

# Where to park? A behavioural comparison of bus-based Park and Ride and city centre car park usage in Bath, UK

**Billy Clayton**

**Eran Ben-Elia**

**Graham Parkhurst**

**Miriam Ricci**



University of the  
West of England

**bettertogether**

# Park and Ride

- Park and Ride (P&R) is a broad term for intermodal transfer sites between private car and public transport – usually peripheral to urban areas
  - Typically bus or train: in UK term mainly synonymous with bus-based P&R
- Park and Ride increasingly popular in the past two decades
- Three main forms of P&R:
  - Remote P&R
  - Peripheral P&R
  - Local P&R
- Benefits of P&R relate to reduction of traffic in urban centres, addressing issues of capacity limitation, congestion, and air pollution
- Enduring positive image with policymakers; however, more recent empirical studies have challenged the assumed benefits of P&R schemes
  - Simply *displace* traffic issues, rather than solving them
  - Generate more car trips through increasing accessibility of urban centres
  - Encourage greater car use through ‘abstraction’ from traditional public transport (*P&R users are drivers too!*)

# Parking

- Local parking policy one of the key factors influencing travellers' mode choice for journeys to urban centres
- Parking policy is a tool to strengthen the vitality of urban centres in the face of competition
- Increased capacity and reduced price is therefore promoted despite negative implications for traffic
- Tension between competing goals for 'urban vitality'?
  - Vitality through commerce
  - Vitality through pleasant urban environment

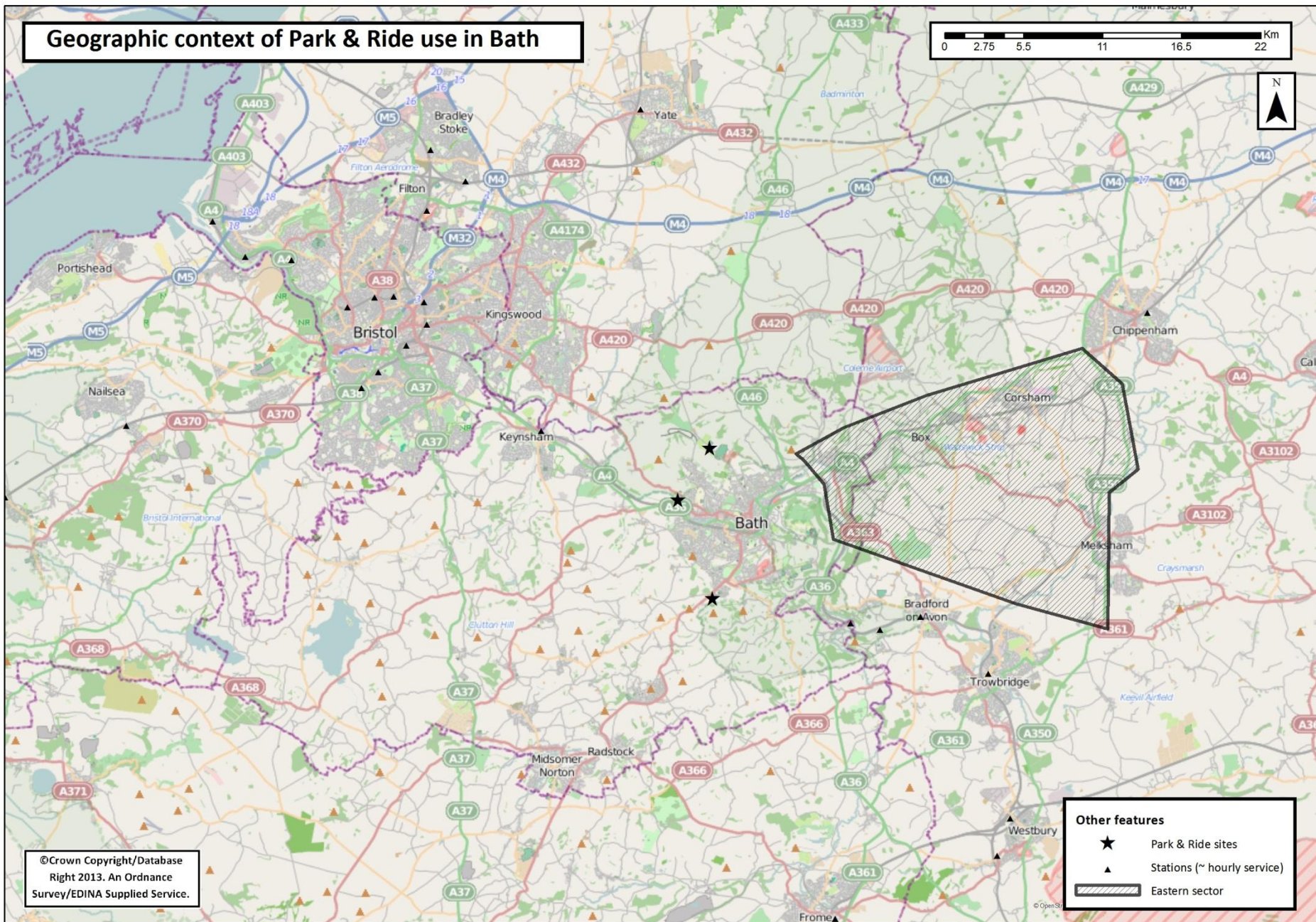
# Aims:

- Explore spatial distribution of Park and Ride user and city-centre car park user origins
- Understand who is using Park and Ride and who is using city-centre car parks
- Looking for patterns and relationships which might help explain why different individuals or groups of drivers access central Bath in the ways that they do





# Geographic context of Park & Ride use in Bath



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## Other features

- ★ Park & Ride sites
- ▲ Stations (~ hourly service)
- ▨ Eastern sector

# Methodology

## Park and Ride users:

Face-to-face survey on buses making both inbound and outbound journeys to all three P&R sites in Bath. Surveys conducted 09:30-18:00 Monday-Saturday.

## City centre car park users:

Face-to-face on-street surveys conducted with visitors to all major public car parks in central Bath. Surveys conducted 09:30-18:00 Monday-Saturday.

## Sample size (n = 1285):

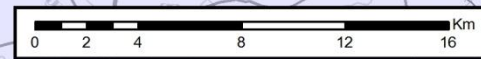
- Park and ride users: **n = 721**
- Car park users: **n = 564**

