Using behavioural economics: Practical examples

Copenhagen Summer University

Behavioural economics and psychological choices – consequences of human irrationality

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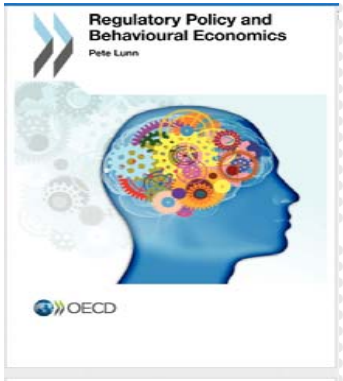
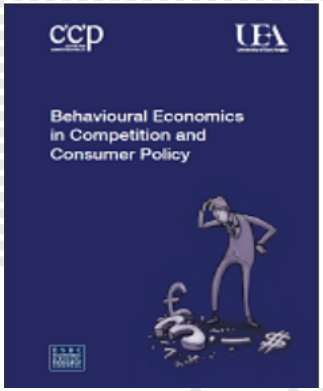
What are policy-makers saying?

"..behavioural economics is quickly becoming a game changer. Not just for firms, not just for consumers, but potentially for the shape of regulation for many years to come." Martin Wheatley , Chief Executive, ***Financial Conduct Authority****, March 2014*

"The use of behavioural economics in the design and delivery of regulation is at the forefront of regulatory policy and governance." P.Lunn, Regulatory Policy and behavioural Economics, ***OECD Publishing*** *(2014)*



"Policy-making can greatly benefit from a better understanding of people's behaviour. The assumption has been that people are fully rational. However, this assumption has been shown to be unrealistic, and perhaps explains the limited effectiveness of some policies" ***European Commission****, JRC, Applying Behavioural Sciences to EU Policy-making (2013)*



"Behavioural economics helps us understand the gap between the world of classical economic theory and world of real markets, businesses and customers. In recent years it has become a key part of every regulator's tool kit." Behavioural economics in competition and consumer policy, ***ESRC Centre for Competition Policy*** *(2013)*

All well and good but are there any real examples of behaviourally informed regulation?

Market study into **General Insurance add-ons** used behavioural research to assess impact on consumers of sales practices. Proposed remedies include: introducing a break between purchase of the primary product and the add-on and ban of opt-outs for insurance.

In 2012, **airlines** voluntarily agreed to scrap payment surcharges for using debit card and include all additional charges in the headline price (based on behavioural research conducted on the effect of drip pricing)

*OFT closed April 2014 with responsibilities passed to the Competitions and Markets Authority and Financial Conduct Authority.

New Consumer Rights Directive: Removal of pre-ticked boxes for additional charges (e.g. priority boarding on planes) and increase in cooling-off period informed by behavioural literature on inertia, inattention and default bias.

Retail electricity markets requirement for provision of personal projections and tariff comparison rates, similar to annual percentage rate of charge in retail financial markets, informed by behavioural literature on complexity and cognition.

This morning's session

- How behavioural economics is being used in policy-making and understanding consumer behaviour in markets
- What are behavioural experiments?
- Examples of behavioural studies used to inform policy
  - FCA experiment on GI add-ons
  - OFT experiment on price framing
  - EC project on energy labelling
- Considerations when commissioning behavioural studies
- Look at some upcoming experiments

How behavioural economics is being used in policy-making and understanding consumer behaviour in markets

The rise of behavioural economics

- Behavioural economics helps to bridge the gap between the world of classical economic theory and the world of real markets, businesses and customers.
- It recognises the limitations and biases of individuals, and provides a framework for better understanding consumer behaviour in markets.
- Behavioural economics developed from experimentation in economics and psychology.
- More widely applied to consumer decision making it is also relevant to firm behaviour.

Behavioural biases and how they affect behaviour in markets

- Behavioural biases can affect the way consumers:
  - Form their **preferences** for products and the price they are willing to pay
  - Their **beliefs** about the future, probability of events and their own ability
  - **Decision making** about the product qualities and search behaviour

This framework draws from:

- OFT (2011) Behavioural biases in competition, report by London Economics
- FCA (2013) Applying behavioural economics at the Financial Conduct Authority

Behavioural biases and how they affect behaviour in markets (contd.)

