Cognitive-based regulation: nudging and cognitive empowerment

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LUMSA 2018
How should regulators deal with biases?

- Companies use bias (e.g., information overload) to make consumers stick to more costly products/services (e.g., in the energy sector, airline booking, mobile phone plans).

- Why do regulators not consider bias in order to prevent regulatory failure?
Economic paradigm of rational choice

- “Homo Oeconomicus” is considered rational by definition
- Where perfectly informed, he is capable of processing optimally all available information
- No empiric verification of theory through experiments. Observation shows that individuals systematically fail in optimizing their welfare
Cognitive sciences enrich the traditional approach

- Unprecedented attention to real people and to their decision-making context
  - Heuristics and biases
  - Morals and emotional context
  - Social networks and social norms
  - Brain activity
Regulating real people

- **Real people**
  - cannot assess probability
  - procrastinate or decline to make the effort to rethink their decisions
  - influenced by how things are presented
  - tend to be excessively optimistic
  - care about other people
  - care more about losses than gains

- **Decision to comply**
  - not taken once and for all
  - influenced by heuristics, biases, social norms, previous experiences
  - influenced by belief that past events affect future ones (negative correlation between random sequences)
Attention is a scarce resource and information overload might strain it
“Many designers of information systems incorrectly represented their design problem as information scarcity rather than attention scarcity, and as a result they built systems that excelled at providing more and more information to people, when what was really needed were systems that excelled at filtering out unimportant or irrelevant information” (H.A. Simon, 1981)
- Present Bias originates from placing disproportionate weight on the present relative to distant rewards and burdens.
- Loss aversion: we feel the pain of loss more acutely than we feel the pleasure of gain.
Regulatory toolkit enriched by two new tools

- **Nudging**: narrow definition, exploits emotional responses → bias preserving → often in an undisclosed manner
  - E.g. default rules, comparative feedback

- **Empowerment**: educating people, increasing their cognitive capabilities, overcoming emotional responses → truly de-biasing
  - E.g. simplification and standardization of info; targeted education; choice simplification; cooling-off rules

- **Grey area of tools in between of nudging and empowerment**: information framing

**Common features**

- Choice preserving
- No economic incentives
- Based on evidence of recurring biases and heuristics
Nudging
Default rule: opting in vs. opting out

- A **default rule** “specifies the outcome in a given situation if people make no choice at all” (OIRA 2010)

- It exploits inertia in order to nudge people to choose something considered better for them
  - People tend to stick with default options because it’s easier to do so
  - Or because they think it has been endorsed as the right option
Nudging
Art. 22, Directive n. 2011/83/EU: Additional payments

“Before the consumer is bound by the contract or offer, the trader shall seek the express consent of the consumer to any extra payment in addition to the remuneration agreed upon for the trader’s main contractual obligation. If the trader has not obtained the consumer’s express consent but has inferred it by using default options which the consumer is required to reject in order to avoid the additional payment, the consumer shall be entitled to reimbursement of this payment”
Nudging
Auto-enrollment for retirement savings

- Default program automatically enrolls employees into a retirement saving plan (Thaler and Bernartzi 2004)
- It appears to have a far larger effect than even significant tax incentives (Chetty et al. 2013)
  - USA: since the late 90s, the US federal government has encouraged the use of this behavioural tool and it has been implemented on a company-specific basis
  - New Zealand: the auto-enrolment introduced in 2007 takes place when starting a new job where the employee has eight weeks to opt out
  - U.K.: introduced by national retirement scheme in 2012
Save money
Save the planet
Be a good citizen
Your neighbors are doing better
A way to make people change behaviour is by informing them what “comparable others” do

- Social norms
- Cognitive Reference Point: it is a heuristic that guides the decisional processes by setting a standard against which to compare the choice and classify its outcomes as gains or as losses (Prospect Theory, Kahneman and Tversky 1979)
Last Month Neighbor Comparison

You used 47% MORE electricity than your efficient neighbors.

