

Operation Menas

A hotspots policing RCT on London's bus network

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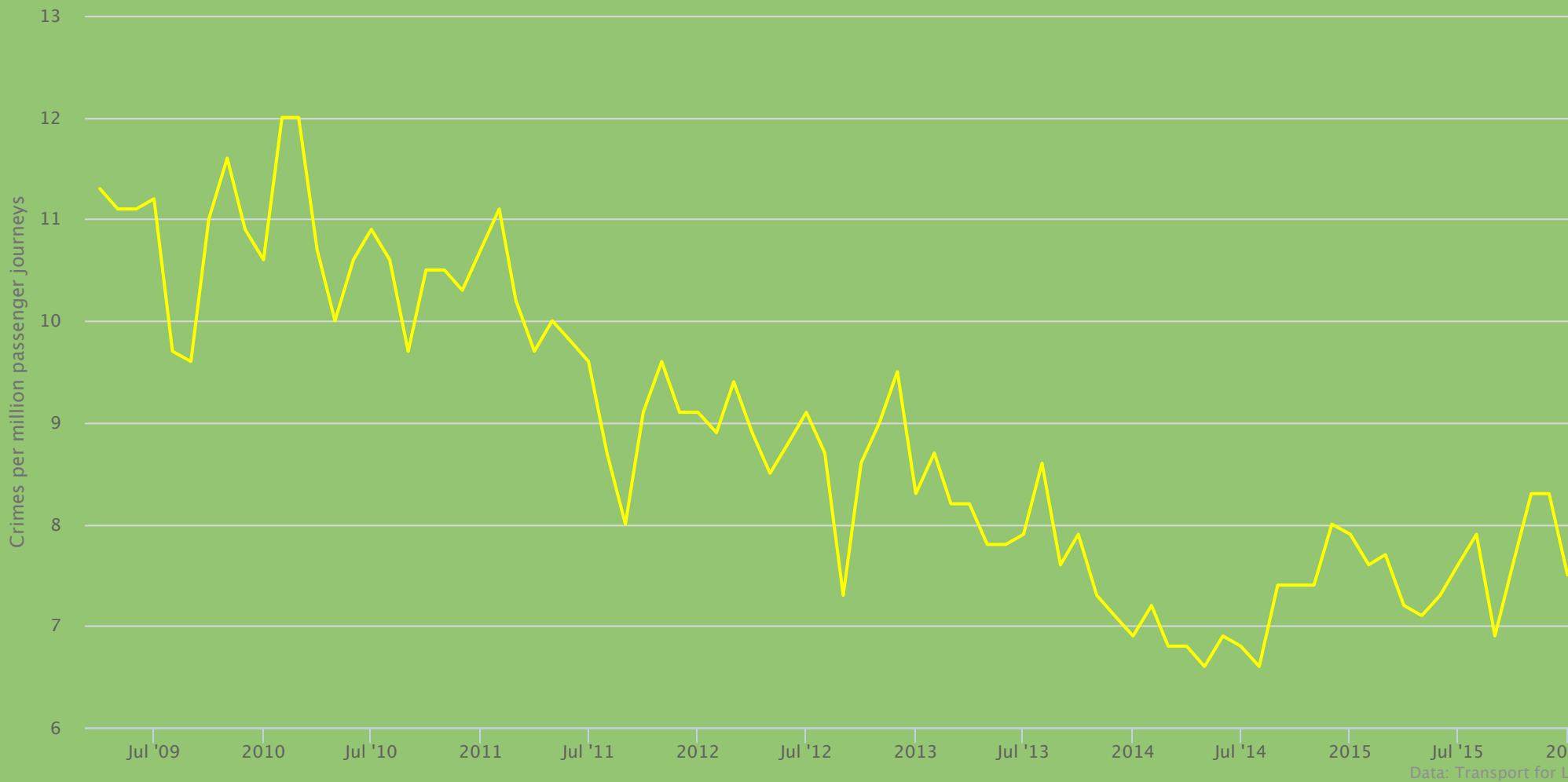
Background

London's bus network



- 680 bus routes
- 19,500 bus stops
- 7,500 buses
- 6 million passengers each weekday

Bus-related crime and disorder



Data: Transport for L

What is known about the effectiveness of hotspots policing on bus-related crime?

