

The culture behind the infrastructure – Understanding why people don't cycle

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Content

- Near misses and experienced risk
- Equity
- Tools for change

Culture and infrastructure

- Not opposed but connected
- Infrastructure is cultural...
- ...and culture is infrastructural
- Key to understand how people think about risk



Cycling as a rational choice? (and not-cycling as an irrational choice)?



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How dangerous is cycling in New Zealand?

Michael Chieng ^a ✉, Hakkan Lai ^b ✉, Alistair Woodward ^b ✉

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<https://doi.org/10.1016/j.jth.2017.02.008>

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Highlights

- Fear of cycling is prevalent in car-dominated transport systems.
- We estimate injury rates per typical exposure to a range of activities, including cycling.
- Cycling on the road in New Zealand is safer than horse riding, snow sports and rugby.
- Fear of cycling stems most likely from the marginal status of this mode

How do people think about/experience risk?

- It's not only quantitative (and even if it was, what to compare it **to** is a qualitative choice)
- It's fundamentally also qualitative
- Paul Slovic writes that some of the factors that matter in whether we accept risk are: level of control over the risk, level of normalisation of the risk, whether the balance of risk is perceived to be fair, etc.
 - Hence it's not odd that people might happily go skiing on holiday, but fear drivers on roads
- I'd add: risk is experienced, not just **perceived**

Near misses: understanding experienced risk

- Near misses may predict collision risk situations/locations
- Understand road culture and impact on cycling experience
- Clarify relationship between 'perceived' and 'objective' risk





THE NEAR MISS PROJECT

THE NEAR MISS PROJECT STUDIES CYCLING INCIDENTS THAT DON'T RESULT IN INJURIES, BUT MAY PROFOUNDLY INFLUENCE PEOPLE'S EXPERIENCES AND BEHAVIOURS.

- Asked participants to keep a 'one-day diary' of trips and incidents in Autumn 2014 and again in Autumn 2015 – locating any incidents on a map and answering questions about them
- 2,586 UK participants over both years, >6,000 incidents between them
- First study to estimate a national near miss incident rate that can be compared with minor and serious injury risks

About the sample

- >70% male
- >75% aged 30-59
- 30% live in London
- Most weekday commuter or other utility cyclists
- Most experienced long-term cyclists - Y2 data suggested only 1/20 started cycling within the past 2 years

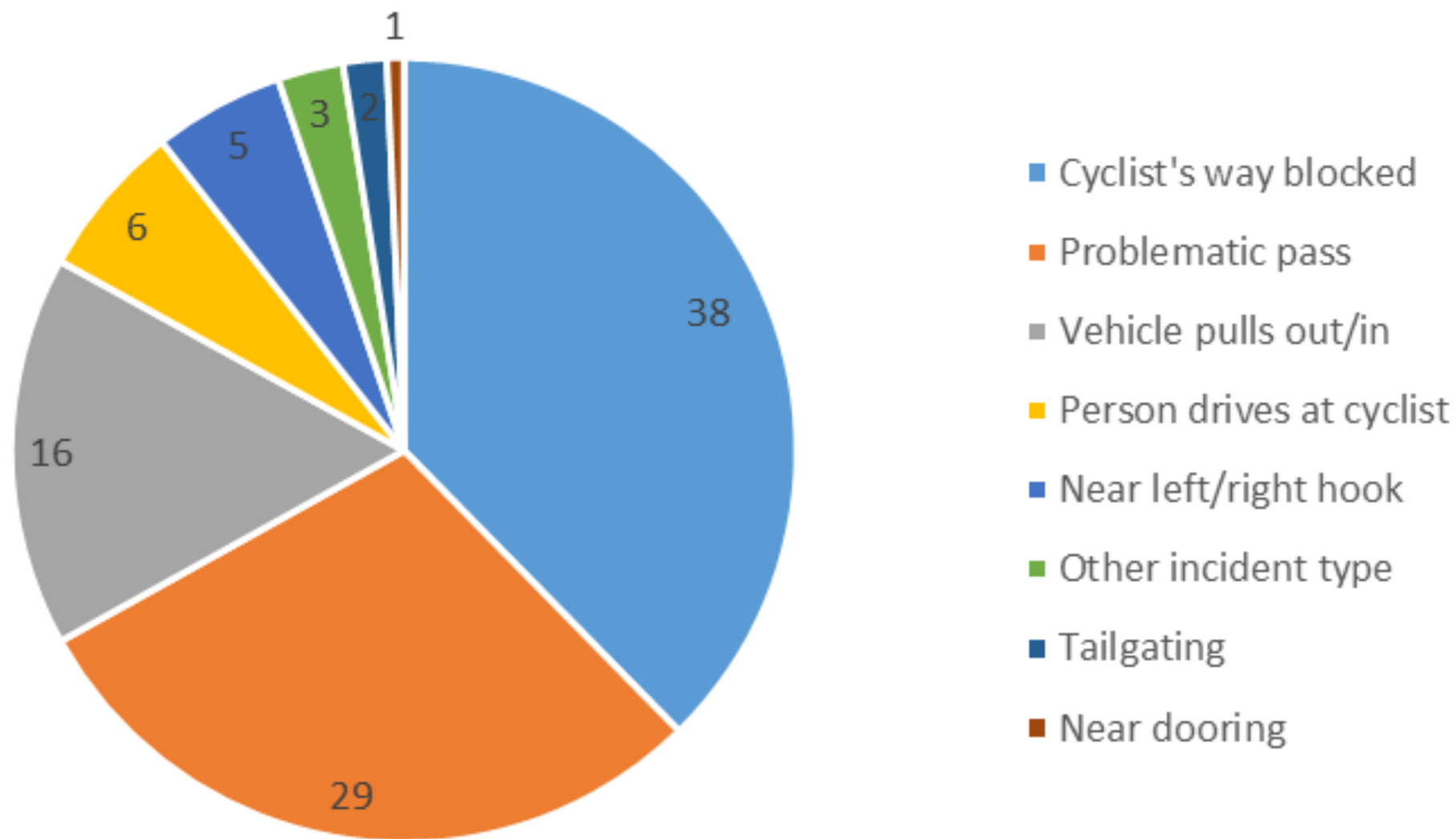


Comparing injury and non-injury incident rates

Type of Incident	Rate per year, regular UK commuting cyclist
Death	.000125 (once every 8,000 yrs)
Reported serious injury	.0025 (once every 400 yrs)
Reported slight injury	.015 (once every 67 yrs)
Any injury (reported or not)	.05 (once every 20 yrs)
Harassed/abused	20
‘Very scary’ incident	60
Any non-injury incident	450

Final three figures derived from Near Miss Project data for Year 1. First four derived from published academic sources – see Aldred and Crossweller (2015).

