CAMBRIDGE
Police Executive Programme

NPIA
National Policing Improvement Agency

10 July 2012
Conference on Evidence-Based Policing

Operation "BECK"
Results from the First Randomised Controlled Trial on Hotspot Policing in England and Wales

Barak Ariel & Lawrence Sherman
Jerry Lee Centre of Experimental Criminology

Background

1. Hotspot Policing: A deterrence-oriented approach to crime-prevention

2. Crime concentrates in hotspots, so targeting these hotspots reduces crime and delinquency

Hotspot Policing – The Evidence

Jersey City

Jersey City

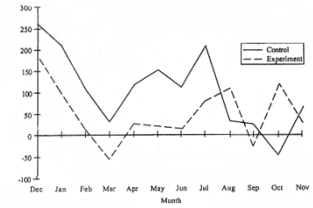
Minneapolis, Kansas City

Philadelphia

Jacksonville Florida

Sacramento, California

The Minneapolis Hot Spots Experiment
(Sherman and Weisburd, 1995)

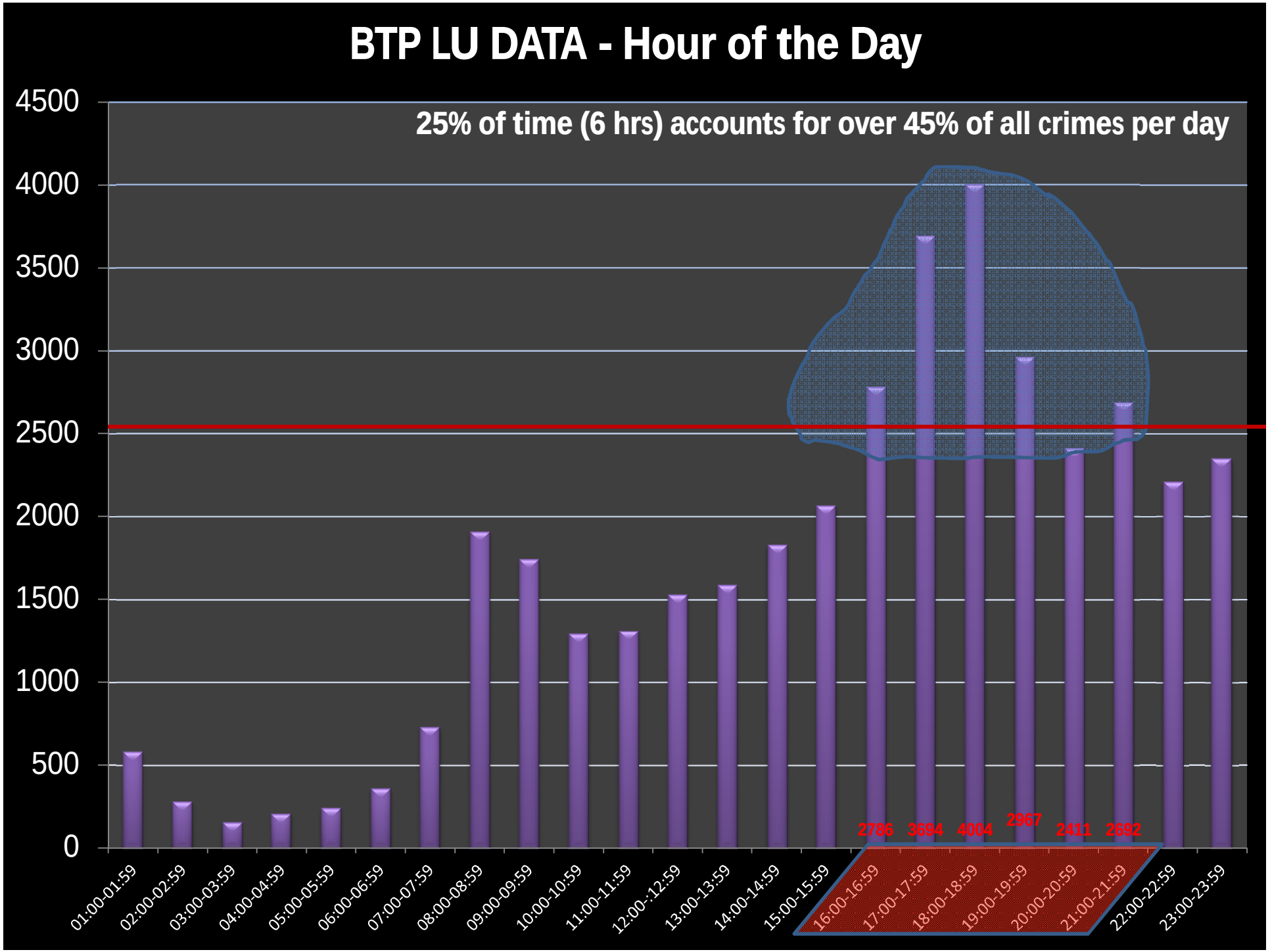


Hypothesis

Police patrol in high-volume hotspots of crimes in London Underground Platforms reduce calls-for-service compared to no police patrol at such hotspots

