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Research Grants PROPOSAL

Document Status: With Owner

ESRC Reference:

Research Grants (Open Call)

Organisation where the Grant would be held

Organisation	University of Warwick	Research Organisation Reference:	COPR_PC
Division or Department	Psychology		

Project Title [up to 150 chars]

The Behavioural Science of Policing

Start Date and Duration

a. Proposed start date	01 October 2017	b. Duration of the grant (months)	36
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Applicants

Role	Name	Organisation	Division or Department	How many hours a week will the investigator work on the project?
Principal Investigator	Professor Neil Stewart	University of Warwick	Psychology	11.25
Co-Investigator	Dr Ross Ritchie	Loughborough University	Business and Economics	7.5
Co-Investigator	Professor Simon Gaechter	University of Nottingham	Sch of Economics	3.75
Co-Investigator	Professor Jacqueline Hodgson	University of Warwick	School of Law	3.75

Classification

International in nature?

No

Please give details

Objectives

List the main objectives of the proposed research [up to 4000 chars]

Objectives [4,000 characters]

What is the relationship between the psychological traits of police officers and staff and their performance? Can insights from behavioural science help to improve the quality of policing in UK? We will combine police records of police officers and staff with their responses in our Online Lab. As a result, we will be able to achieve the following goals:

1. We will build a large and unique database of police records, which will include officers' demographic information, occupational health, sickness and injuries, professional conduct, performance development reviews, and stop and search records. This data will consist of records from Nottinghamshire Police, the Metropolitan Police Service and States of Jersey Police. We will enhance this database by combining it with the individual measures of personality, well-being, integrity, trust, attitudes towards risks, and racial bias of the officers and staff.

2. We will test the key psychological theories of personality, trust and risk attitudes against real-world police behaviour data. This will allow us to make strong claims about the predictive power of these key psychological constructs in policing. Furthermore, our data will allow us to test the validity of many measures regularly used in behavioural sciences, such as well-being, integrity, and implicit associations for race.

3. We will determine the psychological characteristics that are most predictive of good performance among police officers and staff. Using complaints, sickness, and development performance review records as proxies for the quality of policing, we will determine the ideal psychological characteristics for the police officers and staff.

4. By offering a better understanding of police officer and staff personality traits (trust, integrity, well-being, risk attitudes, and implicit attitudes to race and the big-5 personality traits) we can evaluate their effects on the recruitment, training, and management of officers and staff.

5. We will develop a significant impact programme with Nottinghamshire Police, the Metropolitan Police Service and States of Jersey Police, and export this impact nationally via the National Police Chiefs' Council and the College of Policing.

Summary

Describe the proposed research in simple terms in a way that could be publicised to a general audience [up to 4000 chars]

The context of the research

How can we assure the highest quality of policing? Are the existing structures in training, skill development, professional development and career planning efficient? The answers to these questions are pivotal to policing in the UK, who currently face the daunting task of enhancing the quality of service amid severe cuts to its budget. In this context, the police recognize the value of evidence-based policing (cf. the What Works Centre for Crime Reduction). This presents an opportunity for a strong collaboration between academics and police.

Aims and objectives

This project will use insights from behavioural sciences to identify the psychological attributes most important in policing. In our research, we will measure a range of behavioural properties of thousands of police officers and staff who will visit our Online Lab. We will measure thousands of police officers' personality profiles, attitudes towards race, risk perception, integrity, trust and well-being. Most importantly, we will combine these data with unique and broad access to police records (already made available to us), which include personnel records, records of arrests, health and safety, sickness and injury, professional standards (complaints and conduct), stop and search, and performance reviews. We will therefore be able to test the key psychological theories of individual differences against real-world data with granularity and scope exceeding most of the previous efforts in psychological science.

We can test whether our psychological measures predict the real-world behaviour of serving officers and staff. Our research will answer questions such as: What personality traits are associated with the best performing police officers? Is unethical behaviour and misconduct related to police officer's level of trust towards the public? Do happier officers receive fewer complaints and more positive performance reviews? Do certain roles within the force attract individuals with a heightened propensity to take risks, and if so, are these individuals also more prone to become injured? Are mental health problems affecting general life satisfaction among police employees? Is implicit race bias related to the level of exposure to a multiethnic groups? Do complaints and conduct procedures work to reduce the chances of subsequent complaints against officers?

Potential applications and benefits

Our work has obvious implications for the police, who seek research that will aid in guiding and developing interventions in recruitment, training, and operations within the police force. For example, this project will also improve on our understanding of the determinants of serious complaints or misconducts within the force. We have already found significant "learning" where each case reduces the likelihood of further complaints, which raises the questions of which kinds of complaints and which kinds of subsequent actions lead to the greatest future reductions. And for pre-emptive actions, do roles within the police interact with psychological characteristics to create career hotspots that put officers and staff at risk of attracting complaints? As another example, many thousands of days are lost due to physical and mental ill health, and the number is rising. We have already found a very strong link between sickness and complaints in the police data, and links between the quality of leadership and the amount of sickness amongst the leader's direct reports. In sum, insights from our research will offer pathways for improving the quality of policing in the UK.

Academic Beneficiaries

Describe who will benefit from the research [up to 4000 chars].

Due to the scope of our project and access to (as well as collection of) unique data, the list of the academic beneficiaries for this project is broad and encompasses multiple fields within social sciences, including psychology, economics, sociology, management and business studies. All new data sets that this project will produce will be made available from the investigators and ultimately via the UK Data Service.

Behavioural scientists working on the subject of risk will benefit from validating the well-used DOSPERT risk measure against real-world records of risky behaviour including complaints and injuries. Our data and findings will be of interest to academics who study individual differences in economic decision making (e.g., behavioural scientists Weber and Johnson at Columbia Business School, and Pleskac and Hertwig at the Max Planck Institute in Berlin, and economist Holt at Virginia).

Psychologists working on implicit attitudes to race will benefit from validating this measure against stop and search records. Although there is a very large data set of 100,000 online completions of the implicit association test (from Project Implicit, at Harvard), we will have a large data set with five other psychological measures and real-world measures from police records of complaints and stop and search. There is strong interest in race and inappropriate stop and search (stop and frisk in the US). Our addition to the existing data on implicit race bias will be of interest to many psychologists (e.g., psychologist Nosek at University of Virginia, psychologist Greenwald at University of Washington).

Economists and psychologists studying well-being will benefit from a new data set where self-reported well-being measures (using the Office for National Statistics items) are collected for a large number (10,000 plus) of officers, together with police records about their rank, role, complaints, performance, and sickness. Core questions that could be addressed include: Does having the right personality for a job improve well-being? What is the relationship between performance at work and complaints and well-being? How is well-being affected by changing job? How is well-being affected by the well-being of peers? (Key labs include economist Oswald at Warwick, behavioural scientist Dolan and economist Layard at LSE,

psychologist Kahneman at Princeton.)

Experimental economists and psychologists working on cheating and integrity will benefit from a validation of the coins/dice cheating task against records of complaints and misconduct (key labs include economist Fehr at Zurich, and psychologists Ariely at Duke and Bartels at Chicago). Aside from the work of Cohn et al. with groups of bankers, we do not know of any such validation, and certainly there is no validation at the level of individuals.

Measures of personality traits from police officers and staff combined with the data on performance reviews will be extremely valuable to economist and psychologist who seek to understand how personality characteristic influence job performance and satisfaction (e.g., economist Rustichini at Minnesota, economist Almlund at Chicago, psychologist Locke at Maryland). Additionally, study of personality in the context of a large organization such as police will of great interest to the researchers who study business and management (e.g., Judge at Notre Dame, Hodgkinson at Manchester).

Finally, we plan to disseminate our work in journals that are devoted to publishing applied work in behavioural science, such as Behavioural Science and Policy, Social Science and Criminology, and Psychological Science in the Public Interest. These outlets are likely to draw a broader audience of behavioural scientists, criminologists and sociologists.

Staff Duties

Summarise the roles and responsibilities of each post for which funding is sought [up to 2000 characters]

PI Neil Stewart (30% support requested, 3 years). Stewart will take overall responsibility for the delivery of all of the objectives of the grant. Stewart will co-lead (with Ritchie) on the links to the police for the impact pathway. Stewart will also line manage Directly Incurred Posts.

CI Ross Ritchie (20% support requested, 3 years). Ritchie will lead the work on management science and work on public perceptions of policing. Ritchie will co-lead (with Stewart) on links to the police for the impact pathway.

CI Simon Gächter (10% support requested, 3 years). Gächter will contribute to the work on cheating, integrity, complaints, and deception.

CI Jacqueline Hodgson (10% support requested, 3 years). Lawyer Hodgson will contribute to the work on personality, integrity, trust, and public perceptions of policing.

PDRA Lukasz Walasek (100% support requested, 3 years). Walasek will lead the development and implementation of the Online Lab. Walasek will be responsible for writing just under half of the publications as lead author. Walasek will prepare the data sets for the UK Data Service.

PDRA Econometrics (100% support requested, 3 years). The PDRA will develop the econometric models of the Online Lab and police data, including analysis of longitudinal panel data. The PDRA will be responsible for writing just under half of the publications as lead author.

Lab manager (10% support requested, 3 years). The lab manager will provide technical support for setting up and developing the Online Laboratory, and the measurement of public perceptions of policing.

Impact Summary

Impact Summary (please refer to the help for guidance on what to consider when completing this section) [up to 4000 chars]

Ultimately, we intend for all citizens in the UK to benefit from improvements in policing. Gains in efficiency, as the police are able to make evidence-based decisions using our research, benefit the UK tax payers. Improvements in policing, such as reductions in behaviour which attracts (upheld) complaints, are of direct benefit to victims of crime, suspects, and perpetrators. There is also an indirect benefit to wider communities as, for example, reduced complaints and reduced

disproportionality in stop-and-search lead to increases in public confidence and cooperation with the police.

Within the police, chief officers teams can benefit from an increased evidence base upon which to take decisions about recruitment, the development of existing officers, the management of sickness and absence and other personnel issues, and professional standards. For example, we have already shown the complaints against an officer reduce the probability of further complaints, and can now proceed to find out which kinds of management and formal action are most effective in creating this learning. As a further example, we can measure the effect of a "bad" officer moving to a new team on both the officer and the team.

Within the police, all officers and staff can benefit from the first measurement of the well-being across UK policing. We can find which ranks and roles suffer most from reduced well-being, and which major events are most damaging and why some officers may be more resilient to these events. We can also identify which line managers are associated with reduced rates of sickness (we already know the best line managers do have a 20% reduction in sickness in their teams), and start to consider the causal mechanisms at play for the development of training.

Ethical Information

Has consideration been given to any ethical matters raised by this proposal ?

Yes

Please explain what, if any, ethical issues you believe are relevant to the proposed research project, and which ethical approvals have been obtained, or will be sought if the project is funded? If you believe that an ethics review is not necessary, please explain your view (available: 4000 characters)

This study has been approved by the University of Warwick Humanities and Social Sciences Research Ethics Committee (July, 2014) and by the Nottinghamshire Police Federation (personal communication with Phillip Matthews, 23 October 2013).

Summary of Resources Required for Project

Financial resources

Summary fund heading	Fund heading	Full economic Cost	ESRC contribution	% ESRC contribution
Directly Incurred	Staff	279591.61	223673.28	80
	Travel & Subsistence	20280.00	16224.00	80
	Other Costs	32200.00	25760.00	80
	Sub-total	332071.61	265657.28	
Directly Allocated	Investigators	222442.62	177954.09	80
	Estates Costs	52042.20	41633.76	80
	Other Directly Allocated	10611.65	8489.32	80
	Sub-total	285096.47	228077.17	
Indirect Costs	Indirect Costs	316847.00	253477.60	80
Exceptions	Staff	0.00	0.00	100
	Other Costs	0.00	0.00	100
	Sub-total	0.00	0.00	
	Total	934015.08	747212.05	

Summary of staff effort requested

	Months
Investigator	25.00
Researcher	72
Technician	0
Other	0
Visiting Researcher	0
Student	0
Total	97

Other Support

Details of support sought or received from any other source for this or other research in the same field.

Awarding Organisation	Awarding Organisation's Reference	Title of project	Decision Made (Y/N)	Award Made (Y/N)	Start Date	End Date	Amount Sought / Awarded (£)
University of Warwick	G.PSHF.0603.E XP	University of Warwick- Metropolitan Police Collaboration	Y	Y	04/10/2015	31/07/2016	39095

Previous Proposals

Enter the ESRC reference numbers of any support sought or received from ESRC in the past five years.