Reported 'incidents': what were these?

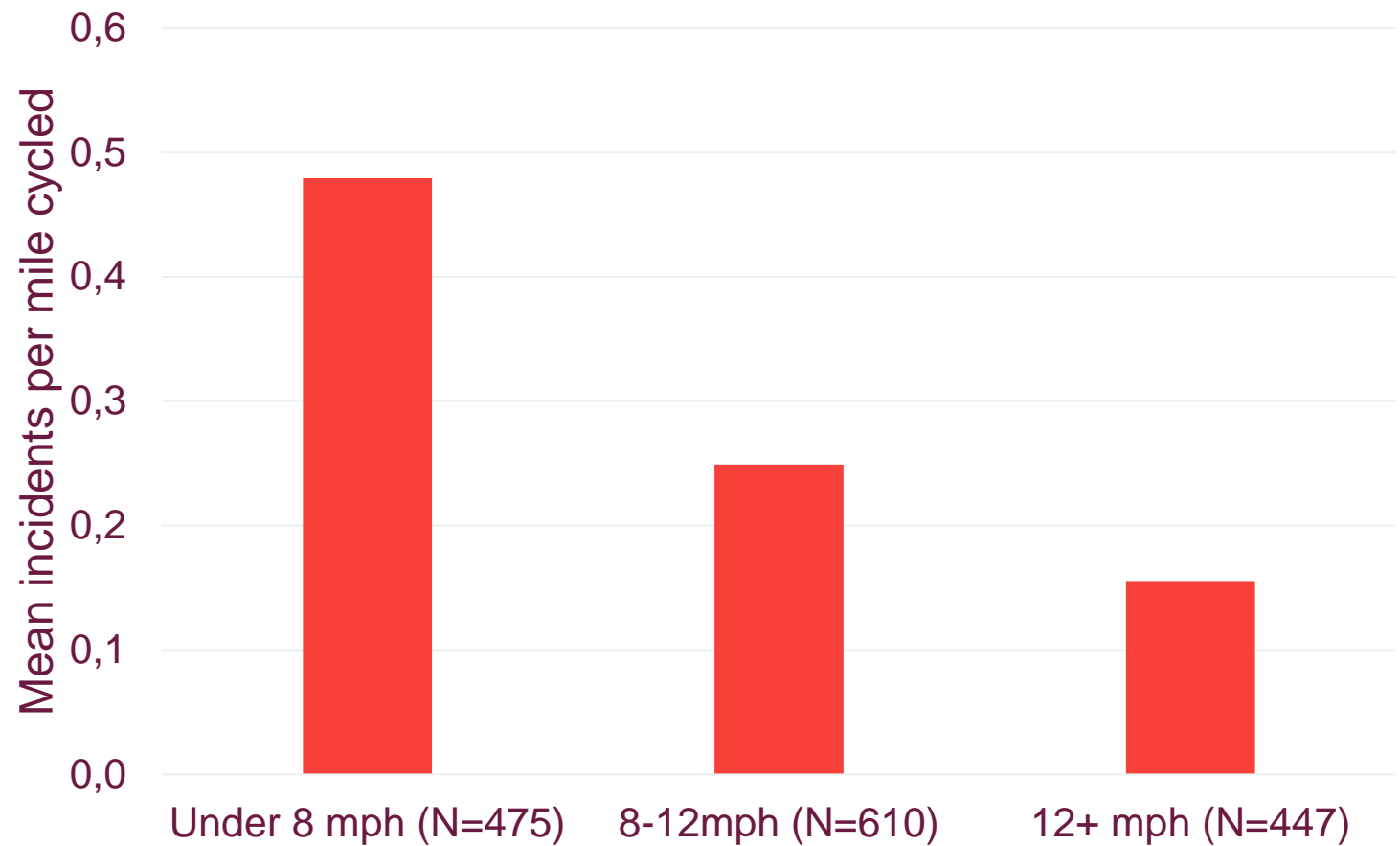


2014 data

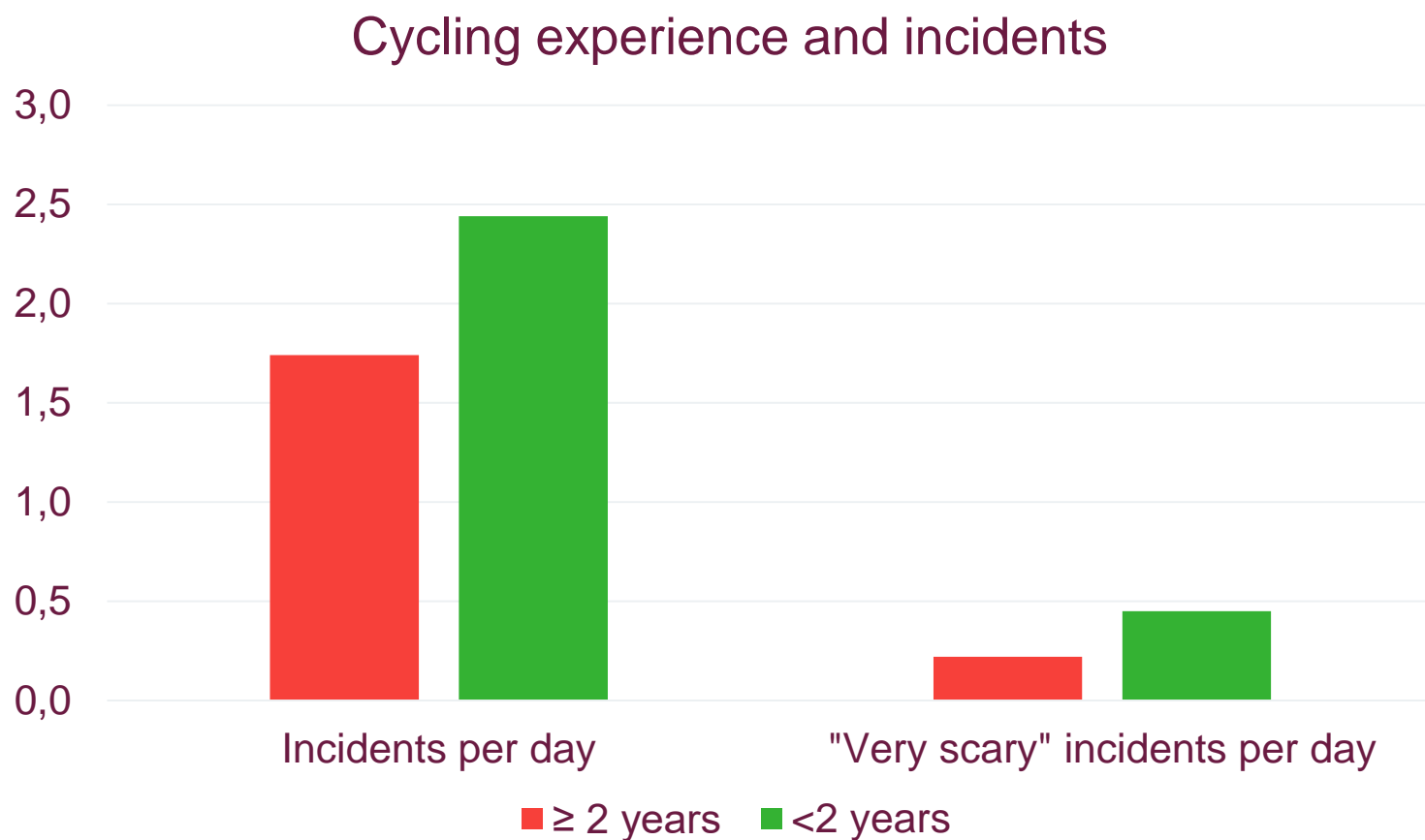
Incident scariness



Speed and incidents



New cyclists have twice as many very scary incidents per day*



* 2015 data, gap persists when adjusted for demographics, distance, speed

Impacts on future cycling

‘I already approach this junction, and indeed every portion of the campus where I have to cycle on the road, with considerable caution. I can only attempt to cycle even more cautiously in future.’

‘An accumulation of these events [...] has made me super cautious, and I now believe it’s not sufficient simply to obey the rules to stay alive. To stay alive one must also anticipate that all others will be careless.’

‘I lack confidence & feel nervous when vehicles come from behind. I’m fed up with drivers overtaking me towards oncoming traffic & providing me with insufficient room &/or nearly pushing the other vehicle off the road.’



Culture, infrastructure and near misses

- Strong desire often expressed for separation from motor traffic
- Alongside frustration with ‘might is right’ road culture and perceived lack of enforcement / road justice
- Growing policy focus on importance of subjective safety/comfort on the road, growth of near miss recording systems, and of operations aimed at preventing ‘close passes’ etc.