Research Settings

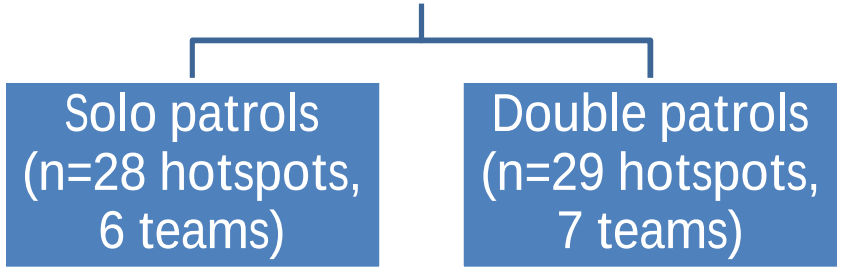
- → First Hotspot RCT in UK History
- → Cambridge University in partnership with BTP
- → More than a billion travels per year
- → Only a few hotspots out of hundreds of platforms


BTP LU DATA - Hour of the Day
25% of time (6 hrs) accounts for over 45% of all crimes per day
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2786
3694
4004
2967
2411
2692
01:00-01:59
02:00-02:59
03:00-03:59
04:00-04:59
05:00-05:59
06:00-06:59
07:00-07:59
08:00-08:59
09:00-09:59
10:00-10:59
11:00-11:59
12:00-12:59
13:00-13:59
14:00-14:59
15:00-15:59
16:00-16:59
17:00-17:59
18:00-18:59
19:00-19:59
20:00-20:59
21:00-21:59
22:00-22:59
23:00-23:59

The Model

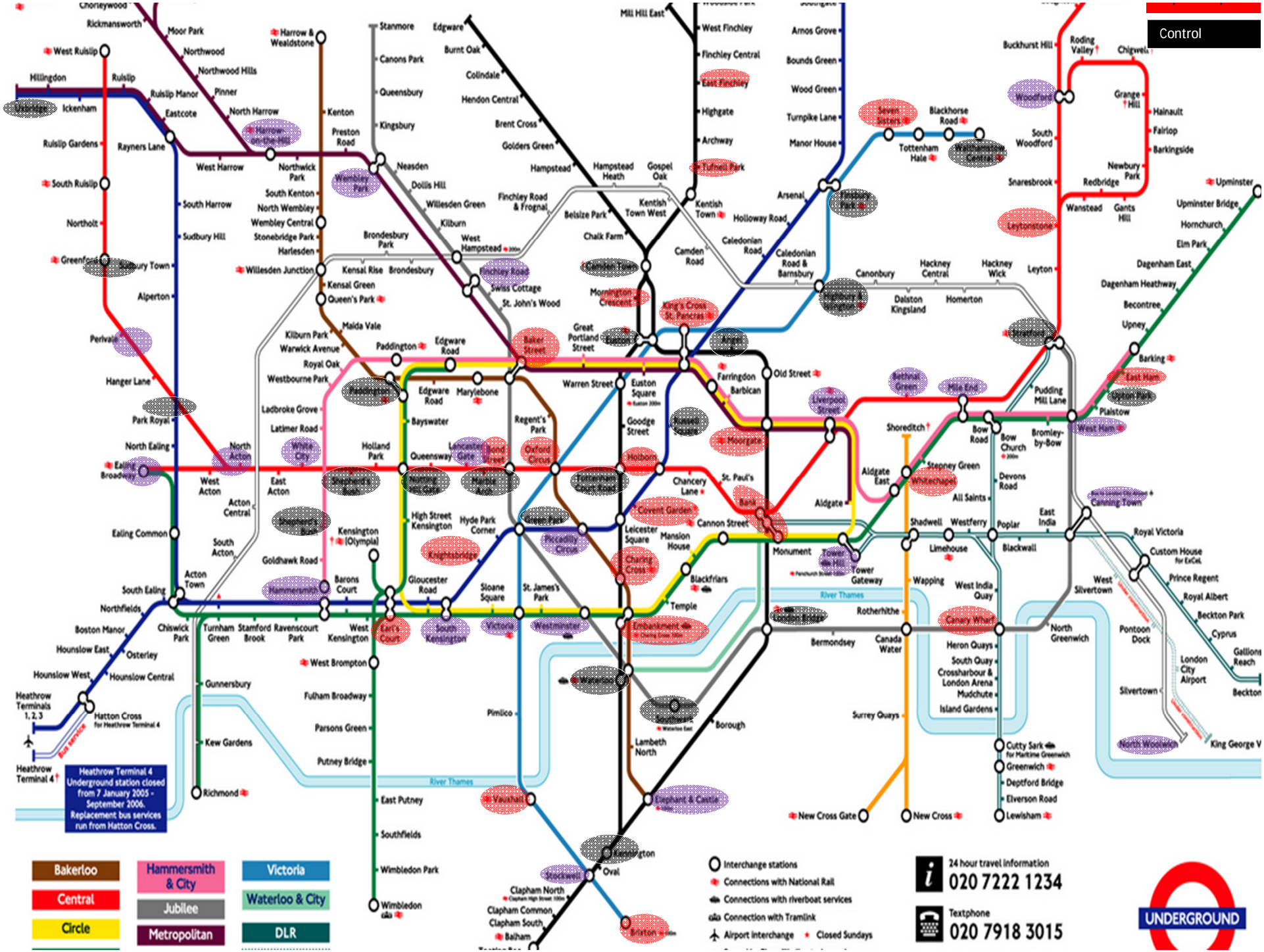
Block Random Assignment (n=115)

