



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

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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
- Benefits of P&R relate to reduction of traffic in urban centres, addressing issues such as:
 - capacity limitation
 - congestion
 - 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

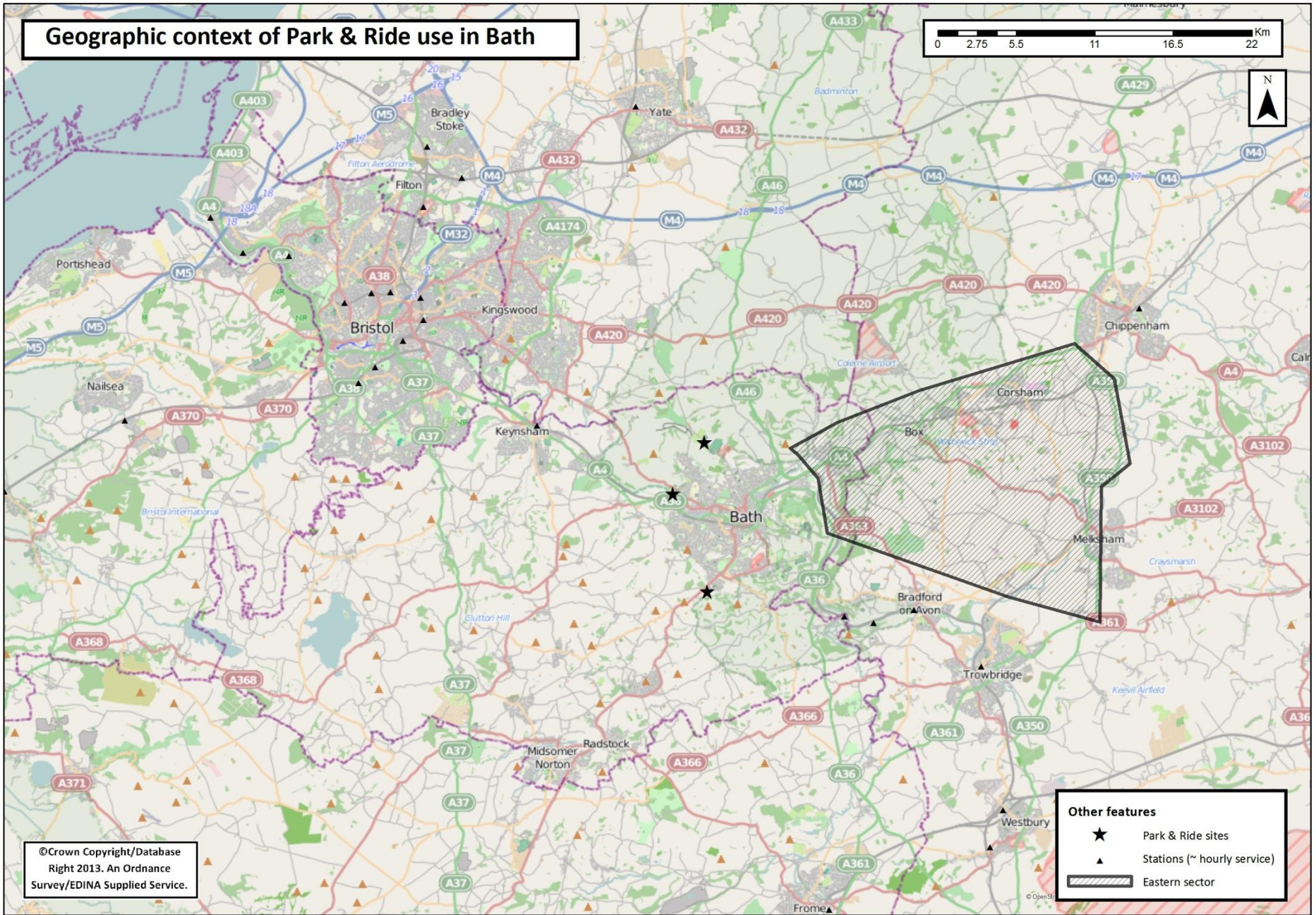
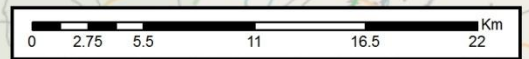
- Local parking policy one of the key factors influencing travellers' mode choice for journeys to urban centres
- Parking policy is a tool to strengthen the vitality of urban centres in the face of competition
- Increased capacity and reduced price is therefore promoted despite negative implications 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.