Waterloo Bridge: police reinforcing 'no overtaking cyclists' signs

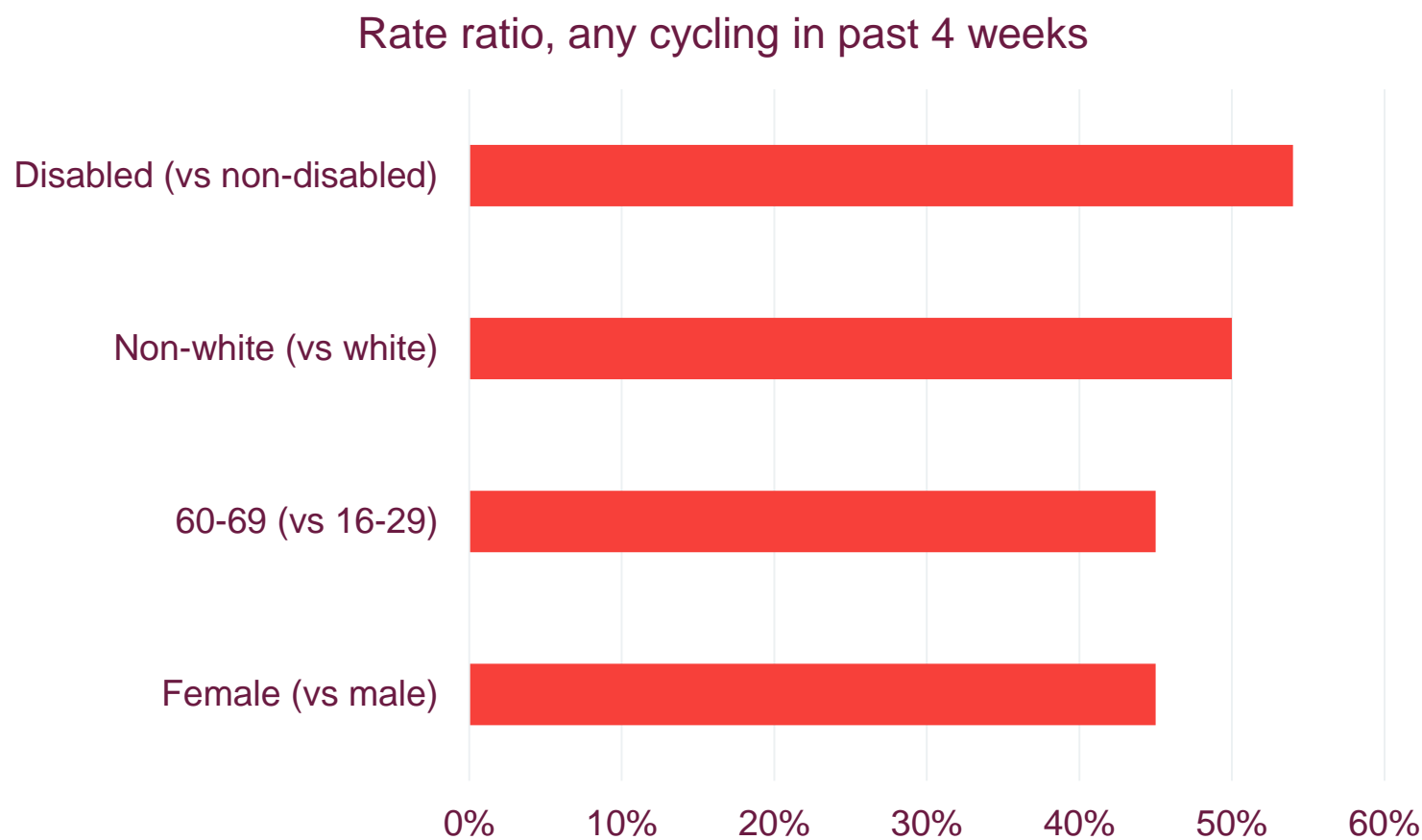


‘Might is right’ on the roads, and (lack of) equity

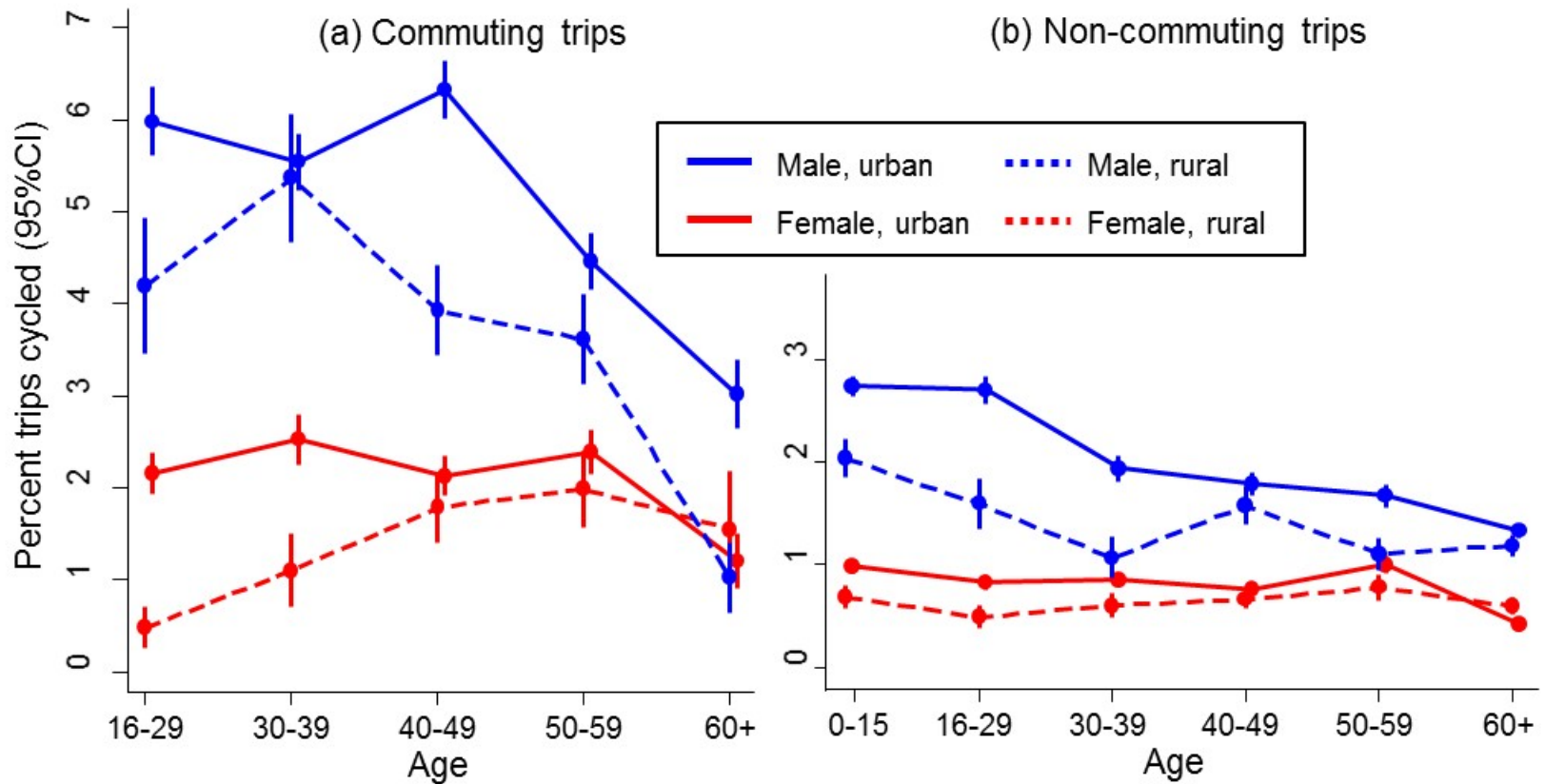
Cycling as a (discriminatory) service/system

- Not an individual choice but a **system** or **service** - one which currently excludes many people
- We always need to think how bike infrastructure (quality, location, directness, traffic and social safety, etc.) and other parts of the cycling system (cost and availability of specialist cycles, hire bike locations, policing, etc.) enable and/or exclude – and the equalities implications of this