	N OF HOTSPOTS	
	EXPERIMENTAL	CONTROL
3< crime per year*	24	23
4-6 crime per year*	18	22
7> crime per year*	15	13
TOTAL	**57**	**58**



* In 12 months; hard crimes only

Dosage and Treatment

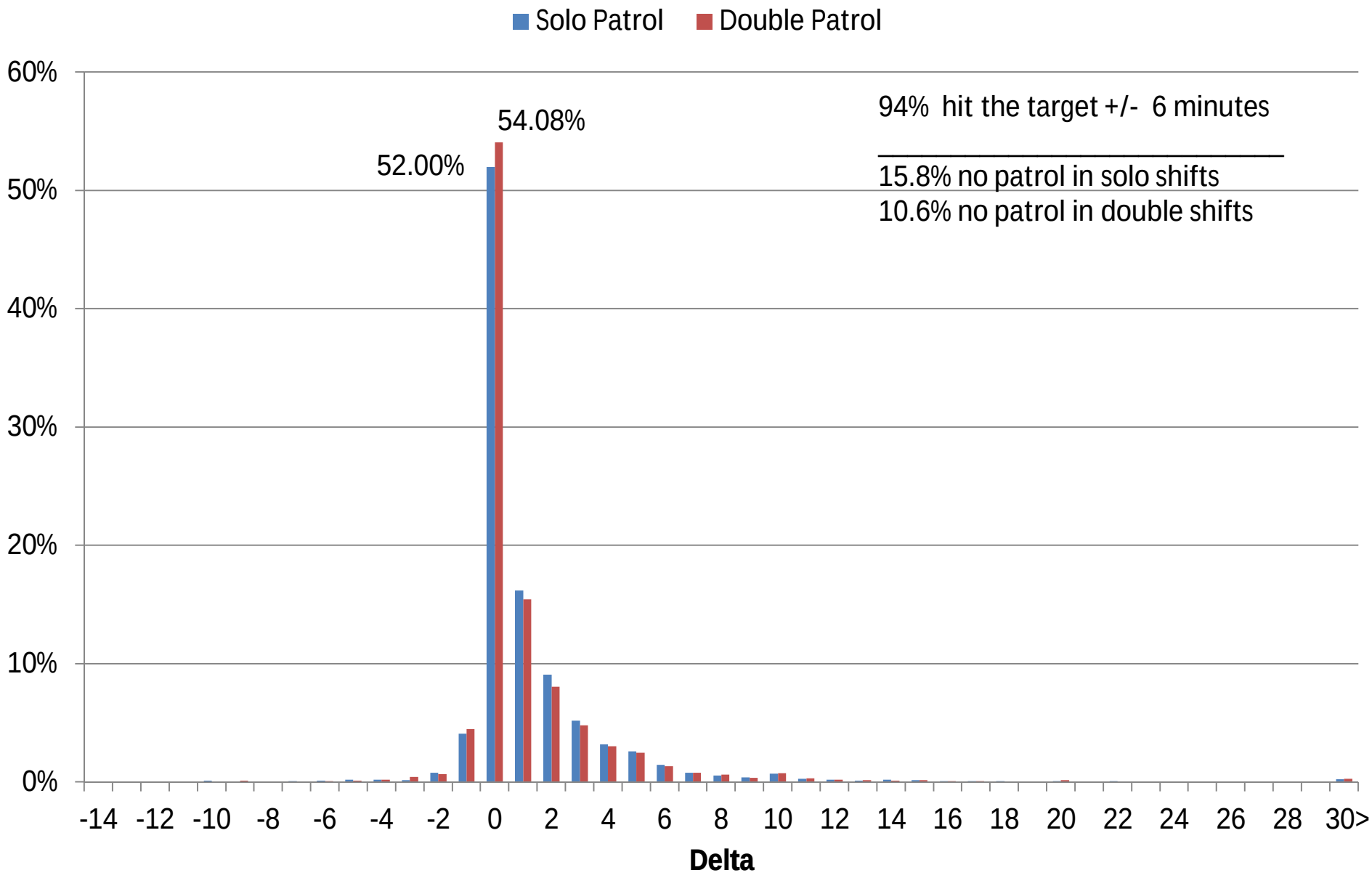

Control
Bakerloo
Central
Circle
Hammersmith & City
Jubilee
Metropolitan
Victoria
Waterloo & City
DLR
Interchange stations
Connections with National Rail
Connections with riverboat services
Connection with Tramlink
Airport interchange
Closed Sundays
24 hour travel information
020 7222 1234
Textphone
020 7918 3015
UNDERGROUND
Heathrow Terminal 4 Underground station closed from 7 January 2005 - September 2006. Replacement bus services run from Hatton Cross.
River Thames

Dosage

- 15 minutes, 4 times a shift, 4 days a week
- Wed.-Sat., ¬3PM - ¬10PM
- 94% hit the target +/- 6 minutes

	Assigned	Delivered
Double	12,245	10,948
Solo	11,027	9,289
	23,272	**20,237**

Difference Between Assigned and Delivered Patrols (in Minutes)

