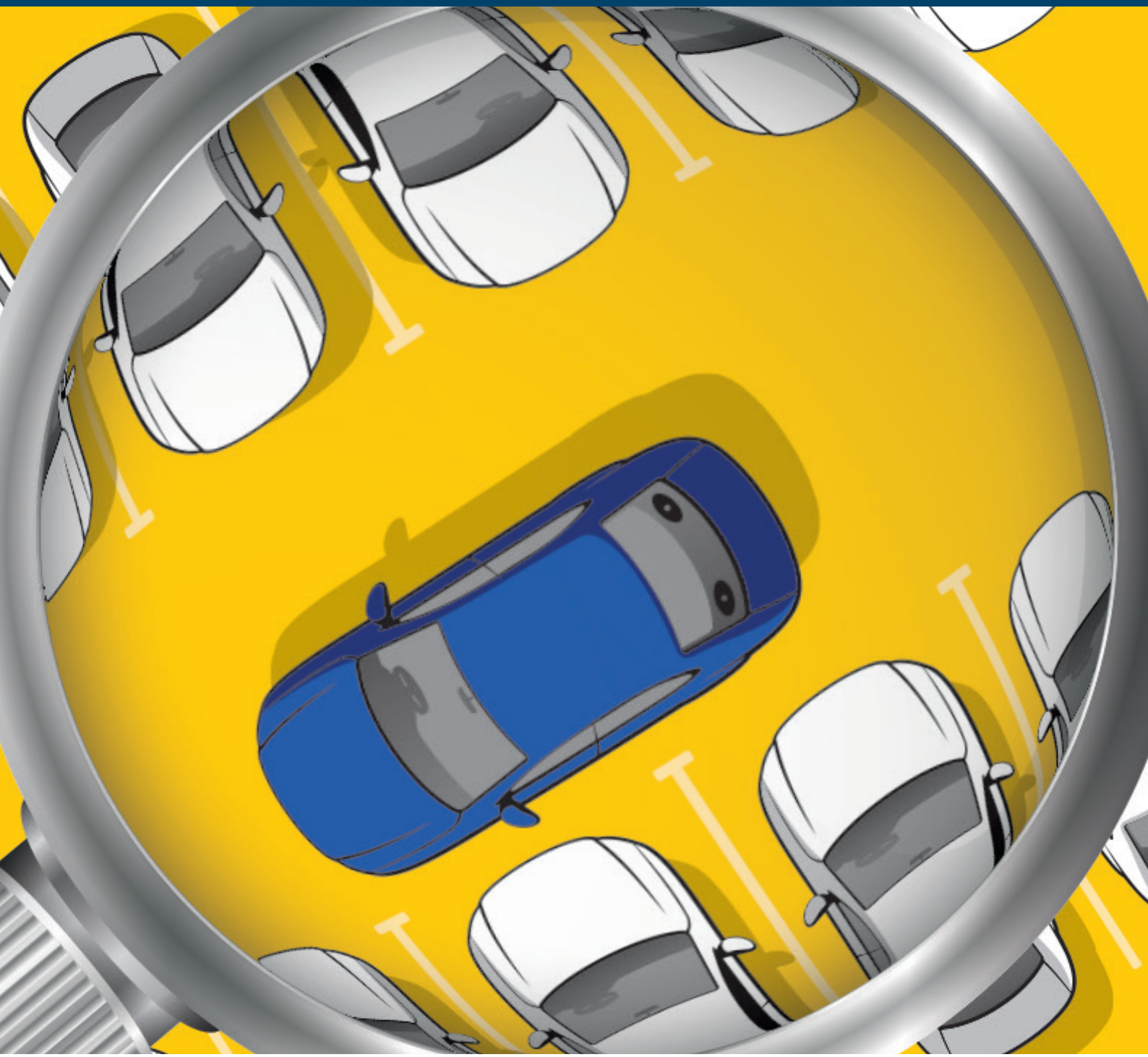
Researching the Research

By British Parking Association and Dr Adam Snow

Executive Summary

April 2015



BRITISH PARKING ASSOCIATION

British Parking Association Research the Research Project

Introduction

As the largest professional association in Europe representing organisations involved in parking and traffic management, the British Parking Association (BPA) is frequently asked questions about the profession and its scope by media outlets and as part of government consultations.

Following research carried out In April 2013, the BPA published a report entitled 'The size and shape of the UK parking profession'. While this research was useful in finding answers to some of the questions we had posed and helping us understand the size and shape of the UK parking profession, it was accepted that further research is needed.