## Not all cases included (1723 responses collected: **75% included**)

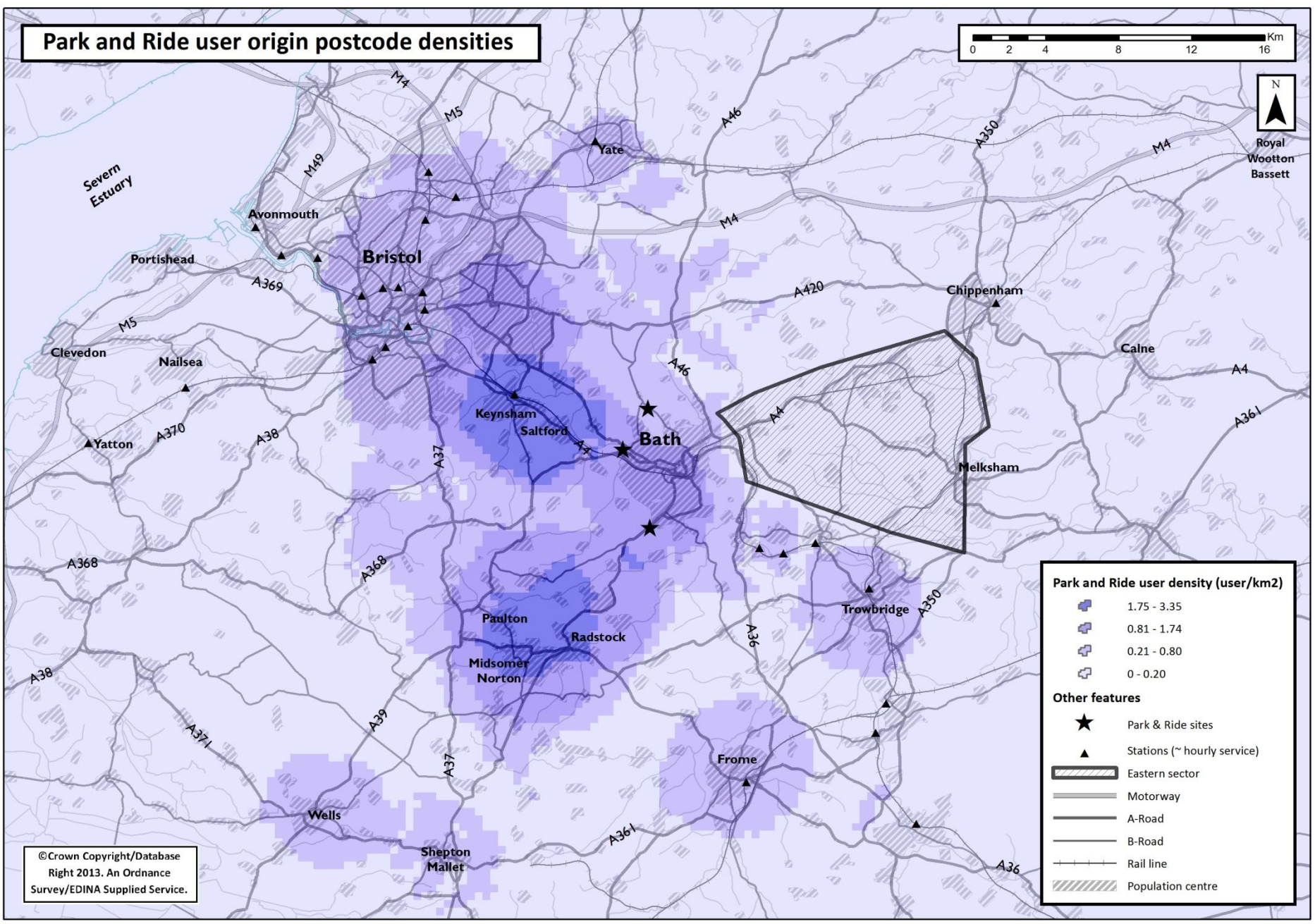
- Only complete postcodes (**86% complete**)
- Only postcode areas: BA – BS – GL – SN – TA (**91% of total**)
- Park and Ride maps and statistics only represent car access (driver or passenger – **90% of valid participants**)



# Park and Ride user origin postcode densities



Royal Wootton Bassett



**Park and Ride user density (user/km2)**

- 1.75 - 3.35
- 0.81 - 1.74
- 0.21 - 0.80
- 0 - 0.20

**Other features**

- ★ Park & Ride sites
- ▲ Stations (~ hourly service)
- Eastern sector
- Motorway
- A-Road
- B-Road
- Rail line
- Population centre

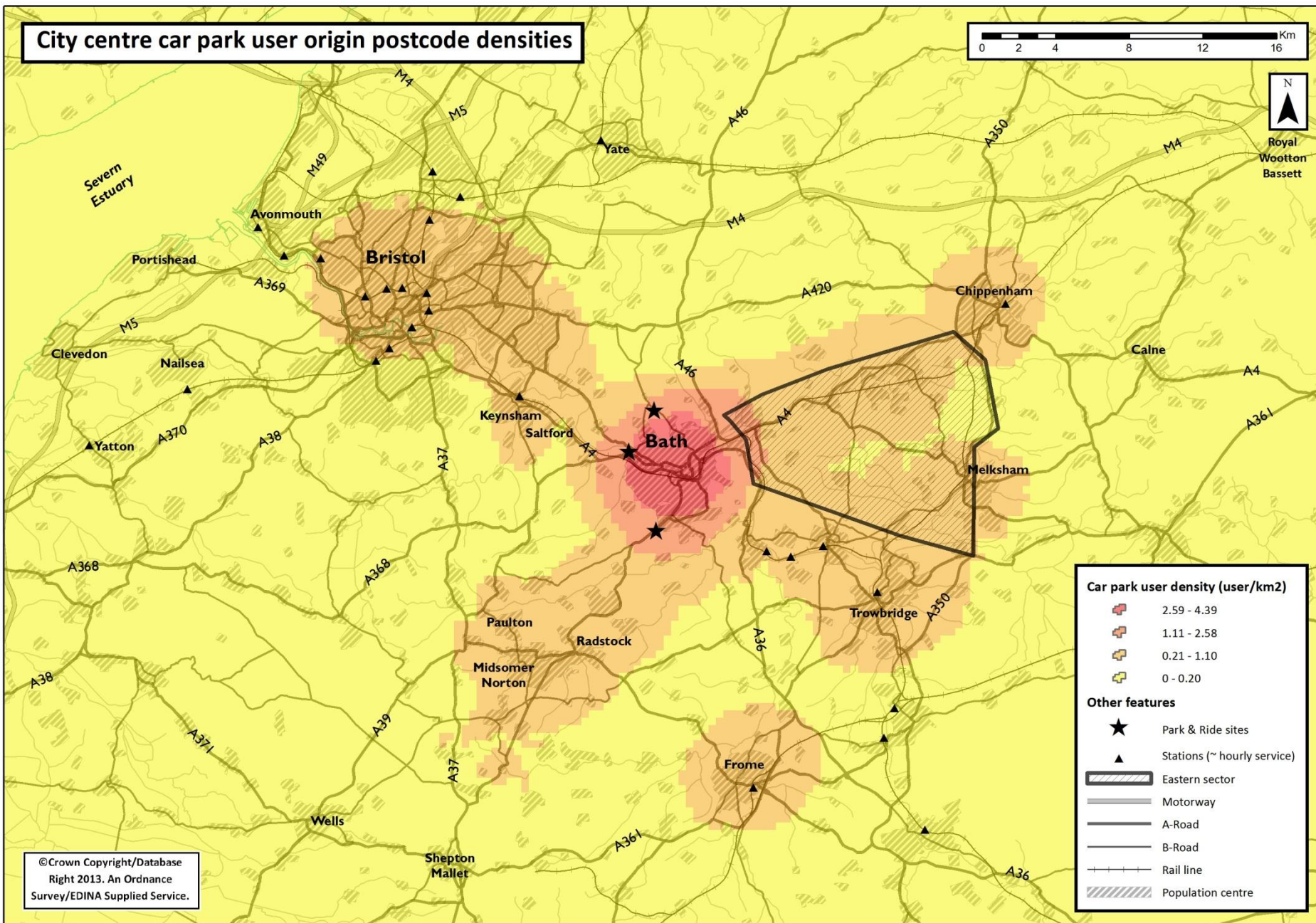
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# City centre car park user origin postcode densities



