two or more cars were as likely to express pro- as anti-car views (ratio 1.0:1). Those who owned one car were 1.4 times more likely to express anti-car than pro-car views, and those who did not own a car were 3.2 times more likely to do so.

Car ownership was also associated with attitudes towards cycling. Non-car owners were twice as likely to express pro-cycling as anti-cycling views. Owners of one car were 1.7 times as likely to do so, while for owners of two or more cars, the ratio was 1.4:1. This suggests that Outer Londoners without a car in the household may be more likely to feel affected by the impacts of other people’s driving, and to sympathise with or support people cycling.

Respondents who had cycled in the past week were 3.8 times more likely to make pro- as anti-cycling comments, while those who had not were only 1.2 times more likely to make pro-cycling comments. A reversed, albeit less steep gradient existed for attitudes to driving: cyclists were 2.1 times more likely to make anti-car than pro-car comments, but non-cyclists were only 1.3 times more likely to make anti-car comments. This suggests narratives supporting driving may draw on anti-cycling narratives, and vice versa.

#### 5.2.4 Do attitudes towards driving or cycling predict opinions on institutional support?

Finally, this section examines how attitudes towards cycling or driving correlate with quantitative survey data on institutional support for those modes. To what extent do those complaining about air pollution say that there should be less institutional support for motoring? Conversely, to what extent to those complaining about footway cycling say that there should be less institutional support for cycling? Such questions start to explore the extent to which contested narratives around driving and cycling feed through into views on political and policy choices.

<sup>8</sup> Car ownership was chosen as representing differing levels of likely habitual attachments to the car, while regular use of a cycle was used as representative of likely attachment to cycling.

Baseline quantitative data on views opposing or supporting driving and cycling was imported to SPSS, where quantitative data was held, and correlated with responses about institutional support for driving and for cycling. All crosstabulations were strongly statistically significant ( $p < 0.001$ ) but the nature of these correlations varied.

Figure 4 below depicts results for cycling. Most people expressed no pro- or anti-cycling views in comments and were divided on institutional support for cycling as per the overall picture in Figure 2. While a majority thought institutional support for in cycling was ‘about right’ or insufficient, there were significant minorities either saying it was ‘too much’, or saying ‘don’t know’. By contrast, nearly 70% of those with pro-cycling views said there was ‘too little’ institutional support for cycling. Among those with anti-cycling views, an almost as large majority (64%) said there was ‘too much’ support for cycling. In other words, those who felt positively towards cycling and/or cyclists also wanted more institutional support for cycling, while those who felt negatively wanted less: an unsurprising result.

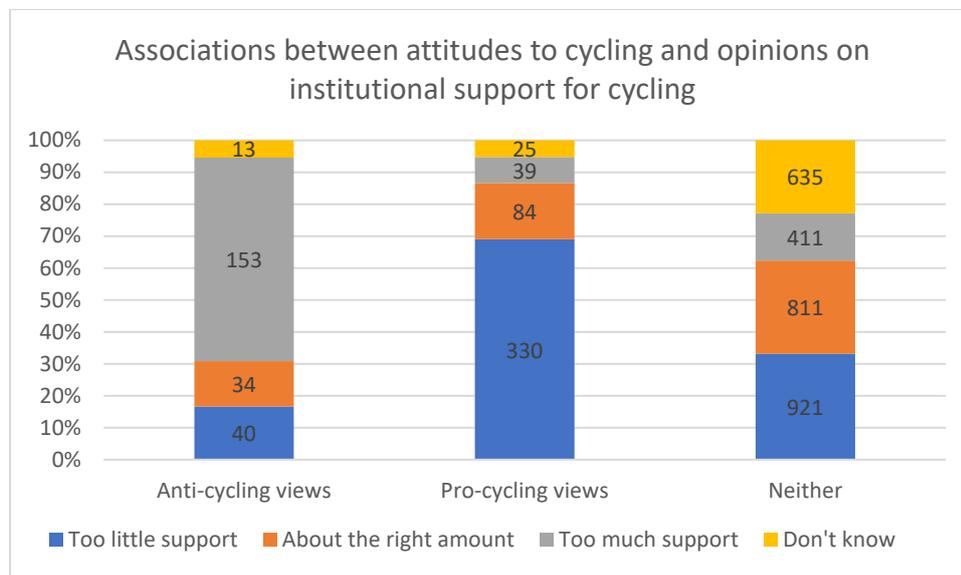


Figure 4: associations between attitudes to cycling and opinions about institutional support for cycling

However, while views towards driving affected people’s responses to the ‘institutional support’ question, the picture (Figure 5) was more contradictory. As in Figure 2, ‘neutrals’ were divided on institutional support for driving. While almost half (42%) said support for driving was about right, significant minorities said this was either too little, too much, or that they did not know. Among those holding pro-car views, as might be expected, a majority (56%) said there was insufficient institutional support for driving.

However, such consistency does not exist for those expressing anti-car views. As with the pro-car group, the anti-car group were unlikely to say support was ‘about right’ (25% of the pro-car group, compared to 26% of the anti-car group). However, 27% of those expressing anti-car views said that there was too little institutional support for the car, compared with 19% of ‘neutrals’. And 20% of those who expressed anti-car views said they did not know if there was too much or too little support for driving (whereas for cycling, the equivalent figure among anti-cycling respondents was 5%).

