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Review

History, risk, infrastructure: perspectives on bicycling in the Netherlands and the UK

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ABSTRACT

Cycling has consistently been safer in the Netherlands than the UK. Nevertheless, safety has improved in both countries over time. Between 1980 and 2011, the cyclists' fatality rate declined by 67% in the Netherlands and 57% in the UK. Per capita bicycle use was sustained in the Netherlands throughout the post-World War Two era, peaking in the early 1960s and only declining for a decade before recovering. In contrast, UK bicycle use peaked in 1952 and declined permanently. The survival of popular bicycling in the Netherlands through the 1950s and 1960s was fundamental to the development of effective bicycling policies after the 1970s. The Dutch network of cycle tracks and routes increased from 9,000 km in the mid 1970s to approximately 29,000 km currently. The annual distance cycled per capita increased by 30% in the ten years to 1988, but has not materially increased since then. In the UK, cycling has a long heritage as a marginalised form of travel. This continues to hinder efforts to achieve a national cycling revival. Nevertheless, cycling on quiet urban and rural roads in the UK incurs much lower risks than the national average fatality rate would suggest. Networks enabling cyclists to avoid main roads, especially rural A-roads, could provide safety levels comparable to the Netherlands and Denmark. There are towns in the UK with segregated cycling networks, but few cyclists. This is because a range of measures must be invoked to achieve large modal shifts to cycling. Local authority support is a critical factor.

Contents

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1. Introduction

In November of 2013, I travelled to the town of Helmond in the Netherlands to attend the International Cycling Safety Conference (see http://icsc2013.blogspot.nl/) and present a paper on modal risk (Wardlaw 2013).

The trip was an unexpected immersion into the debate about infrastructure for cyclists. First to speak was the famous advocate of Vehicular Bicycling, the American John Forester, who has long maintained that bicyclists fare best when they ride competently with motor traffic (Forester, 2013). The following speaker was Mr Tom Godefrooij of the Dutch Bicycling Embassy (Godefrooij, 2013), who emphasised the much broader appeal of segregated cycling, especially for children, women and elderly people. Preference for segregation has been further supported by results from China, reported in this journal (Lusk, 2014).

It would be hard to dispute the segregation case from the visible evidence around Helmond, or Amsterdam, which I visited before the flight home. Cyclists pour down the lanes and cycle tracks, queues back up into the distance at traffic lights: young women, old men, children, businessmen, girls and boys going out on the town. Barriers to cycling are apparently low in the Netherlands.

For any advocate of mass bicycle use, the Netherlands stimulate envy and curiosity. Amsterdam is not that different from many British towns and cities; it is flat, its central area was built before the motoring era, and it rains a lot. Yet in the UK, only Cambridge and Oxford (respectively 33% and 19% share cycle commuting) (Goodman, 2013) have cycling levels comparable to what is typical in the Netherlands.

My curiosity settled on these five questions:

1) What are the histories of cycling in NL and UK?
2) Are NL cyclists safer than UK cyclists?
3) Does infrastructure affect safety? (Mr Godefrooij was neutral on this point).
4) How does the UK lack of infrastructure affect safety?
5) Is lack of UK cycling only due to lack of infrastructure?

There was no existing single paper that addressed all these points. This viewpoint seeks to fill this gap, based on readily available evidence.

2. Materials and methods

Evidence was gathered primarily from reviews, reports or books, mostly published in the last five years, notably:

Bicycling, Health and Safety (OECD/International Transport Forum, 2013); The International Transport Forum at the OECD describes itself as "an intergovernmental organisation with 54 member countries. It acts as a strategic think tank for transport".
A Handbook of Road Safety Measures (Elvik et al., 2009); 1000-page compendium of global road safety research.
City Cycling (Pucher and Buehler, 2012). (relevant chapters are cited individually); This book presents a wealth of recent international research into the factors leading to successful cycling programmes.
Infrastructure, Programs, and Policies to Increase Bicycling: An International Review (Pucher et al., 2012). This review describes fourteen successful city cycling programmes.
The Dutch Bicycle Master Plan (Welleman, 1999). A comprehensive history of cycle use and policies to support cycling in the Netherlands.
Policies for Promoting Walking and Bicycling in England: a View from the Street (Pooley et al., 2013). A qualitative investigation in four English towns of current transport choices and how to reduce barriers to cycling.
Interventions to Promote Cycling: Systematic Review (Yang et al., 2010). A systematic literature review identifying the best quality studies out of nearly 28,000 documents screened.

It is not likely that research of significance would have been missed by all of these sources.

In addition, data on personal transport and road casualties were gathered from national records of the UK and the Netherlands (hereafter "NL"), taking 1950 as a starting point. Earlier data are not readily available.

Confidence intervals were not consistently available, and they have not been included. Comment has been made where uncertainty is large.

The nomenclature used for cycling infrastructure is as follows:

- Cycle route: off-highway right of way
- Cycle track: segregated way parallel to a road
- Cycle lane: unsegregated lane painted on the road

Speed reduction is included within the scope of "infrastructure".

3. Review of evidence

3.1. Historical review since 1950, NL and UK

3.1.1. NL and UK cycling (early post-world war two era)

Between the end of the Second World War and the first oil crisis in 1973, both NL and UK experienced increases in car ownership, increases in road deaths, and declines in cycle use.