ES/N018192/1
ES/K004948/1
ES/K002201/1

Staff

Directly Incurred Posts

			EFFORT ON PROJECT							
Role	Name /Post Identifier	Start Date	Period on Project (months)	% of Full Time	Scale	Increment Date	Basic Starting Salary	London Allowance (£)	Super-annuation and NI (£)	Total cost on grant (£)
Researcher	Dr L Walasek	01/10/2017	36	100	N/A	01/10/2018	36672	0	31084.58	143292.58
Researcher	PDRA - Econometrics	01/10/2017	36	100	N/A	01/10/2018	34576	0	29442.03	136299.03
Total										279591.61

Applicants

Role	Name	Post will outlast project (Y/N)	Contracted working week as a % of full time work	Total number of hours to be charged to the grant over the duration of the grant	Average number of hours per week charged to the grant	Rate of Salary pool/banding	Cost estimate
Principal Investigator	Professor Neil Stewart	Y	100	1485	11.2	117106.75	105396
Co-Investigator	Dr Ross Ritchie	Y	100	990	7.5	60472	36283
Co-Investigator	Professor Simon Gaechter	Y	100	495	3.8	146179.31	43854
Co-Investigator	Professor Jacqueline Hodgson	Y	100	495	3.8	123031.83	36910
Total							222443

Travel and Subsistence

Destination and purpose		Total £
Outside UK	SJDM conference attendance in 2018 and 2019 (2 people each conference)	6000
Outside UK	SPUDM conference attendance in 2019 (2 people)	3000
Within UK	Day visits to meet impact partners in London and Nottinghamshire	6400
Within UK	Society for Evidence Based Policing Conference, UK	2080
Within UK	Manual data collection at States of Jersey Police	2800
Total £		20280

Other Directly Incurred Costs

Description	Total £
Warwick - PDRA recruitment costs	2000
Warwick - Non-standard PCs x 2	3200
Warwick - Impact costs - two one-day Behavioural Masterclasses	7000
Warwick - Participant payments	4000
Warwick - Impact costs - Field trials within the police	2000
Warwick - Impact costs - Public survey	14000
Total £	32200

Other Directly Allocated Costs

Description	Total £
Pool staff costs	10420.65
Infrastructure Technicians	191
Total £	10611.65

Timetable estimates of the number of months after the start of the project to reach the following stages:

Stage	Number of Months
Completion of all preparation and design work	0
Commencement of fieldwork or material/information/data collection phase of study	1
Completion of fieldwork or collection phase of study	30
Commencement of analysis phase of study (substantive phase where research facilities are involved)	4
Completion of analysis phase of study	36
Commencement of writing-up of the research	36
Completion of preparation of any new datasets for archiving	36
Completion of writing-up	36

Data Collection

If the research involves data collection or acquisition, please indicate how existing datasets have been reviewed and state why currently available datasets are inadequate for this proposed research. If you do not state to the contrary, it will be assumed that you (as principal applicant) are willing for your contact details to be shared with the affiliated data support service (UK Data Service) working with the Research Councils.	There is no existing data set combining data on complaints and sickness from serving officers with personality and other behavioural measures. See the Data Management Plan for a brief review.
Will the research proposed in this application produce new datasets?	Yes

Will this data be:	<input checked="" type="checkbox"/> Quantitative <input type="checkbox"/> Qualitative
Please give a brief description of the datasets.	Behavioural responses from the six online laboratory tasks will be recorded for thousands of police officers and staff. See Case for Support.
It is a requirement to offer data for archiving. Please include a statement on data sharing. If you believe that further data sharing is not possible, please present your argument here justifying your case.	We can share data with researchers signing a confidentiality agreement which prevents police forces ever receiving raw data. See Data Management Plan.
Who are likely to be the users (academic or non-academic) of the dataset(s)?	Other behavioural scientists, economists, operations management academics, and criminologists.
Please outline costs of preparing and documenting the data for archiving to the standards required by the affiliated data support service (UK Data Service) working with the Research Councils.	The costs are covered by the requested postdoctoral researcher time.

OTHER INFORMATION

Academic Reviewers

1	Name	Organisation	Division or Department	Email Address
	Professor Stephan Lewandowsky	University of Bristol	Experimental Psychology	stephan.lewandowsky@bristol.ac.uk

Academic Reviewers

2	Name	Organisation	Division or Department	Email Address
	Dr Matteo Galizzi	London School of Economics & Pol Sci	Social Policy	m.m.galizzi@lse.ac.uk

User Reviewers

1	Name	Address	Town	Email Address
	Ch. Supt. Alex Murray	Society for Evidence Based Policing	Solihull	alexander.murray@west-midlands.pnn.police.uk

Classification of Proposal

(a) User Involvement

The nature of any user engagement should be indicated

Design	x
Execution	x
Dissemination	x
Training	
Not applicable	

Proposal Classifications

Research Area:

Research Areas are the subject areas in which the programme of study may fall and you should select at least one of these. Once you have selected the relevant Research Area(s), please ensure that you set one as primary. To add or remove Research Areas use the relevant link below. To set a primary area, click in the corresponding checkbox and then the Set Primary Area button that will appear.

Please select one or more Research Areas

Subject	Topic	Keyword
Psychology	Industrial-Organisational/Occupational	Decision Making
Psychology	Industrial-Organisational/Occupational	Job performance
Psychology	Industrial-Organisational/Occupational	Workplace wellbeing
Psychology	Industrial-Organisational/Occupational	
Psychology	Psychology (General) [Primary]	Human performance
Psychology	Psychology (General) [Primary]	Learning
Psychology	Psychology (General) [Primary]	Social cognition
Psychology	Psychology (General) [Primary]	
Psychology	Psychology (General) [Primary]	Behaviour
Psychology	Psychology (General) [Primary]	Decision making (humans)

Qualifier:

Qualifiers are terms that further describe the area of study and cover aspects such as approach and geographical focus. Please ensure you complete this section if relevant.

To add or remove Qualifiers use the links below.

Type	Name
Approach	Large new datasets
Project Engagement by Sector	Other Public Sector

Free-text Keywords:

Free-text keywords may be used to describe the programme of study in more detail. To add a keyword, you first need to search existing Research Areas by entering the keyword in the Search box and selecting the Filter button.

If the keyword is adequately reflected by one of the terms displayed below, click in the corresponding checkbox then select Save. If no potential matches are displayed, or none of those displayed are suitable, select the Add New button followed by the Save button to add it as a descriptor.

To add or remove those previously added use the links below.

Pathways to Impact

This research is likely to deliver impact in recruitment of new officers, identifying outcomes associated with the best management, reductions in the rates of sickness, reductions in complaints and better responses to complaints, and matching officers to roles. In particular, matching responses from our Online Lab to the police data adds value to those data. For example, if, as we suspect, conscientiousness does indeed correlate with rates of sickness and complaints, this would allow forces to understand sickness and complaints as, at least in part, a function of individual differences in personality interacting with the local context in which officers and staff are placed. And if well-being is associated with the quality of management, this is a first step in developing mechanisms for improving the well-being of officers and staff. Below we detail the pathways to these potential impacts.

The police support this research and have provided their data and access to officers and staff without imposing constraints on the academic research programme. We have met with and discussed the project with all of the officers and staff named here (and see meeting dates on p. 2 of the Case for Support). At the MPS, this research project reports to the Total Professionalism Board, which is chaired by our force lead Assistant Commissioner Helen King. The Board is responsible workforce development and recruitment strategy. We have already made presentations to the Board (April 2015, March 2016) and received their backing. By integrating this project with the Board's remit, we have official and long-term support for the project. At Nottinghamshire the project reports to Chief Constable Sue Fish. At States of Jersey the project reports to Chief Officer Mike Bowron.

The findings of this study have relevance to both metropolitan and county forces throughout England, Wales and Northern Ireland (whom all operate under a common Doctrine and Professional Standard). At the local level we will give at least six monthly feedback. For each force, each Chief Constable and Police and Crime Commissioner pairing has independent authority over their area (or MPS Commissioner / London Mayor pairing), and we will use these meeting to develop interventions and analysis around the five themes below. At the national level, the MPS is the largest police force in the UK and is a leader in practice. The route to national-level impact is the National Police Chiefs' Council (business area lead is Chief Constable Giles York; Chief Constable Sue Fish is our NPCC sponsor) and through the College of Policing who inform the National Approved Professional Practice (Rachel Tuffin, Director, Knowledge, Research, and Education). At the international level, the high regard of British policing provides a reference point for international standards. We have already made links with the Chicago Citizens' Police Data Project, Harvard Sociology, and Chicago Police Department, and with New York Police Department via Warwick's Institute for Sustainable Cities. National and international level feedback will be via Warwick's Centre for Operational Policing Research, co-directed by PI Stewart with CI Hodgson.

Feedback to forces will be structured against the following themes, which have been highlighted in discussions with senior officers, who will lead the implementation within their forces. Feedback points are every six months, as agreed with the officers and staff named below.

Public Desire. The research will deliver a list of psychological indicators of good performance, reduced complaints and misconduct, and reduced physical and mental ill health. These measures will inform the recruitment process and the selection of officers and staff for specialist roles in the MPS. But changing recruitment processes represent a shift from the implicit objective of police in the image of the public they serve. For example, "We can't have a police force representative of a London which has an ethnic minority population of 55% when only 10% of its officers are from an ethnic minority" (Lammey, 13 January 2014; the 55% is probably a little too high here). Many forces use positive recruitment of BME officers, and the MPS used residence requirements in 2013/14. How have recent changes in recruitment changes the psychological attributes selected for? There is certainly a political imperative for this directive, but little empirical evidence that the public wish this as

a determining factor for officer or staff recruitment. To this end, we will complement the behavioural science evidence base with a survey of the public to measure the properties of officers they desire (with Chief Constable Sue Fish, Nottinghamshire; Assistant Commissioner Martin Hewitt, MPS; and the (London) Mayor's Office for Police And Crime). We will use a market research company to measure, from a representative sample of the UK population, their views on the age, sex, race, ethnicity, religious affiliation, psychological traits. Our objective is to start and develop a public dialogue.

Management. What is the impact of performance development review gradings on both individual behaviours and those of their subordinates (Deputy Commissioner Craig Mackey and Chief Superintendent Robert Jones). That is, what outcomes in are associated with better line managers? We have already found that the highest scoring line managers have subordinates with a 20% reduction in the incidence of sickness. We have also identified significant variability across the Met within the sickness and complaints measures, with some boroughs having half the rates of sickness and complaints of others, and some boroughs having large changes within the 5-year period of the data. The mechanism for impact within the MPS is the HR change programmes (Robin Wilkinson, HR Director).

Absenteeism and complaints. Using the data we already have, we see a very strong association between sickness and complaints. Among officers who have no complaint in the 5-year period, 63% of officers have one or more episode of sickness. But among officers who have a complaint, 84% have one of more sickness. Further, econometric panel data analysis shows that there is almost no association between previous complaints and current sickness or vice versa: Complaints do not appear to cause sickness, and sickness does not put officers at greater risk of a complaint. The logical conclusion from this work is that there are strong individual difference predictors of these measures—and we have conscientiousness and agreeableness from the online lab as prime candidates. So key questions are why are complaints and sickness associated (Chief Constable Sue Fish, Nottinghamshire)? Which individual differences predict complaints and sickness (Chief Superintendent Robert Jones)?

Right for the role? Do certain types of behavioural attributes (personality, risk attitudes) coalesce in specific police functions, such as specialist operations or investigations (Chief Officer Mike Bowron, States of Jersey Police)?

Bad cops or bad circumstances? Are there career hotspots for misconduct or serious substantiated complaints (Deputy Commissioner Craig Mackey). Can we provide early intervention warnings for officers at greatest risk of misconduct? The mechanism for impact is through Professional Standards (Deputy Assistant Commissioner Fiona Taylor), to help design career paths that avoid potentially potent placements or role succession that materially increase the risk of misconduct.

We will also offer a series of four 1-day Behaviour Masterclasses to Senior Officers' departments in the final year of the project. Classes will be advertised via the College of Policing, the National Police Chief's Council, and Warwick's Centre for Operational Policing Research. We will target the chief officers responsible for policy and implementation within their force, and members of their teams. Classes will be co-led by Stewart or Ritchie, and an officer. We will use feedback to shape the further development of the research.

The Behavioural Science of Policing

Can insights from behavioural science help us to improve the quality of policing in the UK? We will combine data from tens of thousands of officers visiting our Online Lab with extensive police records to establish the link between classic constructs from behavioural science and the behaviour of serving police officers and staff. We will test theories of individual differences against real-world data with granularity and scope exceeding most of the previous efforts in the psychological sciences. Below we outline specific research questions in the domains of: big-five personality, integrity, trust, risk, implicit associations for race, and well-being. Our unifying objective is to provide the first behavioural evidence base for the recruitment of new officers and the development of existing officers.

Access to the Police, and their Data

Access to the police and their records is essential for this project. We have established a collaboration with three forces: the Metropolitan Police Service (MPS), Nottinghamshire Police, and States of Jersey Police. The MPS is a large urban force of 37,000 regular and special officers, and 50,000 staff in total. Nottinghamshire Police is a medium size county force of approximately 2,000 officers. States of Jersey Police is a small force of approximately 240 officers. West Midlands Police (who police Birmingham) and South Yorkshire Police (Sheffield, Barnsley, Doncaster, Rotherham) have also indicated their willingness to participate.

