

<b>Institution: University of Nottingham</b>
<b>Unit of Assessment: Economics and Econometrics (18)</b>
<b>Title of case study: Challenging Behavioural Assumptions Underpinning Public Policy Design</b>
<p><b>1. Summary of the impact</b></p> <p>The <b>Centre for Decision Research and Experimental Economics (CeDEx)</b> at Nottingham is a world leader in the development and application of experimental and behavioural economics. <b>CeDEx's</b> research is increasingly influential in affecting the way in which experimental methodology is utilised by public sector agencies (e.g. <b>Department for Environment, Food &amp; Rural Affairs, DEFRA</b>) and in fashioning the public and policy makers' understanding of how human motivations and decision processes affect individual and group behaviour and, in particular, their responses to different policy tools (e.g. incentives, regulation, information, 'nudges' etc). The research of the <b>CeDEx</b> group has had broad and diffuse impacts on public decision-making and public debate; through public events, the provision of advice to government departments and regulators, the delivery of training workshops, commissioned research and an active strategy of engagement in public debate.</p>
<p><b>2. Underpinning research</b></p> <ul style="list-style-type: none"> <li>• <i>Context</i></li> </ul> <p>The work of the <b>CeDEx</b> group has focussed on three topics in behavioural science: (i) the development, evaluation and application of experimental methods; (ii) refining understanding of the determinants of individual behaviour, particularly in relation to risk and time; (iii) investigating the determinants of social behaviour, particularly the role of incentives in supporting human cooperation. Beyond contributions to the basic science, a major theme in the <b>CeDEx</b> group's research has been to (iv) develop understanding of the relevance of behavioural economics for the formulation of public policy. In this case study we illustrate how specific elements of our research in relation to themes (i)-(iii) have fed into (iv) and thereby generated the various forms of impact identified in Section 4 of this document.</p> <ul style="list-style-type: none"> <li>• <i>Research insights and findings</i></li> </ul> <p>In relation to topic (i), members of the <b>CeDEx</b> group have been leading figures in the development, testing and evaluation of experimental methods in economics. <b>Robin Cubitt</b> and <b>Chris Starmer</b> along with collaborators elsewhere, as part of a project funded by the Leverhulme Trust, undertook a major methodological assessment of the scope and reliability of experimental research in economics (Sept 2002 – August 2005, Leverhulme Trust, Award Number F/00 204/K). That assessment [1] is the first systematic appraisal of experimental economics' research methods. Our knowledge of how and where experiments can be successfully used, developed through this research, has supported us in our roles of advising government departments and regulators in the use of experimental method.</p> <p>In relation to topic (ii) we have made significant contributions to understanding individual behaviour, particularly aspects of risk and time preferences. For example, <b>CeDEx</b> researchers have developed and tested new models of risky choice which provide a unifying account of a range of well-documented 'anomalies' relative to standard theory. In particular, <b>CeDEx</b> researchers have been influential in modelling and measuring the impact of <i>loss aversion</i> [2]. While much of the supporting evidence in this field has flowed from experimental evidence, a related strand of our research has examined how far aspects of non-standard preferences, which have been mainly identified and measured in laboratory research, translate outside the lab to field behaviour.</p> <p>In that context, <b>CeDEx</b> research [3] has shown how a target field behaviour (in this case, paying a</p>

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bill by a target date) can be promoted more effectively through the use of incentives framed as ‘penalties’ (for late payment) versus ‘discounts’ (for early payments). This and other work under topic (ii) has flowed directly into the impacts identified.

**CeDEx** researchers have made world-leading contributions to the study of ‘social preferences’, human cooperation and organisational behaviour. For example, the group is known internationally for path breaking work on voluntary cooperation in the presence of free rider incentives and, in particular, the crucial role played by ‘punishment’ [4,5]; the group is also known for developing important insights into the organisational impacts of incentives, leadership, social norms and social comparisons [6,7]. These aspects of our research have been important elements in the impacts cited in Section 4.

- *Key researchers*

**Chris Starmer** (Professor at the University of Nottingham –UOM- since 2000); **Simon Gächter** (Professor at UOM since 2005); **Robin Cubitt** (Professor at UOM since 2004); **Martin Sefton** (appointed at UOM in 2000 and promoted to Professor in 2005); **Elke Renner** (appointed to UOM in 2003 and promoted to Associate Professor in 2010); **Daniele Nosenzo** (appointed at UOM as research fellow in 2010 and lecturer in 2012).