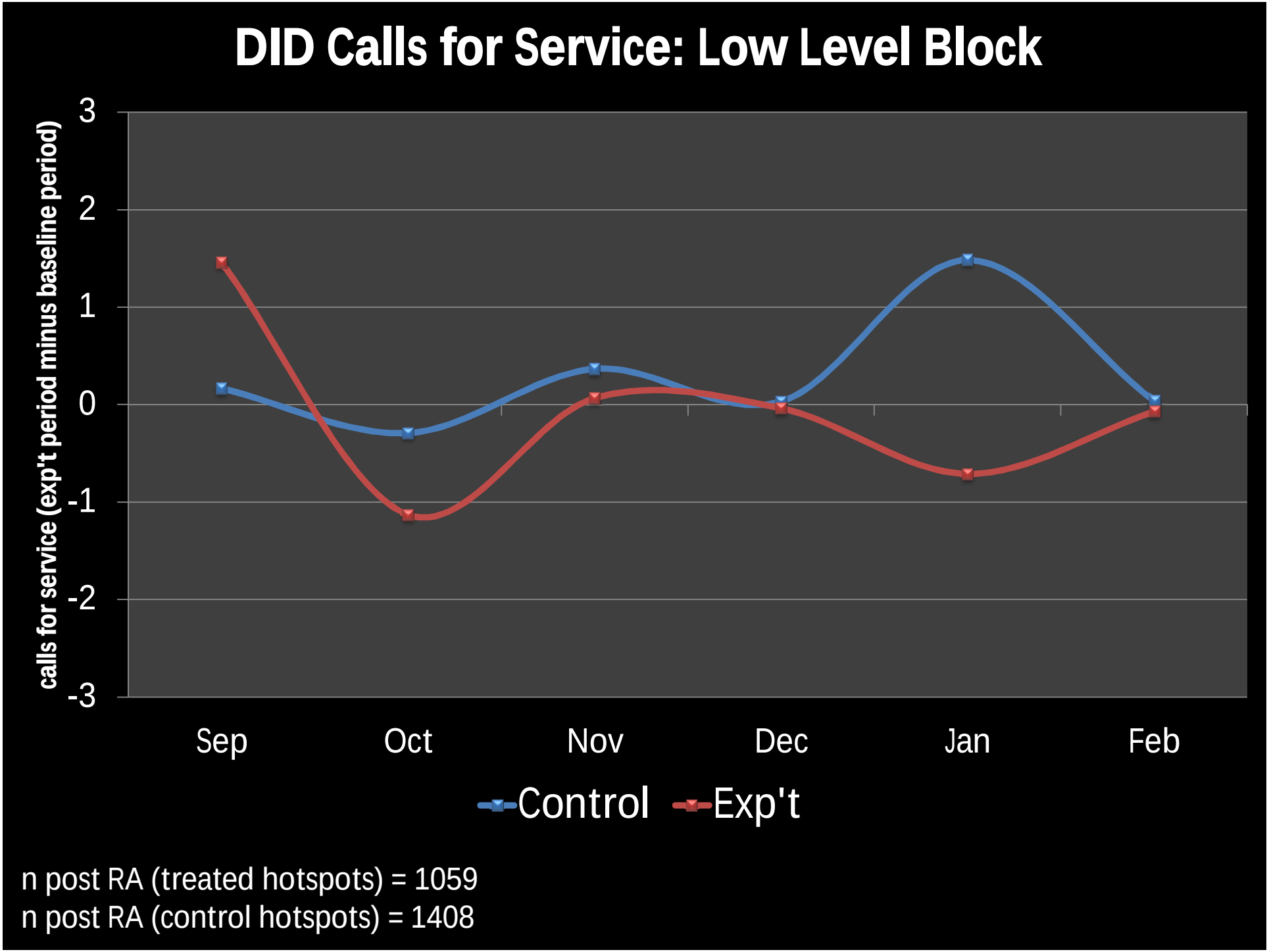


Effect of Patrol on Calls-for-Service

1,150 less calls-for-service (21% overall Post-RA reduction)

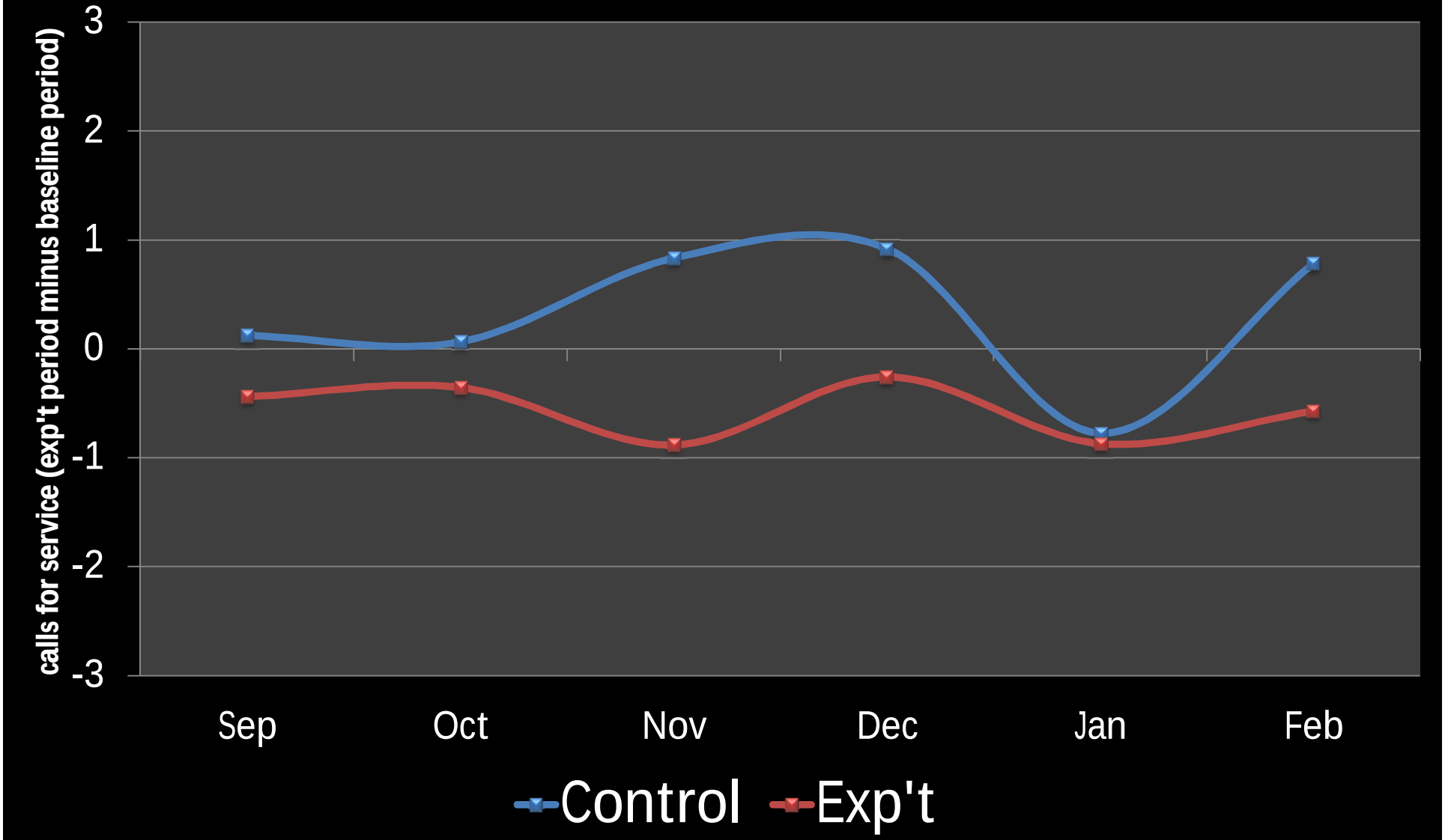
Incident Crime Group	Control 3 or less	Exp't 3 or less	Control 4-6	Exp't 4-6	Control 7 or more	Exp't 7 or more
Damage	15	7	21	13	32	8
Drugs	11	10	41	4	12	26
Racial/Hate Crime	**3**	**2**	**2**	**3**	**7**	**1**
Sexual	5	6	11	7	16	19
Fatality	0	1	0	0	1	1