Within each force, the project is sponsored by chief officers: Assistant Commissioner Helen King in the Metropolitan Police (reports to the Commissioner and Deputy Commissioner), Chief Constable Sue Fish in Nottinghamshire (reports to the Chief Constable), and Chief Officer Mike Bowron in States of Jersey. Our day-to-day contacts are Chief Superintendent Rob Jones (formerly Sir Bernard Hogan-Howe's staff officer) in the MPS, Mr Mike Black in Nottinghamshire, and Inspector Matt LeMonnier in States of Jersey.

Table 1. *Police Data Shared With Us*

Data Item	Description
Demographics	Officer / staff, rank / grade, sex, age, role, time in force, time in current role, training, Self Defined Ethnicity (16+1).
Occupational health and injuries	On vs off duty. During arrest / other. Time off sick (e.g., start month and year, duration, or days per year). Detailed reason for absence (e.g., broken leg, depression, etc.)
Professional conduct	Complaint history, with date, type, severity, and outcome.
Performance Development Review	Appraisal scores, peer ratings, etc. Staff survey results.
Arrest history	Last 3 years. Arrest offence / charge offence.
Stop and search	Date. Ethnicity. Any subsequent arrest and charge.

In each force we have agreed to the collection of new data via our Online Lab and the sharing of police records, with data sharing agreements in place with all three forces. The data shared are described in Table 1. *We have already received data for 50,000 officers and staff for the past five years from the MPS.*

The Online Laboratory Measures

We have selected six psychological constructs for the inclusion in our Online Lab, although we can update these as the Online Lab rolls out. Initial screening was by the PI and CIs. We then discussed the project face-to-face in a series of meetings with Commissioner Sir Bernard Hogan-Howe and Deputy Commissioner Craig Mackey (31 May 2013), Tamsyn Heritage, Head of Leadership, Talent, and Culture (30 January 2015), and Deputy Assistant Commissioner Fiona Taylor (6 May 2016) in the Metropolitan Police Service; with Chief Constable Sue Fish (20 May 2014, 10 May 2016), Sergeant Dermot Booth, Inspector Richard Harris, and Chief Inspector Keiley Freeman (28 August 2014, 22 September 2014) in Nottinghamshire Police; and Chief Officer Mike Bowron (July 2014, 13 February 2015) in States of Jersey Police. We selected measures for their frequency of usage and robustness in the academic literature, as well as their practical importance to the police.

The Big Five Personality Measures

We will use the [big five inventory](#) (BFI, John & Srivastava, 1999) or, where time is extremely limited, the [10-item personality inventory](#) (TIPI, Gosling, Rentfrow, & Swann, 2003), to measure the five traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) in the five factor theory of personality (Digman, 1990; Goldberg, 1992). (Click the links to try the tests.) The big five is the most widely agreed on taxonomy of personality, which has been shown to predict many important life outcomes such as education, health status, anti-social behaviour, and wages (e.g., see Kuncel, Ones, & Sackett, 2010, for a review of meta analyses; see Almlund, Duckworth, Heckman, & Kautz, 2011, for a review in economics and labour relations). In the organizational context, personality traits correlate with both job satisfaction and job performance (e.g., leadership, teamwork, satisfaction, Barrick & Mount, 1991; Hogan & Holland, 2003; Judge & Ilies, 2002; Salgado, 1997).

With respect to the police, much attention has been devoted towards determining whether a police personality exists and what traits and characteristics it encompasses (Balch 1972). However, much of this research is now outdated, as it relies on old and less valid measures of personality traits (e.g., Black, 2000; Fenster & Locke, 1973; Kirkcaldy, Furnham, & Cooper, 1993). Further, the existing work was based on small sample sizes of officers in specific roles, such as patrolmen (in US; Fabricatore, Azen, Schoentgen, & Snibbe, 1978), police candidates (Cortina, Dougherty, Kaufman, & Smith, 1992; Lorr & Strack, 1994), constables, or senior officers (Gudjonsson & Adlam, 1983). Thus little is known about the personalities of police employees in terms of the big five taxonomy. Crucially, limitations of the existing work mean that the association between personality and job performance is unclear. Our key research questions include:

1. How does the personality of police officers and staff differ from the general population? How does self-selection and the recruitment process select for specific traits? And thus, what is the police personality?
2. Are certain personality profiles more suitable for certain ranks and roles within the force as measured by performance review scores?
3. Are some personalities (e.g., high conscientiousness and agreeableness) associated with reduced sickness and complaints?
4. Do personality variables interact with events in determining well-being (see below)? For example, are more conscientious people hit harder by a complaint or poor development performance review scores?

Social science researchers have been studying the behaviour of police officers for more than half a century. In the US, Skolnick (1966) suggested a police 'working personality' that whilst not universal, reflected distinct cognitive tendencies in the police as an occupational group. This came to be known as 'cop culture', a set of occupational subcultures (Reiner, 2000) that has become familiar through film and TV. Traditionally explained by the danger, authority and efficiency aspects of police work, researchers point to other factors that now contribute to police culture and so attitudes and working practices: race (Smith and Gray, 1985;

Holdaway, 1996), organisational and management practices (Chan 2007), class (Loftus, 2007), gender (Brown, 2007). The concept of police culture is challenged as representing police talk, but not police work (Waddington, 1999); as monolithic and indifferent to the variety of other drivers of modern police work (Slansky, 2007) and to the individual agency of officers (Chan, 1997). This literature will inform and provide context to the behavioural science data, and enhance its real world application.

Target journals: *Journal of Personality and Social Psychology*, *Psychological Science*, *Journal of Vocational Behaviour*, *Personality and Social Psychology Review*.

Integrity

Integrity is a core principle in the police code of ethics (College of Policing, 2014). Are there a small number of “bent cops” (or bad apples, Scruton, 1985) contaminating the police? This claim, popular in the media, was crystallised by then Commissioner Sir Paul Condon’s comments to the Home Affairs Committee (16 December 1997) that there were 100-250 bent cops in the MPS. But the psychological literature points to a quite different conclusion—that all of us cheat, just a little bit (e.g., Ariely, 2013). How can these views be reconciled?

In our Online Lab, officers and staff are asked to [toss a coin ten times](#) and record the number of times their coin lands on heads (Abeler, Becker & Falk, 2014; Cohn, Fehr & Maréchal, 2014). Each head means a donation to a charity which supports the families of officers who have died on duty (i.e., the greater good). This and a related die-rolling task are regarded as elegant measures of cheating in behavioural sciences (Buccioli & Piovesan, 2011; Fischbacher & Föllmi-Heusi, 2013; Houser, Vetter, & Winter, 2012; Shalvi, Dana, Handgraaf & DeDreu, 2011; Shalvi, Eldar & Bereby-Meyer, 2012, see Ariely, 2013 for a review). Cohn et al. (2014) found that the employees of a large bank who were primed with their professional banking identity reported a much higher number of heads than employees who were not primed. Cohn et al. concluded that dishonest reporting in the primed participants reflects a widespread social norm of dishonesty in the banking industry. And, in cross-societal experiments involving 23 countries, Gächter and Schultz (2016) find that dishonesty in the die-rolling task is strongly related to social norms about rule violation.

We are the first to employ a behavioural measure of integrity in the police.

1. Is our coins task associated with complaints and professional conduct data? In our project, we will deliver the validation of the coins task at the level of individual officers. (Although any individual has a noisy number of heads because of the actual flipping, this has a surprisingly small effect on the accuracy of effect-size estimations.) Of course, some police deviance remains hidden and is not recorded in complaints data.
2. Who is at risk of unethical behaviour? What are the risk factors? Do particular roles attract or make officers vulnerable to cheating? Anecdotal evidence is that single male officers who have missed promotion are at most risk, especially if they perceive this as unfair (Gino & Pierce, 2010; John, Loewenstein & Rick, 2014).
3. What is the effect of “bad cops” on their colleagues? Because we know about the social links between officers using their line manager history—if officers have the same line manager, they know each other and have worked together—we can estimate the effect of upheld complaints against one officer on the probability that other officers attract subsequent complaints. As officers move between teams, we have a quasi experiment to help make causality claims.
4. How do beliefs about integrity social norms influence the propensity to cheat? We measure these in the Online Lab. People’s behaviour is predicted by their beliefs about the social norms (Aldrovandi, Brown, & Wood, 2015; Melrose, Brown, and Wood, 2013; Taylor, Vlaev, Maltby, Brown, & Wood, 2015). Such results can be then used to develop interventions to promote integrity, which are based on correcting erroneous beliefs about the prevalence of cheating behaviour. Social science

research underlines the importance of police occupational culture in the socialisation of new recruits.

5. Do complaints and conduct cases afford learning? That is, are the classic retention, practice, and spacing effects from more than 100 years of memory research (see Anderson & Schooler, 1991) observable in occurrence of complaints—which would strongly implicate a learning mechanism. For example, does one complaint reduce the chance of subsequent complaints? If so, which complaints and outcomes lead to most learning? The findings are important for the view that officers can be rehabilitated.

Target journals: *Nature, Science, Psychological Science, Cognition.*

Trust

Trust in the workplace is widely recognized as a factor that plays a critical role in maintaining job performance and job satisfaction (Colquitt, Bren, & LePine, 2007; Dirks & Ferrin 2001; Driscoll, 1978). There is debate on the very definition of trust in organizations, particularly its multidimensional nature (see Mayer, Davis, & Schoorman, 1995 for a review). In our Online Lab we include a questionnaire-based measure of [trust](#), which was designed to capture perceived ability, benevolence, integrity, trustworthiness, helpfulness and fairness (adapted from Gächter, Hermann, Thöni, 2004; Glaeser, Laibson, Scheinkman, Soutter, 2000; Mayer & Davis, 1999). By asking our participants about trust towards their immediate supervisors, senior supervisors, equal-rank colleagues and the general public, we will explore the structure of trust within the organization of police force.

1. The MPS in-house survey suggests that despite high level of trust towards immediate supervisors, most senior figures in the police force are not trusted. This creates potential conflict between the immediate job role and the broader objectives of the organisation. Using data from the Online Lab in conjunction with the police records, we will be able to determine what aspects of trust (integrity, trustworthiness etc.) are best indicators of poor performance (low staff evaluation scores; high levels of complaints or sickness).
2. Do officers with the lower trust in the general public attract more complaints? Does frequent contact with criminals (e.g., those working in vice) lead to low trust in the general public (Choongh, 1998)?
3. How is trust correlated across the social network of individuals?

Target journals: *Psychological Science, Organizational Behaviour and Human Decision Processes, Management Science, Journal of Experimental Psychology: Applied.*

Implicit Associations: Race

Race is central to policing, with high profile cases like the Stephen Lawrence murder in 1993 or the shooting of Michael Brown 2014 by a Ferguson Police Officer. In our Online Lab, we will use the [implicit association test](#) (IAT, Greenwald, Banaji, & Nosek, 2015; Greenwald, McGhee, & Schwartz, 1998) to measure officers' implicit attitudes towards ethnicity (black vs. white). The test works by comparing the speed or sorting white faces and good words into one category and black faces and bad words into another with the speed of sorting white faces and bad words into one category and black faces and good words into another. Across many populations, the white-good / black-bad sort is faster, indicating a stronger implicit association between white faces and good things than for black faces (however, see Blanton, Jaccard, Christie, & Gonzales, 2007; Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2015 for criticisms of the IAT). The IAT has been administered online hundreds thousands of times on the [Project Implicit](#) web page. However, our project is the first effort to collect IAT responses among UK police officers and staff.

1. How does the recruitment of officers from the wider UK population select for a particular implicit association?
2. How does experience alter implicit associations? Which roles have the largest effects?

3. What is the link between IAT scores and real world behaviour in, for example, disproportionate stop and search of ethnic minorities or complaints (e.g. Gelman, Fagan, & Kiss, 2007; Miller, 2010)?
4. Can informing officers of their own bias help them modify their behaviour?

Target journals: *Journal of Personality and Social Psychology*, *Psychological Science*, *Personality and Individual Differences*.

Risk

We included a robust and multidimensional measure of risk taking known as the [domain specific risk taking scale](#) (DOSPERT, Weber, Blais, & Betz, 2002; Blais, & Weber, 2006) in our Online Lab. This scale was developed to capture different attitudes toward risky behaviour in domains of finance, health/safety, recreation, ethics, and sexual relationships. Furthermore, unlike many other measures of risk attitudes, DOSPERT attempts to capture both risk taking, as well as perceived benefits of risky acts (Figner & Weber, 2011). Thus, this measure is well-suited in the context of policing, where risks are both complex and often carry severe consequences. For example, physical risk taking is encouraged as the public expects an officer to put themselves in the path of danger. On the other hand, sexual risk taking is undesirable as it can both increase potential absenteeism, and may also provide opportunity for coercion or manipulation of an officer.