The BPA commissioned Dr Adam Snow in October 2014 to carry out a project to examine existing academic research relating to parking from the UK and Europe. The objective was to provide a more detailed understanding of the research already undertaken, and identify areas where further research could be beneficial. It evolved into the creation of a database of relevant research, conducted in the UK as well as selected international publications that have relevance to the UK parking sector (public and private), some 162 academic journals in total.

Through a combination of established search engines that search relevant academic journals in the field of social science, technological science, environmental science and transportation research, the following summary of results has emerged:

Category	Research
The Profession	At the end of 2014 there were 35.6 million vehicles licensed for use on the roads in Great Britain, of which 29.6 million were cars[1]. There are estimated to be circa 11 million public parking spaces[2]. This figure, however, is likely to under-represent non-regulated parking sector, which represents the majority of parking in the UK and for which few local authorities have information. It will also not include residential parking such as garages and driveways which Spaced Out estimates could include a further 17 million spaces[3]. The car plays a major role in travel and every car requires a parking space at the beginning and end of the journey. If car ownership increases, so too will the need to provide and manage parking.[4] Civil Enforcement Officers have been on our streets since 1965. The sector employs 82,000[5] people in the industry, with the majority being employed by the private parking sector. There are 542 private car parks and 388[6] local authority car parks that are managed by ATA members (not all car park operators are ATA members, despite needing to be a member to request vehicle keeper details from DVLA for the issue of parking charge notices (PCNs). It has only been possible to partially estimate the annual turnover of the parking sector in the UK, as not everyone publishes their figures. Turnover within the local authority sector could be in the region of £1.5bn per annum. The relative size of the public and private sector (based upon employee numbers) and the private sector emphasis on destination parking would suggest that turnover will be significantly and proportionately higher than the public sector.[7] For all of Europe the turnover figure according, to the European Parking Association (EPA), is €29.3 billion with an estimated 569,000 people employed within the parking industry.[8]

[1] Vehicle Licensing Statistics: Quarter 4 2014
[2] The size and shape of the UK parking Profession, SkyBlue, BPA, (2012)
[3] Spaced Out, RAC Foundation (2012)
[4] Spaced Out, RAC Foundation (2012)
[5] Workforce Survey, BPA, Pye Tait Consulting (2011)
[6] Workforce Survey, BPA, Pye Tait Consulting (2011)
[7] SkyBlue, BPA, The size and shape of the UK parking Profession (2012)
[8] Scope of parking in Europe: Data collection by the European Parking Association (2013)

Traffic Management & Policy

The management of parking is integral to traffic management and the control of congestion. Traffic Management either falls into decisions on pricing or controlling spatial demand where land is readily available.

Park and Ride services serve a role to reduce traffic in towns and cities and to act as a public transport interchange. They are seen as effective with models using signalized access control for link buses being the most effective[9]. There are of course factors that impact on the decision by the motorist to use park and ride facilities and some of these are: social safety, quality of connecting public transport, relative travelling time, and direction of travel, age, income and party size[10].

People are more likely to walk following increased pricing than they are following an increase in petrol price.[11] An effect is only seen following higher price increases.[12] Pricing decisions affect profitability and the wider interests of traffic management and policy.

Research into pricing decisions and pricing effects on traffic management is a complex area, although relatively well developed. The studies suggest that pricing decisions are influenced by a number of policy inputs, such as the implementation of parking charges to control visitor numbers bringing temporary relief to congestion.[13] Based on survey responses, across the country most short-term (i.e. hourly) parking costs approximately £1 per hour, whether provided by local authorities or someone else. Monthly parking permits are not commonly used, but many private and public providers have annual permit schemes.[14]

An RAC report[15] in 2011 concluded that the average cost per household per year on parking is around £47.

There is no free parking, although perhaps free at the point of use, there are costs for the upkeep and maintenance of car parks and staff costs. Although there is no research on the actual cost of free parking in the UK, it is estimated that a free parking space in 1997 cost $124 a month in the US[16]. The cost of parking affects the accessibility and vitality of town centres and high streets. So-called free parking is subsidised in some way, either by council tax payers or business ratepayers or a combination of both. Contrary to the popular belief that free parking will resolve many issues, it has been found that free parking leads to excess demand and consequently cruising for spaces[17].

