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Inequalities in utility and leisure cycling in England, and variation by local cycling prevalence

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ABSTRACT

This paper analyses Active People Survey data (collected 2011/12 to 2015/16) on 789,196 English adults, providing new information on how a range of socio-demographic factors are associated with utility and leisure cycling. Substantial inequalities are found in relation to gender, age, disability, and ethnicity for both types of cycling. For gender and age, and perhaps for disability in relation to recreational cycling, inequalities are moderated by local cycling prevalence such that English authorities with more cycling see less inequality. For education and car ownership, the picture is more mixed. Individuals with higher educational levels are more likely to participate in leisure cycling, but within most English local authorities this association is absent for utility cycling. Car ownership is negatively associated with utility cycling, but positively associated with recreational cycling. The paper's discussion section puts these inequalities in context, and discusses the significance of the fact that some inequalities seem to be less pronounced or even absent in some contexts. It is argued that more research and a broader conceptualisation of cycling inequalities are needed to better understand and address inequalities in cycling participation.

1. Background

This paper uses Active People Survey (APS) data to examine inequalities in cycling in England, both for utility and for leisure. Research on demographic variation in cycling has tended to focus on age, gender, and income or educational level, finding that differences are highly contextual. In a review of the literature on cycle commuting, Heinen, van Wee, and Maat (2010: 69) conclude: 'It appears that the impact of gender on cycling is country specific. [...] While a relationship between age and cycling evidently exists, it is unclear whether it is a universal one [and the] relationship between cycling and income is even less clear.' Less research examines other socio-demographic variables. However, studies have found lower transport cycling participation rates among some (but not all) ethnic minority communities in contexts including the Netherlands and USA (Fishman, Böcker, & Helbich 2015; Nehme, Pérez, Ranjit, Amick, & Kohl, 2016; People for Bikes/Alliance for Biking and Walking, 2016).

In England, research has focused on age and gender variation in cycling, finding substantial inequalities for both groups in commute and other utility cycling (Department for Transport, 2016; Office for National Statistics, 2014) as well as inequalities in participation by disability (Andrews, Clement, & Aldred, 2018). In English local authorities with higher cycling levels, age and gender inequalities are reduced (Aldred, Woodcock, & Goodman, 2016). Fishman (2016) reports that similar patterns

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apply across countries, with at the other end of the spectrum mode share for cycling being slightly higher for women than men in the Netherlands. This suggests that places with higher cycling levels have achieved greater success in meeting women's and older people's cycling needs than those places where cycling is lower.

Building on such work this paper examines the extent of variation in relation to overall cycling participation by age and gender, and by ethnicity, educational status, car ownership, disability, and co-resident children in a household. There are potential implications for policy – for instance, the extent to which there are lessons to learn about overcoming different inequalities from more successful English cities, and/or from other countries and cities. The paper also moves debates on cycling equity forward by going beyond a focus on cycle commuting to consider all cycling in England, both leisure and utility, and how any inequalities differ between the two types of cycling. Non-commuter and leisure cycling are relatively under-researched (Goodman, Panter, Sharp, & Ogilvie, 2013) partly because of a lack of data. In particular, there is little research on demographic correlates of leisure cycling, although it is sometimes hypothesised as a potential route into regular utility cycling (Jones, 2001). Might movement from leisure to transport cycling help diversify cycling participation, or not? The analysis here can help to consider the extent to which this is the case – for instance, if recreational cycling is currently more equal than utility cycling.

This paper has two broad aims. Firstly, it examines the magnitude of cycling inequality across demographic and socio-economic groups, for total cycling, recreational cycling, and utility cycling. We additionally examine how far any inequalities differ between recreational versus utility cycling.

Secondly, we examine how far any inequalities differ with respect to the prevalence of cycling in the local authority in question, testing the hypotheses that inequalities will be lower in local authorities with a higher overall cycle mode share.

2. Methods

2.1. Data source: Active People Survey

We drew on data collected in the Active People Survey (APS), a rolling national survey examining participation in sport and activity among adults in England. APS collects data on around 500 people each year for each local authority in England. The only exceptions are the very small local authorities of City of London and Isles of Scilly, which have an annual sample size of around 80 each, and which we combined with Westminster and Cornwall respectively.

APS samples participants using random digit dialling, and administers the survey over the telephone (Sport England, 2017). In households with more than one person aged 16 or over (i.e. eligible to take part in the survey), one respondent was randomly selected using the method described by Rizzo, Brick, and Park (2002). We pooled five years of APS data from October 2011 (when both our cycling outcome variables were first collected) to September 2016. The overall response rate across this period was 26%. After excluding 4% of participants with missing data, this gave a total sample of 789,196 adults aged 16–99.

2.2. Variables

2.2.1. Outcomes: Cycling participation

APS asked all participants 'On how many days in the last 4 weeks have you done any cycling?' Participants who reported any cycling were further asked "Can I ask on how many of those days were you cycling for the purpose of health, recreation, training, or competition not to get from place to place?" From these questions we derived two measures of cycling participation:

1. Proportion of adults doing any cycling in the past four weeks.
2. Proportion of adults doing any recreational cycling in the past four weeks.
3. Inferred proportion of adults doing any utility cycling in the past four weeks. An adult was counted as having done any utility cycling if the number of days they reported cycling was greater than the number of days reported of recreational cycling.

Our measure of utility cycling is expected to underestimate total utility cycling, as it will not capture an individual who engaged in utility cycling for the same number of days that they engaged in recreational cycling. Comparisons with the National Travel Survey (2011–2016), however, indicate that the extent of this underestimation is likely to be modest. For example, the proportion of people estimated to make one or more utility trips per week in APS is 4.6%, very similar to the 4.3% of National Travel Survey participants reporting any past week utility cycling in their travel diary.

2.2.2. Correlates of cycling participation

We examined cycling inequalities with respect to the seven participant characteristics listed in Table 1: sex; age; ethnicity (white/non-white), physical disability (no/yes), education, household car ownership (no car/any car in household), and whether the participant had a co-resident child aged 5–15 (no/yes). We considered that children under 5 were relatively unlikely to be doing much own-bicycling, but that children aged 5 and over might have a larger effect on the likelihood of their carers/parents cycling.