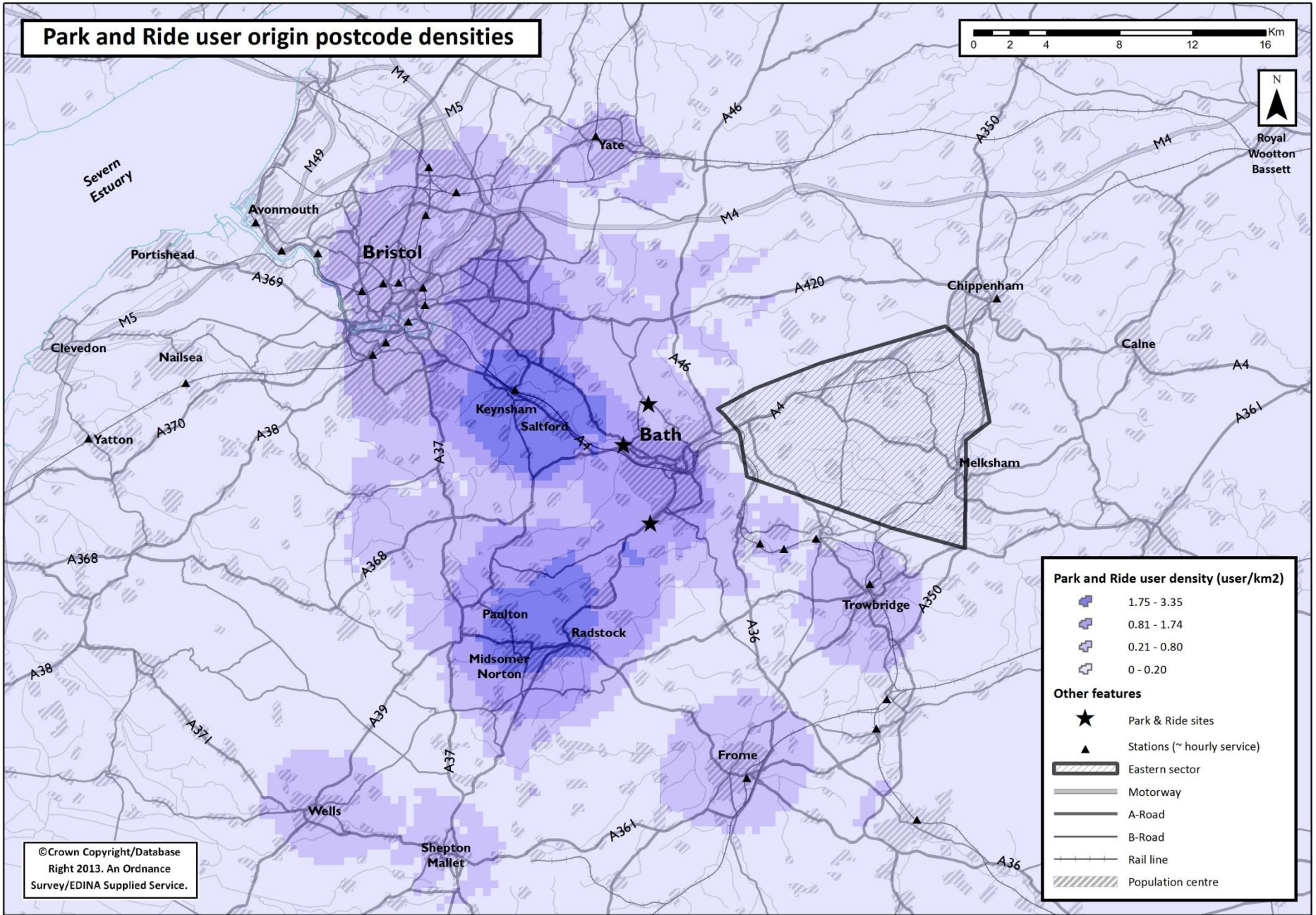
- Sample size (n = 1285):
 - Park and ride users: n = 721
 - Car park users: n = 564

- 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)

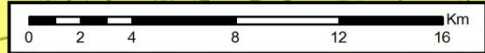
- 1.75 - 3.35
- 0.81 - 1.74
- 0.21 - 0.80
- 0 - 0.20

Other features

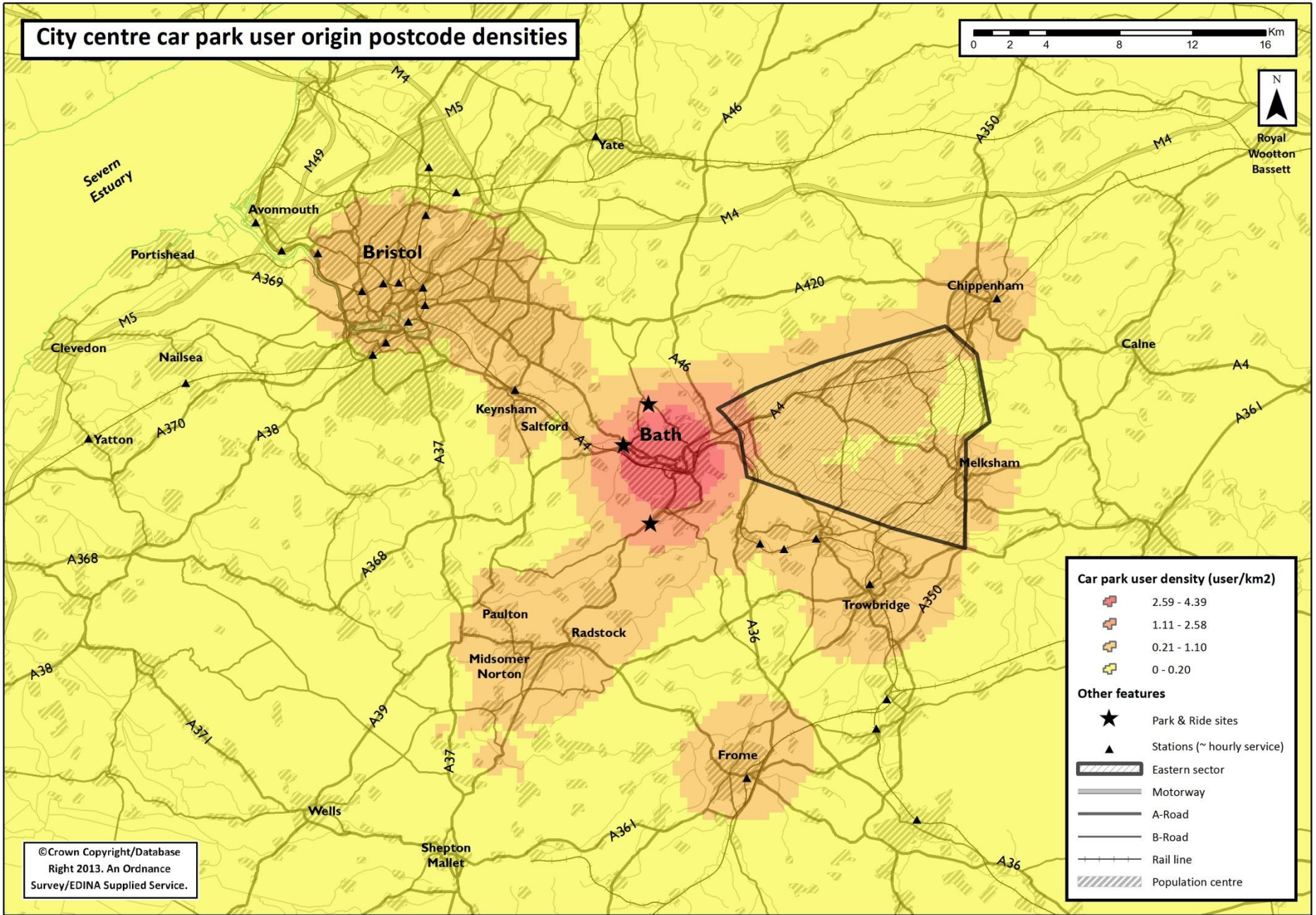
- Park & Ride sites
- Stations (~ hourly service)
- Eastern sector
- Motorway
- A-Road
- B-Road
- Rail line
- Population centre