- Biases that affect consumers **preferences (willingness-to-pay)**:
  - **Present Bias/Discounting:** Individuals overvalue current effects compared to future effects and may fail to optimally account for future consequences
  - **Default positions:** Individuals are influenced by their default or status-quo; they use it as a reference point
  - **Loss aversion:** Individuals are overly concerned about losses compared to potential gains

- **Implications in markets**
  - Discounting and prediction of future behaviour:
    - **Mobile phone contracts**. At the time of purchase consumers look for the best deal around with respect to their perceived future demand. However, when it comes to it they often consume more or less. Providers can anticipate this, and the amount that consumers pay on un-used units is a transfer from consumer to providers.
  - Default positions and reference points:
    - **Add-on products**. Offering an add-on product that is 'cheap' relative to the price of the primary product. Encourages purchase as the comparison is the relatively more expensive primary

Behavioural biases and how they affect behaviour in markets (contd.)

- Biases that affect consumers **beliefs:**
  - **Overconfidence:** Individuals can be overconfident about the likelihood of good outcomes or their own ability and judgements
  - **Over extrapolation:** Individuals can make predictions based on only a few observations
  - **Projection bias:** Individuals expect their current tastes and preferences to remain stable into the future, and underestimate possibility of change
- **Implications in markets**
  - Projection bias and overconfidence:
    - **Borrowing behaviour:** Over estimating ability to pay back future credit card debt or personal loans.
    - **Investing behaviour:** Overestimating ability to pick 'winning stocks', or tying savings up into long-term investments without considering future need if situations change
  - Over extrapolation:
    - **Investment choice:** Using a few years of past returns as basis for judging future returns and making decisions, without considering the degree to which past returns reflect chance and particular circumstance

Behavioural biases and how they affect behaviour in markets (contd.)

- Biases that affect consumer **decision making:**
  - **Framing:** Decision making is influenced by how, and when, information is presented
  - **Inertia:** Some consumer search but others do not
  - **Cognitive limitations and mental accounting:** Individuals can handle only a limited amount of information and a limited number of alternatives, and we use short-cuts
  - **Social influence and peer messaging:** Emphasising good personality traits and overemphasising bad personality traits can substitute for reasoned judgement; 'keeping-up-with-the-Jones'; who provides the message matters
- **Implications in markets**
  - Framing:
    - **Broadband , phone and TV contracts:** Dripping of information and prices across multiple screens before full package features and price revealed. Highlighting 'favourable' attributes first.
    - **Comparison tools:** Placing sponsored links towards the top of the page
  - Cognitive limitations and mental accounting:
    - **Energy contracts**: Complex pricing makes comparison difficult and time consuming
    - **Investment advice**: Social influence and consumer perception of the advisor

What are behavioural experiments?

Behavioural experiments

- A relatively new method in policy and market analysis
- Observe actual behaviour in simplified settings that mirror the key features of the market (wind tunnel testing)
- Generate quantitative data on actual decisions as opposed to stated intentions
- Can be used to detect problems consumers have in decision making and identify the root causes of these problems
- Can be used to road-test remedies and policy interventions
- Just like experiments in biology and chemistry they use control and treatment groups
- Because they use control and treatment it is possible to isolate
  - why observed behaviour is changing;
  - what is causing the observed change in behaviour; and,
  - the relative magnitude of the behavioural change

Behavioural experiments (contd.)

- Three main types of experiments:
  - **Controlled lab experiments**:
    - Tend to use university students
    - high levels of control, low costs and generally quicker than field experiments
    - Useful for comparing relative outcomes across treatments
  - **Online experiments**:
    - Tend to use larger sample sizes and respondents from the population of interest e.g. home owners or a representative population
    - Increased 'realism' and broader subject pools, but only suitable for relatively simple tests (compared to lab experiments)
    - Useful if type of consumer is important or knowledge/experience of the market is important
  - **Field experiments**:
    - Actual implementation in a control and treatment group(s)
    - Can be difficult to maintain control because many competing factors could be influencing behaviour
    - high level of 'realism' and broad subject pool

Examples of behavioural experiments used to inform policy

FCA's market study into general insurance add-ons (2014)

- Objective of the GIAO study: to investigate whether the structure of the sales process for GI add-on products have common effects on consumer behaviour across insurance markets; and, whether these effects impede competition

- As part of the evidence base the FCA commissioned behavioural research, including a behavioural economics experiment to:
  - test for common patterns of consumer behaviour that arise from the structure of the add-on transaction (the add-on mechanism) itself and hold across different products
  - identify which of the aspects of a typical add-on transaction are particularly important in driving these effects.