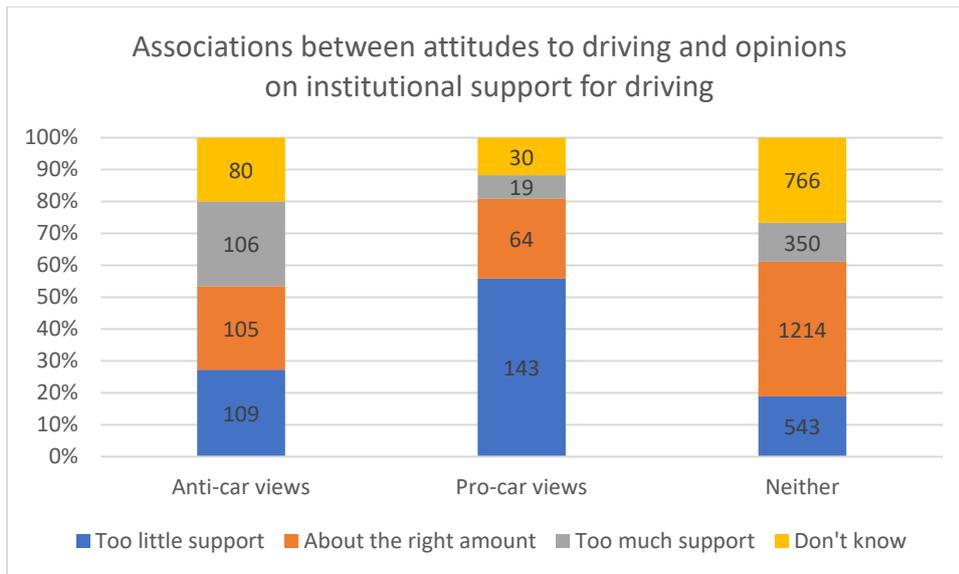


Figure 5: associations between attitudes to driving and opinions about institutional support for driving

These results are explored further below in qualitative analysis. They pertain to groups that may be minorities (most survey participants did *not* leave comments expressing pro- or anti-car or cycling views) but whose views are often influential in decision-making. Three such groups hold consistent views on institutional support for the two modes. Those expressing support for driving or cycling tend to believe that there should be more institutional support for their favoured mode. Those opposed to cycling similarly tend to feel cycling is seeing too much institutional support. However, there is no such consistency among those expressing negativity towards driving: people are as likely to say there is too little institutional support for driving as they are to say there is too much. This indicates tension and ambiguity attached to storylines critiquing impacts of driving, explored further (and compared with cycling) below.

### 5.3 Qualitative analysis

It is important to understand what lies behind the results discussed above. A substantial minority is critical both of driving and cycling; but how do these discourses differ, including attributions of blame and causality, and proposed solutions? There is more negativity towards cycling in intervention boroughs. However, how is this narrated, and does it differ from negativity also expressed in control boroughs? And what explains the apparent inconsistency in Figure 5 among those citing negative impacts of driving?

#### 5.3.1 Attitudes towards motor vehicles and drivers

##### Congestion: a contradictory concept

While analysing data, it became apparent that 'congestion' was an intriguing and ambiguous concept. Unlike air pollution, it was not always inherently negative. Sometimes it formed part of a positive case for using other modes (e.g. time savings benefits being one of several reasons to walk). At other times, it was inherently negative, as it delays drivers; or negative in causing other externalities, from air pollution to poor driver behaviour. Finally, congestion was described as deterring use of other modes, by making them slower or less pleasant.

Hence, this section firstly outlines contradictory portrayals of congestion, before linking this to broader characteristics of positive and negative comments about motor vehicle use. Among control area respondents who commented, 15% (176/1149) mentioned local

congestion or busy roads, compared to 20% (197/979) of intervention area respondents. Not everyone referencing congestion described it as a major problem, for instance:

‘On my 20 minute walk to work I can spend as much as 10 minutes walking past queues of cars.’

Some cited specific negative impacts of congestion/excessive motor vehicle use, from time losses for people driving to it representing a disincentive to walk, cycle, or use buses:

‘The roads are so congested that driving is a pain.’

‘It’s a pleasant enough community but is sliced through by a busy A road causing pollution, noise, vibration.’

‘The car congestion is horrific. People park on either side of the road to collect people coming from the tube and during rush hour this creates chaos.’

The comments above highlight variation within discourses of congestion. Sometimes, it was described from the point of view of a local resident or someone travelling by a non-car mode; in others, from the point of view of a delayed driver. Narratives were associated with varying posited causes and policy implications. Thirty respondents from the control group linked congestion to excessive driving, as did twenty-five in the intervention group<sup>9</sup>. While only seven people in control areas described local congestion as caused by cycle infrastructure, 63 (6% of all those commenting) in intervention areas did so. By contrast, 58 people living in control areas said congestion was caused by roadworks or poor junction design/phasing, compared to 39 in intervention areas.