Efficient Neighbors: 562 kWh*
YOU: 826 kWh
All Neighbors: 948 kWh

* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

How you’re doing:

Great
GOOD
More than average

Who are your Neighbors?

- All Neighbors: Approximately 100 occupied, nearby homes that are similar in size to yours (avg 2,373 sq ft)
- Efficient Neighbors: The most efficient 20 percent from the “All Neighbors” group
Cognitive empowerment

- Simplification of information given to consumers
  - Avoids information overload
- Standardization of information
  - Eases comparison of products or services
Cognitive empowerment
Simplification and salience

- Place the most important pieces of information in places where consumers are expected to focus their attention
- Use short and simple language
- Present images that summarize the information

(Financial Conduct Authority 2014)
Nudging and cognitive empowerment …

… can be conveyed also by public policies or public campaigns

… or can be introduced at administrative level in support or without a previous rule imposing it (e.g. through a given framing for letters and forms, price and services comparison websites, etc.)
Regulatory Impact Assessment

- RIA is a comparative appraisal of the potential economic, social and environmental consequences that rules may have.

- It is a process that prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing their potential impact:
  - definition of the problem
  - identification of relevant options
  - in-depth analysis of options that are feasible
  - comparison of the impact of options (including the “do nothing”) is intended to identify a “preferred” option whose advantages outweigh its disadvantages.

- Consultations
RIA: where and when?

- The **US** has been a pioneer, as well as **Canada**, **Australia**, **New Zealand**, and the **UK**
- In **Italy**, after ten years of experimentation, IA is now binding for governmental regulation (2008), although it is mostly done in a ritual and formalistic way as an ex post justification of decisions already adopted
- In 2003, this obligation was imposed on Italian independent authorities and in 2012 on US independent federal agencies
Cognitive sciences and RIA

- RIA based on CBA assumes people rationality
- **Cognitive-based RIA** takes into account people cognitive limitations
- **Drafting alternative policy options and assessing their impact**: real people’s reaction to incentives/disincentives to comply that can be implicitly incorporated in a given option should be considered
- Final decision should be motivated accordingly
Cognitive insights and regulation life-cycle

- Problem definition
- Objectives
- Baseline and analysis of socio-cultural-emotional context of targeted population
- Information gathering
  - Consultations: methods (e.g., N&C or Focus groups), number of items, rounds; datasets etc.
  - Cognitive study: type of study (survey, qualitative research methods) or experiment (lab, online, field); number and type of treatments, use of a RCTs, etc.
- Draft and comparison of alternative and feasible regulatory options (including the doing-nothing option)
- Choice of the preferred regulatory option and reasons giving
- Enforcement
- Monitoring and ex post evaluation
Why regulate?

“The first step of an IA is to identify and characterise the problem to be addressed. In order to solve the problem, its underlying causes (or "drivers") must also be identified.

A public policy intervention may be justified when:

(1) **A market fails**, i.e. when market forces fail to deliver an efficient outcome (defined as a situation where no one can be made better off without someone else being made worse off)

(2) **Regulations fail**, i.e. when public policy action appeared justified and was implemented but failed to solve the problem satisfactorily or helped create new problems (e.g. two divergent regulations create an obstacle to the proper functioning of the internal market)

(3) **Equity** (or other) considerations imply the efficient outcome may not be the most desirable one for the policy in question

(4) **Behaviours are biased** and individuals do not decide based on their own best interests” (EC Toolbox on Better Regulation 2015, p. 67)
Information gathering

- Literature review on end-users’ habits, needs and feelings, characteristics (e.g. firms, citizens, experts or naïfs) and the social context (e.g. social norms)
- Consultations
- Neuroscience experiments
- Behavioural economics or psychological experiments
Cognitive sciences findings: a turning point for rule-making

- It enriches regulatory options, the way information is collected (consultations and cognitive experiment), the justification of regulation