- London Economics in association with YouGov, implemented an online experiment with 1,514 UK residents to examine how the sale process affects market processes and outcomes. Specifically,
  - Search/shopping around
  - Take-up of insurance
  - Price paid for insurance
  - Errors from choosing strictly worse bundles (primary product and insurance

UK Financial Conduct Authority

FCA's market study into general insurance add-ons (2014)

The experiment investigated the effects of a number of current and potential features of an add-on transaction:

- complexity of comparing offers that involve individual prices for several products and no clear total price for the bundle as a whole
- reduced transparency due to the price of the add-on product being revealed only at the point of sale of the primary product (POS)
- a potential option to search for stand-alone offers for independent insurance providers alongside the add-on offer at the point of sale
- barriers to searching for stand-alone alternatives during an add-on transaction
- perceived lower prices due to annual contracts being presented in monthly terms.

FCA's market study into general insurance add-ons (2014)

- Key findings
  - Sales format impacts consumers' ability to find the best combination on offer.
    - In particular, revealing the insurance offer after the primary product has been selected leads to a **significantly greater proportion of consumers choosing the first offer shown** and not selecting the best combination, compared to offering stand alone insurance
    - Showing the add-on offer transparently alongside the primary (similar to price comparison sites), also **reduces search and leads to less optimal decisions**

  - Sales format impacts the average price paid for insurance
    - When the add-on insurance was revealed at the point of sale participants in the experiment **paid an extra one third of the actuarial cost of insurance** on average compared to when the insurance price was shown up-front with the primary products

How did the FCA use the outcomes

In combination with qualitative research and stakeholder consultation the behavioural research informed the proposed remedies:

- introducing a break in time between purchase of the primary product the add-on;
- a ban of opt-outs for insurance; and,
- Clearer presentation of prices in online offers for primary and add-ons.

The Office of Fair Trading

Now part of the Competition and Markets Authority

OFT the impact of price frames on consumer decision making (2010 and 2013)

- Shrouding of additional costs e.g.
  - Additional charges for credit card payments which are not shown up-front
  - Additional costs for late minimum payments which are not shown in headline advertisement

- How prices are framed should not matter
  - The rational decision-maker weighs up the costs and benefits of different alternatives before choosing the alternative that maximises her/his utility.
  - When doing so, the rational decision-maker makes use of all available information unless obtaining it is too costly.

- Yet, we see sellers spending money on altering price frames across many markets.

- Why would they if consumers can behave optimally and are not affected by the price frames?

Price framing: Treatments

- Designed a laboratory experiment where (student) subjects were exposed to different price frames.
  - A **baseline treatment** in which consumers see straight per-unit prices.
  - **Drip pricing** where the consumers see only part of the full price up front and price increments are dripped through the buying process.
  - **Sales** in which a sale price is given and a pre-sale price is also given as a reference to the consumer, "was £2 is now £1"
  - **Complex pricing** where the unit price requires some computations, "3 for the price of 2".
  - **Baiting** in which sellers may promote a special price but there is only a limited number of goods actually available at that price; and,
  - **Time limited offers** where the special price is only available for a pre-defined short period of time.

Price framing: Performance metrics

- Welfare
  - Actual monetary earnings in each of the 5 price frames and the baseline treatment as compared to potential monetary earnings if subjects behaved optimally.
  - Optimal behaviour is what a fully rational subject that knew the experimental environment would do.
- Search or ‘shopping around’
  - Searching 'too much' or 'too little' is a measure of actual search behaviour compared to optimal search behaviour.
- Purchases
  - Subjects may buy 'too many' or 'too few' units of a good given their utility (or pay-off) function compared to optimal purchase behaviour.