### 3. References to the research

- [1] *Experimental Economics: Rethinking the Rules*, N. Bardsley, R. **Cubitt**, G. Loomes, P. Moffatt, C. **Starmer** and R. Sugden, Princeton University Press, 2010. [Available on Request].
- [2] “Third-Generation Prospect Theory”, U. Schmidt, C. **Starmer** and R. Sugden, *Journal of Risk and Uncertainty*, 36, 203-23, 2008. [doi: 10.1007/s11166-008-9040-2]
- [3] “Are Experimental Economists Prone to Framing Effects? A Natural Field Experiment”, S. **Gächter**, H. Orzen, E. **Renner** and C. **Starmer**, *Journal of Economic Behaviour and Organization*, 70, 443-46, 2009. [doi: 10.1016/j.jebo.2007.11.003]
- [4] “Social Preferences, Beliefs, and the Dynamics of Free Riding in Public Good Experiments”, U. Fischbacher and S. **Gächter**, *American Economic Review*, 100(1), 541-56, 2010. [doi: 10.1257/aer.100.1.541]
- [5] “The Long-Run Benefits of Punishment” S. **Gächter**, E. **Renner**, and M. **Sefton**, *Science*, 322(5907), 1510, 2008. [doi: 10.1126/science.1164744]
- [6] “Peer Effects in Pro-Social Behavior: Social Norms or Social Preferences?”, S. **Gächter**, D. **Nosenzo** and M. **Sefton**, *Journal of the European Economic Association*, 11(3): 548–73, 2013. [doi: 10.1111/jeea.12015]
- [7] “After You - Endogenous Sequencing in Voluntary Contribution Games”, J. Potters, M. **Sefton** and L. Vesterlund. *Journal of Public Economics*, 89, 1399-1419, 2005. [doi: 10.1016/j.jpubeco.2004.02.008]

This research has and continues to be funded by major grants recently including:

**Gächter** (PI), “Putting Strong Reciprocity into Context”, European Research Council Advanced Investigator Grant, May 2012 - April 2017, £1.5m.

**Starmer** (PI), “Network for Integrated Behavioural Science”, ESRC Centres and Large Grants Competition, Jan 2013 – Dec 2016, £3.2 million (ESRC Award no. ES/K002201/1)

### 4. Details of the impact

The last decade has seen a rapid expansion of research in behavioural economics and related fields. This has been accompanied by considerable interest in those findings from potential research users. While a small subset of ideas emerging from the programme of behavioural economics has featured prominently in public debate (e.g. the use of ‘nudges’ as policy tools) there has been considerable uncertainty about how the wider body of research findings can be translated to field application, and how the findings and methods of behavioural economics can *reliably* inform policy. **CeDEx** have been actively contributing to developing public understanding of these issues through various channels of engagement with non-academic stakeholders. In what

follows we identify five primary forms of dissemination, engagement and associated impacts.

- *Public events*

Members of **CeDEX** have regularly participated in events designed to bring the basic science through to potential users in private and public sector organisations. For example, **Starmer** gave lectures on ‘Key Insights from Behavioural Economics’ at various events including the 2009 meeting of the **Financial Services Research Forum** and the January 2011 **OFWAT ‘Breakfast Briefing’**. In that talk, **Starmer** drew out the importance of message framing for promoting behaviour change and in particular **CeDEX** research results showing the differential impact of framing incentives as penalties (versus positive inducements). In March 2011, **OFWAT** (water services regulatory authority in the UK) published a report on sustainable water use [A] which draws directly on ideas discussed at the January meeting: As evidence, the **Head of Ofwat’s Supply and Demand Balance**, wrote to **Starmer** noting how his input had fed into their report and:

“ helped to stimulate a productive debate about the role of behavioural economics in encouraging consumers to use water wisely”.

- *Advisory roles*

Members of **CeDEX** also regularly provide advice to government departments and regulators in the process of commissioning behavioural research. For example, drawing on the findings of his research into experimental methodology reported in [1], **Starmer** provided advice to **OFCOM** (UK’s regulator and competition authority for the communications industries) in the run up to their tendering process commissioning experimental research to investigate the behavioural influence (on phone users) of transparency of call pricing [B]. **Sefton** has assisted **HM Revenue & Customs (HMRC)** as an independent reviewer of commissioned research [C].

- *Training*

To promote knowledge transfer around potential applications and sound design principles, **CeDEX** has developed and delivered a training workshop specifically designed to help government departments explore and understand how experimental methods can be used to address issues of interest to them. **Starmer** (in collaboration with Professor Loomes – U. Warwick) delivered this as a two day event hosted by **Health and Safety Executive (HSE)** (Liverpool) in 2011 with participants from various government departments including the **HSE** and **HMRC**. This workshop drew directly on insights gained from their research in experimental methodology (Loomes collaborated in [1]); and on their expertise in applications related to individual decision making (theme (ii) above). Following this workshop, experimental approaches have been trialled extensively across various government departments including those participating in the workshop. For example, **HMRC** has successfully used experimental trials to assess the effect of ‘social’ message framing in promoting tax recovery (this was reported by members of the **Cabinet Office Behavioural Insight Team** at a workshop (Oct. 2012) on use of experimental methods in government: [www.bristol.ac.uk/cmpo/events/2012/policy/](http://www.bristol.ac.uk/cmpo/events/2012/policy/); **Starmer** was a participant). For further evidence, see [E] below.