- It implies an increase in costs and time
<table>
<thead>
<tr>
<th>Type of study</th>
<th>Pros</th>
<th>Cons</th>
<th>Minimum time horizon needed</th>
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<tbody>
<tr>
<td>Experiments</td>
<td>Can establish causality (not only correlation)</td>
<td>Representativeness for EU-28 not feasible</td>
<td>6 months</td>
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<tr>
<td></td>
<td>Can provide statistically significant results from a relatively small sample size</td>
<td>A laboratory is an unrealistic and artificial environment</td>
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<td>Core findings can apply to other contexts</td>
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<tr>
<td>Randomised control trials (RCTs)</td>
<td>Can establish causality, not only correlation</td>
<td>Very expensive to run at EU level (and to replicate in order to validate results)</td>
<td>12 months</td>
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<td>Allow for observations in natural settings</td>
<td>Results from one location not generalizable to others</td>
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<tr>
<td>Surveys</td>
<td>Representativeness for EU-28 is feasible</td>
<td>Respondents are limited by pre-established options to questions</td>
<td>4 months</td>
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<tr>
<td></td>
<td>Relatively cost-effective</td>
<td>Respondents might not be truthful</td>
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<td></td>
<td></td>
<td>Only gather data on self-reported behaviour</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Cannot establish causality, only correlation</td>
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<tr>
<td>Qualitative research methods</td>
<td>Provide richer, more nuanced data about behaviour</td>
<td>Data collected is generally not representative of the larger population</td>
<td>4 months</td>
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<td></td>
<td>Often take place in realistic settings</td>
<td>Usually have small samples due to the time and cost involved</td>
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<td>Participants are given freedom to express themselves, with limited intervention by researcher</td>
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When a behavioural element characterises a given rules, cognitive findings are crucial in order to ensure their effectiveness.

- whenever the main objective of law and regulation is a change of individual behavior
- when individuals’ behavioural response might hinder the effectiveness of a given law and regulation

A Behavioural Element exists

It is a relevant one

e.g. number of people involved or the magnitude of biases and heuristics, etc.
Cognitive sciences and enforcement strategies

- **Deterrence-based approach** claims that an increase in the controls rate is an effective path to increase compliance.

- **Cognitive experiments** show that decision to comply:
  - it is not automatically adopted where the advantages outweigh the disadvantages
  - it is not taken once and for all
  - it is influenced by heuristics, bias, social norms
  - individuals tend to be bad at evaluating risk and probability and that would be likely to undermine the effectiveness of controls (B.M. Djawadi and R. Fahr 2013)
Cognitive sciences for effective controls

- **Echo effect bias** (Mittone 2006): monitoring taxpayers at the very beginning of their “fiscal lives” leads to over-estimation of risks to be controlled, thus increasing compliance
  - new firms should be immediately inspected in order to create an «Echo effect»

- **Bomb crater effect bias** (Kastlunger et al. 2009): limited capacity to evaluate risk and probability leads to increased violations in aftermath of control (I cannot be checked twice in a row!)
  - timing of controls should be calibrated in order to curb the «Bomb crater effect»

Transferability of these reactions in other sectors need to be verified
Cognitive-based compliance rating/certificate

- It helps in changing the self-reference point (D. Kahneman and A. Tversky 1979) and in overcoming inertia and status quo biases (P.W. Schultz et al. 2007; R.B. Cialdini 1984; R.B. Cialdini et al. 2007)
<table>
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<tr>
<th>Name</th>
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<th>Last inspection</th>
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Conclusions

- Policies and regulation with a behavioural element should be enriched by findings about how real people think and behave, in order to prevent regulatory failures.
- This approach is a turning point for rule-making and regulator organization, requiring that evidence be collected also through experiments and that regulators’ staff be open to cognitive scientists.
- These challenges will necessarily require time and a radical change in the administrative and political culture before they can be implemented extensively.