

WHAT ROUTE WILL THE CYCLIST TAKE?

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Introduction, Stated Preference:

- **Evaluating a person's preferences.**
- The conventional way of recording people's preferences is to **rank/rate** a single factor:
 - **Not a realistic** method as it does not allow for **interaction between factors.**
- Alternative approaches:
 - **Revealed Preference**, what people are observed to do.
 - **Stated Preference**, what people say they will do.
 - **Wide range attributes/characteristics,**
 - **Varied value/level of factors,**
 - **Hypothetical scenarios.**

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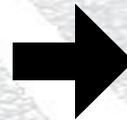
Introduction, The Study:

- Aim, investigate the **route choice of cyclist's** in a **Christchurch** context and hence identify their **preferences**.
- Christchurch is in an **unusual situation** currently hence it cannot fully depend on the outcome of exterior studies.
- Factors that make the investigation of cycling behavior within Christchurch both **essential** and **unique**:
 - **Rapidly evolving,**
 - **The Council's ambitious plans for its cycle networks**
 - **Current lack of cyclists.**

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Existing Route Choice Literature:

Previously Studied Attributes
Topography/Gradient
Bicycle Lane/Path
Cyclist's Experience
Road Hierarchy/Traffic Volume
Number of Intersections
Travel Distance/Time
On Street Car Parking
Pavement Surface Condition
Street Width
Street Lighting
Traffic Speed/Speed Limit



Attributes Included in the Survey
Road Hierarchy
Bicycle Lane/Path
Travel Time
On Street Car Parking

2 options, 3 Factors, 3 levels

= $3^3 \times 3^3$ choice combinations

• Hence the need for limited attributes and an efficient design.

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The Final Survey, Design:

- Web based format, **Qualtrics Online Survey Software**.
 - Accessible through a web link,
 - Targeted at individuals commuting to Canterbury University, hence primarily **university staff** and **students**.
- Two isolated sections:
 - **Demographic data**,
 - **Stated Preference**.
- The Stated Preference section comprised initially of a description, providing a **context** for all the subsequent hypothetical scenarios. These scenarios were then depicted by **12 choice sets**, the participants were asked to pick their preferred route from the two options presented.

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The Final Survey, Layout:

Scenario 3: Please select your preferred route.



Route 1: Travel time of 20 minutes, on a residential road without a bike lane and without on-street car parking.



Route 2: Travel time of 40 minutes, on a minor road with a bike lane and on-street car parking.

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Results, Stated Preference Survey:

Ultimately, **42 surveys were completed** and to interpret the result **4 models** were constructed.

- The equation for Model 1, linear analysis:

$$V_{Route A} = \beta_{Route A} + \beta_{PARK} PARK + \beta_{BLANE} BLANE + \beta_{RHRH} + \beta_{TTTT}$$

$$V_{Route B} = \beta_{PARK} PARK + \beta_{BLANE} BLANE + \beta_{RHRH} + \beta_{TTTT}$$

Undesirable road characteristics in terms of cyclist route choice:

- **Travel Time (-0.92176),**
- **On Street Parking (-0.89264),**
- **Road Hierarchy (-0.58669).**

The only **positive** of all the attributes investigated:

- **Bike lanes (1.04740)**

The positive value of the bike lane is greater than each negative factor in isolation, although not always to a large degree.

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Discussion:

This study acted as an introduction into the **conundrum of cyclist route choice**, and hence how **to improve the cycling facilities and so promote cycling as an effective alternative form of transport.**

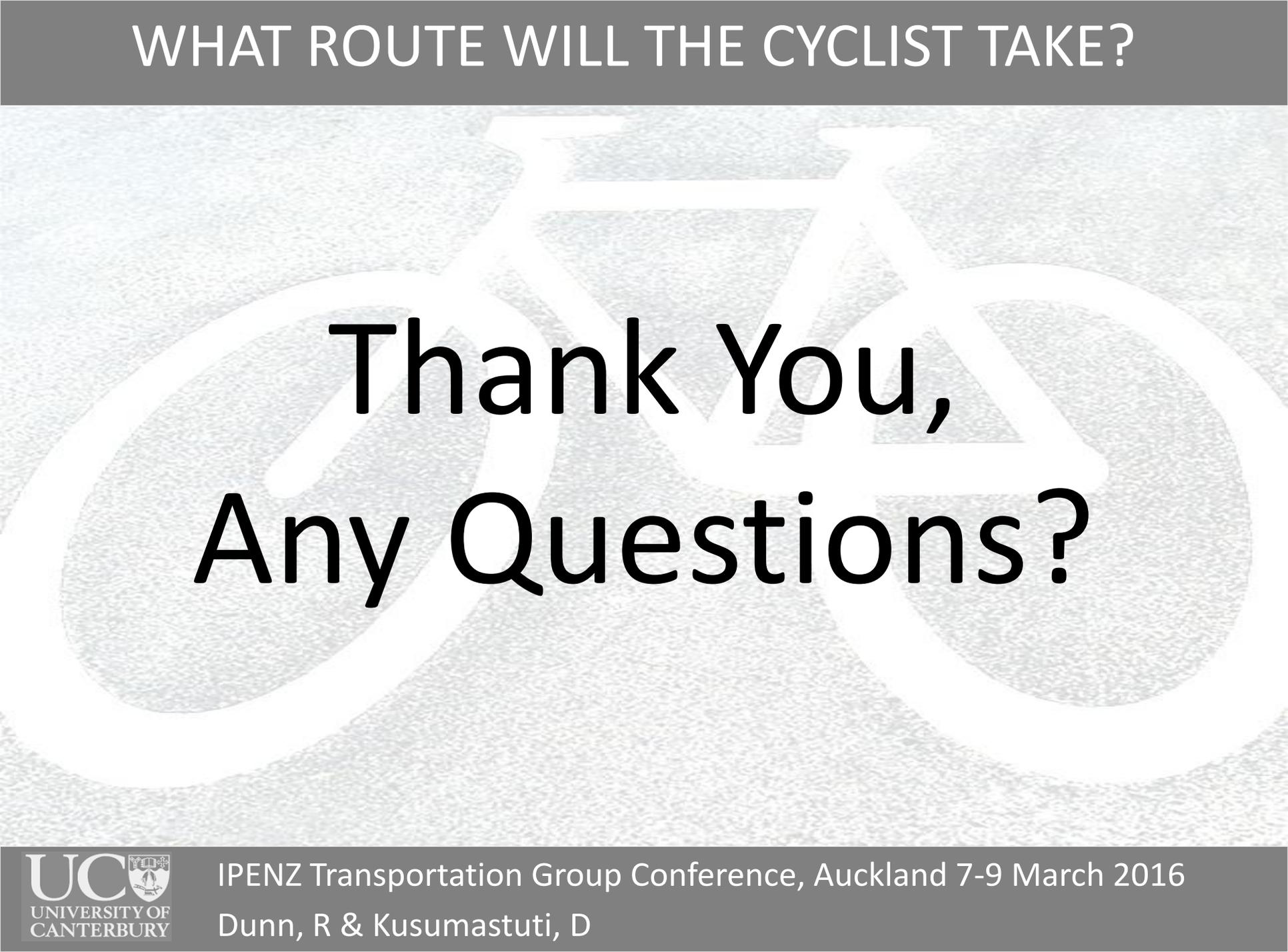
If this research were to be repeated there would be a number of areas for **potential improvement:**

- **Photograph obtainment and selection,**
- **Choice set creation.**

Further research:

- **Larger scale,**
- **Cyclists and non cyclists,**
- **Priorities shift with experience,**
- **Stated and observed.**

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Thank You,
Any Questions?