‘At some point in the future there will need to be a limit on car usage because congestion is becoming worse.’ (control)

‘There have been a series of roadworks for the last few months causing major traffic jams in the immediate area.’ (control)

‘Too much congestion caused by poorly phased traffic lights and badly positioned bus stops resulting in blocked junctions.’ (intervention)

While the concept of ‘congestion’ was not always anti-car (and hence not coded as such by default), 550 respondents (26% of all those commenting) did cite problems caused to others by drivers or car-focused infrastructure. Problems included air and noise pollution, injury risk, and a degraded local environment, deterring people from active travel (including walking to public transport). 118 respondents said car use discouraged cycling, while 99 said it deterred walking and 58 use of public transport.

42% of those who identified problems with car use complained specifically about driver behaviour (131 in the control, and 116 in the intervention group). Driving too fast was mentioned by 75 in the control group and 62 in the intervention group. Similar numbers referred to problematic car parking (for instance, footway parking putting pedestrians at risk) – 86 in control areas and 59 in intervention areas.

Noise pollution was frequently referenced. Although less often discussed by policy-makers than air pollution, it has similar and independent impacts on health (Tobías et al 2015). 7% of those commenting in both control and intervention areas complained of ‘ordinary’ traffic noise and/or motorists deliberately making noise, through illegally modified engines or

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<sup>9</sup> Few linked it to collisions or other unanticipated events.

excessive horn use. More people in intervention areas referred to air pollution in qualitative comments (72, compared to 48 in control areas) The survey had also included a quantitative question about the level air pollution in one's local area, which by contrast showed little difference between control and intervention areas.

Of 87 references to air pollution in intervention areas, 40 suggested active travel schemes (cycle tracks, road closures, traffic calming) were to blame, often referencing cycling or cyclists. For instance:

'The introduction of cycle lanes to our main roads is causing havoc which will not reduce once the works are completed because the roads are too narrow for these cycle lanes. Pollution is also increasing dramatically due to the constantly stationary traffic making walking very unpleasant.'

'I am fed up with everything being centred around cyclists. Some people have to use their car and all the blocked off roads, cycle lanes etc cause traffic jams and therefore more pollution.'

By contrast, none of the 56 references to air pollution in control areas made negative reference to cycle infrastructure, and few blamed other sustainable transport modes or infrastructure. There were just four negative references to traffic calming (speed bumps/cushions) and two to pedestrianisation of a local station area:

'I want speed bumps removed. They cause revving and increase pollution and are so badly built that many damage my vehicles however slowly I drive.'

The air pollution discourse highlights how, as with discourse around congestion, problems caused by car use can be incorporated within narratives supporting the car and/or opposing measures to support sustainable modes. This worked in two main ways. Firstly, some respondents criticised other people's car use while defending their own. More commonly, respondents (as above) argued that disbenefits of car use were aggravated or even caused by restrictions on motoring. While such references were strikingly associated with blaming cycle infrastructure in intervention areas, the general line of argument appeared elsewhere criticising other policies limiting speed, driving, and/or car parking:

'Lack of commuter parking at tube and train stations or prohibitively high prices result in parking in local roads with cars going backwards and forwards searching for rare spaces and creating unnecessary traffic and pollution in residential areas.'

'Congestion and pollution is being caused by measures put in place, such as 20mph speed limits, speed bumps and parking bays that disrupt the flow of traffic.'

Some respondents suggested that measures to restrict motor vehicle use caused bad behaviour through driver frustration, thus increasing risk:

'20 mph zones waste of time and dangerous. Have seen several examples of dangerous over-taking manoeuvres where the driver [in front] has been sticking to the 20 mph limit.'

In control boroughs, 90 (8%) of respondents made pro-car comments, while in intervention boroughs, this was higher: 178 (18%) (although lower than the 28% referring to negative impacts of car use). In intervention areas, 59 respondents expressed opposition to 'modal filtering' (roads closed to through motor traffic), a policy so far only seeing significant implementation in the south of Waltham Forest. While congestion has long been a normal

part of travel in London, many narratives used language that suggested that congestion was a dramatically new, policy-generated problem:

‘Road closures have caused huge gridlock on main roads, with increased air pollution and delaying bus journeys.’

Some pro-car narratives cast anti-car policies as elitist, with car use depicted as necessary for people with limited time or money, those living further from work, disabled, older people, and those with children:

‘Please focus on what local people want rather than vociferous greenies who have the time and money to cycle everywhere and shop locally using walking or bike as transport.’

‘It’s [mini-Holland schemes] great for the more wealthy, who can afford to live near public transport hubs and often have jobs that are either home-based or public transport friendly - but for some of us who need to drive for work and/or who can only afford housing further from the centre, it has cost us significant extra time and money, \*and\* we get much of the additional pollution.’

Other narratives referred to the right to use a car, or the importance of motorised over other modes:

‘Public highways are there for the carriage of goods and people not to be blocked off so that they cannot be used !!!!’

‘We are a major capital and need taxis, vans, buses, overground and underground services to maintain the movement of our people in this city. With the best will in the world the above 4 modes of transport are vital for the capital to function. Bikes do nothing for this but seem to be given lots of supports.’

Such comments reflect Mandenscheid’s (2014: 615) description of the privileging of the ‘economically productive automobile subject – driving for work or consumption reasons – which deserves full social admission’, albeit in the second case adding public transport users but explicitly excluding people cycling and implicitly, people walking.