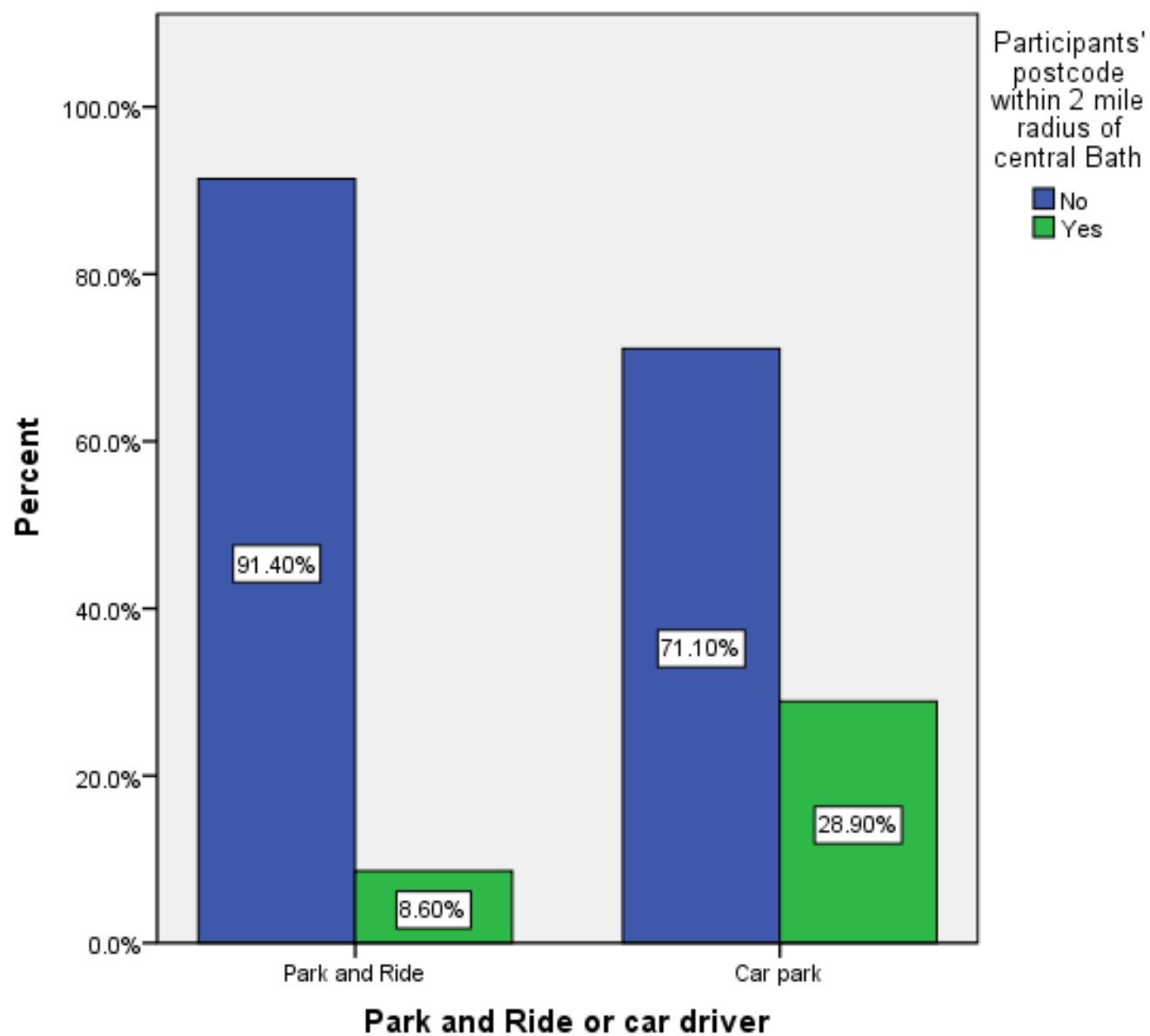
Royal Wootton Bassett

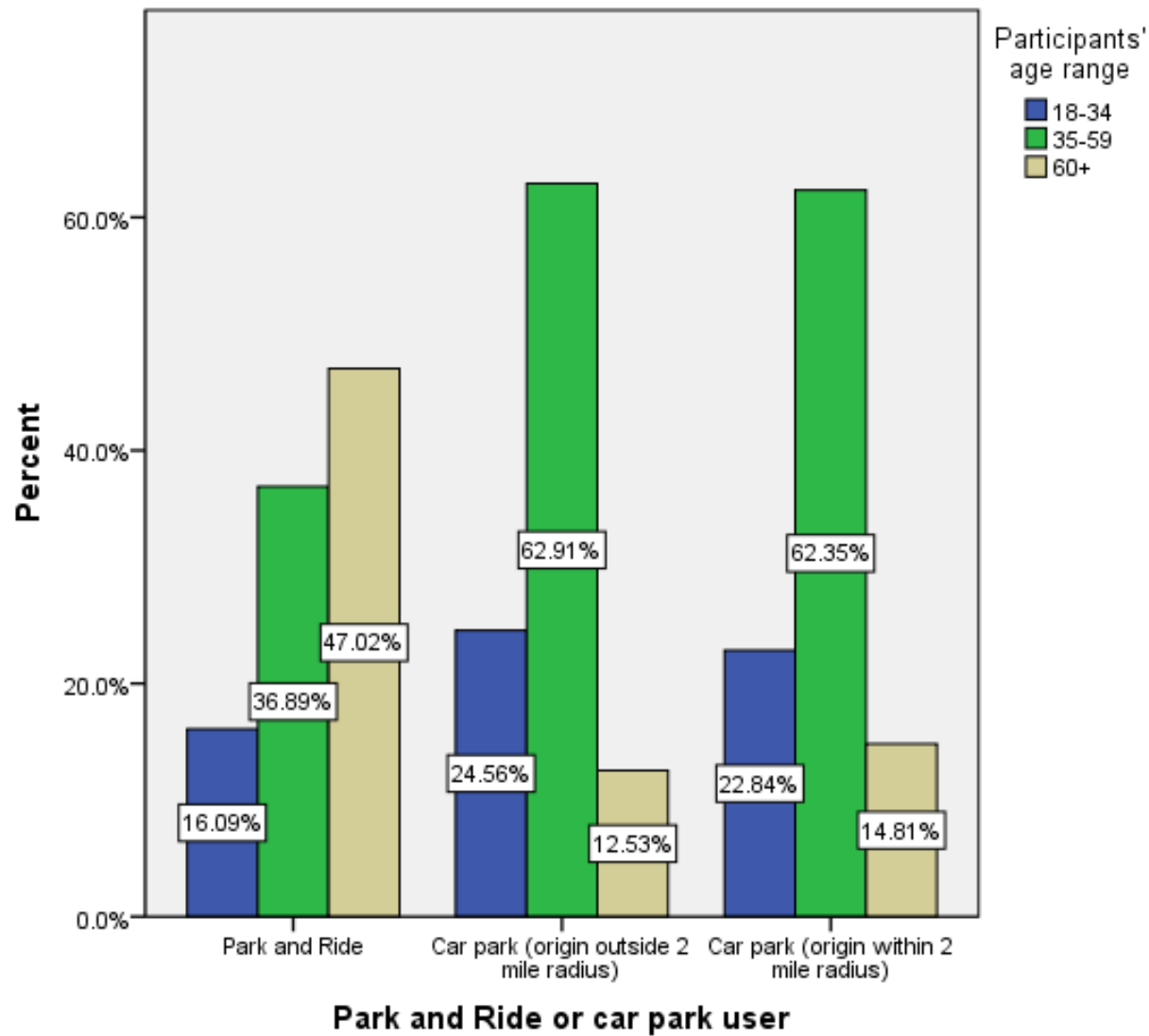




# What predicts P&R or car park use?

- Gender – Women more likely to use Park and Ride, *outside of Bath*
- Age – Those aged 60 and above are more likely to use Park and Ride
- Income – Those travelling from highest income areas are more likely to drive in to the city centre
- Party size – Those travelling in groups are more likely to drive in to the city centre
- Accessibility of Park and Ride – those who live on routes into Bath not served by Park and Ride are more likely to drive into the city centre
- Frequency – Those travelling into Bath in the middle frequency range (a few times a month) are more likely to use Park and Ride