1. Linking responses on DOSPERT with the breadth of personal records will allow us to test specific hypotheses about the consequences attitudes within the police force as well as validate DOSPERT as a measure of risk attitudes. For example, we will assess whether greater risk taking in the physical domain (recreational) is associated with a greater likelihood of injury while making an arrest?
2. Is risk taking in the social domain associated with a higher rate of complaints, or of upheld complaints?

Target journals: *Cognition*, *Cognitive Science*, *Psychological Science*, *Journal of Risk and Uncertainty*

Well-being

A growing number of governments now use various measures of life satisfaction and happiness to shape their social policy (Helliwell, Layard, & Sachs, 2015). The UK government in particular is strongly committed to using self-reported well-being as means to monitor, inform and appraise its policies (ONS Report; Dolan, Layard, Metcalfe, 2011; Fujiwara & Campbell, 2011). Existing findings suggest that scores on measures of happiness correlate strongly with various aspects of our individual and social life, including personality, socio-demographic information (e.g., age, gender), economic circumstances (e.g., inflation, income inequality), as well as situational and institutional factors (e.g., employment, political involvement) (Di Tella, Oswald, & Macculloch, 2003; Dolan, Peasgood, & White, 2008; Frey & Stutzer, 2002; Helliwell & Wang, 2011; Lucas, 2007).

Despite its recognized value, subjective well-being has not been used in the context of UK policing (but see Hart, Wearing, & Headey, 2011 for an Australian sample). But it is a hot topic within the Met (cf the Commissioner's 100 event on well-being, 12 April 2016). More specifically, no existing survey contains data on officers' life satisfaction, and consequently, no existing work can address the pertinent question of: What personal and environmental factors influence officer's well-being? With a detailed record for each officer, we will be able to test what aspects of the officer's service influence their satisfaction with life. Based on our consideration of the guidelines set out in the OECD (2013) report, our measure of subjective well-being will cover the component of life evaluation, affect and eudaimonia (sense of purpose). We will use the questions employed by ONS Annual Population Survey, which consists of four questions (one evaluative, two affect, one eudaimonic).

1. Are happy officers better at their job? Using longitudinal data, we will be able to determine the causal relationship between life satisfaction and job performance (performance reviews, number of complaints).
2. In conjunction with other measures from our Online Lab, we will be able to evaluate the psychological determinants of life satisfaction in the force. For example, using results from our work on personality (see above), we can assess whether certain personality profiles are best suited for certain roles. More specifically, we can compare life satisfaction of officers whose personalities deviate from their colleagues of similar rank and role.

Target journals: *Nature*, *Science*, *Health Economics*, *Psychological Science*, *Behavioural Science and Policy*.

Research Methods

Delivery. Measures are delivered over the web on a secure link using a HTML and Javascript infrastructure. Extensive compatibility testing has ensured that the measures run on the old Windows XP and Internet Explorer 6 software still in use in Nottinghamshire and the Met.

Completion Rates. We anticipate that 40-60% of officers invited will complete the survey. In our own previous surveys: 383 of 800 officers (48%) in Nottinghamshire responded to an email invitation within two weeks; 61 of 95 (64%) territorial officers completed a survey by an invitation via the Borough Commander in Islington (in the MPS); and 141 of 278 (51%) custody officers completed a survey after an email invitation from their Chief Inspector.

For our project, invitation in Nottinghamshire and States of Jersey is by e-mail from the sponsoring chief officer. In the MPS invitation is by the Total Professionalism Board in combination with the local commander (Supt/ Ch.Supt), as we have found more local senior officers get higher completion rates. In addition to chief officer sponsorship of the project, we have obtained sponsorship from the Police Federation (effectively, the union) in Nottinghamshire (Phil Matthews, Nottinghamshire, 23 October 2014) and will obtain sponsorship in the MPS and States of Jersey.

Each measure can be completed separately. Officers are often interrupted (e.g., by emergency calls), so the survey can be continued later simply by re-clicking the link in the invitation e-mail. There is immediate personalised feedback to the officer after each measure to maintain interest.

Sample size. Sample sizes are determined in advance by the number officers and staff available. The sample available is at least ten times larger than almost all of the studies cited in this case. For example, with 10,000 officers participating in the coins task, confidence intervals on the success rate will be about 1.3% in width, which is more than precise enough to measure cheating effects of about 10% that were reported in the literature.

Analysis

The methods for analysis are straightforward and include general and generalised linear models (e.g., regression), mixed effect models and econometric panel data methods for data with a longitudinal component, data reduction methods like factor analysis, and methods from natural language processing for the textual components of the data. The R programming language provides all these methods and deals very well with very large data sets. Our approach is one of estimation (Cumming, 2014), not null hypothesis significance testing—with these large sample sizes the question is not whether or not there are associations, but on how large these effects are and how accurately they are measured (ASA statement on p values, Wasserstein & Lazar, 2016).

Justification of Resources

Staff, Directly Incurred Posts

PDRA Walasek. We request 100% support for PDRA Walasek. A postdoctoral appointment is essential here, as the level of technical skill required to design and run analyses is high. As outlined in Staff Duties, Walasek will design the analyses with the PI and lead on the writing of publications. Walasek will implement the statistical analysis designed with the PI using the R programming language. Walasek will also take a secondary role in the impact programme, maintaining the day-to-day level contact with forces.

PDRA Econometrics. We request 100% support for a PDRA with extensive experience in panel data analysis and other econometric techniques. A postdoctoral appointment is essential here, as the level of technical skill required for the econometric analysis necessitates a PhD in the field.

Staff, Directly Allocated Posts

PI Stewart. We request 30% support for psychologist Stewart. 15%, half of this support, will be spent on the scientific programme, designing analyses of the data with the PDRAs. Stewart has significant experience working with police data, including one project on the link between unit pricing of alcohol, A&E admissions, and the incident logs of West Midlands Police, and another project on the predictors of demand for police custody with Nottinghamshire Police and the Metropolitan Police. The other 15% is required for the ambitious impact work, which requires professorial level standing and extensive liaisons with the three police partners to negotiate access to further data and field trials and to disseminate results back into policing.

CI Ritchie. We request 20% support for Ritchie. 10% of this support will be spent developing and administering collection of public perception data, and pursuing the research in the organisation and management fields. Ritchie has extensive experience in working with the police, roles including: Advisor to Metropolitan Police Service Independent Consultation Group, Advisor to National Police Chiefs' Council (Custody and Detention), taught and supervised on the College of Policing's High Potential Development Scheme, PI on West Midlands Police Criminal Justice Department Review, CI on West Midlands Police Active Citizen Review, Contributor South Yorkshire Police and Crime Commissioner Strategy (2014), leads and contributes on several other training and strategic development courses (THRIVE, MoRiLe, CT). Ritchie has worked with many forces in the UK including: MPS, West Midlands, Greater Manchester, South Yorks, Merseyside, Northamptonshire, Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire, West Yorkshire, Sussex, Surrey, Essex, and States of Jersey Police. The other 10% support is required for the impact work. In particular, Ritchie will lead on the implementation of findings into the recruitment selection criteria, and into implications for line management and leadership and dissemination of practice through National Police Chiefs' Council and College of Policing.

CI Gächter. We request 10% support for Gächter. Gächter is one of the leading economic experts in social behaviour (e.g., 2016 *Nature* paper with Schulz) and will lead research on integrity and cheating across the social network of officers, and will pursue publication in the economic domain.

CI Hodgson. We request 10% support for Hodgson. Hodgson is a leading expert in police and criminal justice research, including occupational cultures, using qualitative empirical methods. She has extensive experience of working with police, lawyers and judges, and will provide a key legal contextual perspective, as well as leading on gathering qualitative data to complement and inform those gathered through the Online Lab.

Other Directly Incurred Costs

In-kind officer time. We estimate a cost of £125,000 per 10,000 officers visiting the Online Lab. These costs will be met by the participating forces. Forces have also met the cost of providing their records to us, and the cost of time for senior officers and staff in developing and exploiting impact.

Participant payments. We request £4,000 for the recruitment of MTurk participants to pilot the Online Lab measures.

Computer resources. We request support for (University non-standard) PCs. These require encrypted 6 TB HDDs to store the police data, and enough RAM (64 GB) to run analyses without swapping to the HDD. The OS will be hosted on modest SSDs. Only typical desktop CPUs are required (e.g., Intel 8-core i7-4770), with only standard graphics. A PC per PDRA is required, at £1,600

Lab manager. We request 10% technician time to maintain and develop the online laboratory and recruitment of participants.

Impact. We seek £2,000 to cover some of the costs of the impact work developing field trials embedded within the police. Other costs will be met by the force partners, though the exact contribution depends of the details of the design developed after the results of the online laboratory measures are known. We seek £14,000 to cover the cost of measuring public desires for police officer characteristics from a representative sample of the public. We seek £7,000 to cover the cost of two one-day Behaviour Masterclasses for senior officers and staff.

Travel and Subsistence. We seek the costs of day visits to impact partners in London, Nottinghamshire, and States of Jersey (in London too). We anticipate 6 visits per year x 2 people x 3 years. We also request support for manual data collection at States of Jersey Police (2 people x 2 week-long visits). We will attend the SJDM conferences in 2018 and 2019, 2 people x 2 years (New Orleans and Montreal) and the SPUDM conference (European city) in 2019. These conferences are the most significant in the domain, giving coverage of America and Europe. We request support for attending the UK Society for Evidence Based Policing Conference in the second and third years (4 people x 2 years).

NEIL STEWART

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Education

10.97-06.01 PhD Psychology, Perceptual Categorisation, Warwick

10.94-06.97 BA Hons 2.1 Natural Sciences, Experimental Psychology, Cambridge,

Employment

10.09- Professor of Psychology, Warwick

08.06-09.09 Reader in Psychology, Warwick

01.03-07.06 Lecturer in Psychology, Warwick

07.01-12.02 Postdoctoral Research Fellow, Warwick

10.97-06.01 Graduate Teaching Assistant, Warwick

Selected Recent Publications

Kutzner, F. L., Read, D., Brown, G. D. A., & Stewart, N. (in press). Choosing the Devil you don't know: Evidence for limited sensitivity to sample-size based uncertainty when it offers an advantage. *Management Science*. doi: [10.1287/mnsc.2015.2394](https://doi.org/10.1287/mnsc.2015.2394)

Mullett, T. L., & Stewart, N. (in press). Implications of visual attention phenomena for models of preferential choice. *Decision*.

Stewart, N., Gächter, S., Noguchi, T., & Mullett, T. L. (2016). Eye movements in strategic choice. *Journal of Behavioral Decision Making*, 29, 137-156. doi: [10.1002/bdm.1901](https://doi.org/10.1002/bdm.1901)

Hunt, S., Stewart, N., & Zaliauskas, R. (2015). Two plus two makes five? Survey evidence that investors overvalue structured deposits. *Financial Conduct Authority Occasional Papers in Financial Regulation*, 9. <http://www.fca.org.uk/your-fca/documents/occasional-papers/occasional-paper-9>

Stewart, N., Hermens, F., & Matthews, W. J. (2015). Eye movements in risky choice. *Journal of Behavioral Decision Making*. doi: [10.1002/bdm.1854](https://doi.org/10.1002/bdm.1854)

Stewart, N., Reimers, S., & Harris, A. J. L. (2015). On the origin of utility, weighting, and discounting functions: How they get their shapes and how to change their shapes. *Management Science*, 61, 687-705. doi: [10.1287/mnsc.2013.1853](https://doi.org/10.1287/mnsc.2013.1853)

Walasek, L., & Stewart, N. (2015). How to make loss aversion disappear and reverse: Tests of the decision by sampling origin of loss aversion. *Journal of Experimental Psychology: General*, 144, 7-11. doi: [10.1037/xge0000039](https://doi.org/10.1037/xge0000039)

Noguchi, T., & Stewart, N. (2014). In the attraction, compromise, and similarity effects, alternatives are repeatedly compared in pairs on single dimensions. *Cognition*, 132, 44-56. doi: [10.1016/j.cognition.2014.03.006](https://doi.org/10.1016/j.cognition.2014.03.006)

Noguchi, T., Stewart, N., Olivola, C. Y., Moat, H. S., & Preis, T. (2014). Characterizing the time-perspective of nations with search engine query data. *PLoS ONE*, 9, e95209. doi: [10.1371/journal.pone.0095209](https://doi.org/10.1371/journal.pone.0095209)

Navarro-Martinez, D., Salisbury, L. C., Lemon, K. N., Stewart, N., Matthews, W. J., & Harris, A. J. L. (2011). Minimum required payment and supplemental information disclosure effects on consumer debt repayment decisions. *Journal of Marketing Research*, 48, S60-S77. doi: [10.1509/jmkr.48.SPL.S60](https://doi.org/10.1509/jmkr.48.SPL.S60)

Ungemach, C., Stewart, N., & Reimers, S. (2011). How incidental values from our

environment affect decisions about money, risk, and delay. *Psychological Science*, 22, 253-260. doi: [10.1177/0956797610396225](https://doi.org/10.1177/0956797610396225)

Vlaev, I., Chater, N., Stewart, N., & Brown, G. D. A. (2011). Does the brain calculate value? *Trends in Cognitive Sciences*, 15, 546-554. doi: [10.1016/j.tics.2011.09.008](https://doi.org/10.1016/j.tics.2011.09.008)

Awards

2008 Experimental Psychology Society Prize Lecturer.

Society for Judgment and Decision Making's Hillel Einhorn New Investigator Award 2006.