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City centre car park user origin postcode densities



Royal Wootton Bassett



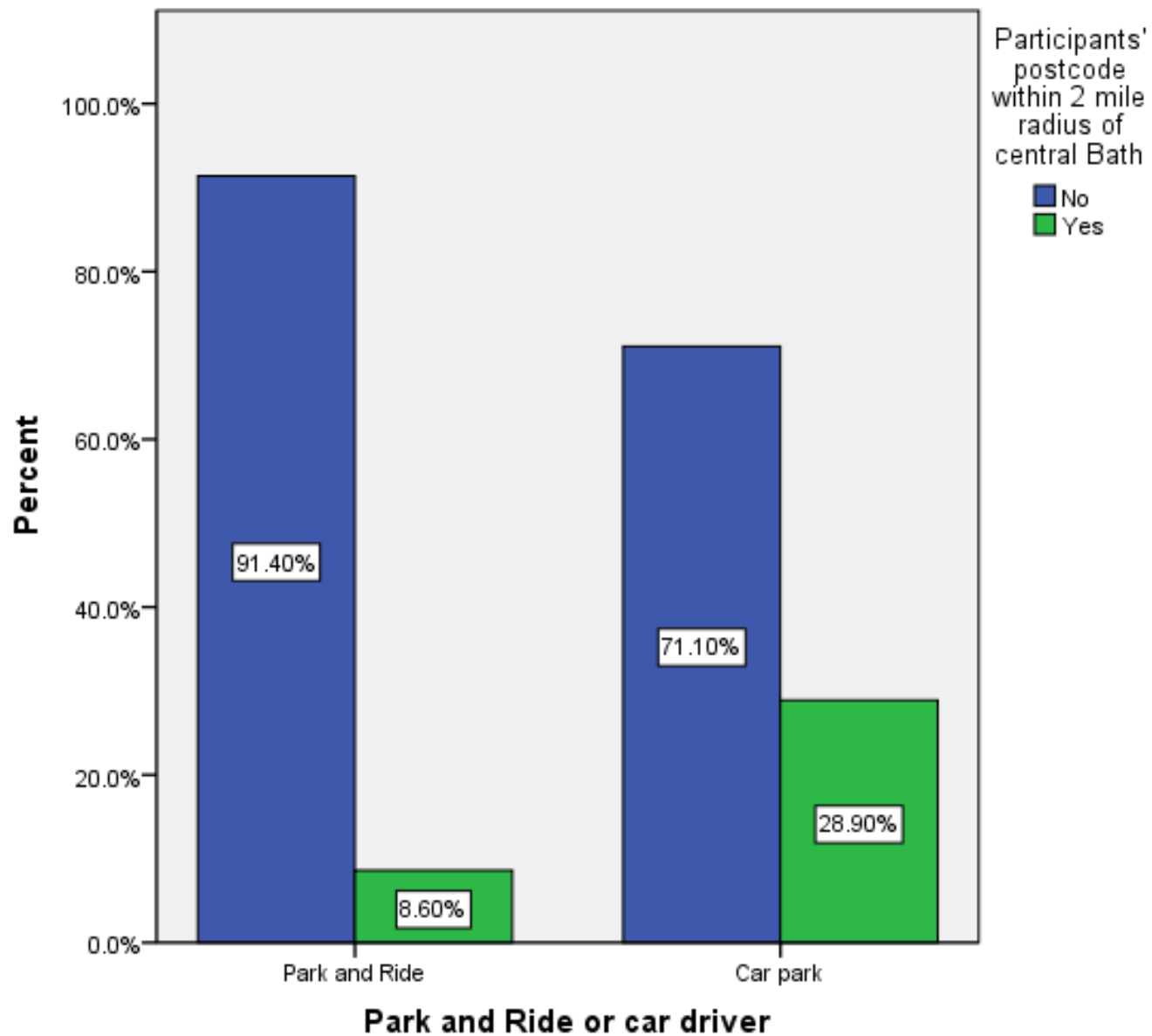
Car park user density (user/km²)

- 2.59 - 4.39
- 1.11 - 2.58
- 0.21 - 1.10
- 0 - 0.20

Other features

- Park & Ride sites
- Stations (~ hourly service)
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- B-Road
- Rail line
- Population centre