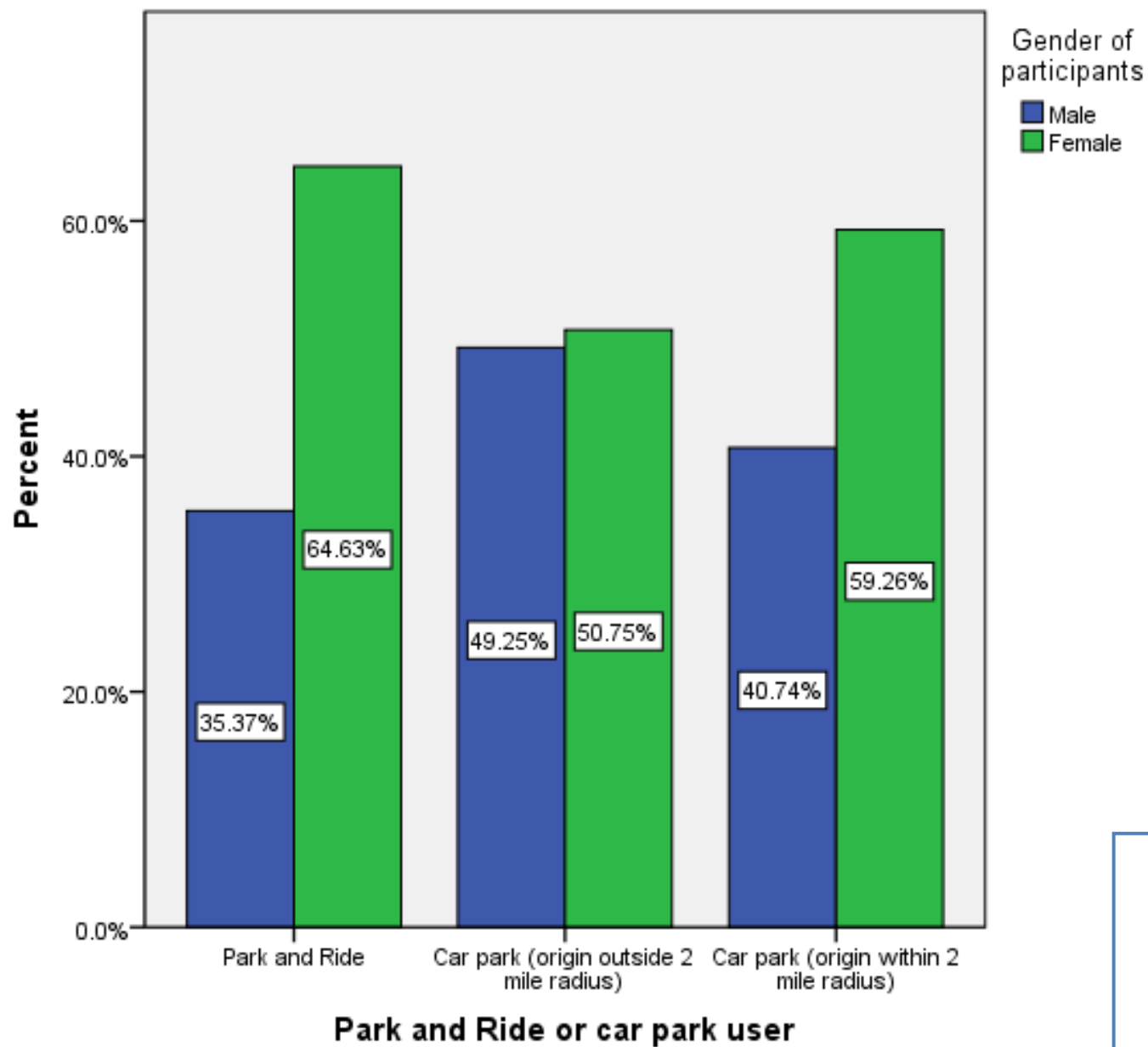




$n = 1282$

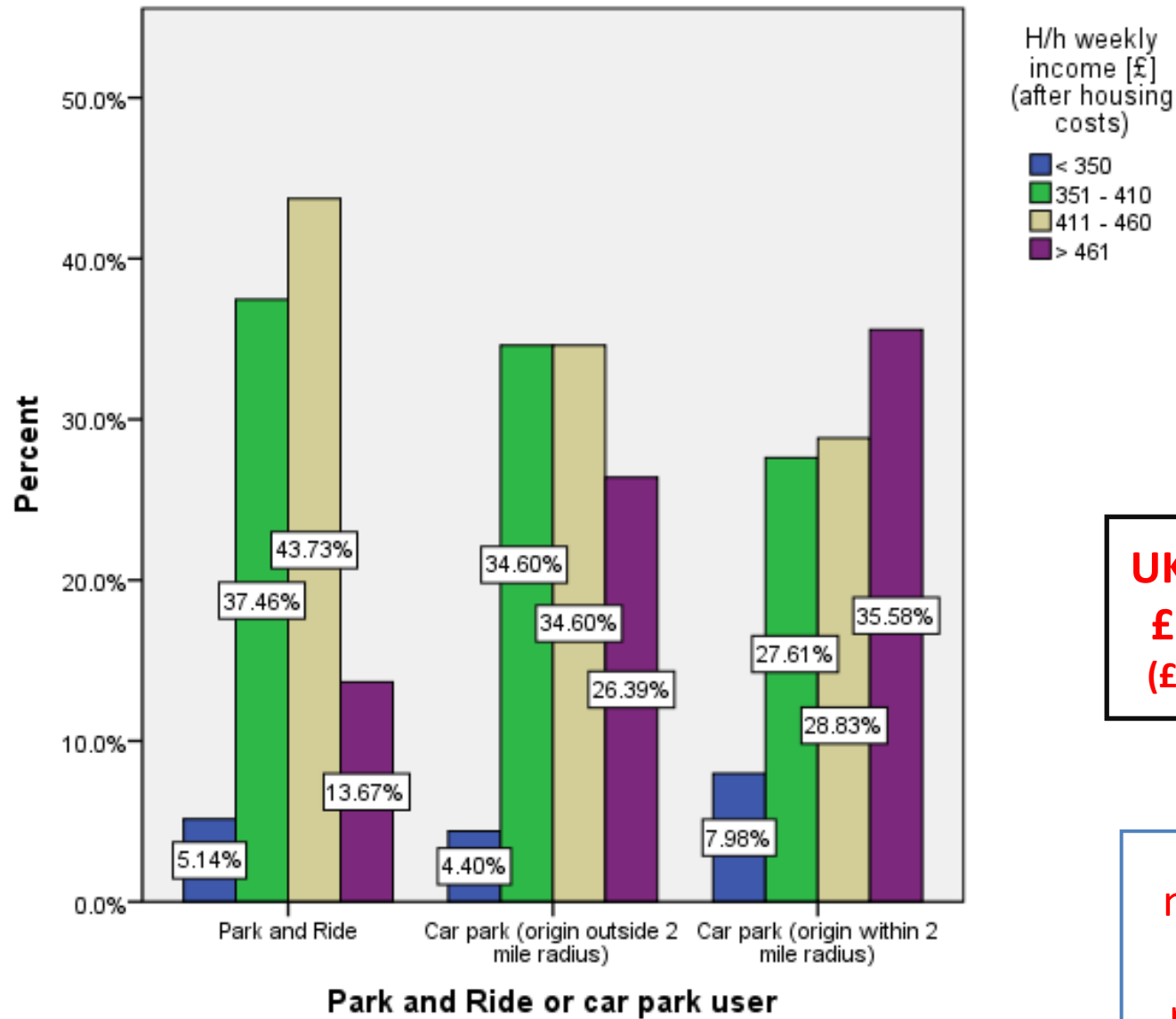
$p < 0.05$





$n = 1281$