Other comments narrated drivers as a marginalised group in London, subject to unjust restrictions and unfairly taxed.

‘Travelling by car is too highly restricted and penalised. It is not helpful to keep reducing speed limits and restricting parking excessively.’

‘The local council seems to see drivers as a cash cow which it milks with draconian parking restrictions and fixed penalties for driving offences.’

In summary, while a large minority of participants commented on negative impacts of car use, such impacts were often also described as caused by restrictions upon driving and/or excessive support for other modes. The latter was especially visible in intervention areas, with cycling and cyclists blamed for problems such as air pollution and congestion (due to motorists being delayed by cycling schemes). The concept of congestion analysed here was particularly contradictory. While many mentioned congestion, posited causes and solutions varied widely, from asking for more space for cars to relieve congestion, to the opposite.

### *5.3.2 Attitudes towards cycling and cyclists*

This section outlines findings related to portrayals of cycling and cyclists. Negative views on cycling and cycle infrastructure largely centred on two concerns. Firstly, respondents

complained that cyclists or cycling caused delays and inconvenience, and related externalities such as pollution. Because such views are discussed above, this second focuses on the second cluster of anti-cycling views: blaming cyclists for injury risk and anti-social behaviour. These views largely narrated people cycling as threatening pedestrians, although with drivers also affected (either as at risk of injury, or, more frequently, as virtuous counterparts to cyclists lacking insurance, safety clothing, common sense, and/or manners).

Overall, 17% of commenting respondents expressed negative views about cycling and cyclists. 95 people commenting in intervention areas linked cycling or cycle provision to delays, congestion, and/or pollution, compared to only 11 people in control areas. 76 people in intervention areas said cycling or cycle provision made it harder to drive, compared to 9 in control areas. The intervention-control area split for people saying cycling or cycle provision caused problems for pedestrians was 54 to 16.

184 (9% of those commenting; compared to 12% referring to anti-social driving) of respondents complained about anti-social cycling. As with many anti-cycling themes, this varied between control (61) and intervention (123) areas. Footway cycling<sup>10</sup> represented one of the most frequent complaints about people cycling, attracting three times as many comments as red light jumping or cycling too fast (4% of respondents, compared to 1% for red light jumping or speeding).

While cyclists in the carriageway were described as delaying drivers, footway cycling was similar cast as 'out of place' – while only footway cycling is (unless designated shared use) illegal, both were cast in comments as illegitimate. In line with the congruence discussed above between anti-cycling views and opposition to cycle infrastructure, respondents suggested that policies were biased in favour of cyclists. They argued that this was counter-productive, for example because there was no demand for cycling, or that existing cyclists prefer to cycle on the carriageway and/or footway.

'Cyclists use the pavements rather than the dedicated cyclepaths. They ignore the 'no cycling' and are generally abusive. Cyclists believe the law does not apply to them and no one does anything about it. [...] Spending money on cyclepaths is a waste of money as they prefer to use the pavements.'

'I think TfL spends more time worrying about cyclists and less time worrying about car drivers. In my area alone we have cycle tracks but the cyclists never use them and prefer to use the road which is much more dangerous for them and hazardous for car drivers. Cyclists don't contribute towards the roads so therefore I feel drivers and motor cyclists are the only people who should be using them.'

Complaints about cyclists not using cycle infrastructure were concentrated in intervention areas (although by May 2017, few cycle paths had been built). In control areas only 13 people (1% of those commenting) said cycle infrastructure was not needed or unused, whether because no one wanted to cycle or because cyclists prefer to use the road or footway. By contrast 95 (10% of those commenting) in intervention areas said this.

Almost twice as many respondents made pro- as anti-cycling comments. This represented 32% of those commenting in control areas, and 27% in intervention areas. Many of these

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<sup>10</sup> Footway cycling is illegal in England and Wales unless a footway is designated 'shared use' (quite common), although guidance to police recommends against heavy enforcement if riders are careful and the alternative is a busy road.

comments said cycling was currently too dangerous and/or expressed a need for safer and higher-quality cycling infrastructure: sometimes support for infrastructure planned and built, but in most cases, this referred to a more general need.

As with anti-cycling comments, there were (albeit less striking) differences between control and intervention areas. 337 (16% of those commenting) said cycling was too dangerous or unpleasant (18% in control areas, 13% in intervention areas). Of those 337, 247 referred to risk posed by motorised traffic (not for instance potholes or pedestrians); 156 in control and 91 in intervention areas. 283 (180 in control, and 103 in intervention areas) said that there was not enough cycle infrastructure, or that more was needed. By contrast, 85 (54 in control and 31 in intervention areas) referred to the need for facilities other than infrastructure change, such as cycle hire extension, cycle loan schemes, and better cycle parking facilities.

78 (46 in control and 32 in intervention areas) referred specifically to poor driver behaviour as causing problems for cycling (as opposed to just 'traffic risk' for example). Another 78 (27 in control and 51 in intervention areas) expressed gratitude for or positivity about infrastructure provided.

Comments around poor cycling conditions and the need for better infrastructure included:

'Cycling is too dangerous in London - I stopped commuting by cycle 9 years ago after an accident.'

'We are too frightened to cycle on the roads with the children and I am too afraid of cycling to work - otherwise I would!'