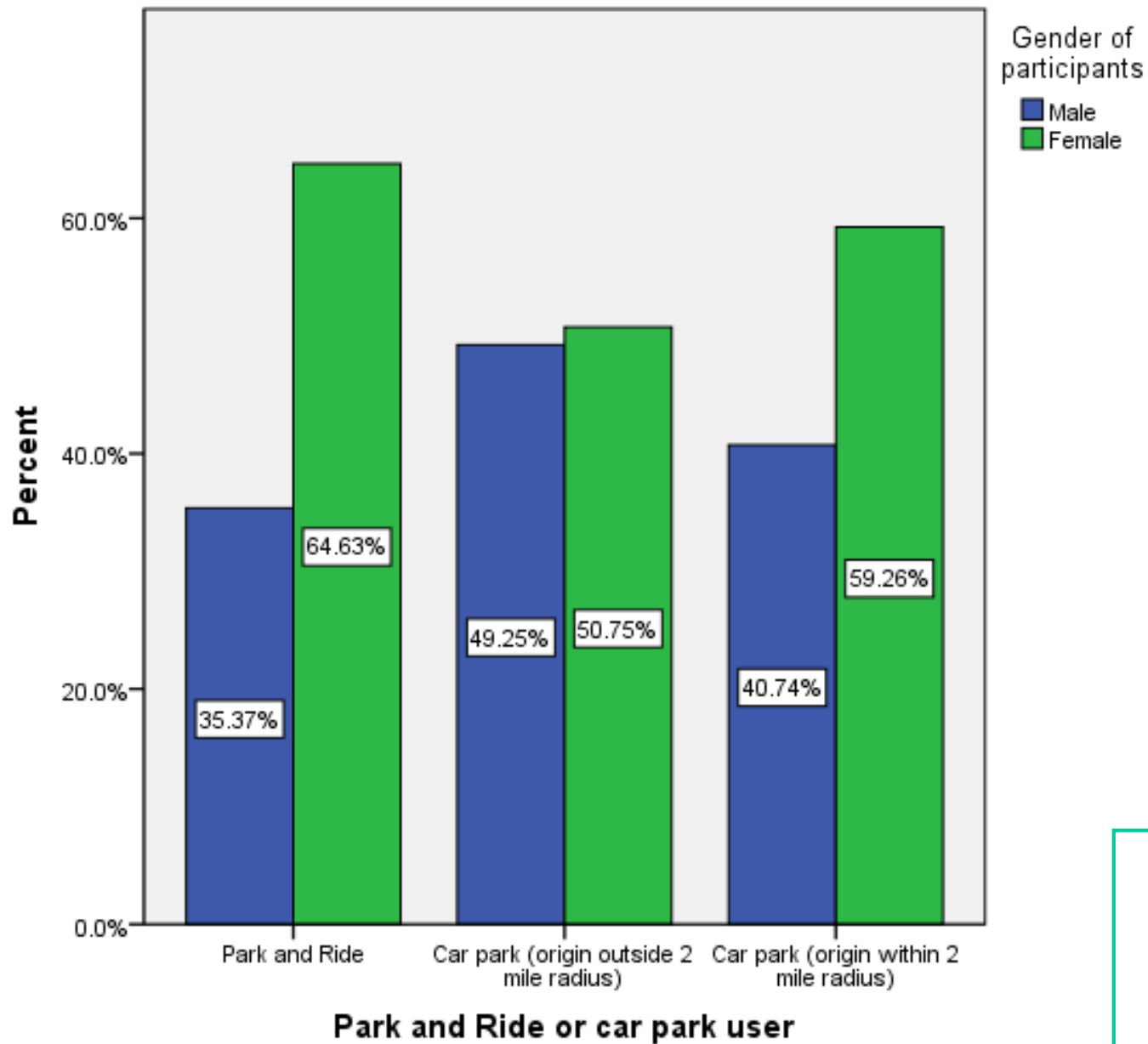
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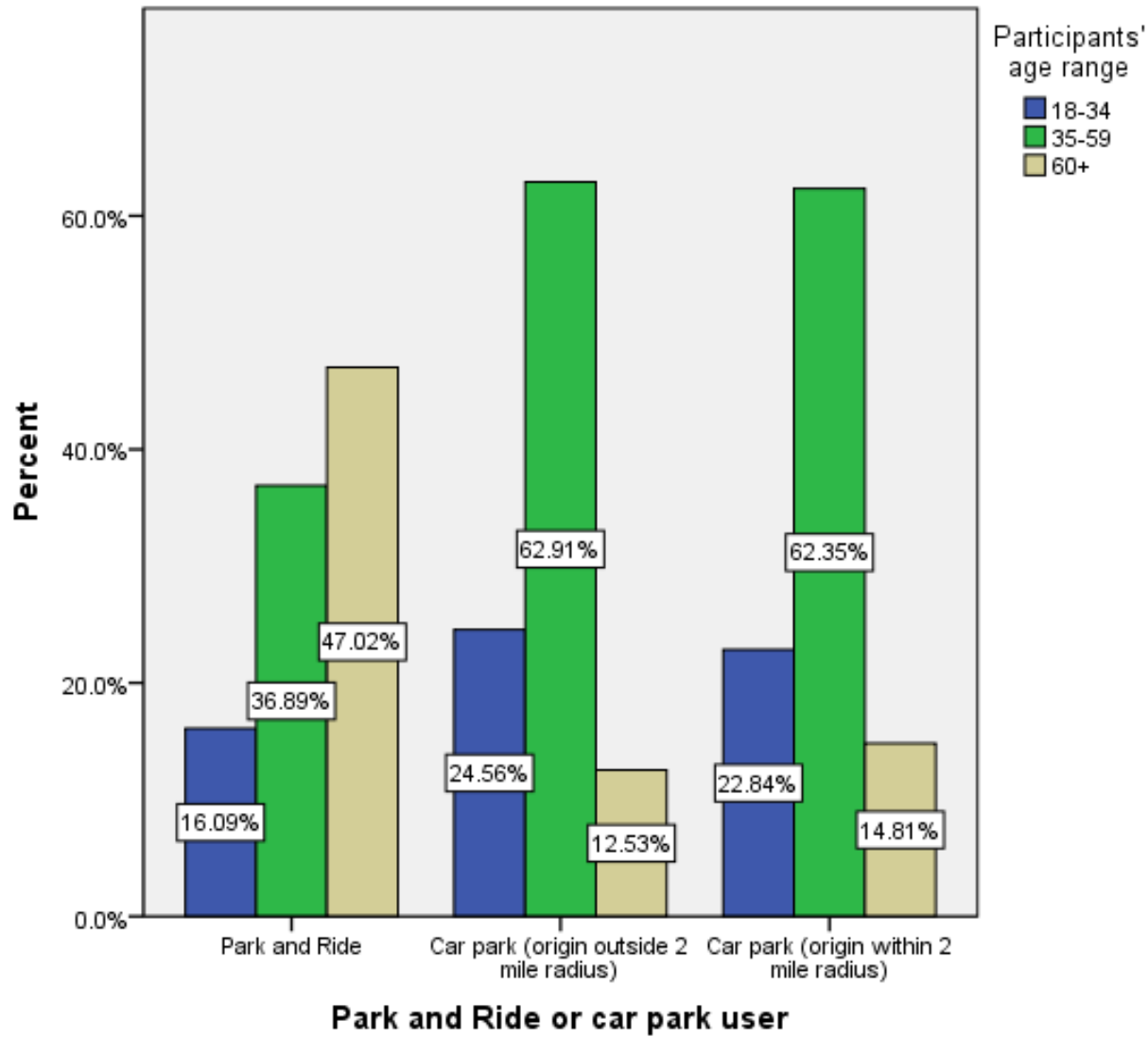
What predicts P&R or car park use?