Charging by the minute rather than by hour can increase turnover whilst decreasing the amount of time drivers spend waiting for a space[18]. Searching for a parking space affects congestion, the reason for traffic management. Cruising for parking spaces can be determined by the price of parking[19]. One study suggested the average length of time spent cruising per car per trip was only 36 seconds (the average overall journey length 20 minutes).[20]

[9] Role of Bus-Based Park and Ride in the UK: A Temporal and Evaluative Review, Meek et al (2008)
[10] The choice of park and ride facilities: an analysis using a context-dependent hierarchical choice experiment, Bos et al (2004)
[11] The propensity for motorists to walk for short trips: Evidence from West Edinburgh, Ryley (2008)
[12] Influence of varied parking tariffs on parking occupancy levels by trip purpose, Kelly & Clinch (2006)
[13] Evaluating the effects of parking policy measures in nature areas, Beunen, Jaarsma and Regnerus (2006)
[14] The size and shape of the UK parking Profession, SkyBlue, BPA (2012)
[15] Spaced Out, RAC Foundation (2012)
[16] The High Cost of Free Parking, Shoup (1997)
[17] Case analysis of simultaneous concessions of parking meters and underground parking facilities, Caicedo & Diaz (2013)
[18] Charging parking by the minute: What to expect from this parking pricing policy?, Caicedo (2012)
[19] Case analysis of simultaneous concessions of parking meters and underground parking facilities, Caicedo & Diaz (2013)
[20] Empirical evidence on cruising for parking, Van Ommeren et al (2012)

Law and Enforcement

Traffic laws are not experienced through rational calculation; drivers are willing to engage in rule breaking where their own interpretations of safety and risk demand they do so[21].

There is evidence to suggest that there is a link between illegal parking and other illegal behaviour[22], as indicated by those parking in disabled bays without a badge and other crimes committed as indicated by entries on the police national computer.

Personal participation in the appeals process increases comprehension of the process and the independence of the adjudicators[23]. This was found when examining appellant experiences of the Traffic Penalty Tribunal. It is unknown whether this leads to ticket recipients viewing the parking enforcement process as fair.

The design of car parks can impact on crime.[24] CCTV is a recommended method for improving safety, as long as it is believed to be effective[25]. Smith, Gregson & Morgan produced a cost benefit analysis of the Secured Car Park Award Scheme and found that the scheme can reduce levels of vehicle crime and the fear of crime when targeted at high crime car parks, key measures that impact on crime levels are formal surveillance (including patrols), lighting, access control and physical appearance of the car park. Car park management was a crucial factor. Car parks in scheme had low crime levels and were highly rated by users. This evaluation formed the basis on which the Safer Parking Scheme was launched (2004).

Office for National statistics show that 16% of vehicle related crime occurred in car parks in 2003/04 that dropped to 8% in 2011/12. At the same time, car parks in the scheme increased from 1,000 to 5,000.[26]

Technology Developments

It is difficult to assess the extent and current reach of this research due to the ever present problem of it becoming obsolete and replaced by new technological development. Commercial sensitivity of technological developments means that public research is rare and tends to focus on either the sociological impact of relying on technology or the emerging problems of existing research.

ANPR technology is widely used and better researched. The use of ANPR in general law enforcement is regulated through technical standards developed by ACPO (The Association of Chief Police Officers) and requires that static ANPR cameras provide a 98% capture rate and a correct read rate of 95%. The research covered designs of ANPR which meet ACPO standards and guidance on concerns with using the technology, such as reflectivity and regular testing[27].

On the other hand mobile technology success is dependent on cost and availability[28]. Much of the research pre-dates the iPhone which made mobile technology cheaper and more available. The research and proposals for how to use the research to benefit the public (for example QR codes to reserve spaces[29]) highlights technology development.

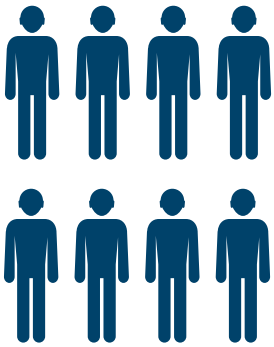
[21] When norms turn perverse: Contextual irrationality vs. rational traffic violations, Haveaneanu, Havarneanu & Corneliu (2012)
[22] Illegal parking in disabled bays: a means of offender targeting, Chenery, Henshaw and Pease (1999)
[23] Financial Penalties: Who Pays, Who Doesn't and Why Not?, Raine, J. Dunstan, E. and Mackie, A (2004)
[24] Between the lines: An evaluation of the secured car park award scheme, Smith, Gregson & Morgan (2003)
[25] Preventing Vehicle Crime, Webb (2005)
[26] Between the lines: An evaluation of the secured car park award scheme, Smith, Gregson & Morgan (2003)
[27] The effect of ANPR Camera Settings on System Performance, Gurney et al (2013)
[28] The Value of Mobility for Business Process Performance: Evidence from Sweden and the Netherlands, Van der Heijden & Valiente (2002)
[29] A Smart Parking and Reservation System for QR-Code-Based Car Park, Chai, Wai Chong, Salimi and Nami (2013)