'The Cycle Superhighways are fantastic, and the only reason me and my family have incorporated cycling into our lives around London, so thank you. The designated cycle lanes in our Borough however are constantly obstructed by parked vehicles.'

'It is really dangerous to cycle in London; the cycle paths aren't separated from the main road and car drivers try to overtake, even if there is no room to do so safely. I once took a bike to cycle through Westminster and was nearly knocked over twice in the span of 10 minutes.'

Many of these comments, as above, referred to past injuries or near misses, to hearing about or fearing bad experiences, or to observing poor cycling environments locally or elsewhere in London, rather than being a generalised 'fear of cycling' (Horton, 2016). Primarily such experiences and fears related to sharing the road with motor traffic.

### *5.3.3 Comparing the construction of 'bad driving' and 'bad cycling'*

The discussion above highlights the prevalence of complaints about poor behaviour by both user groups (e.g. footway cycling, or driver speeding). Given the controversy about (users of) both modes, and the contradictory nature of narratives around cycling and driving, this section analyses how 'bad drivers' and 'bad cyclists' are constructed, to better understand attitudes expressed and their implications.

The analysis explores to what extent 'out-grouping' of drivers or cyclists happens: are road users seen as a distinct (deviant) group, or as people first? Or is responsibility located in the vehicle, depersonalising the driver or cyclist? It focuses on three sets of coded text, related to 'problematic [motor vehicle] parking', 'speeding' (by motor vehicles), and footway cycling. It involved identifying references to people primarily constructed as road users (or specific types of road user, such as 'boy racer'), to people primarily constructed in a non-

road user capacity (including specific groups, such as ‘parents’ or ‘commuters’) and to vehicles themselves (cars, buses, motorcycles, bicycles etc.)

For problematic parking, there were 103 references to cars, 47 to people, and only 7 to drivers. Examples of each follow, with underlining to highlight attribution:

‘So little space left on the road to park that cars park in drive ways’

‘Parking is an issue, even though almost 0.7 mile from station, commuters still park’

‘Some drivers actually park on the pavement, so you have to walk in the road’

For speeding, the balance was closer, although the most common attribution was still to a vehicle (79) rather than a driver (40) or person (28):

‘Cars drive too fast’

‘My street is one way which means people drive down it at very high speed’

‘If the road is free, certain types of car drivers will go fast.’

Both patterns contrasted with the construction of illegal or anti-social behaviour by people cycling. For footway cycling 78 attributions were to ‘cyclists’, 8 to people, and 4 to bikes. Examples of all follow, again with underlining to indicate responsibility:

‘CYCLES SHOULD HAVE SOME SORT OF TAX OR REGISTRATION, THEY RIDE ALL OVER THE PAVEMENTS AS WELL AS THE ROADS’

‘There are an increasing number of adults who, by ignorance or selfishness, seem to think they are also entitled to cycle on the pavement.’

‘There are many cycle paths in our area but they are seldom used and most of the cyclists ride either in the road, obstructing traffic, or on the pavements, causing danger to pedestrians. They are probably the most inconsiderate and dangerous of all road users.’

Thus for the three studied examples, problems related to driving/cars were likely to be attributed to the vehicle itself (very strong for problematic parking; less so for speeding), followed by ‘people’ (or ‘commuters’, ‘parents’, etc.). By comparison, problems caused by footway cycling were almost always directly attributed to ‘cyclists’. This was frequently accompanied by general negative descriptions (‘ignorance’, ‘selfishness’, ‘inconsiderate’, ‘dangerous’, etc.). For motorists, such generalisation about group behaviour was less common even where ‘drivers’ were blamed; although the term ‘aggressive’ was associated there with speeding drivers to some extent<sup>11</sup>. These findings illustrate a pervasive stigmatisation of people cycling, alongside a de-personalisation of driver behaviour, removing responsibility from drivers.

## 6. Discussion

### 6.1 Drivers and cyclists in ‘public opinion’

This paper is unusual in analysing qualitative comments from a survey on travel behaviour and attitudes. The themes discussed here represent persistent narratives within debates around transport. While the commentators may not be statistically representative of the views of Outer Londoners, they represent ‘audible minorities’ setting the tone for public

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<sup>11</sup> NB that those criticising aggressive driving may be less likely to concur that all/most drivers are aggressive, than are commentators describing cyclists as ‘lawless’, ‘ignorant’ etc. to make similar generalisations.

debate when controversial schemes are proposed. The narratives found here matter for policy as well as for research. They support the need to study discourses around different modes alongside each other. While at

Analysis explored whether views supporting or opposing driving and cycling correlated with responses to a quantitative survey question on institutional support for different modes. Here anti-car views stood out as not being associated with opinions about institutional support for driving. In other words, while people who expressed pro-car views were likely to also want more support for driving, the converse was not true of people who expressed anti-car views. The picture was consistent both ways for cycling: people expressing anti-cycling views tended to say there was too much support for cycling, and vice versa.

This apparent weakness of anti-car narratives was explored further through thematic content analysis. This found that despite widespread awareness of problems related to car driving, many respondents narrated these problems as being ultimately caused by (institutional support for) other modes, or by restrictions on driving. This allowed an apparently anti-car concept (such as air or noise pollution, or congestion) to support a pro-car storyline (such as wanting more capacity to be provided for motor vehicles). Such narratives were also supported by an assumption that current travel behaviour would persist, rather than mode shift being possible.