English inequalities in cycling participation

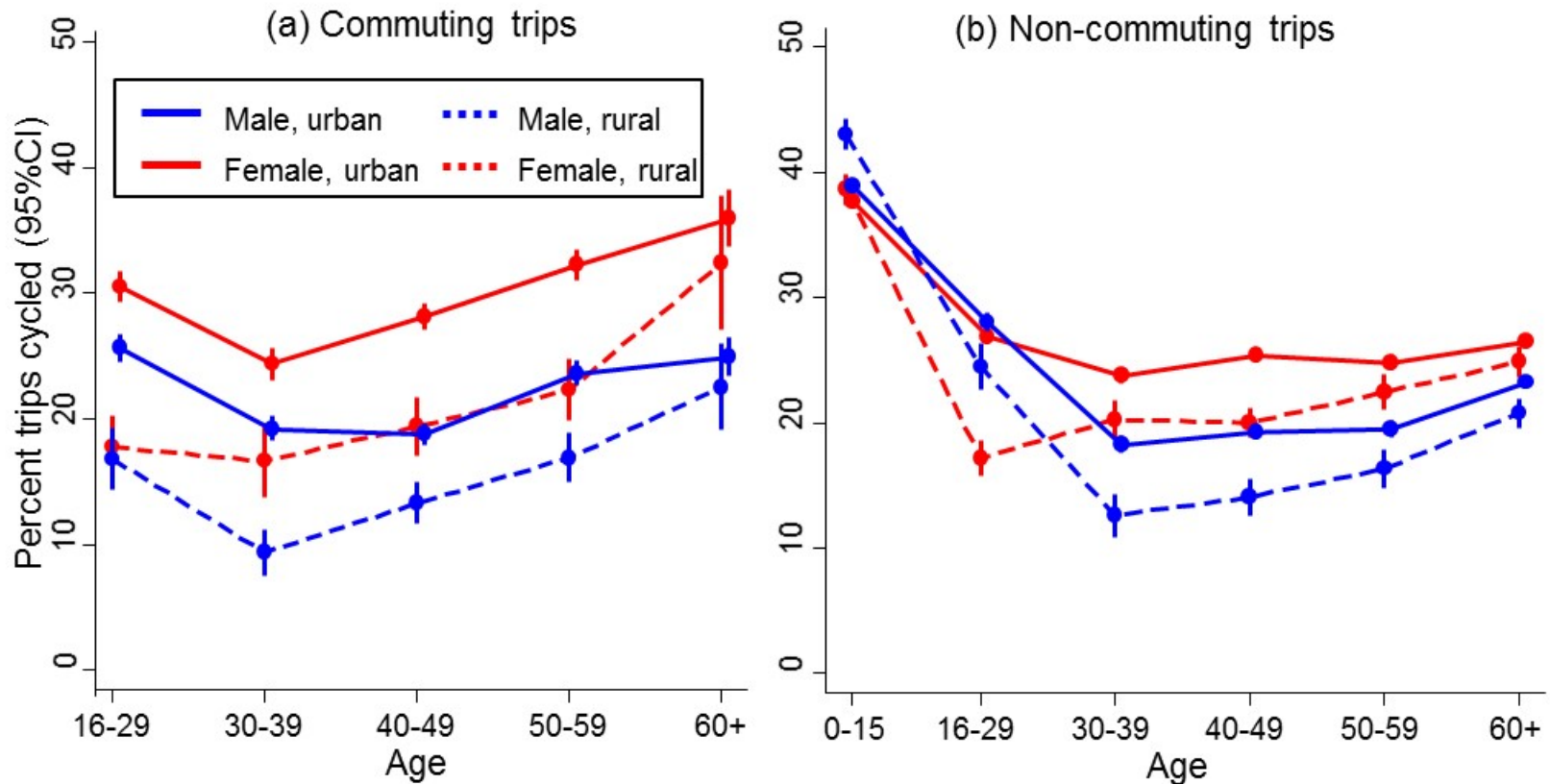


England's Gender (and Age) Gap



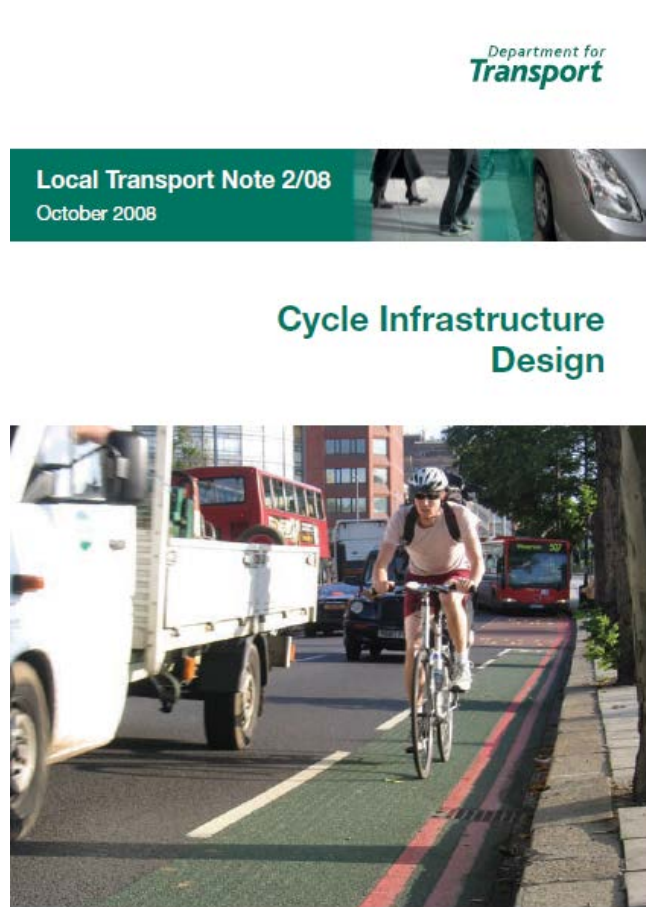
Source: DfT (2016) National Propensity to Cycle Tool Stage 1 Report, Appendix 8
<https://www.gov.uk/government/publications/national-propensity-to-cycle-first-phase-development-study> . NTS (England) analysis by Anna Goodman.

For comparison: the Netherlands



Source: DfT (2016) National Propensity to Cycle Tool Stage 1 Report, Appendix 8
<https://www.gov.uk/government/publications/national-propensity-to-cycle-first-phase-development-study> . NTS analysis by Anna Goodman.

Two problems



- Under-represented groups more affected by general problems with cycling (e.g. lack of separation from motor traffic)
- Specific needs / problems affected under-represented groups not studied or planned for; ‘cyclist’ assumed to be male/white/young adult/not disabled etc.

It's All Connected (again): gender and cycling equity

Vicious circle

- In English and Welsh authorities where commuter cycling has risen in 2001-11, gender inequalities have been maintained and age inequalities have **risen** (Aldred et al 2016)
- Having to cycle with busy or fast motor traffic is particularly off-putting to women (as is the image of 'a cyclist' prevalent in such contexts)
- But women are also less likely to cycle longer trips than men – so where quieter routes involve long detours, this is additionally off-putting

Virtuous circle?

- The Netherlands suggests women's trips and habits (e.g. shorter trips, fewer cars) may actually make them more 'natural' cyclists than men
- If we can get the cycling environment right, image and experience will reinforce cycling as for all ages and genders
- Signalling cycling is mainstream, valued, normal and safe likely to be especially important for under-represented groups

