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THE EFFECTIVENESS OF AVERAGE SPEED CAMERAS

A Report commissioned by the RAC Foundation

59%

72%

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GEORGE URSACHI

SENIOR RESEARCH ANALYST ROAD SAFETY ANALYSIS | AGILYSIS

BACKGROUND

- Road Safety Analysis (RSA)/Agilysis
 - Not-for-profit/for profit companies limited by guarantee registered in England
 - Independent specialists in collision and casualty analysis, evaluation, online analysis systems, intervention design, training and more
- George Ursachi
 - Associate Researcher Road Safety Analysis
 - Senior Research Analyst Agilysis
 - Specialist in research, analysis and evaluation
- Co-authors
 - Professor Richard Allsop
 - Emeritus Professor of Transport Studies at UCL
 - Richard Owen
 - Director RSA, CEO Agilysis
 - Specialist in spatial analysis, GIS, and project management











The Effectiveness of Average Speed Cameras in Great Britain

- History of speed cameras and previous analysis
- Objectives
- Collecting the data
- Problems
- Results
- Importance for those wanting to reduce collisions on roads

History of Speed Cameras in GB

- 2000 2007 Focus on casualty reduction
- Government sets installation criteria

 4 Collisions (KSI) per km in 3 years
 - \circ 8 Collisions (PIC) per km in 3 years
 - \odot Speed as a 'causation factor'
 - 85th Percentile speeds > 10% + 2mph e.g.
 35mph in 30mph limit
 - \odot 20% of drivers exceeding the speed limit



POPULARITY





Evidence for Casualty Reduction



Department for **Transport**

Department for Transport

A cost recovery system for speed and red-light cameras \sim two year pilot evaluation

Research paper

11 February 2003







Evidence for Casualty Reduction





Evidence for Casualty Reduction



Regression to Mean

 36% at Fixed Sites
 43% at Mobile Sites

Time



- 1. To create a national database/inventory of ASC sites of various kinds in Great Britain
- 2. To establish a suitably large and appropriate control group of sites to enable an understanding of the difference in collision reduction between potential ASC sites with and without such enforcement
- 3. To establish levels of occurrence of collisions before and after ASC installation (with consideration given to site-selection period, pre-installation and post-installation periods)

How we collected the data



• Support from manufacturers



- Support from authorities (Police, local authorities, camera partnerships)
 - Installation dates
 - Site selection periods
 - Prior enforcement
 - Other information
- Collision data independently sourced

Analytical problems

- We need to know if some sites are not suitable for analysis
- Input from authorities was crucial here
- It is possible that other changes could have occurred but weren't recorded



Site Selection Periods



	Jan – Mar 2004	Apr – Jun 2004	Jul - Sep 2004	Oct – Dec 2004	Jan – Mar 2005	Apr – Jun 2005	Jul – Sep 2005	Oct – Dec 2005	Jan – Mar 2006	Apr – Jun 2006	Jul – Sep 2006	Oct - Dec 2006	Jan – Mar 2007	Apr – Jun 2007	Jul – Sep 2007	Oct – Dec 2007	Jan – Mar 2008	Apr – Jun 2008	Jul – Sep 2008	Oct - Dec 2008	Jan – Mar 2009	Apr – Jun 2009	Jul – Sep 2009	Oct – Dec 2009	Jan – Mar 2010	Apr – Jun 2010	Jul – Sep 2010	Oct - Dec 2010	Jan – Mar 2011	Apr – Jun 2011	Jul – Sep 2011	Oct - Dec 2011	Jan – Mar 2012	Apr – Jun 2012	Jul – Sep 2012	Oct - Dec 2012	Jan – Mar 2013	Apr – Jun 2013	Jul – Sep 2013	Oct - Dec 2013	Jan – Mar 2014	Apr – Jun 2014
ASC 1																																										
Comparison 1																									_																	
ASC 2																																										
Comparison 2																																										
ASC 3																																										
Comparison 3																																										

Site pre-site selection period
Comparison pre-site selection period
Site selection period
Comparison selection period

Site implementation period Comparison implementation period Site post-installation period Comparison post-installation period Month made operational





Control sites





- Cameras considered but never installed
- 9 sections, 25km of roads

Standard "3 Before vs 3Recent" Analysis





- Approach adopted by most authorities
- Doesn't take into account trend
- Doesn't allow for Regression to Mean

Generalised Linear Model



$\ln \mu ny = \ln P ny + C n + u b ny + v C ny$

- Monthly data for each site in each period
- Takes into account collisions on other similar roads
- Estimates the effect of the SSP
- Estimates the effect of installation





- No difference in collision reduction rates at sites installed pre-April 2007 versus after
- No significant difference in effectiveness on low speed (20 40 mph) and high speed (50 70 mph) sites
- Candidate Sites No significant change in collisions postconsideration





- 1. The presence of Average Speed Cameras reduces the frequency of injury collisions, even when other mitigating factors are taken into account
- 2. When analysing the long-term impact of road safety interventions, consider the influence of general trend
- 3. If you select sites for treatment based on high collision rates, not all of the subsequent reductions can be attributed to the intervention

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George Ursachi – Road Safety Analysis/Agilysis – George.ursachi@agilysis.co.uk

with thanks to:

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