Vicious or virtuous circles? Exploring the vulnerability of drivers to break low urban speed limits

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A B S T R A C T

Levels of support for 20 mph limits in Great Britain are consistently high. However, these positive attitudes are not translating into similarly positive behaviour changes in terms of complying with these new speed limits. Recent research from the authors studied the complex relationship between support and compliance, with qualitative findings suggesting that copycat driving could create a 'vicious circle effect' that leads to increased levels of non-compliance. However it is also possible that an alternative 'virtuous circle' effect may emerge from the high levels of societal support for 20 mph limits pressurising drivers to comply with speed limits. In this work the authors investigated these issues and we report on data and analysis of a large scale survey of drivers and residents undertaken in Great Britain. We explain the origins of vicious and virtuous circles in driver behaviour and study the data from the survey, offering an analysis of attitudes and claimed behaviours that has implications for policy-makers and professionals working with low urban speed limits. We discuss the issues for speed limit enforcement, making reference to the public relations 'battle' for public opinion. It is concluded that normative compliance, triggered by community and other campaigning, may be the most realistic mechanism for countering the difficulties of government funding in promoting compliance.

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1. Background and context

Momentum towards 30 kph (in the UK 20 mph) speed limits in urban settings is increasing in many places in the world. For example across Europe there have been calls for EU wide implementation of 30 kph limits in residential areas (Koch Report, 2011; European Citizen's Initiative, 2015). By 2015 about 20% of urban streets within Great Britain were designated 20 mph limits, and at the time of writing many other authorities planned to introduce low speed limits into their urban areas. The drivers of these policies may vary from city to city. They range from road danger reduction (Grundy et al., 2009; Pilkington, 2000), encouraging healthier and more sustainable transport modes such as walking and cycling (Cohen et al., 2014), through to the encouragement of community benefits in health, wellbeing and social capital (Dorling, 2014; McCabe et al., 2013; Elvik, 2012; Pilkington, 2009).

Surveys indicate that there has been consistent majority support (typically at 65% or more) from the Great Britain population as a whole for lowered urban speed limits (see for example British Social Attitudes Survey for the Department for Transport, 2012). However, these limits have also attracted an opposition that is particularly vocal amongst pro-business and pro-car groups. As a result the debate in Britain has to some extent become polarised in terms of attracting comment

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and debate in the media, within local communities, and even to some extent as a political issue locally and nationally. Both support and opposition have been codified through their representation by organised groups. Support groups include organisations such as Sustrans (an active travel charity), Living Streets (who support the use of residential roads as urban living spaces and want restrictions on car use), and campaigning group 20 s Plenty. In contrast opposition groups include the Association of British Drivers and the Federation of Small Business, with arguments typically focused on the need to keep the economy moving, or on the 'freedoms' of motorists.

The complexity of factors influencing support for 20 mph limits is matched by similar or even greater complexity with respect to compliance with speed limits. Previous work on 20 mph speed limits (Tapp et al., 2015; Toy et al., 2014) illustrated the interesting paradox commonly found with speed limits: that whilst apparent support for 20 mph limits was high, driver compliance with the limit was much more problematic. International evidence across various speed limits suggests that non-compliance is common, with speed limit reductions (typically of 10 kph or more) leading to typical average speed reductions of only 1–5 kph (Islam et al., 2014; Hyden et al., 2008; Wernsperger and Sammer, 1995; and in the UK see Atkins, 2010). This and other data led the UK Government's Department for Transport (2013) to conclude that 'research into signed-only 20 mph speed limits shows that they generally lead to only small reductions in traffic speeds'. Clearly there are significant challenges in converting support into compliance when a limit is initially changed.