- *Direct commissioned research*

Members of the **CeDEX** team have provided academic leads on projects for government departments. For example, **Starmer** provided scientific lead to a **DEFRA** project concerned with how aspects of risk and time preference (loss aversion and discounting) influence decisions related to the purchase and use of energy saving products. **Starmer** co-authored a report on this subject for **DEFRA** (see [D] below) and has spoken at workshops organised by **DEFRA** to disseminate the research. One motivation for the **DEFRA** project was to assess the role of non-standard aspects of preferences (‘extreme’ discounting and loss aversion) and in particular whether these factors explained low uptake of a new generation of high-end efficiency products (e.g. A+ and A++

refrigerators). Based on preference models ([2] above) the **CeDEX** team were able to demonstrate that these factors probably had low impact in the (then current) market place.

The work highlighted other likely important causal mechanisms including social peer effects highlighted by our research. These factors had not been considered as primary issues by **DEFRA** in commissioning the research, but these issues were brought to the fore by the work and feature prominently in the published **DEFRA report** [D]. In addition the report contained recommendations on a set of potential interventions (informed by consideration of our research on the framing of incentives and the impact of loss aversion (as discussed in Section 2 above) including: changing product labelling (to promote energy efficient choices); presentation of cost information (to highlight potential energy savings). The work and recommendations are summarised in the **DEFRA report** "Behavioural Economics and Energy Using Products" and it is cited by various other organisations (see for example **OFWAT** [A]). A more recent report by **DEFRA** [I] highlights the importance of insights from behavioural economics for a wider range of policy issues, and specifically refers to the earlier work by **CeDEX** (reported in D).

- *Contribution to public debate*

**CeDEX** researchers have stimulated and contributed actively to public debate via non-technical summaries of their work in high profile general science outlets (e.g. **Science** and **Nature**, see [F] below) and publications aimed at the business community (see [G] below for illustrations). Their work has also featured prominently in national and international news media (see [H] below for illustrations).

## 5. Sources to corroborate the impact

[A] "Push, pull, nudge, How can we help customers save water, energy and money?". **OFWAT**, March 2011 [www.ofwat.gov.uk/publications/focusreports/prs\\_inf\\_pushpullnudge.pdf](http://www.ofwat.gov.uk/publications/focusreports/prs_inf_pushpullnudge.pdf). For comment, Head of Supply/Demand Balance, **Ofwat**.

[B] Contact: Senior Economist, **Ofcom**

[C] See Appendix D of **HMRC** Research Report 198 "Experimental Evidence on Taxpayer Compliance: Evidence from Students and Taxpayers".

[D] "Behavioural Economics and Energy Using Products" C. Starmer with D. Read, E. Poen & GHK Consulting for the **Dept. for Environment, Food and Rural Affairs**, March 2010.

[E] The HSE convenor of the 2011 Experimental Methods workshop can be contacted for comment: Economic Analysis Unit, **Health & Safety Executive**,

[F] Example publications in high impact general science publications include:

- "The Long-Run Benefits of Punishment" S. **Gächter**, E. **Renner**, and M. **Sefton** *Science* 2008. 322(5907), 1510.
- "Carrot or Stick?" S. **Gächter**, *Nature*, 2012, 483, 39-40.
- "Antisocial Punishment Across Societies" *Science* 319, 7 March 2008, 1362-1367 (S. **Gächter** with B. Herrmann and C. Thöni).

[G] See for example: see **CeDEX** contributed articles to **FT's Investment Advisor**:

- (**Nosenzo**, 2012) [www.ftadviser.com/2012/10/01/investments/wraps-and-platforms/execution-only-could-cause-groupthink-MiQ792WNlrUFSH6JChUTwl/article.html](http://www.ftadviser.com/2012/10/01/investments/wraps-and-platforms/execution-only-could-cause-groupthink-MiQ792WNlrUFSH6JChUTwl/article.html)
- (**Starmer**, 2011) [www.ftadviser.com/2011/10/25/investments/focus-experimental-economics-testing-times-yx0LQjrwoOkHeliD8J6npL/article.html](http://www.ftadviser.com/2011/10/25/investments/focus-experimental-economics-testing-times-yx0LQjrwoOkHeliD8J6npL/article.html)

[H] As examples of high profile media engagement by members of **CeDEX** see:

- **Gächter** contributes to BBC Radio 4 *Analysis* programme on 'Riotous Behaviour' (Sept, 2012) [www.bbc.co.uk/programmes/b014pw7q](http://www.bbc.co.uk/programmes/b014pw7q)
- **Nosenzo** contributes to BBC discussion on effects of bonuses (Feb, 2011) [www.bbc.co.uk/news/uk-12535722](http://www.bbc.co.uk/news/uk-12535722)

[I] 'Behavioural Economics in Defra: Applying Theory to Policy', **DEFRA Report**, (July, 2013)