- **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
- **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
- **Frequency** – Those travelling into Bath in the middle frequency range (a few times a month) are more likely to use Park and Ride



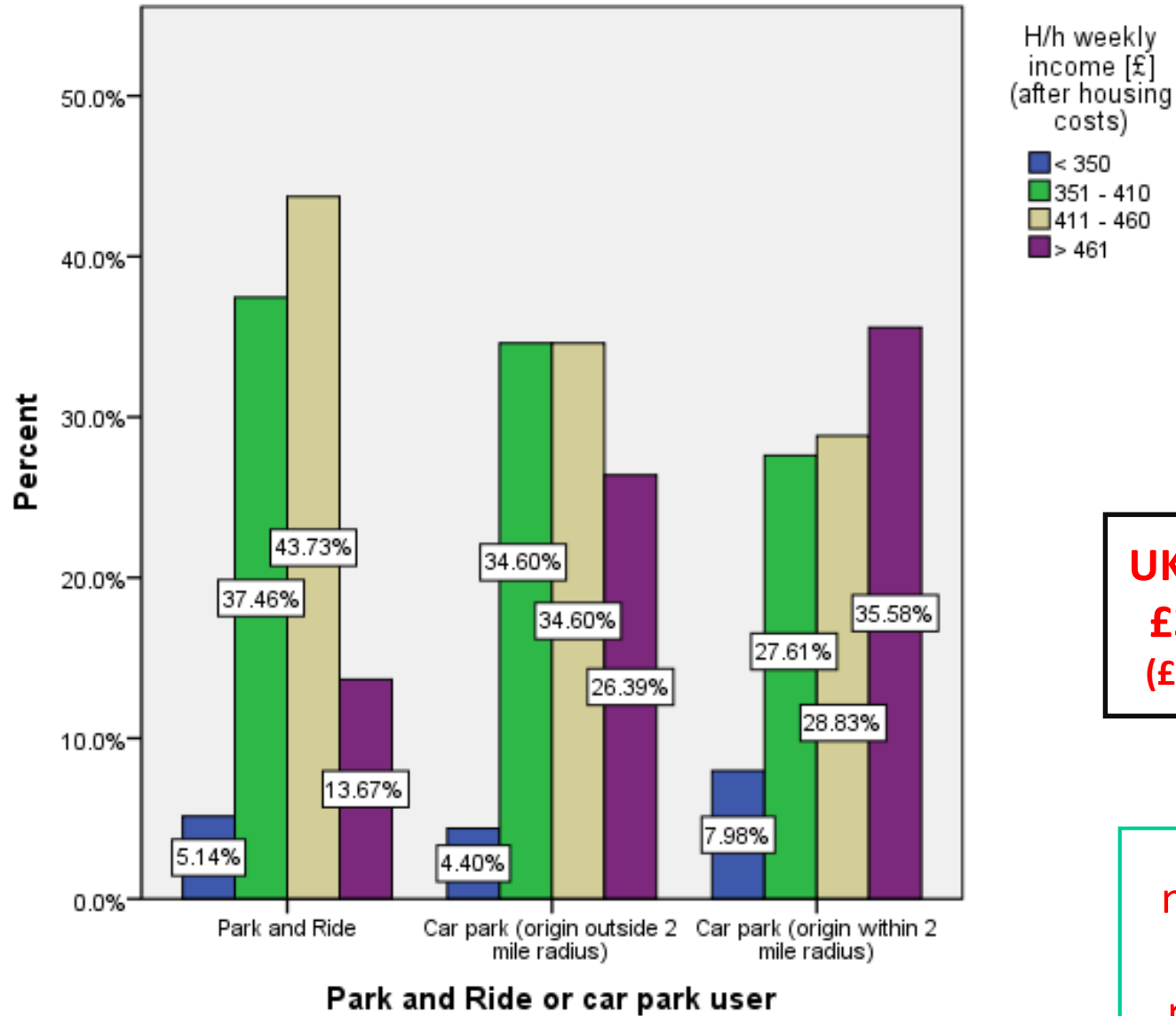
n = 1281

p < 0.05



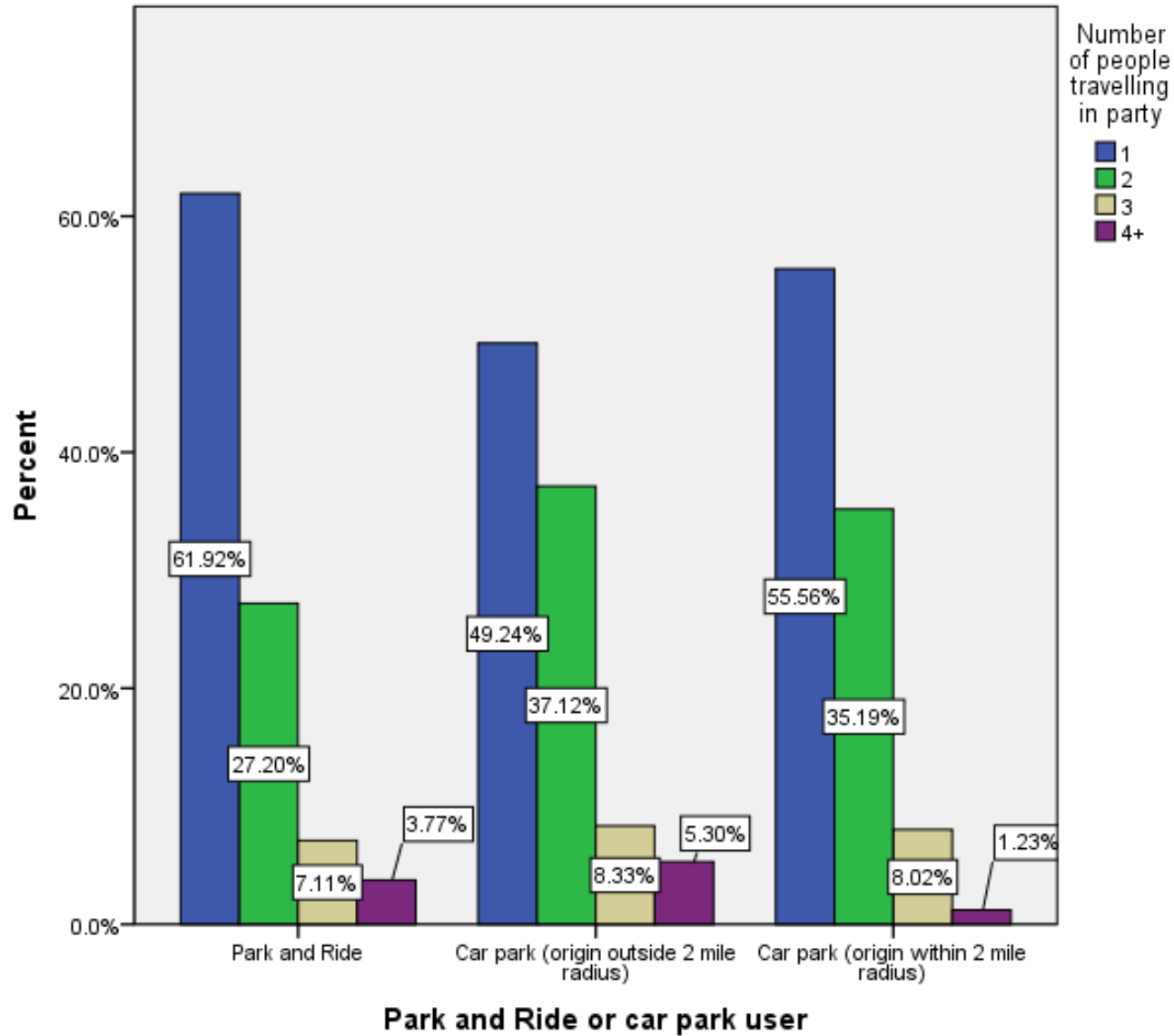
n = 1282

p < 0.05



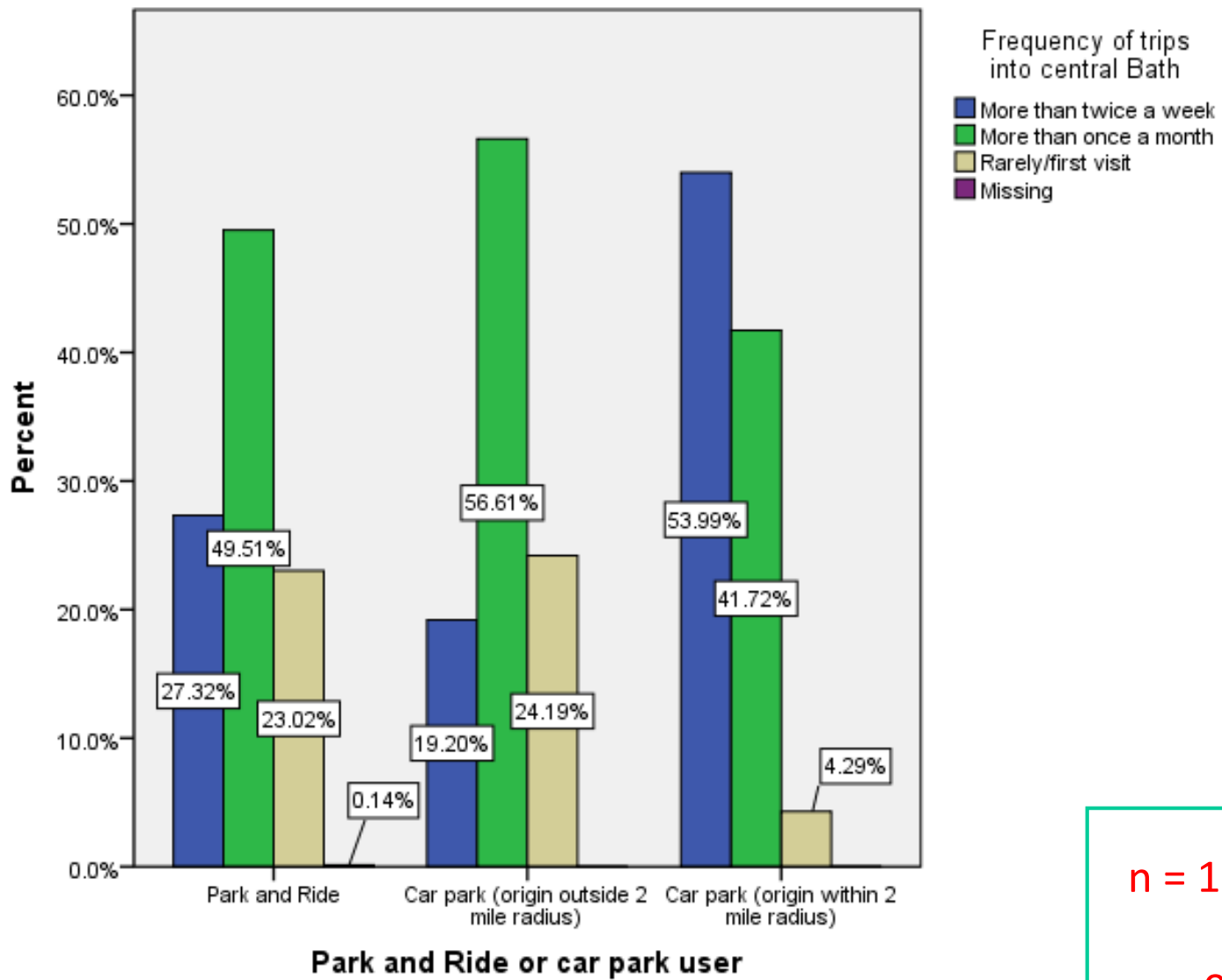
**UK median:
£359 p/w
(£1556 p/m)**

**n = 1126
p < 0.05**



n = 1275

p < 0.05



$n = 1285$

$p < 0.05$



In summary...