Recommendations for future research

There is certainly a need to develop future research. Parking is an essential part of everyday life. There is an overreliance on quantitative and model based research. Further qualitative research will provide the reasons behind the findings.

Based on the primary research and subsequent literature review, Dr Snow would like to make the following recommendations:

Category	Research Gap
Pricing	• Carry out a Meta Review of pricing literature to examine the varying successes of pricing policies • Produce a typology of locations which are (and are not) sensitive to pricing decisions. Research which identifies where price is a dominant factor or supply is a more pressing issue • Examine the true cost of 'free parking' undertaken for the UK perhaps using new methods including designing methods for understanding the price of free on-street parking • Produce analysis of free parking's contribution, to understand further the provision of free parking and retail impact • Examine the extent to which price rises lead to overspill parking in free locations (particularly residential)
Technological	• Produce an update on the role of technology in shaping both the profession and its customers • Understand how ANPR is used through systems analysis in parking enforcement and communicate how the use of ANPR should be part of a system of enforcement, • Research the impact of ANPR enforcement on traffic management priorities • Develop a study on the incorporation of parking algorithms into satellite navigation systems to provide the highly rational approach to parking choice that the pricing literature suggests (price, distance and availability) • Carry out research in the field of mobile technology being deployed in parking management needs to be further developed. How mobile technology affects business practice in parking and user options in the role of mobile technology in parking management



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[30] Financial Penalties: Who Pays, Who Doesn't and Why Not?, Raine, J. Dunstan, E. and Mackie, A (2004)

Law and Enforcement	• Research into non-adoption of the Decriminalised Parking Enforcement (DPE) process in Scotland to understand why certain authorities still use the criminal law in a system that few see as criminal activity. Investigating why they do, and what impact this has, can help to understand the role of criminal law in helping to control parking behaviour • A study on the effect and impact of policies on parking management, both public and private • Research why people do not pay their penalty notices; this is a real gap in our knowledge. Raine et al (2004)[30] conducted a study into non-payment of magistrates' court fines and could be repeated in the parking enforcement context to highlight the reasons and suggestions for improvement • Develop techniques for local authority comparison and the differential approaches to parking enforcement particularly on the impact on penalty tribunals. Analysis of the statistics suggests that authorities approach appeals in considerably different ways and it is worth investigating • Carry out research into POPLA (Parking on Private Land Appeals service) to see how it is viewed by users in terms of its impartiality, effectiveness and fairness. • Investigate the respective approaches of the various adjudication services to see how this impacts on views on the system and further compliance. POPLA's annual reports have drawn a parallel between the statistics on appeals allowed with other penalty tribunals. • Gather data on the extent to which the decisions of the tribunals (and ADR) are complied with. • Further research on the correlation between "real" crime and illegal parking
General	• Research into accountability and transparency relationships within the sector. The increasing use of outsourcing in both public and private parking organisations means that accountability and transparency can become diffused and difficult to map (e.g. ANPR reliability). Having a sound understanding of these relationships is absolutely crucial for public confidence. • Statistical monitoring of data relating to demand and supply and cost and price. This data, at present, sits in a maze of various operator publications.

Summary

Research on parking is a growing area of interest which at present brings together diverse traditions from the social sciences. Parking is such an integral part of our daily experience it is essential to study parking and its processes. With greater information, best practices can be identified to improve parking services and parking management and it is hoped that this will lead to further investment in parking research.

Public reactions to parking, particularly parking enforcement, are unlikely to be positive for the foreseeable future and this could (if not already) cause long term damage unless organisations commit to understanding through further research the importance of legitimacy in any system of regulation.

About Dr Adam Snow

Adam Snow is a social science researcher with a specialism in out of court disposals (in particular on the spot penalties). Before undertaking the research project for the BPA Adam was a doctoral candidate at Keele University; researching issues of compliance, deterrence, legitimacy, procedural justice and effectiveness in the criminal justice system particularly in its treatment of everyday crime.

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