Bus-related crime

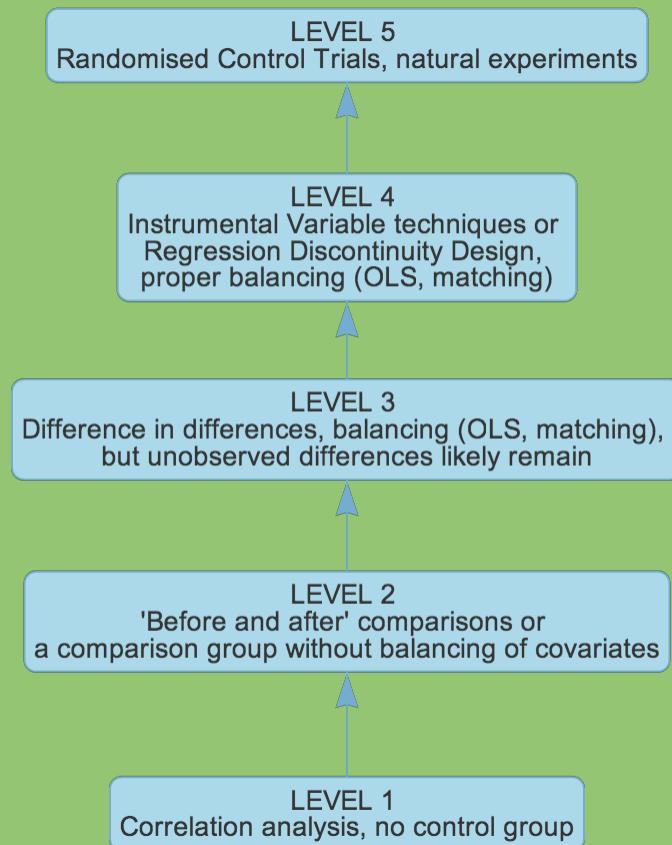
- High crime bus routes pass through high crime areas
(Pearlstein & Wachs 1982; Newton 2008)
- Bus stops are crime generators
(Roman 2005; Weisburd et al. 2012)
- Crime is concentrated at a small number of bus stops
(Loukaitou-Sideris 1999; Newton & Bowers 2007)
 - 0.05% (N=10) of bus stops in Los Angeles accounted for 18% of bus stop crime
 - 20% of all shelter damage in the Wirral occurred at 2.5% of all shelters
- Crime is more common at bus stops than on board buses
(Levine 1986)

HSP on public transport

- Hot spots policing is an effective crime prevention strategy
(Braga et al. 2012)
 - 15 minutes is the optimal duration for police presence at hot spots
(Koper 1995)
 - Operation Beck
 - assessed the effect of police presence at ‘hot’ London Underground platforms
 - recorded a 20% reduction in calls-for service at the treatment platforms compared with the control platforms
- (Ariel & Sherman 2014)

Evaluation design

Maryland SMS



(Sherman et al., 1997; Farrington, 2002)

Hypothesis

“Directed police patrols at high crime bus stops between 12-1900 hours will reduce crime levels compared to bus stops with no police presence.”