DID Calls for Service: Low Level Block



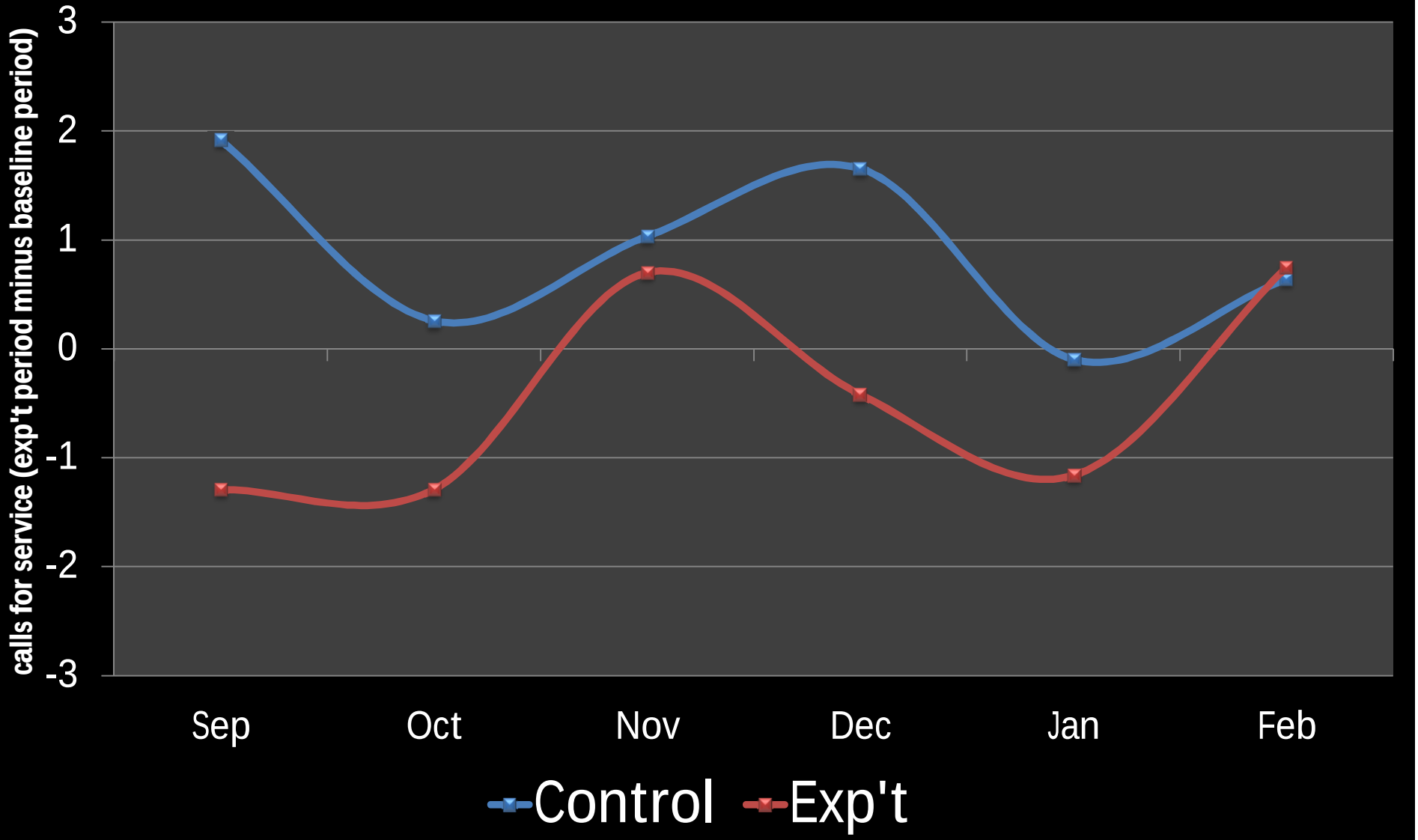
n post RA (treated hotspots) = 1059
n post RA (control hotspots) = 1408