Within intervention areas, narratives that critiqued the effects of car use but supported pro-car policies had an anti-cycling angle less prominent elsewhere. Active travel interventions were described as unjustly supporting cyclists at the expense of drivers. This often relied on a narrative casting cyclists as undeserving road users: dangerous and inconsiderate. Such narratives were explored further via contrasting descriptions of bad cycling and bad driving. For the former, responsibility was attributed to 'cyclists' in almost all cases, often linking cyclists in general with a range of negative attributes, such as selfishness and ignorance. By contrast, 'drivers' were usually absent from discourse around speeding and – even more so – problematic parking. This was associated with a relative lack of road user group stigma. In some cases, 'people' were blamed for driving behaviour; but most people described 'the car' itself as driving inappropriately fast or parking in the wrong place. Human agency was replaced by the vehicle; something that almost never happened for footway cycling.

Limitations of the study include its specific context. London is hardly typical of the UK, although it may be seen as a leading-edge case study, with other cities seeking to follow suit. The sample is not representative of the local population and thus it should not be assumed, for instance, that attitudes towards cycling are generally this negative in Outer London. The focus here is rather on exploring clusters of attitudes and beliefs, their consistency, and their relationships to (and implications for) wider policy. Finally, while this data is qualitative, being survey responses it does not have the interactive richness that an interview or focus group would. The trade-off is that there are many responses to analyse.

## 6.2 Implications for research and policy

This study has added to our understanding of narratives around driving and cycling, with key findings including a high level of cycling stigma and an ambiguity and ambivalence surrounding apparently anti-car narratives and concepts. As in other UK-based research, cycling are an 'out-group' (Basford et al, 2002; Aldred, 2013), with drivers seeing them as lacking legitimacy on the roads and/or as incompetent road users. Conversely, literature critically discussing 'road safety' highlights the normalisation of risk posed by motor

vehicles, and the deflection of responsibility away from drivers towards pedestrians and cyclists (e.g. Freund and Martin 2001). Such perceptions exist in this data, casting cyclists as dangerous road users while absolving drivers of responsibility. For example, a comment partially quoted above begins with the right to drive and continues with the claim that cyclists are injured because of their own poor behaviour.

'I am fed up with everything being centred around cyclists. Some people have to use their car and all the blocked off roads, cycle lanes etc cause traffic jams and therefore more pollution. Cyclists need to abide by rules and not be stupid, I have to avoid their stupid manoeuvres constantly. They have no regard for their own lives.'

While an increasing number of studies qualitatively explore perceptions (often negative) related to cyclists and cycling (e.g. Culver 2018), few include a modal comparison as here. The data permitted this, allowing analysis of the similarities, differences, and relationships between discourses criticising and supporting driving and cycling. Further research could explore or compare such perceptions in different policy contexts. Rich anglophone countries have high levels of cycling stigma and car dependency, so comparing the narratives outlined here to those in (for instance) other European countries would be of interest. Are 'cyclists-cause-congestion' narratives available there or are other ways found to oppose active travel infrastructure? Conversely, can we identify more coherent anti-car narratives, and are there lessons for countries like the UK? It would also be interesting to compare these findings to discourses of walking and driving from countries like the USA where anti-pedestrian laws and narratives are stronger, and pedestrian infrastructure more often absent from streets.

For policy-makers wishing to increase sustainable transport, the mismatch between awareness of the negative impacts of motor vehicles, and views about policy support for driving is of concern. The data suggests that while many people are aware of the impacts motor vehicles can have on the local environment, this does not necessarily feed through into support for (perceived) restrictions on motor vehicle use (which includes many pro-sustainable transport policies, where these reallocate space from driving to public transport, walking, and cycling). Hence, simply highlighting pollution (for instance) is not necessarily enough to activate support for anti-car policies; more work remains to be done to strengthen anti-car (and pro-active travel) narratives.

Finally, while blaming cycle tracks or cyclists for problems caused by motor vehicle use may seem perverse, this is maintained by a belief that change in travel patterns is not possible, and thus restricting motor traffic or reallocating space to sustainable modes is pointless and counter-productive. There is a need for policy-makers to strengthen narratives linking awareness of the car's externalities to the need and the potential for radical change in both policy and behaviour, and to challenge cycling stigma. This remained in play despite strenuous local attempts to argue that mini-Holland schemes would benefit pedestrians and encourage walking: and indeed, the one-year quantitative findings showed a larger uplift in walking than in cycling.