- Compared the **relative effect of the price frames** on these metrics compared to the optimal behaviour and ranked the frames in terms of ‘consumer harm’.

Price framing: Findings

In terms of **welfare impacts** the frames in order of decreasing harm:

- Drip pricing (25% relative to baseline – surprising given design (only 1 drip), subject pool and environment);
- Time limited offers;
- Baiting;
- Sales; and,
- Complex pricing.

- Drip pricing and time-limited offers also lead to the most **search errors**:
  - They don't shop around enough:
    - Subjects in drip pricing buy at the first shop at prices that are too high, that is, at prices where they should continue their search.
    - In time-limited, they fail to return often enough to the first shop.

  - **Purchasing errors**
    - Tend to be balanced between too much and too little, such that earnings by the (static) firms is not affected
    - But, due to search errors, the 'shop' first visited benefits, as such distribution is affected.

Price framing: Policy impact

- Experiments are increasingly being used as part of the evidence base in market studies and enforcement actions
  - In 2012 the OFT announced it had secured voluntary undertakings in lieu of Court proceedings against a number of airlines to
    - Scrap payment surcharges for using debit cards
    - Include all additional charges in the headline price
  - In 2012 the OFT opened a market investigation into reference pricing by high street furniture stores
    - In 2013 ordered six high street retailers to stop reference pricing where the reference was not true

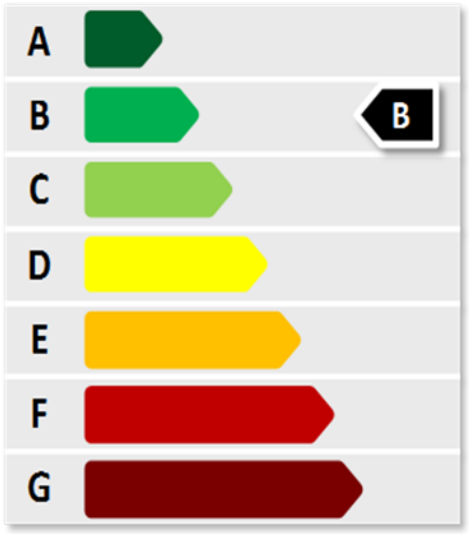
European Commission: Study on the impact of the energy label and potential changes to it – on consumer understanding and on purchase decisions

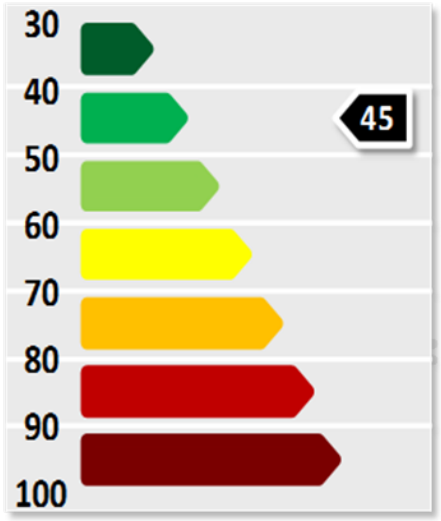
EC energy label study: Objectives

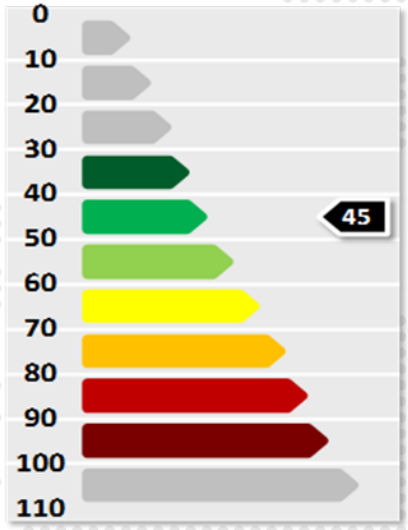
- The EC is required to review the EU Energy Labelling Directive
- As part of the review possible alternative label designs need to be assessed in terms :
  - consumer understanding; and,
  - purchasing behaviour
- 5 different label frames tested
  - Closed alphabetic
  - Closed numeric
  - Open numeric
  - Best available technology marker
  - Reverse numeric
- **Phase I of the study:** Online behavioural experiment with simulated purchasing scenarios to test understanding of the label elements and estimate willingness-to-pay for more energy efficient products
- **Phase II:** Bricks and mortar experiment with four label designs including the current EU energy label