DID Calls for Service: Mid-level Block



n post RA (treated hotspots) = 974
n post RA (control hotspots) = 1891

DID Calls for Service: High Level Block



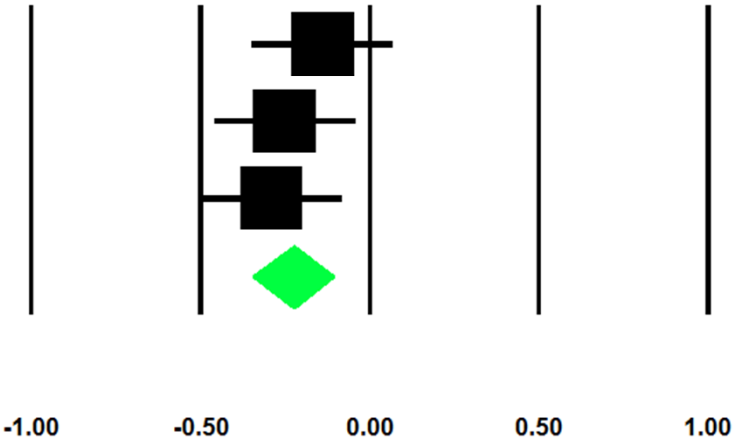
n post RA (treated hotspots) = 2291
n post RA (control hotspots) = 2175

Operation Beck - CFS Outcome *

Statistics for each study

	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Low-Volume Hotspots	-0.140	0.106	0.011	-0.348	0.067	-1.325	0.185
Mid-Volume Hotspots	-0.251	0.106	0.011	-0.459	-0.043	-2.366	0.018
High-Volume Hotspots	-0.291	0.106	0.011	-0.499	-0.083	-2.740	0.006
	-0.227	0.061	0.004	-0.347	-0.107	-3.712	0.000