## Bibliography

Aldred, R. (2013) Incompetent or too competent? Negotiating everyday cycling identities in a motor dominated society, *Mobilities* 8 (2), 252-271

Aldred, R. and Tepe, D. (2011) Framing scrappage in Germany and the UK: from climate discourse to recession talk?, *Journal of Transport Geography* 19(6), pp. 1563-1569

- Aldred, R., Watson, T., Lovelace, R. and Woodcock, J. (2017) Barriers to investing in cycling: Stakeholder views from England, *Transportation Research Part A: Policy and Practice*, <https://doi.org/10.1016/j.tra.2017.11.003>
- Banister, D. (2005) Overcoming barriers to the implementation of sustainable transport, in P. Rietveld, R.R. Stough (Eds.), *Barriers to Sustainable Transport*, Spon Press, Oxford
- Basford, L., Reid, S., Lester, T., Thomson, J., & Tolmie, A. (2002). Drivers' perceptions of cyclists. TRL Limited for the UK Department for Transport.
- Burford, R. (2015) Terrorists could attack new mini-Holland cycle route and poison water supply, claims professor on New Malden to Raynes Park link, *Surrey Comet*, 21st August 2015, [https://www.surreycomet.co.uk/news/13617072.Terrorists\\_could\\_attack\\_new\\_mini\\_Holland\\_cycle\\_route\\_and\\_poison\\_water\\_supply\\_claims\\_professor/?ref=mr&lp=19](https://www.surreycomet.co.uk/news/13617072.Terrorists_could_attack_new_mini_Holland_cycle_route_and_poison_water_supply_claims_professor/?ref=mr&lp=19)
- Bastian, A. and Börjesson, M. (2015) Peak car? Drivers of the recent decline in Swedish car use, *Transport Policy* 42, pp. 94-102
- Beirão, G. and Sarsfield Cabral, J.A. (2007) Understanding attitudes towards public transport and private car: A qualitative study, *Transport Policy*, 14(6), pp. 478-489
- Braun, L M., Rodriguez, D., Cole-Hunter, T., Ambros, A., (2016) Short-term planning and policy interventions to promote cycling in urban centers: Findings from a commute mode choice analysis in Barcelona, Spain. *Transportation Research Part A*. 89, 164 – 183.
- Castillo-Manzano, J.I. and Sánchez-Braza, A. (2013) Can anyone hate the bicycle? The hunt for an optimal local transportation policy to encourage bicycle usage, *Environmental Policy* 22 (6) 1010-1028.
- Chandler, M. (2016) Drivers call for reversal of mini-Holland scheme run by 'cycling Taliban'. *Evening Standard*, <https://www.standard.co.uk/news/transport/drivers-call-for-reversal-of-miniholland-scheme-run-by-cycling-taliban-a3268536.html> (Accessed 3 April 2018)
- Chartered Institute of Highways and Transportation (2010) *Manual for Streets 2: Wider application of the principles*. London: CIHT.
- Crane, M., Rissel, C., Standen, C., Ellison, A., Ellison, R., Wen, L M., Greaves, S., (2017) Longitudinal evaluation of travel and health outcomes in relation to new bicycle infrastructure, Sydney, Australia. *Journal of Transport & Health*. 6. 386 – 395.
- Culver, G. (2018) Bike helmets – a dangerous fixation? On the bike helmet's place in the cycling safety discourse in the United States, *Applied Mobilities*, <https://doi.org/10.1080/23800127.2018.1432088>
- Department for Transport (2007) *Manual for Streets*. London: DfT.
- Docherty, I. and Shaw, J. (2008) *New Deal or No Deal? A decade of 'sustainable' transport in the UK*. In Shaw and Docherty, eds. *Traffic Jam: Ten Years of 'sustainable' Transport in the UK*. Bristol: Policy Press.
- Domarchi, C., Tudela, A. and González, S. (2008) Effect of attitudes, habit and affective appraisal on mode choice: an application to university workers, *Transportation* 35(5), pp. 585-599

- English, P. and Salmon, P. (2015) New laws, road wars, courtesy and animosity: Cycling safety in Queensland newspapers, *Safety Science* 89: 256–262
- Fitt, H. (2018) Habitus and the loser cruiser: How low status deters bus use in a geographically limited field, *Journal of Transport Geography*, 70, pp. 228-233
- Freund, P.E.S. and Martin, G.T. (2001) Moving Bodies: injury, dis-ease, and the social organization of space. *Critical Public Health* 11(3), pp.201-214
- Gardner, B. and Abraham, C. (2007) What drives car use? A grounded theory analysis of commuters' reasons for driving, *Transportation Research Part F: Traffic Psychology and Behaviour*, 10(3), pp. 187-200
- Goodman, A., Sahlqvist, S., Ogilvie, D., 2014. New walking and cycling routes and increased physical activity: one-and 2-year findings from the UK iConnect Study. *American journal of public health*. 104(9). 38 – 46.
- Goodwin, P. (2004) Congestion charging in central London: Lessons learned, *Planning Theory & Practice* 5(4), pp. 501-505
- Horton, D. (2016) Fear of Cycling. In Horton, D., Cox, P. and Rosen, P. *Cycling and Society*. Routledge: Oxon, pp. 133-152
- Ison, S. and Wall, S. (2002) Attitudes to traffic-related issues in urban areas of the UK and the role of workplace parking charges, *Journal of Transport Geography*, 10(1), pp. 21-28
- Jacobs, J. (1961) *The Death and Life of Great American Cities*. Vintage: New York.
- Jones, P. and Boujenko, N. (2009) 'Link' and 'Place': a new approach to street planning and design, available at [http://www.atrf.info/papers/2009/2009\\_Jones\\_Boujenko.pdf](http://www.atrf.info/papers/2009/2009_Jones_Boujenko.pdf)
- ITP (2017) Understanding and managing congestion. Report for TfL, on behalf of GLA. <http://content.tfl.gov.uk/understanding-and-managing-congestion-in-london.pdf>
- Lindelöw, D., Koglin, T. and Svensson, Å. (2016) Pedestrian planning and the challenges of instrumental rationality in transport planning: emerging strategies in three Swedish municipalities, *Planning Theory & Practice*, 17(3), pp. 405-420
- Lovelace, R., Goodman, A., Aldred, R., Berkoff, N., Abbas, A. and Woodcock, J. (2017) The Propensity to Cycle Tool: An open source online system for sustainable transport planning, *Journal of Transport and Land Use* 10 (1), 505-528
- Luckin, B. (2010) A Never-Ending Passing of the Buck? The Failure of Drink-Driving Reform in Interwar Britain, 24(3), pp. 363-384
- Manderscheid, K. (2014) The Movement Problem, the Car and Future Mobility Regimes: Automobility as Dispositif and Mode of Regulation, *Mobilities* 9(4), pp. 604-626
- Melia, S. (2015) *Urban Transport Without the Hot Air*. UIT Cambridge: Cambridge.
- Morris, D., Enoch, M., Pitfield, D. and Ison, S. (2009) Car-free development through UK community travel plans. *Proceedings of the Institution of Civil Engineers: Urban Design and Planning*, 162 (DP1), pp. 19-27
- Metz, D. (2014) *Peak Car*, Landor Publishing, London