EC energy label study: The label frames

Closed alphabetic, closed numeric and open numeric frames

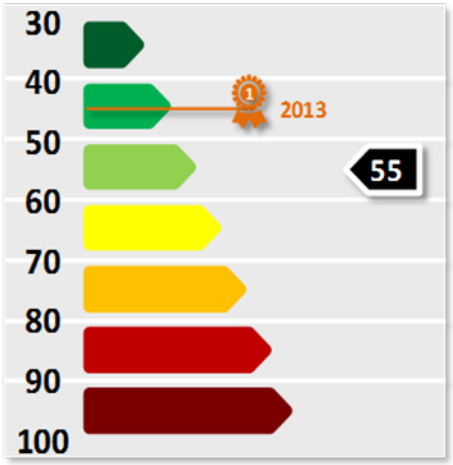


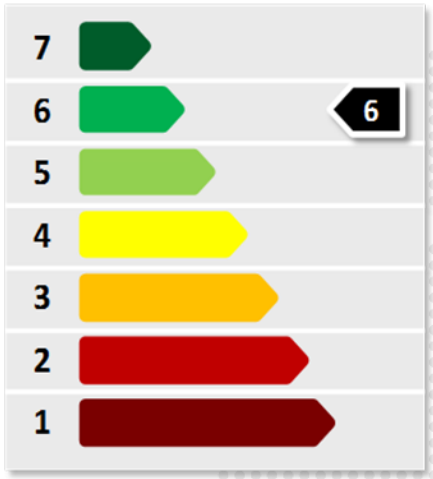




EC energy label study: The frames (contd.)

Best available technology marker and reverse numeric scale





EC energy label study: Approach

- Behavioural experiment conducted in Czech Republic, France, Italy, Norway, Poland, Romania and UK (5,012 consumers)
- Three products tested – televisions, washing machines and light bulbs
  - Vary in terms of purchase frequency, price levels and whether they are luxuries or necessities
- **Bidding experiment (experiment A)**
  - Reveals respondents' willingness-to-pay for goods affixed with different label frames by asking them to make an offer in an auction
- **Choice experiment (experiment B)**
  - Respondents given a choice between two products
  - Both products have the same label but one is always 'better' than the other in terms of energy efficiency
  - Estimates respondents' willingness-to-pay for more energy efficient goods by observing their choice of product
- **Comprehension quiz (experiment C)**
- Respondents received an **explanation of the label frame** they experienced before completing the experiment

EC energy label study: Conclusions

- Respondents took into account the energy labels in their decision-making, and were **willing to pay more for a more energy efficient product**
- Best performing frame was the **alphabetic closed frame**, and this frame also had the highest level of understanding
- The **benchmark marker** performed least well in terms of willingness-to-pay, and understanding was low for this frame
  - Respondents may be using the colour coded scales to make the choices and not incorporating the additional information provided by the marker
  - Previous studies from the US have also found mixed results for benchmarks and consumer understanding, suggesting that clear wording needs to be used to indicate best technology
- **Information about the meaning of the label frames** improves understanding, and this is particularly the case when more unfamiliar frames are used e.g. Open ended scales

Considerations when commissioning behavioural studies

Considerations in design

- The experiment is a real decision making environment
  - Respondents make decisions that have real monetary consequences – monetary earnings vary depending on the choices made in the experiment.
  - Different to surveys where respondents state what they would do, or what they have done. In experiments they actually make the choice.
  - However, the magnitude of earnings in the experiment is often less than the magnitude of earnings and losses in the real market.
  - This is only problematic when we expect behaviour to differ drastically depending on whether the €10 or €100 are at stake.
  - The strength is that we can measure relative outcomes (when consumer make decisions better or worse for example or when a remedy or change in policy operates better or worse) across treatments.

