

Bike sharing scheme research

Richard Bean

Queensland Health

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Bike sharing data

- Research undertaken at the University of Queensland (School of Geography, Planning and Environmental Management – GPEM), October 2013 to date
- Comparing aspects of Brisbane's CityCycle scheme to other schemes where data was available (New York, Minneapolis, Boston, London, and Washington DC)

Bike sharing worldwide

- Schemes in 1,055 cities in 60+ countries (June 2016)
- What are the factors that influence scheme use patterns and ridership levels?

CityCycle data

- Data on approximately 930,000 trips
- October 2010 to March 2015
- Origin and destination stations
- Time of hiring and return
- Demographic data of users (age, gender, postcode)
- Casual and long-term users
- 150 stations, 1800 bikes in use

Cleaning the data

- Test data
- Non-existent stations
- Data errors, spurious trips

External data sources

- Land use data – Australian Bureau of Statistics Census 2011 mesh block data (land use, population, dwellings)
- Bikeways data – Brisbane City Council GIS Data & OpenStreetMap
- Topography data – Geosciences Australia

Analysis of data – trip length, speed and duration

- Effect of cost structure of schemes on trip duration (e.g. New York 45 minutes)
- Trip length by time of day, day of week, and gender
- Gender difference of speed
- Testing reported power law

Analysis of data – cycling infrastructure

- Impact of cycling infrastructure on scheme use
- Length of “infrastructure” in 400 metre radius around each station
- Off-road versus on-road
- Shared path versus yellow bike stencil symbol
- Significant differences in correlation

Analysis of data – land use types

- Impact of land use types on scheme use
- Weekday trips (residential to commercial and back again)
- Weekend trips (within parks)

Analysis of data - topography

- Impact of topography on scheme use
- Sources and sinks
- People prefer to return bikes to stations at the bottom of hills
- Implications for bonus minutes

Paper and further research

- Research submitted
- How does gender make a difference to trips?
- How does age of user make a difference to trips?
- How do casual and long-term users use the scheme differently?
- Public health implications – scheme utilization, land use, health promotion