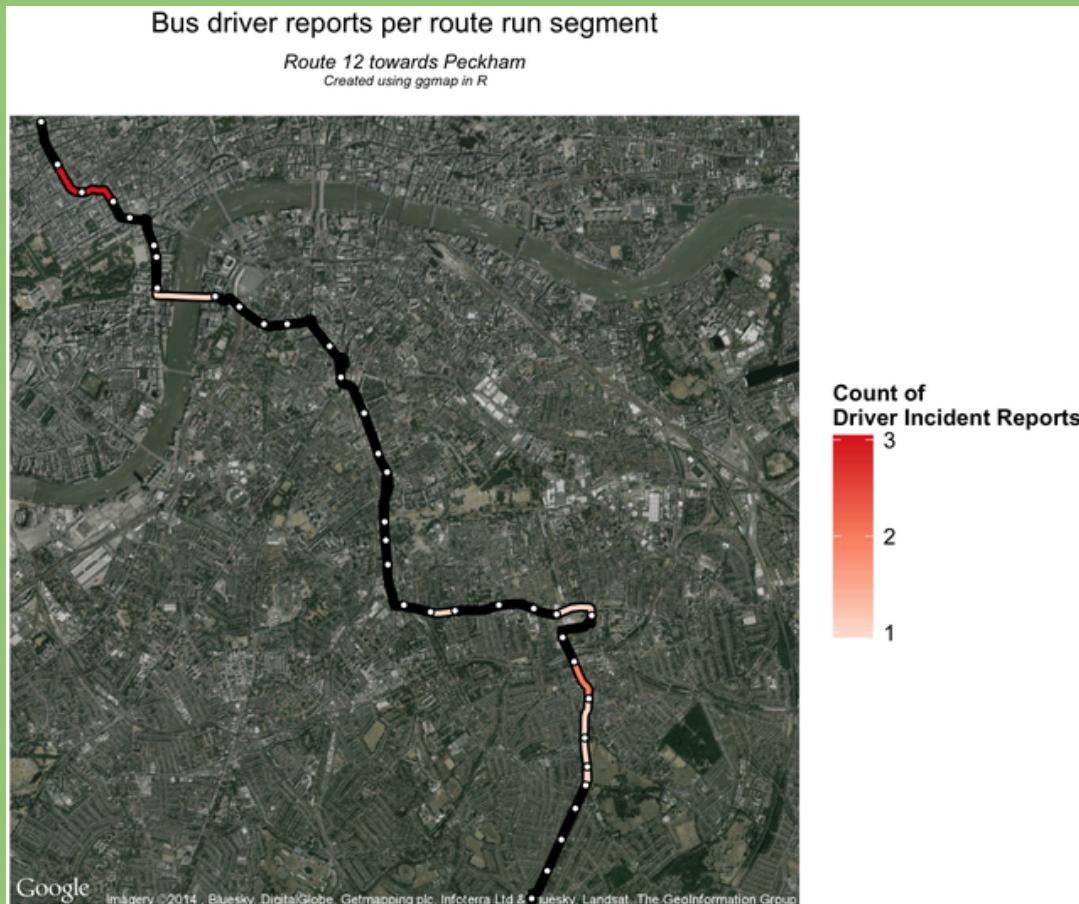
Mechanism

The presence of police officers will increase the perceived risk of apprehension and therefore reduce offending.

Pre-test and outcome measures

Measure	Description
<i>Driver Incident Reports</i>	Calls made by bus drivers to CentreComm, the London Buses control room, who determine whether an emergency response is required
<i>Bus-related CRIS</i>	A subset of Metropolitan Police recorded crime extracted using a keyword search