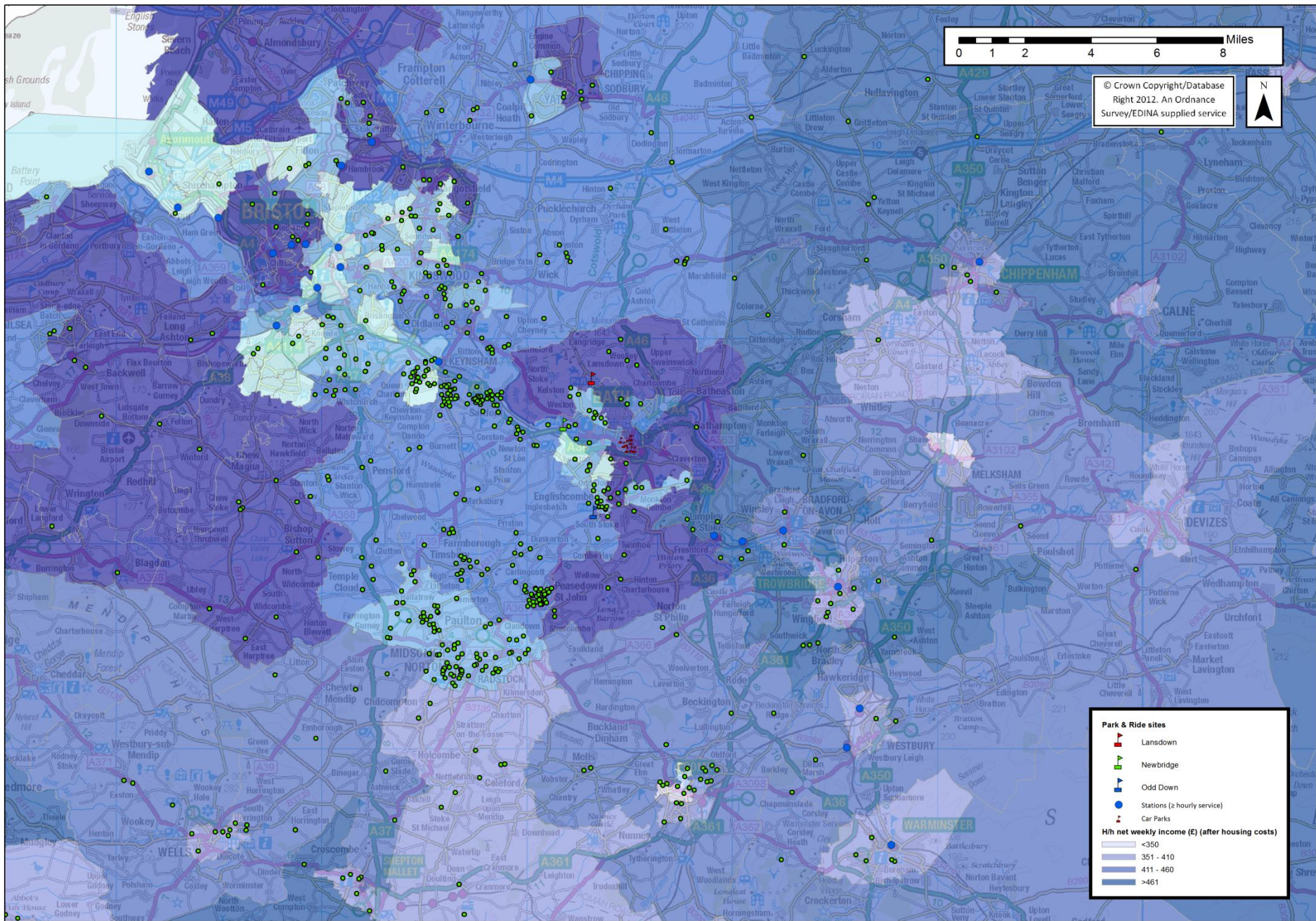
$p < 0.05$



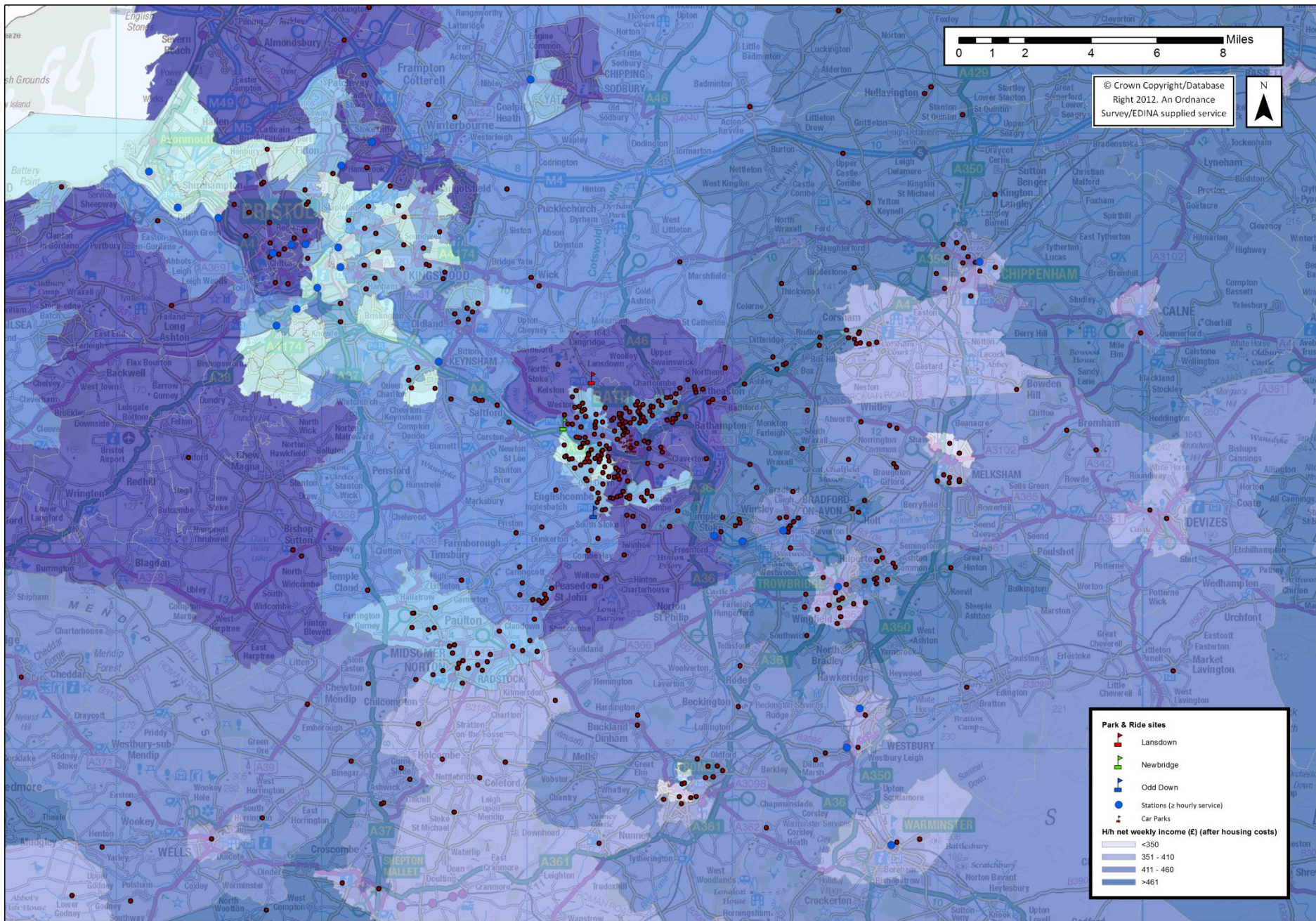
**UK median:**  
**£359 p/w**  
**(£1556 p/m)**