- Panter, J., Heinen, E., Mackett, R., Ogilvie, D., (2016) Impact of new transport infrastructure on walking, cycling, and physical activity. *American Journal of Preventive Medicine*. 50(2), 45-53.
- Pucher, J., Dill, J., Handy, S., 2010 Infrastructure, programs, and policies to increase bicycling: An international review. *Preventive Medicine*. 50, 106-125.
- Rosen, P. (2002) Pro-Car or Anti-Car? 'Environment', 'Economy' and 'Liberty' in UK Transport Debates, in Lyons, G. and Chatterjee, J. *Transport Lessons from the Fuel Tax Protests of 2000*. London: Routledge.
- RTF (2013) Roads Task Force Report. London: Transport for London. Available with supporting documents at <https://tfl.gov.uk/corporate/publications-and-reports/roads-task-force>
- Schaller, B. (2010) New York City's congestion pricing experience and implications for road pricing acceptance in the United States, *Transport Policy*, 17(4), pp. 266-273
- Sheller, M. (2004) Automotive emotions: feeling the car, *Theory, Culture, and Society* 21 (4/5), pp. 221-242
- Şimşekoğlu, Ö., Nordfjærn, T. and Rundmo, T. (2015) The role of attitudes, transport priorities, and car use habit for travel mode use and intention to use public transport in an urban Norwegian public, *Transport Policy* 42: 113–120
- Stappers, N.E.H., Van Kann, D.H.H., Ettema, D., De Vries, N.K., and Kremers, S.P.J (2018) The effect of infrastructural changes in the built environment on physical activity, active transportation and sedentary behavior – A systematic review, *Health & Place* 53, pp. 135-149
- Stokes, G. and B. Taylor (1995): "The Public Acceptability of Sustainable Transport Policies: Finding from the British Social Attitudes Survey," *Proceedings 23rd European Transport Forum: Seminar C*, 69–83, PTRC, UK.
- TfL. (2013) Mayor's Vision for Cycling. TfL, available at [https://www.london.gov.uk/sites/default/files/cycling\\_vision\\_gla\\_template\\_final.pdf](https://www.london.gov.uk/sites/default/files/cycling_vision_gla_template_final.pdf)
- TfL (2016) Analysis of Walking Potential. London: TfL, available at <http://content.tfl.gov.uk/analysis-of-walking-potential-2016.pdf>
- TfL (2016a) Analysis of Cycling Potential London: TfL, available at <http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf>
- TfL. (2017a) Healthy Streets. <http://content.tfl.gov.uk/healthy-streets-for-london.pdf>
- Tobías, A., Recio, A., Díaz, J. and Linares, C. (2015) Health impact assessment of traffic noise in Madrid (Spain), *Environmental Research* 137, pp. 136-140
- Vigar, G. (2001) Reappraising UK transport policy 1950–99: the myth of 'mono-modality' and the nature of 'paradigm shifts', *Planning Perspectives*, 16:3, 269-291
- Walks, A. (2015) Stopping the 'War on the Car': Neoliberalism, Fordism, and the Politics of Automobility in Toronto, *Mobilities* 10(3), pp. 402-422
- Wasfi, R., Dasgupta, K., Eluru, N., Ross, N., 2015. Exposure to walkable neighbourhoods in urban areas increases utilitarian walking: Longitudinal study of Canadians *Journal of Transport & Health*. 3(4), 440 - 447

Woodcock, J., Edwards, P., Tonne, C., Armstrong, B.G., Ashiru, O. et al (2009) Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport, *The Lancet* 374 (9705), 1930-1943

Zahabi, S A., Chang, A., Miranda-Moreno, L., Patterson, Z., (2016) Exploring the link between the neighborhood typologies, bicycle infrastructure and commuting cycling over time and the potential impact on commuter GHG emissions. *Transportation Research Part D. Transport and Environment*. 47, 89 – 103.