The Tapp et al. (2015) work indicated how drivers occupy different positions on spectra of support – opposition and compliance – non-compliance. Many drivers (let's call them the 'mainstream middle') are likely to occupy a 'middle ground' between the two extremes of strong support on the one hand and equally strong opposition on the other. This 'mainstream middle' is the focus of this paper, with the hypothesis that these drivers exhibit attitudes and driving behaviours with respect to 20 mph limits that are much less strongly formed, probably less informed by knowledge of the issues, and hence more susceptible to change. Based on a survey of attitudes to their own and other people's driving habits, the focus here is to examine how drivers' contradictory attitudes, reinforced by on-road perceptions, may *change their initial compliance intentions*. In particular, we examine the effects of *other* drivers on driving (social contagion), ingrained driving habits (automaticity), perceived low levels of enforcement, and levels of personal confidence in breaking limits (self enhancement bias). These variables are of particular concern because they imply vicious circles over time – that is, they may create *viral effects* that multiply as more and more drivers don't comply. On the other side of the debate we also examine the possibility of a 'word of mouth' influence of others that may help create a virtuous circle of increased compliance.

Social contagion and automaticity are both well understood effects on driver behaviour. Both are surreptitious, unconscious modes of driving, with effects 'creeping up' on the driver insidiously. Social contagion consists of the driver 'copycatting' the speeds of other drivers simply to 'fit in' (Corbett and Simon, 1992; Connolly and Aberg, 1993; Fleiter et al., 2010). Copycatting seems to result in slower drivers adopting higher speeds rather than the reverse (Stradling et al., 2003). This may be because drivers typically over-estimate the speeds of other drivers, creating 'distorted' norms that then create a vicious circle effect of faster traffic (Haglund and Aberg, 2000; Musselwhite et al., 2010a,b). In the 20 mph/British context, 'copycat' pressures may be exacerbated by the creation of 20 mph limits on roads built decades previously, and originally designed without consideration of low urban speed limits (Toy et al., 2014). 'Copycat' driving may be a particular form of automaticity: a more general type of 'inadvertent speeding' (Simon and Corbett, 1991) that arises from a lack of active concentration whilst driving. Corbett and Simon's (1992) study found 46% of drivers who exceeded the limit claimed to speed 'without realising it', an effect also noted by Recarte and Nunes (2002), De-Pelsmacker and Janssen (2007) and Forward (2009). The issue of enforcement is also very important. Driver compliance is likely to be influenced by perceptions of whether the authorities are 'serious' about the new limits, to the extent that they will be adequately enforced, something far from certain with the UK's Department for Transport (2013) warning that 'successful 20 mph speed limits will need to be generally self-enforcing'. The contestation by the public of the risks of speeding by some drivers (Mannering, 2009) can lead to them rejecting the legitimacy of speed limits per se (McKenna, 2010; Wells, 2012). These factors can combine to create the somewhat paradoxical resentment felt by drivers caught speeding of being labelled as 'law breakers', even while they continue to support speed limits in principle (Wells, 2012).

However it remains the case that support for speed limits remains high amongst the population as a whole, including support for 20 mph limits. It is therefore also possible for an alternative outcome to arise, that of a 'norm' of general compliance, driven by a possible cultural shift against car-dominance from 'residents' as opposed to 'drivers'. Whilst cultures that prioritise the needs of local residents are more common in some parts of the world, for example in many northern European countries, in the UK this would require a cultural 'shift', something campaigned for by the likes of Living Streets. Such a shift in attitudes may be bolstered by compliant buffer groups: drivers who feel a strong moral obligation to obey speed limits, in spite of some of these drivers attitudinally opposing the creation of the new limit (Fleiter et al., 2007; Tapp et al., 2015).

In summary, the compliance level of drivers, especially when a new speed limit is introduced, is unlikely to be a fixed entity. Rather, it seems to be susceptible to influence by a range of effects.

Fig. 1 provides a theoretical framework that encompasses the key constructs that we examined for this research. The intention here is not to predict intention to comply, but rather to illustrate the hypothesis, explored later, that a driver's own personal beliefs may be over-ridden or eroded by the various change agents illustrated in Fig. 1. Key constructs include levels of support, the influence of other drivers, claimed driving skills, and habits. Locating this work within the literature, we note that these constructs have been combined into a driver behaviour model (Elliott et al., 2007), based on the integrated Theory of Planned Behaviour (Ajzen, 1991) and combined with work on habits by Triandis (1980).