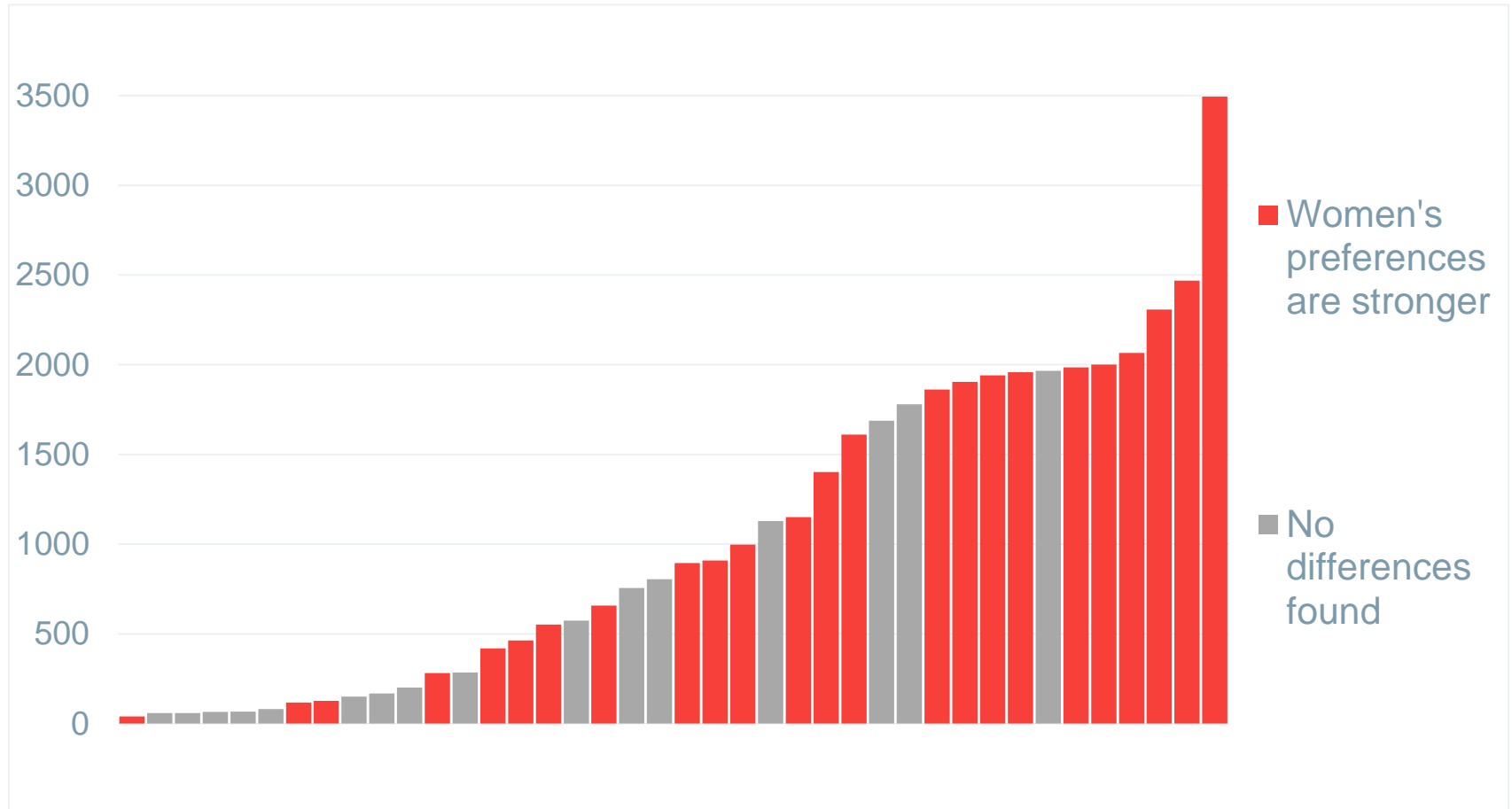
Aldred et al 2016:

<http://www.tandfonline.com/doi/full/10.1080/01441647.2015.1014451>

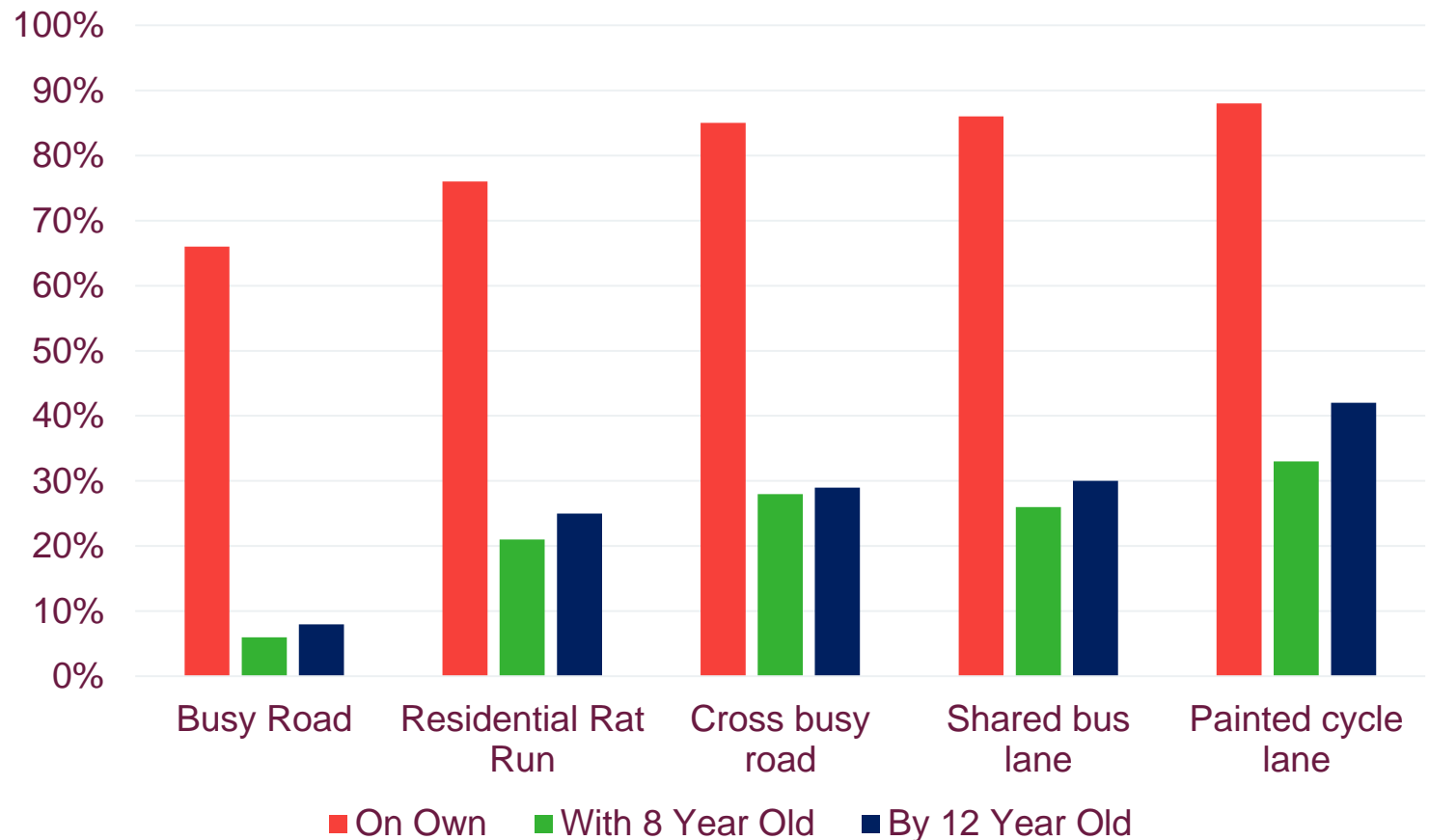
Researching barriers to equal cycling

- Infrastructure providing protected space (without obstacles!), origins & destinations served, route directness, safety from harassment, access to different types of cycle, suitable parking, language and imagery, etc.
- Growing literature on some of those issues e.g. on imagery and policy language
 - E.g. my current paper with Isabelle Clement and Neil Andrew finds an implicit assumption in many London borough cycling strategies that disabled people are only leisure cyclists and not utility cyclists