Std diff in means and 95% CI



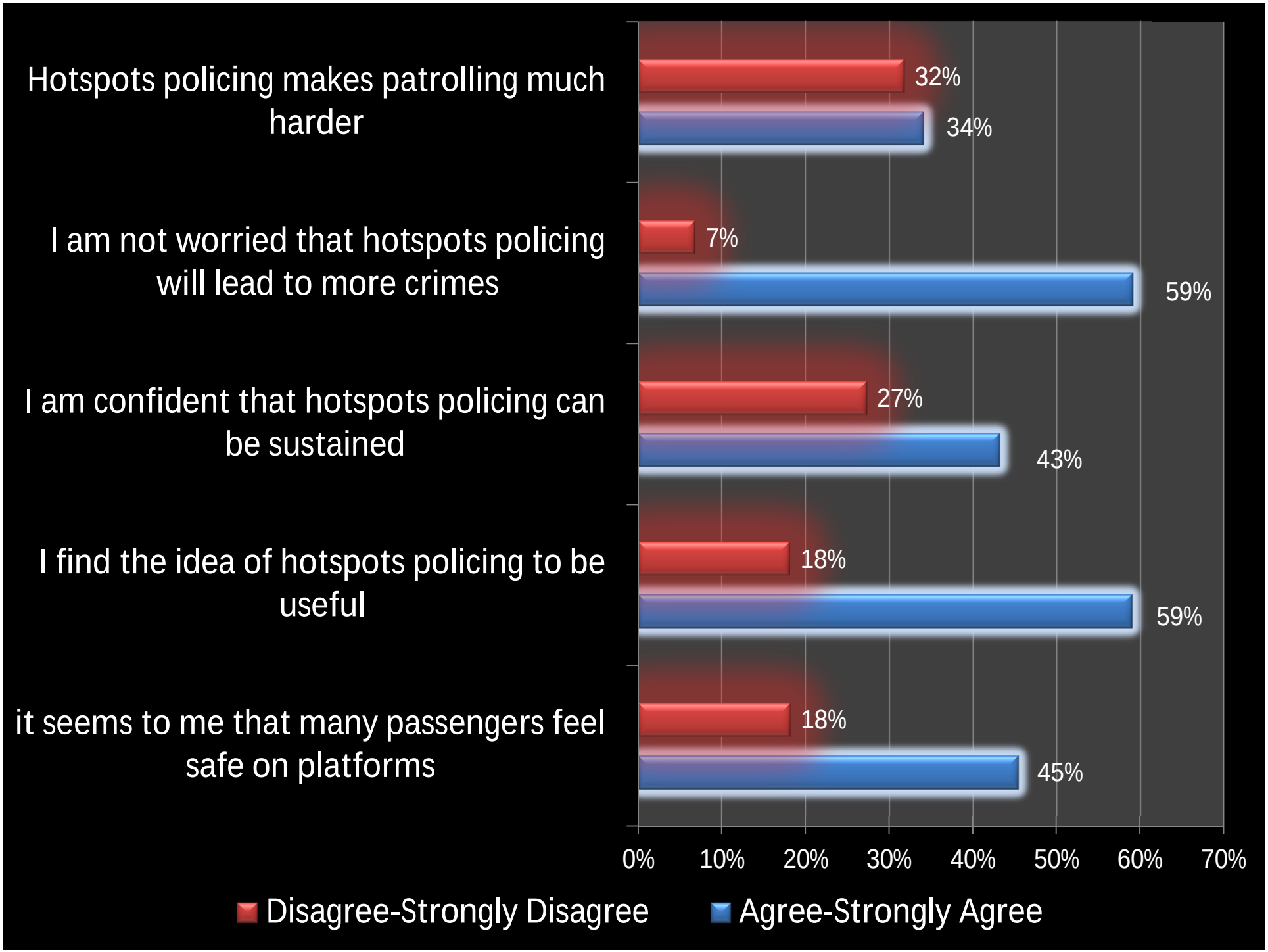
* Based on DID data

Source of Call

Source of Call	Control n=5377	Exp't n=4258
Rail staff	31.75%	27.38%
Informant	22.47%	24.42%
Victim	21.85%	23.46%
BTP	13.54%	14.70%
LU line controller	4.67%	4.51%
Police	2.25%	2.51%
Witness	1.02%	0.99%
Ambulance	0.78%	0.73%
Anonymous	0.87%	0.70%
Network rail controller	0.30%	0.21%
Fire Dep't	0.13%	0.19%
Railway tenant	0.26%	0.09%
Juvenile	0.06%	0.05%
Railway switchboard	0.06%	0.05%

Officers Surveys

Constables	80%
PCSOs	18%
Male Officers	82%
Education:	
GCSE	39%
Degree	36%
NVQ	14%
Diploma	7%


Hotspots policing makes patrolling much harder
32%
34%
I am not worried that hotspots policing will lead to more crimes
7%
59%
I am confident that hotspots policing can be sustained
27%
43%
I find the idea of hotspots policing to be useful
18%
59%
it seems to me that many passengers feel safe on platforms
18%
45%
0%
10%
20%
30%
40%
50%
60%
70%
Disagree-Strongly Disagree
Agree-Strongly Agree

Cost-Benefit Analysis

Cost-Benefit Analysis

Number of Crimes in Control Group=261
Number of Crimes in Exp't Group-223

difference = 38

Number of CFS in Control Group =5,474
Number of CFS in Exp't Group=4,324

difference = 1,150

Total Cost of Patrol = **£220,121.04**

Special Costs Associated with Hotspot Patrols = **£9,198.06**

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spend £250 to prevent 1 crime

spend £8 to prevent 1 CFS

spend £6,000 to prevent 1 crime

spend £200 to prevent 1 CFS

Challenges and Possible Solutions

Challenges and Possible Solutions

1. expensive to manually account for officers' presence at hotspots → 1. Automation is required
2. A static approach to defining hotspots does not take into account temporal changes → 2. Consider a dynamic approach (e.g., night-time economy hotspot policing during some months but not others)
3. Ring-fenced recruitment requires great resources → 3. Consider basic tasking for all frontline officers
4. Duo patrols reduces resources by half → 4. Given the no-difference in both effect on crime and risk to officers, consider solo patrols for hotspot policing (*PCSOs?*)
5. Crime / CFS data must be provided to team-leaders every Monday morning → 5. Crime analysts are essential for operations!

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