American Psychological Association Division of Experimental Psychology 2005 Young Investigator Award in Journal of Experimental Psychology: Learning, Memory, and Cognition.

Funded Grant Proposals

Stewart, N., Starmer, C., & Camerer, C. (01.17-12.19). *Accumulating to choose, but accumulating what? Drift diffusion modelling of economic preference*. ESRC ES/N018192/1. fEC £624,858.

Maple, C., & Cormode, G. (02.16-01.19). *Cyber security of the internet of things*. ESRC. £1,542,561. Funded. (Part of a £10M project with UCL, Imperial, Southampton, Lancaster, and Oxford.) With Stewart named in the proposal along with three other subject experts.

Stewart, N., Hodgson, J., & Maple, C. (09.15-06.16). *University of Warwick–Metropolitan Police collaboration*. Warwick Strategic Impact Fund. fEC £40,968.

Wade, K. A., Hodgson, J., Stewart, N., & Hearty, K. (09.15-06.16). *We don't buy crime: Developing and evaluating the impact of Smartwater technology and other interventions on public confidence in and satisfaction with British police forces*. ESRC Impact Acceleration Award. fEC £19,038.

Sanborn, A., & Stewart, N. (10.13-09.16). *Combination rules in information integration*. ESRC ES/K004948/1. fEC £348,802.

Starmer, C., Gaechter, S., Barr, A., Gathergood, J., Sefton, M., Cubitt, R., Aickelin, U., Turocy, T., Fatas, E., Zizzio, D. J., Hargreaves-Heap, S., Sugden, R., Poulsen, A., Brown, G. D. A., Stewart, N., Mackay, R., Chater, N., Read, D., & Loomes, G. (01.13-12.16). *Network for integrated behavioural science*. ESRC ES/K002201/1. fEC £3,923,914.

Loomes, G., Brown, G. D. A., Read, D., Stewart, N., & Chater, N. (01.13-12.16). *Risk, time and society: The behavioural economics of value*. Leverhulme. £902,875.

Stewart, N. (04.09-03.10). *The psychology of credit card repayments*. ESRC. fEC £98,987.

Stewart, N. (01.08-12.10). *A decision-by-sampling account of decision under risk*. ESRC. fEC £248,899.

Adelman, J., Kent, C., & Stewart, N. (09.07-08.08). *Information and time in absolute identification*. ESRC. fEC £101,345.

Stewart, N. (04.06-03.09). *Why unidimensional identification is so poor: Modelling a core cognitive limit*. ESRC. £164,407.

Stewart, N. (01.05-11.05). *Financial decision tools*. ESRC. £45,427.

Chater, N., Hodges, S., Nudd, G. R., & Stewart, N. (03.02-02.04). *The cognitive science of financial e-advice*. ESRC. £262,000.

Brown, G. D. A., Chater, N., Lamberts, K., & Stewart, N. (07.01-06.04). *A new unifying model of memory, identification, and categorisation*. ESRC. £133,000.

SIMON GÄCHTER – CURRICULUM VITAE

16 June 2016

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QUALIFICATIONS

03/87 – 12/90: Economics, University of Vienna.
10/90 – 01/94: PhD Economics (with distinction), University of Vienna.

ACADEMIC POSTS

11/94 – 09/00: Assistant Professor, University of Zurich.
10/00 – 01/05 Professor of Economics, University of St. Gallen.
02/05 – today Professor of the Psychology of Economic Decision Making, University of Nottingham.

REPRESENTATIVE RESEARCH PUBLICATIONS

1. “Reciprocity as a Contract Enforcement Device – Experimental Evidence”, *Econometrica* 64(4), July 1997, 833-860 (with Ernst Fehr and Georg Kirchsteiger).
2. “When Social Norms Overpower Competition – Gift Exchange in Experimental Labor Markets”, *Journal of Labor Economics* 16(2), April 1998, 324-351 (with Ernst Fehr, Erich Kirchler, and Andreas Weichbold).
3. “A Simple Mechanism for the Efficient Provision of Public Goods - Experimental evidence” *American Economic Review* 90(1), March 2000, 247-264 (with Josef Falkinger, Ernst Fehr and Rudolf Winter-Ebmer).
4. “Cooperation and Punishment in Public Goods Experiments”, *American Economic Review* 90(4), September 2000, 980-994 (with Ernst Fehr).
5. “Are People Conditionally Cooperative? Evidence from a Public Goods Experiment”, *Economics Letters* 71(3), June 2001, 397-404 (with Urs Fischbacher and Ernst Fehr).
6. “Altruistic Punishment in Humans”, *Nature* 415, 10 January 2002, 137-140 (with Ernst Fehr).
7. “Strong Reciprocity, Human Cooperation, and the Enforcement of Social Norms”, *Human Nature* 13(1), 2002, 1-25 (with Urs Fischbacher and Ernst Fehr).
8. "Antisocial Punishment across Societies", *Science* 319, 7 March 2008, 1362-1367 (with Benedikt Herrmann and Christian Thöni).
9. “The Long-Run Benefits of Punishment”, *Science* 322, 5 December 2008, 1510 (with Elke Renner and Martin Sefton).
10. “Reciprocity, Culture, and Human Cooperation: Previous Insights and a New Cross-Cultural Experiment.” *Philosophical Transactions of the Royal Society B – Biological Sciences* 364, March 2009, 791-806 (with Benedikt Herrmann).
11. “Social Preferences, Beliefs, and the Dynamics of Free Riding in Public Good Experiments.” *American Economic Review* 100(1), March 2010, 541-556 (with Urs Fischbacher).
12. “Social Comparison and Performance: Experimental Evidence on the Fair-Wage Effort Hypothesis,” *Journal of Economic Behavior & Organization* 76(3), December 2010, 531-543 (with Christian Thöni).
13. “Peer Effects in Pro-Social Behavior: Social Norms or Social Preferences?” *Journal of the European Economic Association* 11(3), June 2013, 548–573 (with Daniele Nosenzo and Martin Sefton).
14. “Intrinsic Honesty and the Prevalence of Rule Violations Across Societies”, *Nature* 531, 24 March 2016, 496-499 (with Jonathan Schulz).
15. “Eye Movements in Strategic Choice”, *Journal of Behavioral Decision Making* 29(2-3), April 2016, 137-156 (with Neil Stewart, Takao Noguchi and Timothy L. Mullett).

CITATION STATISTICS

[Google Scholar](#): 25,498 citations; h-index 49
Web of Science: 7,186 citations, h-index 28

EDITORIAL BOARDS OF PEER-REVIEWED SCHOLARLY PERIODICALS

- **Associate Editor:** *Management Science, Social Choice and Welfare*
- **Editorial Board Member:** *Experimental Economics; Journal of the Economic Science Association, Applied Economics*

AWARDS

National Latsis Prize 2004 (Switzerland); *Gossen Prize* (2005) of the German Economic Association; Fellow of the *European Economic Association* (2009); Elected member of the *German Academy of Sciences Leopoldina* (2010)

OTHER INDICATORS OF ESTEEM

- **Invited memberships:** CESifo Network (Munich); Institute for the Future of Labor (IZA, Bonn);
- **Invited keynotes:** CESifo Conference “Economics & Psychology” (2005); Graz Schumpeter Lecture, “Behavioural Economics” May 2006; “Reciprocity: Theories & Facts” U Milano–Biccoca, (2007); 7th Symposium Economics & Psychology Tilburg (2008); 4th Nordic Conference in Behavioral Economics Oslo (2009); ESA Melbourne (2010); ESA Copenhagen (2010); IMEBE Madrid (2013); ASFEE Paris (2016)
- **Visiting professorships:** U Munich (2003; 2008); U Melbourne (2007); U Sydney (2008, 2011), U Copenhagen (2008); Bar Ilan U Tel Aviv (2009); Hebrew U Jerusalem (2010); Keio U, Tokyo (2012); U Canterbury (2012); Free U Amsterdam (2013); Stanford U (2013)
- **Teaching in Summer Schools:** Australia, China, France, Germany, Italy, Netherlands.
- **Scientific Advisory Boards:** University of Cologne, Max Planck Institute of Economics, Jena; German Socio-Economic Panel; University of Cologne; DIW Berlin.
- **External examiner** for 30 PhD students in the UK and internationally.
- **Reviewer** for 60+ journals and Science Foundations in Austria, Canada, Czech Republic, France, Germany, Israel, Netherlands, New Zealand, Norway, Switzerland, UK and USA.

PHD STUDENTS (FINISHED)

1. Benedikt Herrmann: “Norms of Cooperation and Sanctioning”, 2004.
2. Christian Thöni: “Social Learning, Comparison, and Interaction”, 2005.
3. Esther Kessler: “Behavioural Economics of Performance Incentives.” 2008.
4. Michalis Drouvelis. “Essays on Framing, Free Riding, and Punishment”, 2009.
5. Eva Poen: “Public Goods Experiments: An Econometric Analysis”, 2009.
6. Daniele Nosenzo: “Social Preferences and Social Comparisons”, 2010.
7. Fabio Tufano: “Three Studies on Context-Dependent Behaviour”, 2013.
8. Simone Quercia: "The Tragedy of the Commons, Betrayal Aversion, and Conditional Cooperation", 2014.
9. Antonio A. Arechar: "The Benefits of Social Identification and Peer Punishment for Cooperation", 2014.
10. Lingbo Huang: “An Empirical Investigation of Individual and Team Contests”, 2015.

RESEARCH GRANTS

- “Social interactions, corporate culture, and the provision of incentives”, 2002 – 2004, financed by the Science Foundation, University of St. Gallen (CHF 100'000).
- “Crowding out or crowding in? The effect of leadership contributions on public good provision”, 2007-2008, financed by the British Academy (£6'800); with Elke Renner and Martin Sefton.
- Member of the European research consortium “Integrating Cooperation Research in Europe”, 2007-2010, financed by the European Union (€ 29'700); with 26 partners across Europe.
- "Putting Strong Reciprocity into Context", European Research Council (ERC) Advanced Investigator Grant, 2012-2017, €2m.
- Co-Investigator on the ESRC-funded "Network of Integrated Behavioural Science" (joint with Warwick and University of East Anglia), 2013-2017.

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Work and Education

University of Warwick, Coventry, UK Leverhulme Postdoctoral Fellow	2013 – present
West Suffolk College, Bury St. Edmunds, UK Lecturer (part time)	2012 – 2013
University of Essex, Colchester, UK PhD (Psychology)	2010 – 2013
University of Essex, Colchester, UK MSc (Psychology, distinction)	2009 – 2010
University of East Anglia, Norwich, UK BSc (Psychosocial Sciences, 2:1)	2006 – 2009

Publications

1. **Walasek, L.**, Rakow, T., & Matthews, W. J. (accepted). When does construction enhance product value? Investigating the combined effects of object assembly and ownership on valuation. *Journal of Behavioral Decision Making*.
2. **Walasek, L.**, & Brown, G. D. A. (accepted). Income inequality, income, and internet searches for status goods: A cross-national study of the association between inequality and well-being. *Social Indicators Research*.
3. Bhatia, S., & **Walasek, L.** (accepted). Psychological distance in everyday thought and discourse: An examination of object-construal using large online datasets. *Cognition*.
4. **Walasek, L.**, Matthews, W. J., & Rakow, T. (in press). The need to belong and the value of belongings: Does ostracism change the subjective value of personal possessions? *Journal of Behavioural and Experimental Economics*.
5. Brown, G.D.A., Fincher, C. L., & **Walasek, L.** (in press). Personality, parasites, political attitudes and cooperation: A model of how infection prevalence influences openness and social group formation. *Topics in Cognitive Science*.
6. **Walasek, L.**, & Brown, G. D. A. (2015). Inequality and status seeking: Searching for positional goods in unequal US states. *Psychological Science*, 26(4), 527-533.
7. **Walasek, L.**, & Stewart, N. (2015). How to make loss aversion disappear and reverse: Tests of the decision by sampling origin of loss aversion. *Journal of Experimental Psychology: General*, 144(1), 7-11.

8. Ashby, N. J. S., **Walasek, L.**, & Glockner, A. (2015). The effect of consumer ratings and attentional allocation on product valuation. *Judgment and Decision Making*, 10(2), 172-184.
9. **Walasek, L.**, Wright, R.J., & Rakow, T. (2014). Ownership status and the representation of assets of uncertain value: The Balloon Endowment Risk Task (BERT). *Journal of Behavioral Decision Making*, 27(5), 419-432.