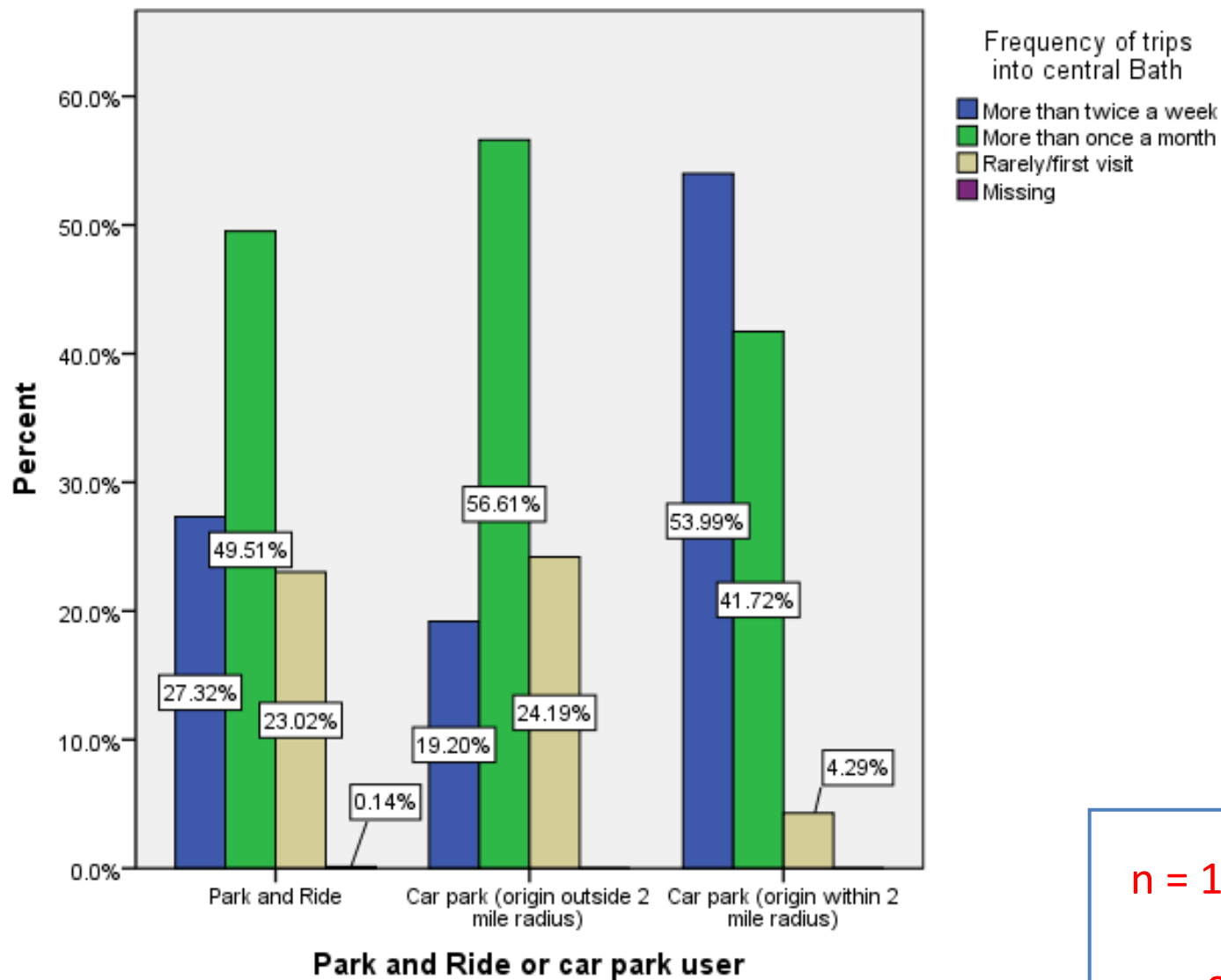
**n = 1126**

**p < 0.05**



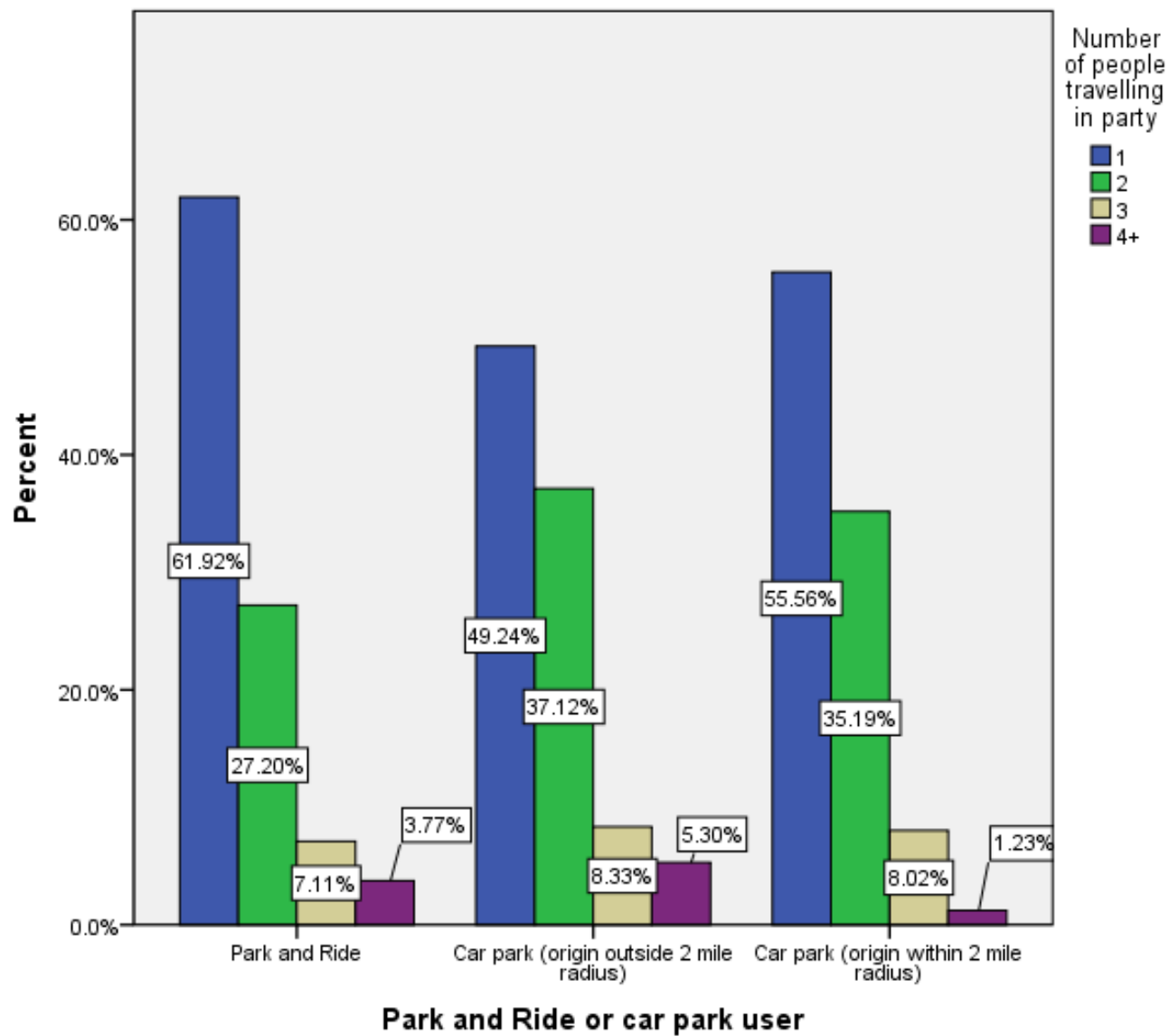






$n = 1285$

$p < 0.05$



$n = 1275$

$p < 0.05$



# Summary and conclusions

- Park and Ride users:
  - Predominantly older individuals
  - Higher proportions of women than men
  - Highest proportions travelling for the purposes of shopping and personal business [possible bias in sampling times]
  - Majority travelling from surrounding areas, particularly Keynsham/Saltford and Midsomer Norton/Paulton/Radstock
  - Majority in the middle income range
  - P and R is not especially attractive to larger groups

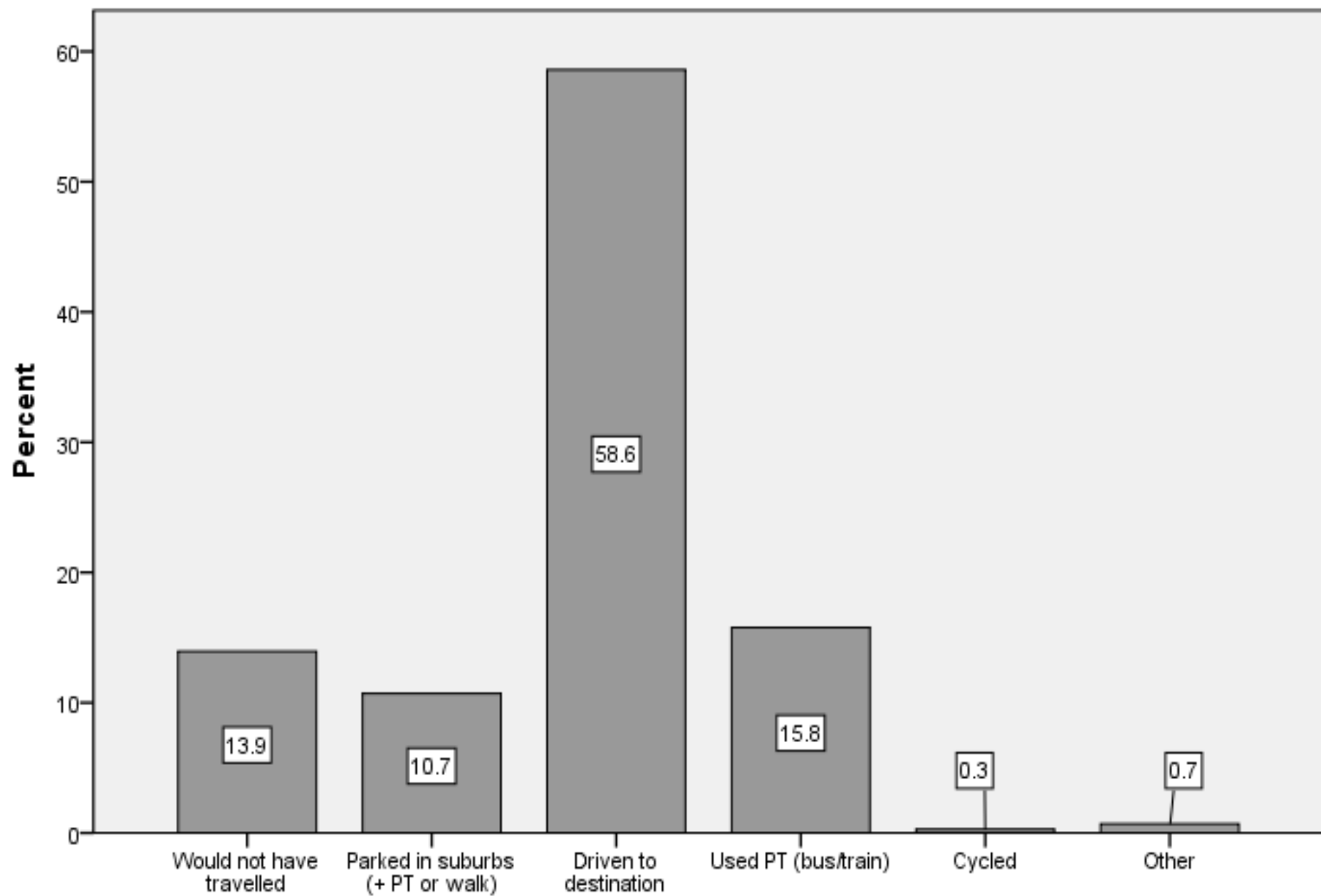
# Summary and conclusions

- City-centre car park users:
  - Split by point of origin – significant differences between those who live within 2 miles of central Bath and those who live outside 2 miles of the city centre
  - High proportion of car park users driving short distances (~30%) and making regular trips (54%)
  - Even split of gender, however more women making short trips than men
  - In general car park users travelling from middle-higher household income bracket areas, with the majority of those travelling from within 2 miles of the city centre travelling from highest income bracket areas (36%)
  - Knowledge of Park and Ride is good