Unit of analysis



- Bus stops
 - 50m, 100m and 150m buffers
 - Contiguous bus route runs

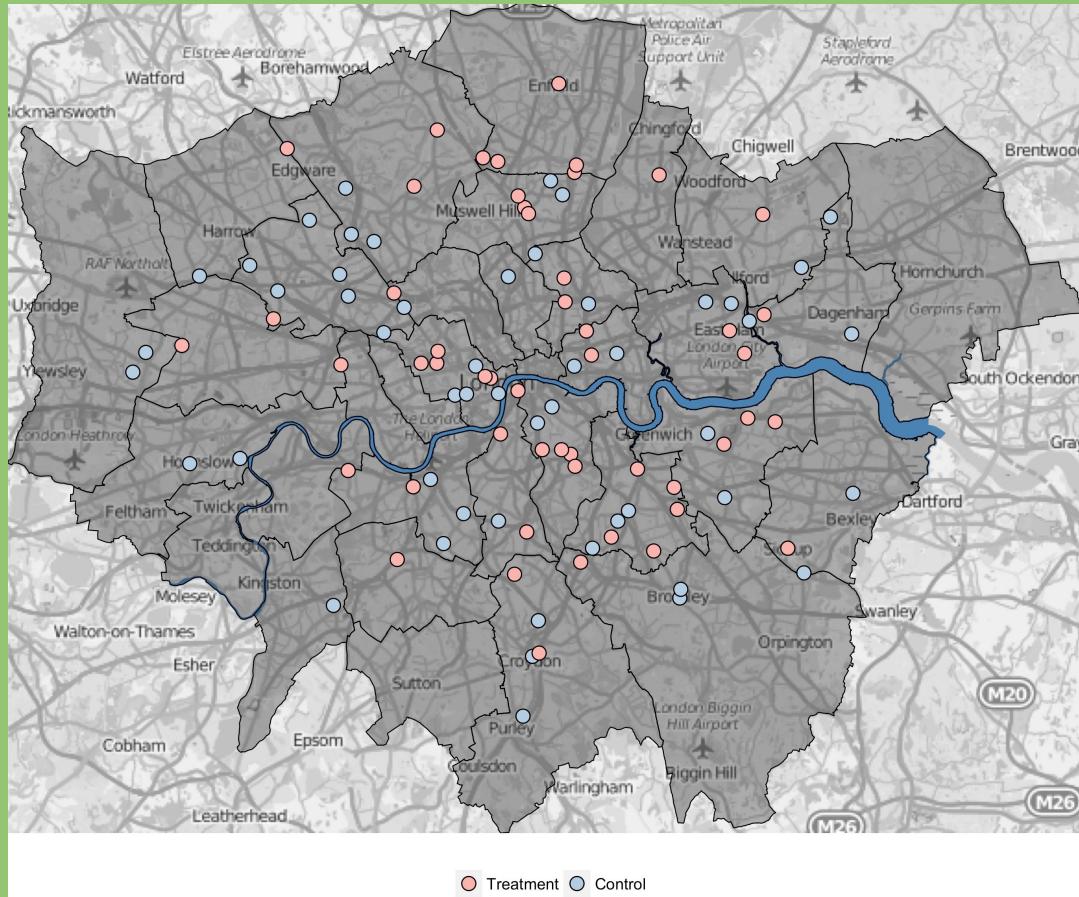
Eligibility for randomisation

1. Bus stops must not be spatially auto-correlated. K nearest Local Indicators of Spatial Association (LISA) were used ($K = 2$);
2. The coefficient of variation (CoV) must be less than or equal to 0.5 (Johnson et al. 2008). A CoV close to zero indicates a temporally stable pattern of DIs between 2012 and 2013;
3. Police assistance must have been required in at least a third of the DIs at each bus stop.

Statistical power

A prospective power analysis was conducted to determine an adequate sample size for the study. Given a sample size of 102, an alpha level of .05 and a medium effect size ($d = 0.5$), the estimated power was 0.80.

Random allocation



- 102 bus stops across London were randomly assigned to Treatment and Control conditions based on the volume of DIRs over a 6 month period during 2013
- Assignment was conducted within 3 statistical blocks (high, medium and low) with discrete levels of DIRs

Risks to internal validity

Risk	Mitigation
<i>Non-equivalence between groups</i>	Ran baseline comparisons (t-tests)
<i>Attrition</i>	Pair would be swapped out
<i>Contamination</i>	Conducted tests for presence of spatial autocorrelation Senior police officers were not advised of the location of control sites

Implementation

Delivery (Feb-Jul 2013)

- Intervention delivered by pairs of PCs and PCSOs
- 3 x 15-minute patrols, Monday-Friday 12-1900 hours at treatment sites with on board patrols along contiguous bus route runs
- Each pair accountable for 2–4 hotspots
- “Business as usual” at the control sites
- Duration: 6 months



Monitoring and support

- All officers involved participated in a one-day training course
- Coordinated by 1 Inspector and 2 sergeants
- Detailed patrol patterns
- Weekly briefings
- GPS devices indicated how much time officers spent at each hotspot

Challenges

- Time and distance
- Officer engagement
- SMT support
- GPS devices

Post-test

Used adjusted Poisson-regression models to compare differences in pre- and post-treatment measures of outcomes and estimated-marginal-means.

Buffer size	DIRs (% change)	Crimes (% change)
0-50m	-37	25
50-100m	-40	23
100-150m	-10	7

Conclusions

Hotspots policing at bus stops - and potentially other “micro places” - has a limited deterrent effect if patrol patterns are predictable. Police agencies therefore need to randomise their deployments both spatially and temporally to increase the unpredictability of enforcement.

Weaknesses of design

- “Randomised studies may not allow investigators the freedom to carefully explore how treatments or programs influenced their intended subjects”
(Weisburd et al., 2001: 66)
- Lacked offender-level survey data

Further reading

Ariel, B., & Partridge, H. (2016). Predictable Policing: Measuring the Crime Control Benefits of Hotspots Policing at Bus Stops. *Journal of Quantitative Criminology*.

Questions?