Gender and preferences for infrastructure separate from motor traffic: systematic review



Perceived acceptability of different infrastructure, with and without children (single study, respondents mostly regular London cyclists)



Gold Standard Infrastructure

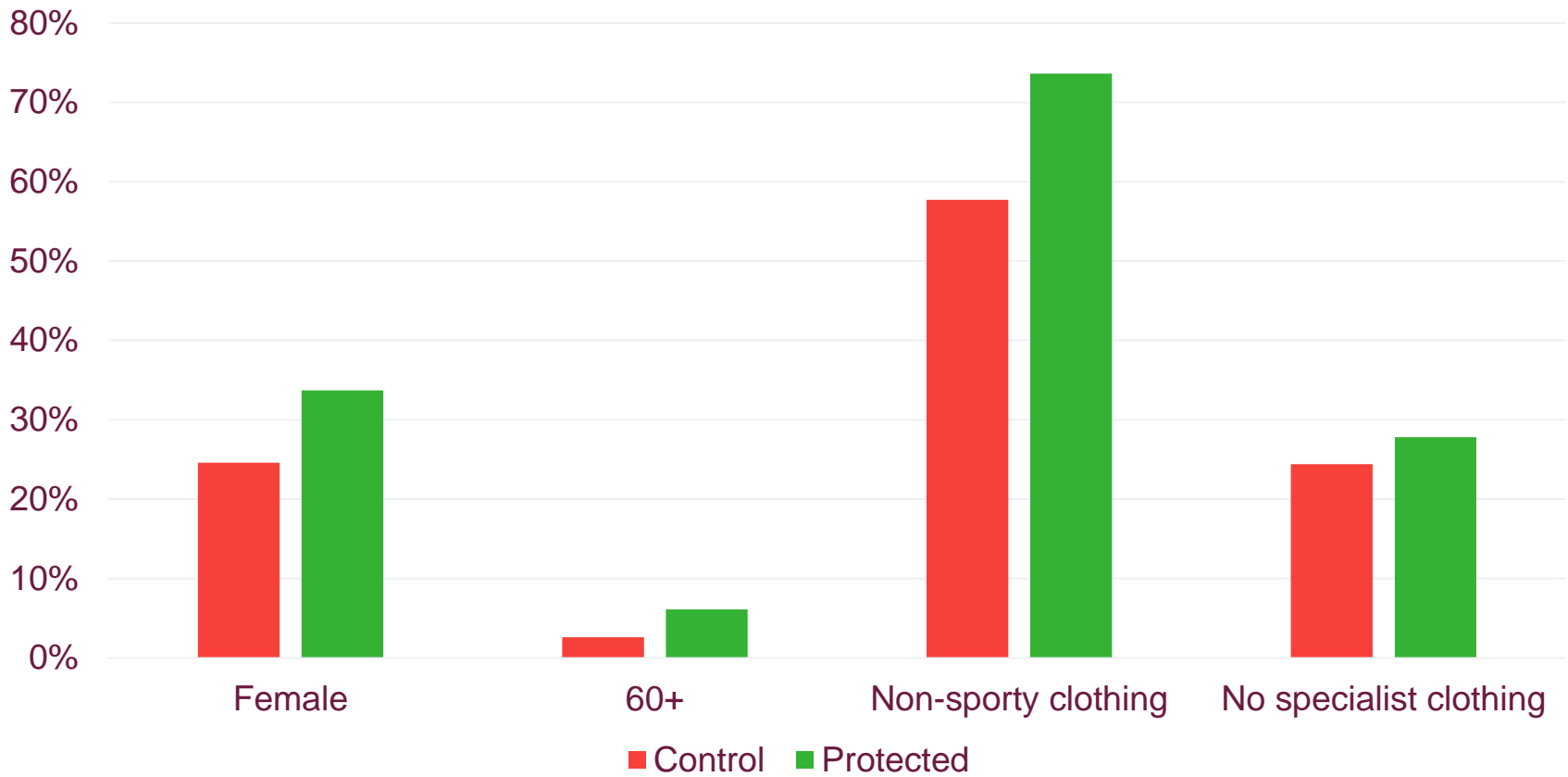
Direct routes...

- Away from motor traffic
- Physically protected infrastructure (tracks) on busier roads
- Very lightly trafficked smaller streets



Hopeful small signs in London

Royal College Street observational study



Source: Aldred, R. and Dales, J., Journal of Transport and Health,
<http://www.sciencedirect.com/science/article/pii/S2214140516303978>

(Lack of) cycle planning is fundamentally a political problem, not primarily a technical/engineering problem

“[Scheme] has had all its funding removed by local council yet the council is currently assisting with a strategy for cycling and getting more people active.”

“At a time of very restricted public finances the priority is given to highway capacity and cycling not considered as a legitimate mode of transport hence difficult to justify additional costs.”

“Political leadership still seems to view the car as the key to economic growth. Large businesses in our town with parking problems are given sympathy and encouragement to extend their car parks.”

“[A] pedestrian [and] cycling crossing 14 years in the making was struck off by the councillor with the transport brief, after 12 objections each countered by an officer stating that this was a high volume pedestrian [and] cycling route.”

Source: survey of stakeholders in England on barriers to investing in cycling (paper accepted for publication)

But new tools, methods, data to analyse what is happening can help...