Considerations in design

- **Demand effects**
- Participants may inadvertently pick up signals as to what behaviour is expected of them in the experiment environment, and as such the experiment itself can generate effects which would otherwise not be there.
- To manage demand effects:
  - Careful design
  - Demand effects should not vary between treatments
  - Be aware of demand effects in analysis of the data

- For example, if the experiment entails searching for and purchasing insurance offers then participants may be more inclined to purchase insurance in the experiment environment than they would be in the real world. The experiment environment itself creates a setting in which buying insurance appears to be the 'expected' or 'appropriate' behaviour.
  - If 80% of participants purchase insurance in the experiment, this does not mean that 80% of consumers in the market place will do the same.
  - But comparing between treatments if 80% buy insurance in treatment 1 and 40% buy insurance in treatment 2 then we can expect this relative difference to persist in the field.

Considerations in design

- **Order effects:**
  - If participants complete multiple different treatments in the one experiment then participation under one treatment may affect behaviour in another treatment. In the design stage it is important to randomise the order of treatments.

- **Learning:**
  - Due to repeated playing of the same game, subjects may learn throughout the experiment and this can alter the behaviour over time. Learning can have positive as well as negative effects in experiments and, either way, it is important to control for it.
    - We might want to specifically test for learning
    - Learning can also slowly erode treatment effects

Considerations in design

- **External validity**
  - Measuring absolute magnitude of an effect (e.g. 80% of consumer in the experiment bought insurance under a given presentation frame)
    - This is the hardest to achieve and may require very close replication to field
  - Relative magnitudes and directional effects
    - This is often the more relevant form of external validity because we want to measure the relative effect of a change on behaviour or welfare
      - E.g. Determine if certain policy intervention can help consumers to choose the cheapest offer or the offer that best meets their needs out of a set of different contracts or tariffs

Forthcoming work informed by behavioural economics

Forthcoming work informed by behavioural economics

- European Commission: Study on consumer vulnerability in key markets in the European Union (2014-2015)
  - Investigates problematic marketing practices and potential remedies in the energy, online and retail finance sectors
- European Commission: Study on consumer guarantees
  - Explores issues consumers have with reading and understanding guarantees
- The European Securities and Markets Authority Consultation on Markets in Financial Instruments Directive II (MiFID)
  - Includes recommendations on how to ensure information provided to clients is fair, clear and not misleading, including presentational formats and illustrative examples of performance scenarios
- European Commission: Online comparison tools study
  - Investigates common practices used by comparison tools e.g. advertisements and ranking options on consumer choice of comparison tool and products

Further reading

Discussions on use of behavioural economics in policy

- Centre for competition policy (2013) Behavioural economics in competition and consumer policy, University of East Anglia http://competitionpolicy.ac.uk/ccpbook
- European Commission (2013) Applying behavioural sciences in EU policy-making, Joint Research Centre http://ec.europa.eu/dgs/health_consumer/information_sources/docs/30092013_jrc_scientific_policy_report_en.pdf
- OECD (2014) Regulatory policy and behavioural economics http://www.oecd-ilibrary.org/governance/regulatory-policy-and-behavioural-economics_9789264207851-en
- Financial Conduct Authority (2013) Appling behavioural economics at the FCA http://www.fca.org.uk/your-fca/documents/occasional-papers/occasional-paper-1

Further reading

Applied examples

- Financial Conduct Authority (2014) Practical use of behavioural experiments in financial regulation http://www.fca.org.uk/news/occasional-paper-no-3
- Financial Conduct Authority (2013) Encouraging consumers to claim redress: Evidence from a field trial http://www.fca.org.uk/your-fca/documents/occasional-papers/occasional-paper-2
- Financial Conduct Authority (2014) General Insurance add-ons: Experimental consumer research report for the http://www.fca.org.uk/your-fca/documents/market-studies/gi-add-ons-experimental-consumer-research-report
- European Commission (2014) Study on the impact of the EU energy label http://www.energylabelevaluation.eu/tmce/Energy_label_consumer_understanding_and_behaviour_study_interim_report.pdf
- Office of Fair Trading (2010 and 2014) Impact of price frames on consumer decision-making

  http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.oft.gov.uk/shared_oft/economic_research/OFT1501A.pdf

  http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.oft.gov.uk/shared_oft/economic_research/OFT1226.pdf

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