Not Peer Reviewed

- Walasek, L.** (2012). Review of "Perspectives on Framing", edited by Gideon Keren. *Journal of Behavioral Decision Making*, 25(2), 215-216.
- Walasek, L.** (2011). Review of "Applied Power Analysis for the Behavioral Sciences", by Christopher L. Aberson. *Psychology Learning & Teaching*, 10, 273-274.

Funding

Warwick Impact Fund: Warwick-Metropolitan Police Collaboration (£50,000, awarded 24th August, 2015)
ESRC Big Data: "Twitter activity and crime in the UK" (submitted 21st January, 2015)
Essex Experimental Economics Lab research grant (£1200, awarded 28th September, 2013)
University of Essex Full Ph.D Studentship (full time studentship, awarded April 20th 2010)

Selected Press Coverage

The Atlantic: <http://www.citylab.com/work/2015/04/what-googling-ralph-lauren-has-to-do-with-income-inequality/389934/>
APS Blog: <http://www.psychologicalscience.org/index.php/news/were-only-human/the-high-costs-of-status-seeking.html>
The Huffington Post: http://www.huffingtonpost.com/wray-herbert/the-high-costs-of-status_b_6303150.html
Methodology for Psychology Podcast: <http://www.stitcher.com/podcast/brian-kissell/the-methodology-for-psychology-podcast/e/dr-lukasz-walasek-on-how-to-make-loss-aversion-disappear-38107875>

Professional Affiliations and Duties

European Association for Decision Making,
Society for Judgment and Decision Making,
Centre of Operational Policing
Contributor in "The Science of Ownership":
<http://thescienceofownership.org/facesvoices/community/>

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Employment and Education

School of Business and Economics, Loughborough University. Lecturer in Operations Management	2015-present
Warwick Business School, University of Warwick Senior Teaching Fellow, Assistant Dean	2014-2015
Warwick Business School, University of Warwick Teaching Fellow	2011-2014
Warwick Business School, University of Warwick PhD (Behavioural Operations)	2009-2014
E.ON Gmbh, Coventry UK/ Dusseldorf Germany General Manager	2000-2009
Warwick Business School, University of Warwick MBA (Distinction)	2003-2006

Impact and Practice Engagement

National Police Chiefs Council, Detention and Custody Business Area. <i>Author and Advisor to National Strategy and Operating Model Development</i>	2014-present
National Counter Terrorism Commanders Course, <i>Associate Training Staff</i> . Decision Making in Time Pressured Environments	2016
Responding to 2015 Home Office Austerity in Policing (Press), https://www.youtube.com/watch?v=YrzTftN4uaM	2015
Metropolitan Police Service, Commissioner's 100. <i>Independent Advisor to Custody Command</i> . Risk Analysis in Custody	2013-2015
South Yorkshire Police and Crime Commissioner. Police and Crime Plan 2015/16. <i>Advisor to strategic planning committee</i> .	2014-2015

Awards and Grants

- PI: Metropolitan Police Service, *Digital 101 Evaluation* (£50k) 2016-present
- CI: West Midlands Police Service, *2020 Intervention and Prevention Programme Evaluation* (£48k) 2016-present
- PI: West Midlands Police, *Strategic Evaluation of Custody and Detention* (£30k) 2014-2015

Selected Publication and Conferences

- European Conference for Operational Research (EURO) 2016, Poznan, Poland.
Risk Perceptions in Police Briefings July 2016
- National Custody Forum 2016, Loughborough (Organiser) March 2016
- Society for Evidenced Based Policing, Birmingham, *Proliferation of the National Decision Model (NDM)* Sept 2015
- Ritchie, R. & Walley, P., *The Challenges of public sector demand and capacity management: an exploratory case of police services* In Radnor, Z.J., Bateman, N., Esain, A., Kumar, M., Williams, S., and Upton, D., (2016) *Public Service Operations Management*, Oxon, Routledge, ISBN 978-1-138-81369-4.
- East Midlands Police Consortium (EMPAC) Conference, Leicestershire, *Rethinking the Custody Operating Model* March 2015

Affiliations and Duties

- Centre for Service Management, Loughborough University
- Visualisation Research Group, Loughborough University
- Centre for Operational Policing Research, University of Warwick
- Associate Fellow, Warwick Business School, University of Warwick

JACQUELINE HODGSON LLB (Hons), PhD, FAcSS

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- Professor of Law, Director of Criminal Justice Centre (School of Law), Co-Director Centre for Operational Policing Research (Cross-Faculty)
- Elected Fellow of the Academy of Social Sciences; Elected Council Member of JUSTICE; Social Science Faculty Impact Award 2013.
- Written and oral evidence to Parliamentary Select Committees; to UK and Canadian courts on extradition

Recent Research Awards and Collaborations

Wade, K. A., Hodgson, J., Stewart, N., & Hearty, K. (2015-17). *We don't buy crime: Developing and evaluating the impact of Smartwater technology and other interventions on public confidence in and satisfaction with British police forces*. ESRC Impact Acceleration Award £19,038, fEC.

Stewart, N., Hodgson, J., & Maple, C. (2015-16). *University of Warwick–Metropolitan Police collaboration*. Warwick Strategic Impact Fund. £40,968, fEC

€375,000 fEC European Commission Action Grant: *Protecting Young Suspects in Interrogations: A Study on Safeguards and Best Practice* JUST/2011-12/JPEN/AG/2009 (2013-15) with Maastricht, Antwerp, Macerata and Jagiellonian Universities.

£14,250 fEC Monash-Warwick Alliance Seed Fund: *Access to Justice: A Comparative Analysis of cuts to the civil and criminal Legal Aid systems in England, Wales & Victoria*, (2013-14)

€375,000 fEC European Commission Action Grant: *Procedural Rights of Suspects in Police Detention in the EU: Empirical Investigation and Promoting Best Practice* JUST/2010/JPEN/AG/1578 (2011-13) with Maastricht, UWE, JUSTICE, Open Society Justice Initiative and Avon & Somerset Police.

£9,000 fEC Consultancy EU Impact Assessments on legal aid Directive (2016), pre-trial detention (2015-16), presumption of innocence (2013)

Selected Recent Publications

Sukumar, D., Wade, K. and Hodgson, J. (2016) "Strategic Disclosure of Evidence: Perspectives from Psychology and Law" 22 (3) *Psychology, Public Policy, and Law* 306-313

Hodgson, J. (2016) 'From the domestic to the European: An empirical approach to comparative custodial legal advice' in J. Ross & S. Thaman) *Handbook on Comparative Criminal Procedure* (Edward Elgar Press)

Kemp, V. and Hodgson, J (2016) "England and Wales: Empirical Findings" chapter 4 in (eds) Panzavolta, M., de Vocht, D., van Oosterhout, M. and Vanderhallen, M. Interrogating Young Suspects: Procedural Safeguards from an Empirical Perspective (Antwerp: Intersentia) 127 - 181

Hodgson, J. (2016) "Defence rights in Europe" in Research Handbook in EU Criminal Law Mitsilegas, V., Bergström, M. and Konstadinides, T. (eds) (Cheltenham: Edward Elgar Publishing) 168-188.

Hodgson, J and Kemp, V. (2015) 'Ensuring "Appropriate" Protections for Young Suspects' in Interrogating Young Suspects: Procedural Safeguards from a Legal Perspective (eds) Panzavolta, M., de Vocht, D., Van Oosterhout, M., Vanderhallen, M. (Antwerp: Intersentia) 123-178

Blackstock, J, Cape, E, Hodgson, J, Ogorodova, A and Spronken, T (2014) Inside Police Custody: An Empirical Account of Suspects' Rights in Four Jurisdictions (Antwerp: Intersentia)

Cape, E. and Hodgson, J. (2014) "The right of access to a lawyer at police stations: making the European Union Directive work in practice" New Journal of European Criminal Law 450

Hodgson, J. (2013) 'Legitimacy and State Responses to Terrorism: the UK and France' Legitimacy and Criminal Justice: An International Exploration Tankebe, J. and Liebling, A. (eds) (Oxford: Oxford University Press)

Hodgson, J. and Tadros V. (2013) 'The Impossibility of Defining Terrorism' 16 (3) New Criminal Law Review 494 – 526

Hodgson, J. (2011) "Safeguarding Suspects' Rights in EU Criminal Justice: A Comparative Perspective" New Criminal Law Review 14(4) 611-665

Hodgson, J. (2010) "The French Prosecutor in Question" Washington & Lee Law Review 67(4) 1361-1411

Cape, E., Hodgson, J., Prakken, T. and Spronken, T. (eds) (2007) Suspects in Europe: Procedural Rights at the Investigative Stage of the Criminal Process in the European Union Antwerp: Intersentia

Hodgson, J. (2005) French Criminal Justice: A Comparative Account of the Investigation and Prosecution of Crime in France Oxford: Hart Publishing

McConville, M., Hodgson, J., Bridges, L. and Pavlovic A. (1994) Standing Accused: The Organisation and Practices of Criminal Defence Lawyers in Britain Clarendon Press: Oxford.

McConville, M and Hodgson J. (1993) Custodial Legal Advice and The Right to Silence Royal Commission on Criminal Justice Research Study No. 16. London. HMSO

References

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- Almlund, M., Duckworth, A. L., Heckman, J., & Kautz, T. (2011). Personality psychology and economics. In E. A. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the economics of education* (pp. 1–181). Amsterdam: Elsevier.
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- Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology*, 92, 909–927. doi:10.1037/0021-9010.92.4.909
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- Gelman, A., Fagan, J., & Kiss, A. (2007). An Analysis of the New York City Police Department's "Stop-and-Frisk" Policy in the Context of Claims of Racial Bias. *Journal of the American Statistical Association*, 102, 813–823. doi:10.1198/016214506000001040
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**METROPOLITAN
POLICE**

TOTAL POLICING

Human Resources Directorate

ESRC

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Your ref:
Our ref:
26 April 2016

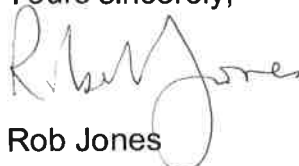
Dear ESRC,

Re: The Behavioural Science of Policing

I confirm that the Metropolitan Police Service will collaborate with Prof. Stewart and his team on the Behavioural Science of Policing project. We have already shared a large set of our records on our 31,000 officers and 13,000 staff. We intend to roll out the Online Lab across the force in the coming year. The project reports to our Total Professionalism board led by Assistant Commissioner Martin Hewitt. Members of the chief officer team have discussed the development of the project with Prof. Stewart and Dr Ritchie, including Commissioner Sir Bernard Hogan Howe and Deputy Commissioner Craig Mackey. We will disseminate the results of the project across the service via regular reports from Prof. Stewart's team.

The Metropolitan Police Service polices London, 620 square miles and 8.2 million people. The Met has an ongoing relationship with the Warwick Centre for Operational Policing [co-directed by Stewart], which we are currently extending via our new in-house behavioural insight team. To illustrate the collaboration, we are hosting a 3-month postdoctoral researcher as part of the COFUND scheme in 2017. Given the large financial constraints the police face (the Met must save £1 billion in the immediate future) it is essential that policing is effective and evidence based, and the Behavioural Science of Policing project can help us achieve this aim.

Yours sincerely,

 c/rwt
Rob Jones



3rd June 2016

Dear Research Council,

I am writing on behalf of States of Jersey Police to confirm our support and engagement with the Behavioral Science in Policing Project ('The Perfect Cop Project'). We have been working with Dr Ritchie and Professor Stewart over the last 18 months to shape the direction of this project.

States of Jersey Police are a national police force, requiring a diverse set of skills and experience, yet we achieve this with resources more typical of a mainland division. This research will therefore offer significant insight into the attributes of our officers and provide us a valuable comparison to other forces (namely The Metropolitan Police Service and Nottinghamshire Police).

Our contribution to this project includes access to our officer information and officer time in completing the behavioral laboratories, which is a significant investment from my force. Further, to ensure this research has maximum possible impact on force policy and practice, senior officer engagement with the research team (including steering groups and partnership meetings) will be undertaken for the duration of the project.

It is rare that we support research projects of this type, and in doing so for this proposal ask that you highlight the importance we assign to its potential findings.

Kind regards

Mike Bowron QPM, FRSA, BA (Hons)
Chief Officer

Deputy Chief Constable Susannah Fish OBE

PA: ruth.clement@nottinghamshire.pnn.police.uk



Ref: SF/RC

6 May 2016

Force Headquarters
Sherwood Lodge
Arnold
Nottingham
NG5 8PP
Tel: 0115 967 2006
Fax: 0115 967 2009

Dear

I am writing to support the 'Perfect Cop' project run by Professor Stewart and Dr Ritchie. We have committed to participating in this project by sharing our force records and by having our officers and staff participate in the online laboratory. We have not dictated or constrained the research programme, but we have discussed the development of this programme extensively with Neil and Ross, and we are very keen to deploy the insight into the psychological characteristics we have in our force in the way we recruit, manage and train our workforce.