...and analysing what isn't (yet) happening can be equally important, as tools for change

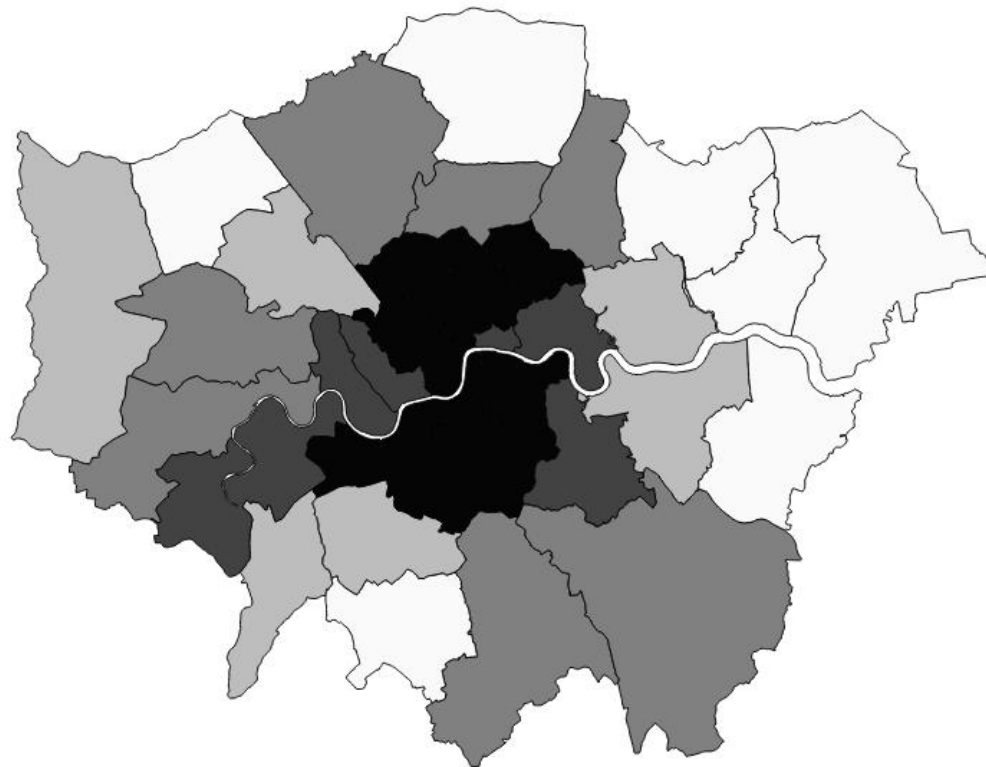


Pic: Cycling Canada advertisement

Making risk and potential visible

- Where cycling is low, low levels of injuries – thus apparently no problem
- Measuring risk (injuries per cyclist in an area or on a route) is crucial
- So is measuring potential: calculating what the level of cycling might be, if cycling felt safe

Cycle KSI numbers per London borough, 2005-15



Cycle KSI risk per London borough, 2005-15

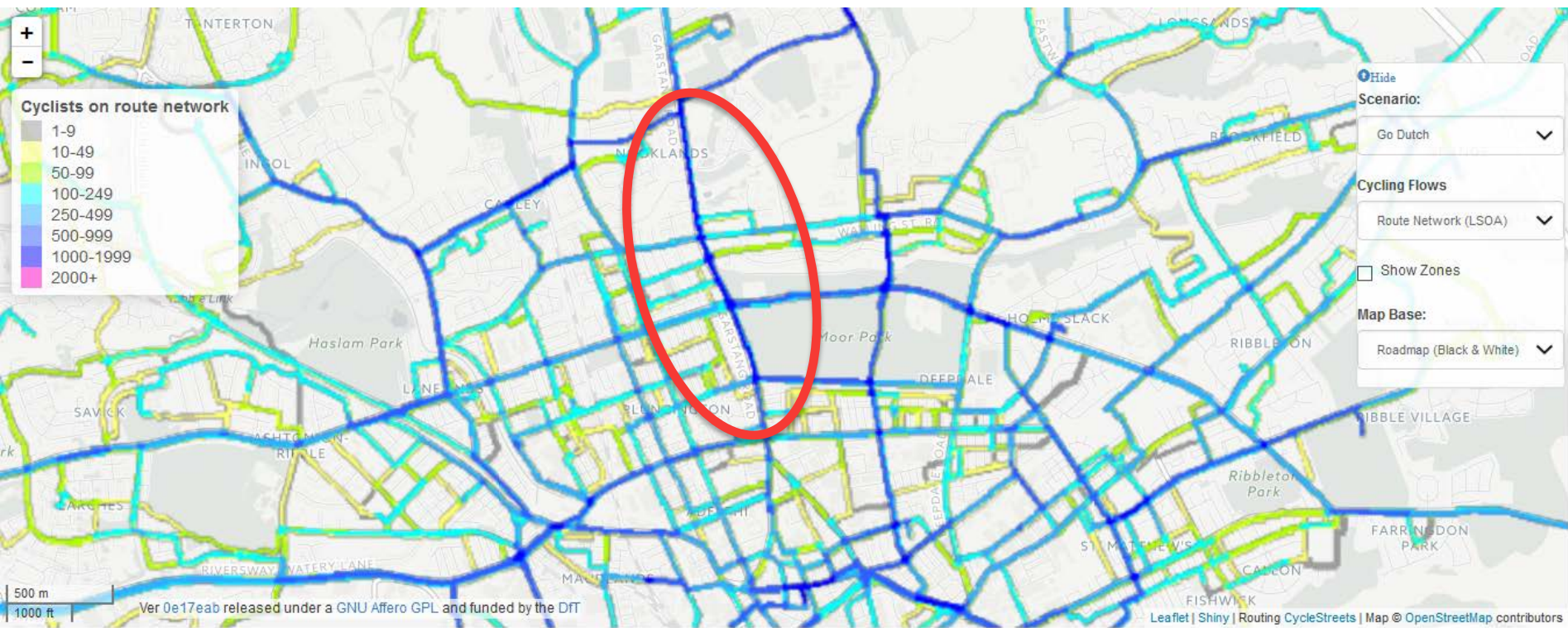


Source: Stats19, Census 2011 borough cycling volume calculation via PCT.bike

Making cycling potential visible



Mapping commuter cycling potential



Source: www.pct.bike, current DfT-funded project led by Dr James Woodcock, collaboration with Cambridge, Leeds, Westminster Universities

Final thoughts

- Qualitative experience and ‘experienced risk’ very important (not necessarily separate from mapping and quantifying)
- Equity means an inclusive design approach: build for the groups that aren’t now cycling, and we can create a system that works for all
- In car dependent societies where cycling is marginalised, improving infrastructure will have to go hand in hand with challenging car dominance

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