– **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 Bristol, Keynsham/Saltford, and Midsomer Norton/Paulton/Radstock
- Majority in the middle income range
- P and R is not especially attractive to larger groups



In summary...

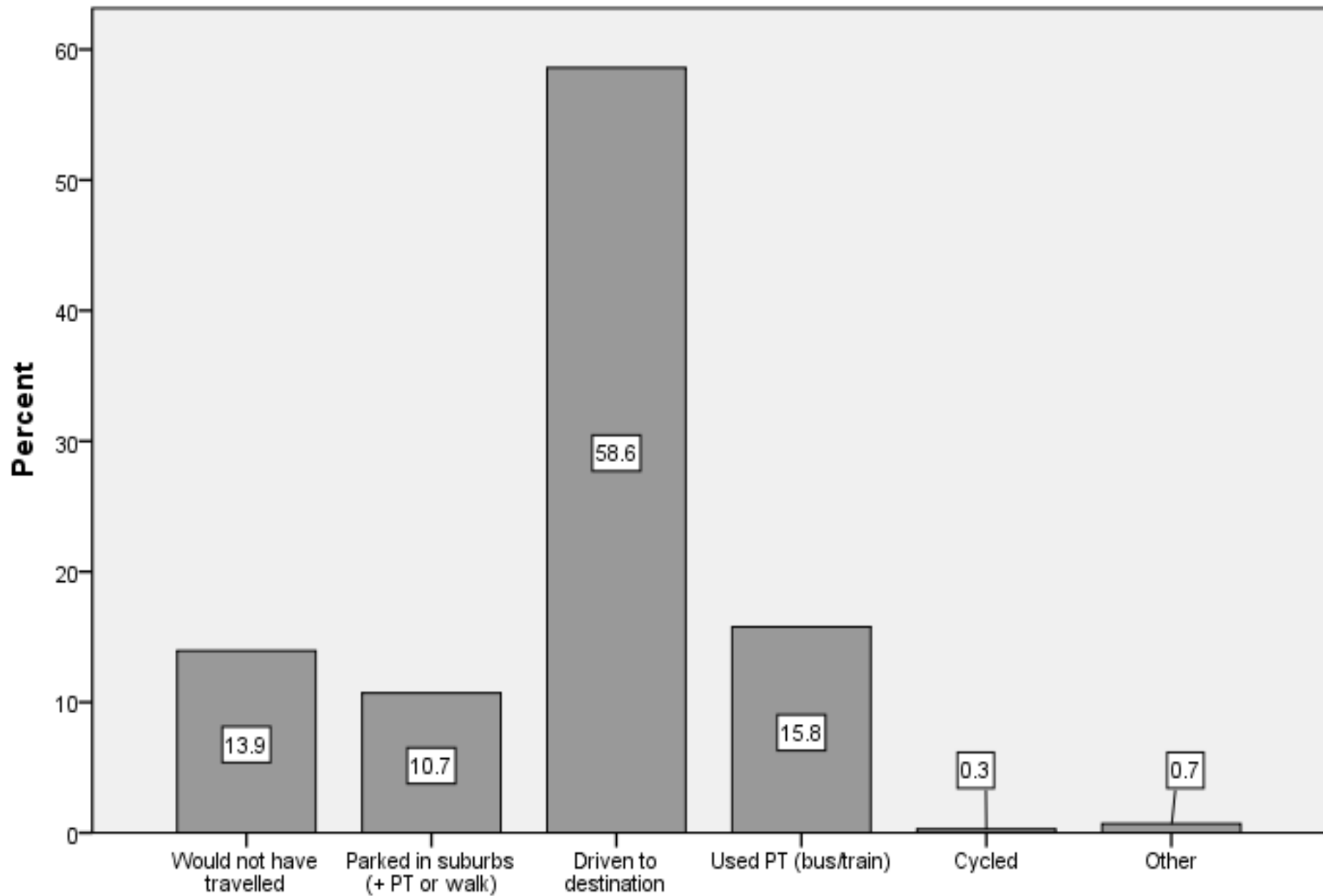
– **City-centre car park users:**