We are also interested in the first measurement of the traits that the public desire in the police, and we are keen to see how changes to our recruitment process have changed the characteristics that we are selecting. Our commitment to having our officers and staff complete the 20 minute tests demonstrates how much we value this project.

I have also agreed to act as a sponsor for the project in disseminating the results more widely within the National Police Chief's Council.

Yours sincerely

Mrs Sue Fish OBE
Deputy Chief Constable

12 September 2016

Dear ESRC,

Cover Letter for "The Behavioural Science of Policing"

The investigator team comprises academics from psychology and behavioural scientist, management science and operations management, economics, and law—giving us the necessary breadth to deliver interdisciplinary publications and, importantly, impact on the ground in the management and operation of the police.

We have unique access to a wide variety of police records, which we have already received, for thousands of police officers and staff. We also have unique access to officers and staff as participants for our online psychometric laboratory. This proposal will allow us to use police records to answer core questions in behavioural science, across the domains of personality, risk, cheating and integrity, well-being, trust, and implicit associations with race.

We have Chief-Constable-level support from three police forces: the Metropolitan Police Service, Nottinghamshire Police, and States of Jersey. We have clear pathways to impact sponsored by senior officers, and connections with bodies like the National Police Chiefs' Council (the successor to ACPO) to disseminate impact across all forces in the country.

We have selected the most relevant of reviewers. User reviewer Chief Superintendent Alex Murray is the founder of the *Society for Evidence Based Policing* and the current deputy chair. Ch. Supt Murray is a key figure in the development of the use of academic evidence in operational policing. Academic reviewer Dr Matteo Galizzi, LSE, is an assistant professor of behavioural science at the London School of Economics and an ESRC Future Research Leader. As a behavioural economist, he has been developing a behavioural data linking approach, matching behavioural measures with "big data" held by public organisations and industry. This approach is very much in line with our proposal to link behavioural measures from our Online Lab with police records. Academic reviewer Prof. Stephan Lewandowsky, University of Bristol, is a leading figure in the use of psychological science in the public interest. He is currently serving as a digital content editor for the Psychonomic Society, and has high-level overview of psychological science.

Yours sincerely,



Neil Stewart

Prof. Neil Stewart
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University of Warwick
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Progress Report on ES/K002201/1 for Neil Stewart (Warwick) and Simon Gächter (Nottingham)

The Network for Integrated Behavioural Science (NIBS) is an ESRC investment, funded under the Centres and Large Grants Competition. It is a partnership among the Universities of Nottingham, Warwick and East Anglia. It brings together teams of economists, psychologists, and computer and complexity scientists. NIBS aims to develop and test cross-disciplinary models of human behaviour and behaviour change and to draw out their implications for public policy formulation and evaluation. The key objectives of the Network are to provide: (a) A forum for cutting edge cross-disciplinary and cross-institutional academic collaboration on behavioural science; (b) Research outputs that will aid prediction of human behaviour and inform those seeking to influence it; (c) Access to a high calibre, inter-disciplinary team of behavioural scientists.

The Network has been in operation for three and a half years (since 31 December 2012). We recruited a Network Administrator (commenced April 2013) and in Spring/ Summer 2013, we successfully hired six postdoctoral research fellows, with further recruitment in April 2014 and May 2015 to replace posts. These fellows bring expertise spanning economics, psychology, anthropology, sociology and neuroscience. In addition, we recruited four PhD students from economics and psychology. We have also developed core infrastructure, including development of a Network website, improvement of lab facilities, and development of a mobile lab.

We have held external facing conferences in spring 2014 (themed "individual and household financial decision making and behaviour in financial markets"); 2015 (themed "behavioural science and policy") and 2016 (themed "assessing well-being when preferences are incoherent"). We have also held internal workshops in autumn 2013 (a start-up where new postdocs present their work and NIBS projects were developed) and 2014 and 2015 (reporting funded projects and developing the next wave), and will hold an additional internal workshop in September 2016.

New collaborative work within the Network has been stimulated through two main mechanisms. First, after the initial start-up event (hosted at Warwick in 2013) we established 14 working groups to pursue specific issues highlighted in the Case for Support. Second, the tri-annual bidding process for allocation of shared resources. This has so far funded 51 specific projects (over 9 rounds plus 'reactive' bids which were accepted in 2015 and 2016).

Work of NIBS researchers is regularly monitored via an internal review process which requires annual activity reports from each co-investigator. These are reviewed by each of the four Theme Leaders to assess coverage of the research plan under each of the themes set out in the case for support. Based on this review process, we have identified some areas where we need to initiate new research streams to meet our long-run objectives. Work is well-established for each of the four themes. We are successfully developing cross-institution and cross-disciplinary working, though it will be a continuing objective of the Network to extend and deepen these linkages. There is clear evidence of research progress and potential, as documented on ResearchFish where we provide specific examples of where we have established a foothold relative to fundamental theoretical and conceptual issues which lie at the heart of our programme.

We have already published multiple NIBS related outputs in high quality scientific journals including: *Nature*, *Econometrica*, *American Economic Review*, *Journal of Economic Perspectives*, *European Economic Review*, *Management Science*, *Journal of Experimental Psychology: General* and *Psychological Science*. See [the NIBS website](#) for details of publications.

Members of NIBS have been active in promoting our work through outreach activities including presentations at relevant international conferences and workshops; and appearances as keynote speakers. They have also been seeking to stimulate and contribute to broader public debate through prominent media outlets. For example, three NIBS researchers featured as the primary contributors to the BBC Radio 4 programme 'The Human Zoo'; one contributed to the Radio 4 programme 'The Bishop and the Bankers'; and one participated in a Radio 5 live discussion on the topic of consumer 'switching behaviour'. We are also engaged with public decision-making. For example: Stewart presented work related to household financial decision making at HMRC and has co-authored an policy paper with the Financial Conduct Authority; Starmer participated in the event "Social Science in Parliament: Improving the Evidence Base for Policy" hosted by the Parliamentary Office of Science and Technology; Gathergood was appointed 'Senior Academic Advisor' to the Financial Conduct Authority's "Rate Cap" project. We also co-sponsored one such event on 'Valuing Life,

Health and Safety in Public Policy: Issues and Challenges', British Academy, London including participants from NIBS, the Health and Safety Executive and the Department of Transport.

We are also developing projects which involve direct research collaboration with partners in public, private and third sector organisations including: Capital One and Experian where we have agreement in principle for the development of three projects involving input from NIBS economists, psychologists and computer scientists; the Financial Conduct Authority with projects on consumer understanding of structured deposits and welfare impacts of pay day loans. We are also developing a large-scale project on data insight with the credit counselling industry. We are also working on promoting healthy behaviour with the Department of Health Policy Research Programme and the UKCRC Centre for Diet and Physical Activity Research.

We have set in motion an ambitious programme of capacity building initiatives which has involved induction and training for our new (research and administrative) staff; involvement of junior and mid-career staff in Network management and decision making; providing opportunities for external junior researchers to interface with NIBS (via events) and supporting opportunities for junior NIBS researchers to engage with other researchers and Networks beyond NIBS.

The NIBS network has supported three main types of international activity: (i) international visitors; (ii) international research collaboration (iii) events with international participation. We have also expanded such activity over the last year through our international exchange programme.

Stewart and Gächter Publications supported by NIBS (* is NIBS member)

Beranek, B., Cubitt*, R., & Gächter*, S. (2015). Stated and revealed inequality aversion in three subject pools. *Journal of the Economic Science Association*, 1, 43-58. doi:10.1007/s40881-015-0007-1

Gächter*, S., & Schulz, J. F. (2016, March 24). Intrinsic honesty and the prevalence of rule violations across societies. *Nature*, 531, 496–499. doi:10.1038/nature17160

Gächter*, S., Huang, L., & Sefton*, M. (in press). Combining “real effort” with induced effort costs: The ball-catching task. *Experimental Economics*. doi:10.1007/s10683-015-9465-9

Gächter*, S., Starmer*, C. & Tufano*, F. (2015). Measuring the closeness of relationships: A comprehensive evaluation of the 'inclusion of the other in the self' scale. *PLoS One*, 10, e0129478. doi: 10.1371/journal.pone.0129478

Gherzi, S., Egan, D., Stewart*, N., Haisley, E., & Ayton, P. (2014). The meerkat effect: Personality and market returns affect investors' portfolio monitoring behavior. *Journal of Economic Behavior & Organization*, 107, 512-526. doi: 10.1016/j.jebo.2014.07.013

Hunt*, S., Stewart*, N., & Zaliauskas, R. (2015). Two plus two makes five? Survey evidence that investors overvalue structured deposits. *Financial Conduct Authority Occasional Papers in Financial Regulation*, 9. <http://www.fca.org.uk/your-fca/documents/occasional-papers/occasional-paper-9>

Kutzner, F. L., Read*, D., Brown*, G. D. A., & Stewart*, N. (2016). Choosing the Devil you don't know: Evidence for limited sensitivity to sample-size based uncertainty when it offers an advantage. *Management Science*. <http://dx.doi.org/10.1287/mnsc.2015.2394>

Mullett*, T. L., & Stewart*, N. (in press). Implications of visual attention phenomena for models of preferential choice. *Decision*.

Noguchi, T., & Stewart*, N. (2014). In the attraction, compromise, and similarity effects, alternatives are repeatedly compared in pairs on single dimensions. *Cognition*, 132, 44-56. doi: 10.1016/j.cognition.2014.03.006

Noguchi, T., Stewart*, N., Olivola, C. Y., Moat, H. S., & Preis, T. (2014). Characterizing the time-perspective of nations with search engine query data. *PLoS ONE*, 9, e95209. doi: 10.1371/journal.pone.0095209

Quispe-Torreblanca, E. G., Stewart*, N., Birnbaum, M. H., Navarro-Martinez, D., Ungemach, C., & Proto, E. (2015). *One-Shot violations of stochastic dominance resist detection training*. Manuscript submitted for publication.

Reimers, S., & Stewart*, N. (2015). Presentation and response timing accuracy in Adobe Flash and HTML5/JavaScript web experiments. *Behavior Research Methods*, 47, 309-327. doi: 10.3758/s13428-014-0471-1

Stewart*, N., Gächter*, S., Noguchi, T., & Mullett, T. L. (2016). Eye movements in strategic choice. *Journal of Behavioral Decision Making*, 29, 137-156. doi: 10.1002/bdm.1901

- Stewart*, N., Gächter*, S., Noguchi, T., & Mullett*, T. L. (in press). Eye movements in strategic choice. *Journal of Behavioral Decision Making*.
- Stewart*, N., Hermens, F., & Matthews, W. J. (2015). Eye movements in risky choice. *Journal of Behavioral Decision Making*. doi: [10.1002/bdm.1854](https://doi.org/10.1002/bdm.1854)
- Stewart*, N., Reimers, S., & Harris, A. J. L. (2015). On the origin of utility, weighting, and discounting functions: How they get their shapes and how to change their shapes. *Management Science*, 61, 687-705. doi: [10.1287/mnsc.2013.1853](https://doi.org/10.1287/mnsc.2013.1853)
- Stewart*, N., Ungemach, C., Harris, A. J. L., Bartels, D. M., Newell, B. R., Paolacci, G., & Chandler, J. (in press). The average laboratory samples a population of 7,300 Amazon Mechanical Turk workers. *Judgment and Decision Making*.
- Thoeni, C., & Gächter*, S. (2015). Peer effects and social preferences in voluntary cooperation: A theoretical and experimental analysis. *Journal of Economic Psychology*, 48, 72-88. doi:10.1016/j.joep.2015.03.001
- Walasek*, L., & Stewart*, N. (2015). How to make loss aversion disappear and reverse: Tests of the decision by sampling origin of loss aversion. *Journal of Experimental Psychology: General*, 144, 7-11. doi: [10.1037/xge0000039](https://doi.org/10.1037/xge0000039)

Selected Conferences and Presentations

Date	Title of Presentation	Name of Conference	Venue
June 2016	Update on the “perfect cop” project	Deputy Assistant Commissioner Helen King's office	New Scotland Yard
May 2016	Update on the “perfect cop” project	T/Chief Constable Sue Fish's office	Nottinghamshire Police
Apr 2016	Accumulator Models and the Nature of Preference	Potsdam NIBS Nature of Preference	Potsdam
Mar 2016	Update on the “perfect cop” project	Met Police: Total Professionalism Board	New Scotland Yard
Mar 2016	Forecasting custody demand	National Police Chiefs' Council: Custody	Loughborough
Feb 2016	Intrinsic Honesty and the Prevalence of Rule Violations across Societies	Dysfunctional Organisations	World Bank, Washington
Jan 2016	Randomised controlled trials at the FCA	UK Cards	London
Dec 2015	Credit Card Market Study submission	Financial Conduct Authority	Canary Wharf
Oct 2015	Expected utility – unexpected results	ABC Group, MPI Berlin	Berlin
September 2015	Honesty and Efficient Cooperation across Societies	3 rd Tilburg Law and Economics Centre Workshop “Economic Governance & Social Preferences”	University of Tilburg
July 2015	Expected utility estimated with generalized linear mixed-effects models	Birkbeck Cognitive Modelling	Birkbeck
May 2015	How to Make Loss Aversion Disappear and Reverse	Basel Decision Making and Memory Workshop	Basel
April 2015	Eye movements, lab choices, and big data approaches to decision making research	Oxford Experimental Psychology Seminar	Oxford
Sept 2014	Structured deposits	NIBS	Warwick
Sept 2014	Naturalistic multiattribute choice	Decision Making Bristol 2014	Bristol
Sept 2014	Loss aversion is a property of the experimental design	Decision Making Bristol 2014	Bristol

Interim Report: Combination Rules in Information Integration [ES/K004948/1]

We are currently a 2.5 years months into a 3-year project and we are on track with our research plan. Updates on each of our three programmes of research as well as our preparation for publication and our presentations at national and international conferences are detailed below.