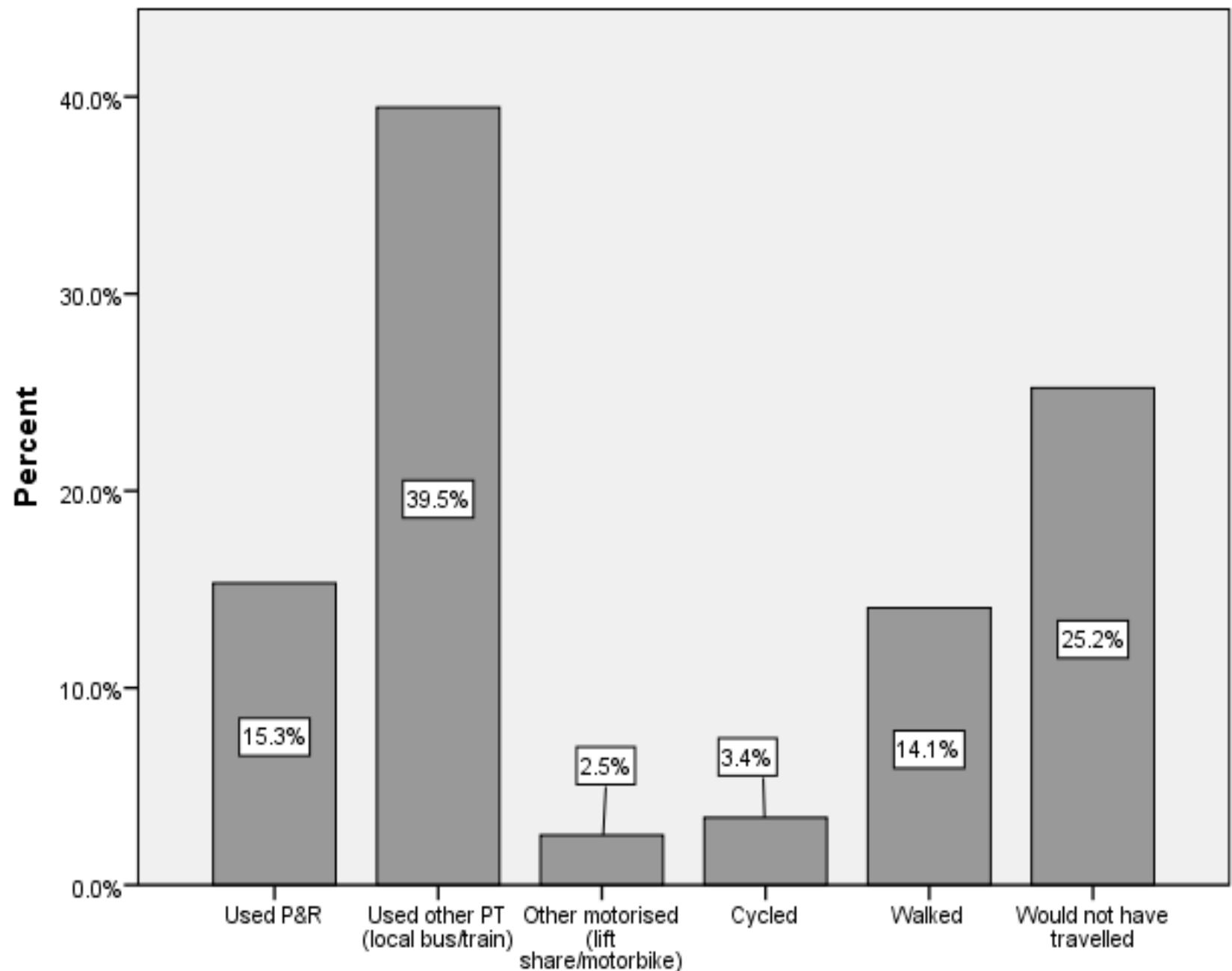
What would drivers do if P&R or city centre car parking spaces weren't available?

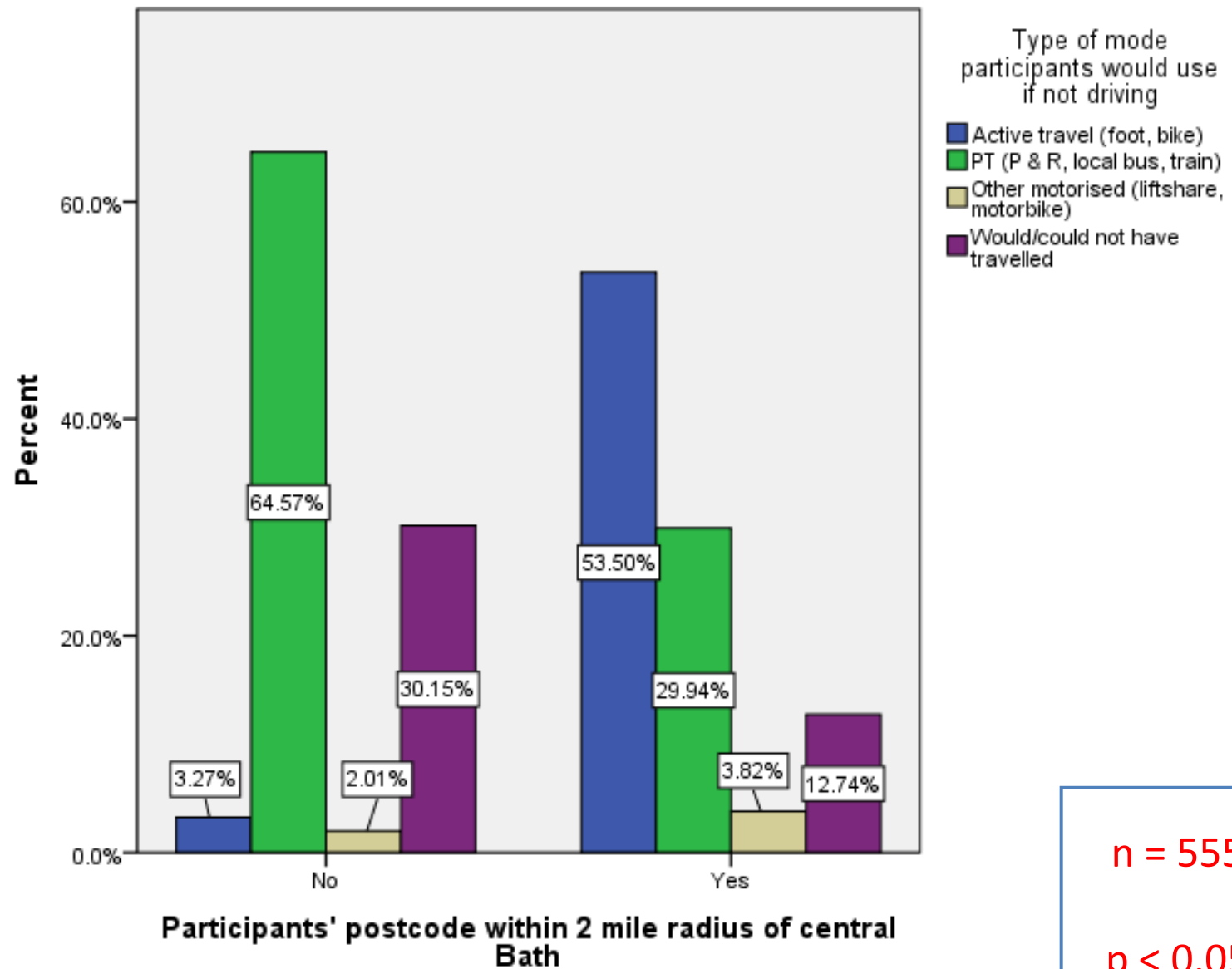


**P&R user most likely alternate access to destination**



**Car park user most likely alternate access to destination**





$n = 555$

$p < 0.05$

# Summary, conclusions, and questions

- Potential for walking and cycling to replace a significant proportion of short car journeys; however, hilly topography and affluent population create specific challenges
- Is an eastern site advisable?
  - Many P&R users report they would drive in to city if no P&R, so eastern site could capture some drivers...
  - **However** –
  - P&R could further cement car dependence in this sector
  - There may only be a marginal benefit because of the low overall demand
  - Other types of scheme might be more appropriate (L&R, etc...)
- Issues of equity with P&R?
  - P&R provides free parking and subsidised bus travel to drivers, whilst those without a car must pay the full fares on local bus services
  - People with a concessionary pass receiving a 'double incentive' to reduce their sustainability?



Thank you!

Any questions/comments?