- 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

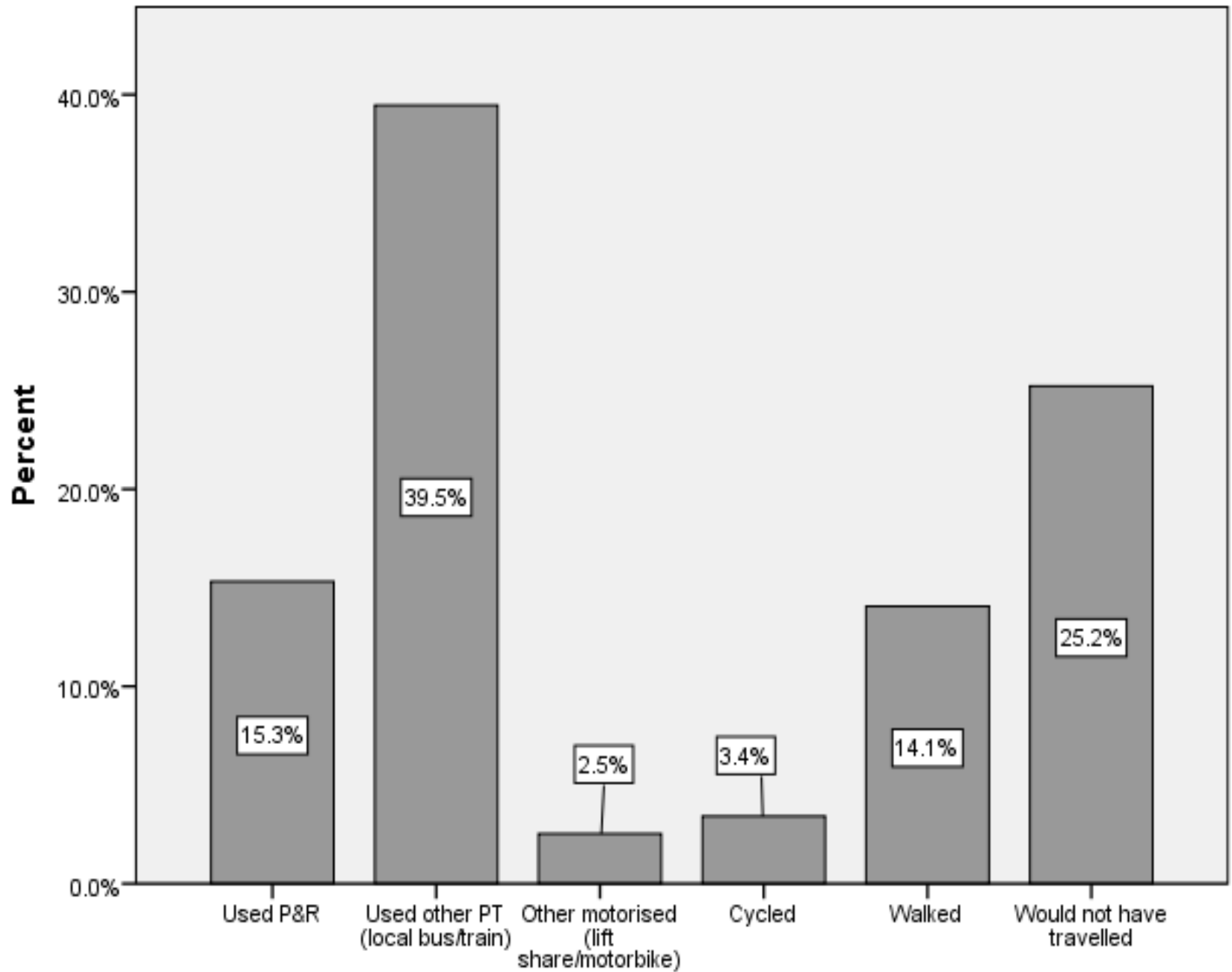


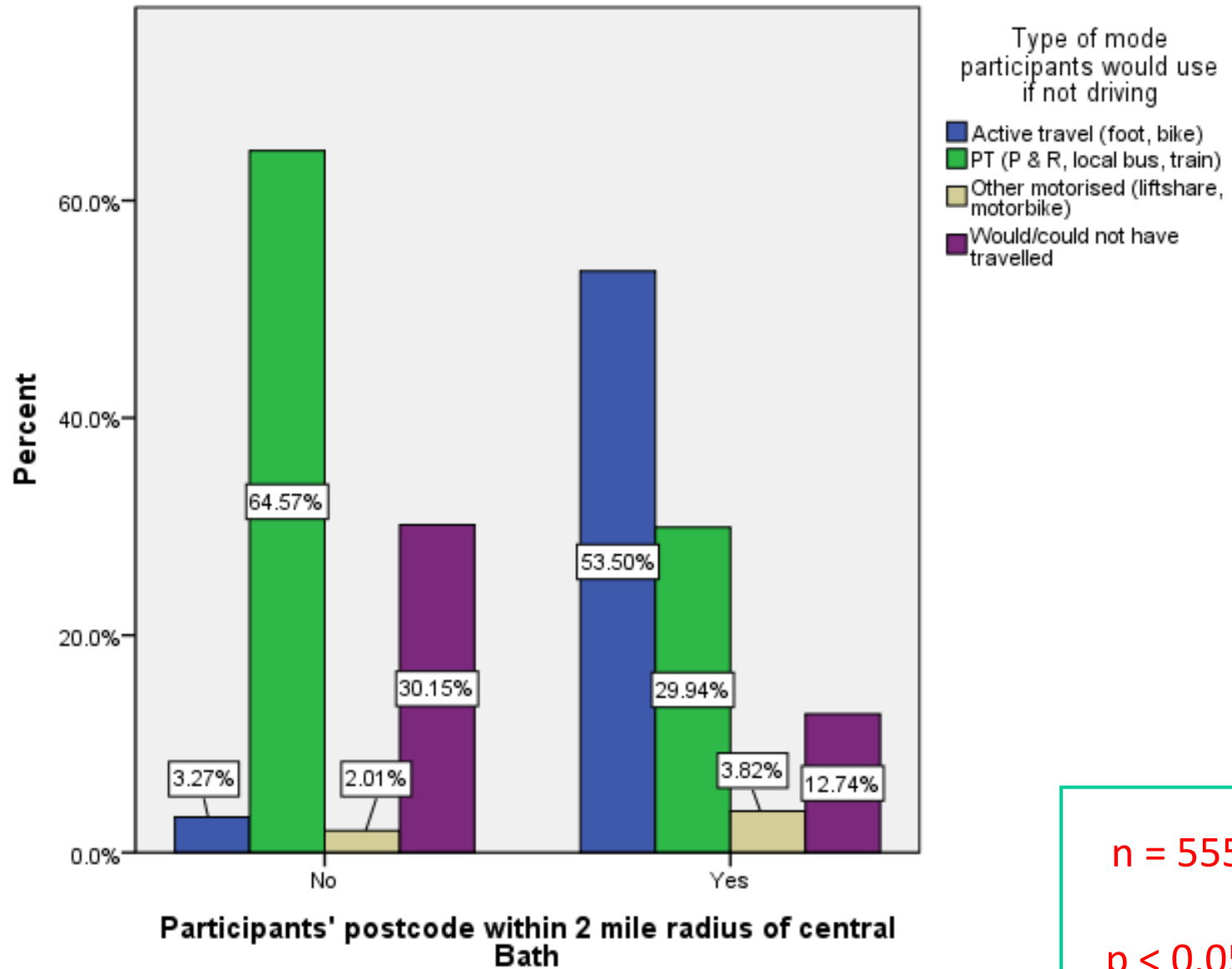
What would drivers do if P&R or city
centre car parking spaces weren't
available?

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?