Programme 1: Cognitive and perceptual tasks. We have investigated how well participants combine two diagnostic pieces of information and how well participants combine a diagnostic piece of information with a non-diagnostic piece of information. In our experiments so far, we have used stimuli such as rectangles, dominoes, and ice cream cones and found a variety of effects. Our ice cream cone experiments, for example, asked participants to look at what two shops had sold during the day and then to judge the relative likelihood that a particular ice cream, cone, or ice cream cone was sold from one shop relative to the other.

Combining two pieces of diagnostic information, called the set-size effect, should result in participants having a stronger impression of the combined evidence than either piece of diagnostic evidence alone. For ice cream cone experiments, a cone and an ice cream that are diagnostic of a particular shop should result in a stronger impression than just the ice cream or cone alone. We found that the probability that participants would come to the correct answer depended on the physical presentation of the shops. If ice cream and cones were presented physically together, then participants were more correct than if ice creams and cones were presented physically separately. These experiments show what sort of display help avoid this type of error.

Combining a diagnostic piece of evidence with a non-diagnostic piece of evidence is known as the dilution effect. Here our experiments have found that participants solve this task differently than in the above task and in previous literature on this topic. We found the dilution effect, but surprisingly it was not due to inaccurate combination of diagnostic and non-diagnostic information. People were accurate at judging diagnostic evidence combined with non-diagnostic evidence, but overestimated the strength of diagnostic evidence alone. We can explain this within-participants dilution effect as the result of inference about missing features rather than incorrect combination of information and are currently investigating how to encourage participants to reason correctly for this task.

The preliminary results of this programme were presented at the Cognitive Science Society meeting. The final results will be submitted for publication when we have established how to remove the dilution effect.

Programme 2: Combination rules in economic choice. In this programme, we investigated how participants combine probability and utility in gambles. Previous investigations of economic choice have used simple tasks for which the combination rule is confounded with assumptions about how variable our decisions are and whether the values are transformed before they are combined (Stewart, 2011).

We have used choices between three-branch gambles (e.g., “A: 50% chance of £200 otherwise £100” or “B: 30% chance of £400 otherwise £50”) to investigate this question, which disambiguates the identifiability problem that arises from decision variability. We have also used models based on cumulative prospect theory (Tversky & Kahneman, 1992), which assumes that values and probabilities are transformed before being combined together multiplicatively. We are allowing for a range of possible transformations and using a Bayesian model comparison to investigate how much a multiplicative and an additive rule contribute to how

participants value gambles in choice paradigms. The results of our analyses have shown that the multiplicative rule is enough to describe participant behaviour, in contrast to other researchers who claim that additive combination is the default human behaviour. This work is being revised for resubmission to the *Journal of Behavioural Decision Making*.

We are currently completing analysis of new data exploring the link between attractiveness ratings, valuations (or certainty equivalents) and choice. A puzzling finding is that attractiveness ratings are more additive than valuations, yet these additive attractiveness ratings predict choice better, despite choices being most closely fitted by the multiplicative model. We also find that choices become more multiplicative after training intended to make people more additive.

Programme 3: Averaging over combination rules. Our third programme aims to take a closer look at whether participants' evaluations of the probability of two outcomes is the result of a single combination rule or whether it is a strategic averaging of combination rules. We collected data on how participants combine probabilities into conjunctions and disjunctions, following the classic design of Wyer (1976) who asked participants for the probabilities of events described by the words "rarely", "sometimes", and "usually" as well as the probabilities of all possible conjunctions and disjunctions of these words.

Previous work has argued about which strategy participants in these tasks use to combine probabilities. Some popular ideas are that participants report the normative answer with noise, they report the average, or they report the most 'surprising' single probability. In a closer analysis of the data, we have overturned these findings. Instead an individual-level Bayesian analysis showed that most people draw from multiple strategies, including the normative combination rule. Experimental results were presented at Bristol Decision Making 2014 and were presented at conferences and seminars at UK universities (Warwick and UCL) and at North American conferences (Society for Mathematical Psychology and Cognitive Science Society). The work is currently submitted to the journal *Cognition*.

Papers bearing grant number, with * indicating core outputs

Hunt, S., Stewart, N., & Zaliauskas, R. (2015). Two plus two makes five? Survey evidence that investors overvalue structured deposits. *Financial Conduct Authority Occasional Papers in Financial Regulation*, 9. <http://www.fca.org.uk/your-fca/documents/occasional-papers/occasional-paper-9>

Kutzner, F. L., Read, D., Brown, G. D. A., & Stewart, N. (in press). Choosing the Devil you don't know: Evidence for limited sensitivity to sample-size based uncertainty when it offers an advantage. *Management Science*. doi: 10.1287/mnsc.2015.2394

Mullett, T. L., & Stewart, N. (in press). Implications of visual attention phenomena for models of preferential choice. *Decision*.

Noguchi, T., & Stewart, N. (2014). In the attraction, compromise, and similarity effects, alternatives are repeatedly compared in pairs on single dimensions. *Cognition*, 132, 44-56. doi: 10.1016/j.cognition.2014.03.006

Abstract

*Noguchi, T., Sanborn, A., Stewart, N., & Tripp, J. (in preparation). Inference, not dilution in the dilution effect.

Noguchi, T., Stewart, N., Olivola, C. Y., Moat, H. S., & Preis, T. (2014). Characterizing the time-perspective of nations with search engine query data. *PLoS ONE*, 9, e95209. doi: 10.1371/journal.pone.0095209

Sanborn A.N. & Beierholm U.R. (2016). Fast and accurate learning when making discrete numerical estimates. *PLoS Computational Biology* 12(4): e1004859.

- Sanborn, A. N. (2014). Testing Bayesian and heuristic predictions of mass judgments of colliding objects. *Frontiers in Psychology*, 5(938), 1-7.
- Sanborn, A. N. & Griffiths, T. L. (2015). Exploring the structure of mental representations by implementing computer algorithms with people. Raaijmakers, J.G.W., Criss, A.H., Goldstone, R. L., Nosofsky, R. M., & Steyvers, M. (Eds.). *Cognitive Modeling in Perception and Memory: A Festschrift for Richard M. Shiffrin*. New York: Psychology Press.
- Sanborn, A.N. (in press). Types of approximation for probabilistic cognition: sampling and variational. *Brain and Cognition*.
- Scholten, M., Read, D., & Sanborn, A. N. (in press). Cumulative weighing of time in intertemporal tradeoffs. *Journal of Experimental Psychology: General*.
- Stewart, N., Gächter, S., Noguchi, T., & Mullett, T. L. (2016). Eye movements in strategic choice. *Journal of Behavioral Decision Making*, 29, 137-156. doi: [10.1002/bdm.1901](https://doi.org/10.1002/bdm.1901)
- Stewart, N., Hermens, F., & Matthews, W. J. (2015). Eye movements in risky choice. *Journal of Behavioral Decision Making*. doi: [10.1002/bdm.1854](https://doi.org/10.1002/bdm.1854)
- Stewart, N., Ungemach, C., Harris, A. J. L., Bartels, D. M., Newell, B. R., Paolacci, G., & Chandler, J. (2015). The average laboratory samples a population of 7,300 Amazon Mechanical Turk workers. *Judgment and Decision Making*, 10, 479-491. <http://journal.sjdm.org/14/14725/jdm14725.pdf>
- *Tripp, J., Sanborn, A., Stewart, N., & Noguchi, T. (2016). *Most people are normative some of the time: Mixtures of combination rules are used in estimates of conjunctions and disjunctions*. Manuscript submitted for publication.
- *Tripp, J., Stewart, N., Sanborn, A., & Noguchi, T. (2016). *Prospect theory is enough*. Manuscript submitted for publication.
- Walasek, L., & Stewart, N. (2015). How to make loss aversion disappear and reverse: Tests of the decision by sampling origin of loss aversion. *Journal of Experimental Psychology: General*, 144, 7-11. doi: [10.1037/xge0000039](https://doi.org/10.1037/xge0000039)

Conference Presentations

- 2016 Annual Conference of the Cognitive Science Society, 'Choosing Poorly: Reward-Induced Strategy Shifts in Estimating the Probabilities of Conjunctions and Disjunctions', Philadelphia, Pennsylvania
- 2016 Annual Conference of the Mathematical Psychology Society, Brunswick, New Jersey, USA, 'Prospect theory is enough'
- 2016 Annual Summer Interdisciplinary Conference, Italy: 'Multiple Strategies in Conjunction and Disjunction Judgments: Most People are Normative Part of the Time'
- 2015 Annual Conference of the Cognitive Science Society, California, USA: 'Multiple Strategies in Conjunction and Disjunction Judgments: Most People are Normative Part of the Time'
- 2015 Annual Conference of the Cognitive Science Society, California, USA: 'Inference, Not Dilution in the Dilution Effect'
- 2015 Annual Conference of the Mathematical Psychology Society, California, USA: 'Multiple Strategies in Conjunction and Disjunction Judgments: Most People are Normative Part of the Time'
- 2014 Bristol Decision Making 2014, Bristol, UK: 'Single or multiple strategies in conjunction and disjunction fallacies?'

Data management plan

Assessment of Existing Data

This project makes extensive use of existing data provided from three police forces (see the Case for Support). What makes this research unique is the recording of six behavioural measures from thousands of officers visiting the Online Lab and the ability to associate these measures with real-world records of police activity (like complaints and sickness) at the level of individual officers. We do not know of any other data set like this. We have consulted with the behavioural science community, where some of these measures have been used in isolation with small groups of law-enforcement professionals.

Also relevant is the Citizens Police Data Project, a set of misconduct records for individual Chicago Police Department officers. However, there are no behavioural or other measures in this data set. Police.Data.UK provides stop-and-search records at the force level, but does not link stops across officers or individuals.

Information on New Data

We will create a range of new datasets from the online lab visits. Behavioural responses will be saved in a CSV file for each measure, identified only by the GUID. At no point will we be collecting significant personal or identifying information, so subsequent anonymisation is not necessary.

We anticipate a secondary data component (outside the current proposal) which will exploit these “big” data. For example, we can build a historical and geographical map of stop and search in London, and explore the link with well-being and inequality measures from the ESRC’s Understanding Society, the impact of crime on victims in the Crime Survey for England and Wales, and measurements of mood and sentiment from Twitter.

Backup and Security of Data

Data security and confidentiality are essential. At Warwick, records will only be identified by a Global Unique Identifier. A key linking the GUID with collar number, payroll number, name, and email will be held by each force and not shared with Warwick. Warwick will never share the individual results from the behavioural measures with the forces. Behavioural measures are collected over an encrypted https link and stored on a secure server accessible only by the passwordless ssh protocol from IP addresses within Warwick. Force records, which do not include text details such as names or statements, will be delivered by an encrypted link and will be encrypted and stored on a Warwick server with access restricted to campus computers and named Warwick investigators.

The online laboratory website is hosted on a Warwick virtual host, with security managed by experts (not by us locally). Security fixes are applied every week. Hosts are backed up daily, with backups retained for one year.

Data backup will be via Warwick’s Storage Now facility. Connection is via the sftp protocol. Data are encrypted.

Quality Assurance of Data

The data collection methods for the online laboratory are automated, leaving little room for human error or transcription problems. Of course, the participants might provide nonsense responses, by alternating key presses and missing questions. These things are easily detected and will be flagged.

Expected Difficulties in Data Sharing

Online lab data. Participants agree to sharing data collected in the online laboratory with other researchers. However, these researchers will need to sign a confidentiality agreement

with us because the data are not public and cannot be returned to the participating police forces.

Police data. The data provided from police force records will remain under the control of the police. We will not share or archive these data. Researchers are free to approach the police to obtain these data.

Public perception data. These data will not contain enough information to identify individuals. We will be able to share these data with other researchers.

Responsibilities

Neil Stewart will be responsible for all aspects of data management, quality issues and delivery of data for sharing and archive.

Preparation of data for sharing and archiving

We will deposit data generated by this grant with the UK data service. We will use standard CSV file formats with accompanying README files detailing the column headings.