



# POLICY BRIEF

## Contribution of Behavioural Economics to Regulatory and Policy Impact Analysis

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### Synopsis

Conventional regulatory approaches, which are based on traditional economic theory, might lead departments and agencies to expect certain outcomes. However, the result may not meet the expectations. Why does this happen? One possibility is that the assumptions identified did not take into account how individuals would actually respond. Instead, they were based on more traditional or theoretical perspectives. The initiative may have proven more successful, yielded better results, or used fewer resources had it been created using an approach that considers these behavioural responses.

Behavioural economics, which links economics with psychology, relaxes some of the traditional assumptions about how individuals act and the values they hold. The behavioural approach recognizes that people do not always act in ways that maximize self-interest, and that they do not always have perfect information on which to base decisions. This brief explores how this innovation may contribute insights through analysis of the impact of regulations and policies.

Behavioural economics approaches may not be applicable to all regulatory and policy initiatives. But where it is applicable, the regulatory and policy development process may be completed more efficiently and outcomes may be more representative of society. And ultimately, better information may be provided to decision-makers. As an additional approach to regulatory and policy development, further work to identify its potential may be helpful.

## **Introduction**

With a better understanding of individual behaviour, those developing regulations and policy would be able to take into account assumptions regarding the way people behave or, at least, to consider the range of behavioural responses. Developing this understanding is a significant step toward designing effective policy and minimizing unintended consequences.

The mainstream economic analysis model assumes that people are rational and behave in ways that will maximize their individual satisfaction. While this assumption of perfect rationality allows for powerful insights into economic behaviour, limitations do arise that affect decision-making.

Emerging fields of economics and psychology that relax this assumption provide a starting point for an alternative framework for policy-making. Behavioural economics and its related fields synthesize the complex dynamic interplay between rationality, behavioural triggers, and psychology to explain the foundations of people's behaviour and choices. These insights may enrich economic theory and become a powerful tool for analyzing the effects of regulations and policies.

This brief examines behavioural economics and its related methods, and it discusses how these approaches might be used to analyze a particular policy choice. The brief then highlights how this emerging field can influence the design and analysis of public policies and programs.

## **What is behavioural economics?**

By providing psychological foundations and evidence from other social and natural sciences, behavioural economics attempts to increase the explanatory power of economics. Seen more as a school of thought than a separate economic approach, behavioural economics introduces models of limits on rationality, willpower, and self-interest, and it analyzes their implications on economic decision-making (Camerer, 2005).

In contrast with the traditional (neoclassical) economic assumption that decision-makers, given their knowledge of alternatives and outcomes, can identify the alternatives that will yield the greatest expected satisfaction, behavioural economics questions whether the traditional assumption that people act solely to maximize their self-interest (i.e. utility maximization) approximates real behaviour.

Thus, behavioural economic research highlights the fact that economic agents do not necessarily make choices through strictly rational analyses, due to limited cognitive abilities (bounded rationality). Sometimes they make decisions that are not in their long-term interest (bounded willpower) or are in the interests of others (bounded self-interest). Consequently, behavioural economics might offer insights that could help fill the gap between observed economic behaviour and the stylized predictions from traditional economics axioms (i.e. based on assumptions of rationality).

## **Related Fields of Economics**

### ***Experimental Economics***

While potentially viewed as a separate field in economics, experimental economics is a valuable method to test hypotheses generated in behavioural economics. This approach applies experimental methods to study and test the validity of economic questions. Usually conducted in laboratory settings and using paid subjects, economic experiments create real-world incentives that inform our understanding of markets and other exchange systems. Economic experiments focus on observed—rather than assumed—behaviour, incorporating psychological and behavioural factors that may influence economic decisions.

However, not all economic experiments are based on psychological features. While many study psychological aspects of decision-making, others explore different factors, such as institutional characteristics or market regulations. This field highlights some motivations, such as altruism, fairness, and self-image, that were not specifically included in traditional economic theory and that might be important in decision-making.

### ***Neuroeconomics***

This transdisciplinary field of economics combines neurosciences, economic theory, and psychology to study people's decision-making processes. This emerging field in economic thought and research suggests that the interplay between the various centres of the brain play a part in economic decisions, such as evaluating choices, categorizing risks and rewards, and interacting with others. This interplay can therefore also be used in a testing function, similar to experimental economics.

To explain how people make seemingly irrational choices, neuroeconomics draws on both behavioural and experimental economics, in an attempt to ground traditional economic theory (microeconomics) with neural details on how brain activity affects individual choice. By using facts about brain activity, neuroeconomics expands behavioural economics theory, as well as experimental economics, even though the fundamental principles come from those approaches.

Neuroeconomics proposes new perspectives, particularly on time preferences (discounting), highlighting findings that some individuals might have a higher discount rate for the present than for the future. This is a departure from the standard traditional model of a constant discount rate for all time to come.

This emerging field also introduces new models for risk and reward, showing that different individuals can react very differently when presented with choices regarding potential gains and losses.

## Discussion

The behavioural economics literature relies heavily on evidence from experiments and neuroeconomics. Defining the boundaries and clearly separating these new approaches is difficult, since they have much in common.

Even though each field can trace its origin to psychology, they differ mostly by their basic orientation (Loewenstein, 1999). In fact, behavioural economics is methodologically diversified and defines itself not on the basis of the research methods that it uses, but rather on its application of psychological insights to economics.

Experimental economics, on the other hand, identifies itself by the use of experimentation as a research tool, while neuroeconomics attempts to complement our understanding of various economic behaviours in determining which area of the brain are active during those experiments. Consequently, when explaining, for instance, why people value losses more than they value gains, the three fields respectively have unique approaches to analyze this economic behaviour.

In practice, though, the three fields have often led to similar conclusions, which often differ from those of neoclassical economics. This is the case, for instance, when explaining why for most people, the value of a potential loss of a given amount is not the opposite (the negative) of the value of a potential gain of a similar amount. To use an obsolete language, the loss of 100 guineas may cost 8 “utils,” while the gain of 100 guineas may generate only 6 “utils.” Viewed another way, a person who loses \$100 will lose more satisfaction than would be gained had they unexpectedly received \$100. This is the concept of loss aversion.

Despite the fact that in neo-classical economic theory, loss aversion is considered as an anomaly and an irrational economic behaviour, behavioural economics theory is supported by experimental economics observations. Indeed, several experiments have observed that a person will prefer a certain opportunity instead of a risky one when asked to choose between both of them, even if the expected utility (benefit) related to the risky option is higher (Allais, 1953; Ellsberg, 1961; Kahneman and Tversky, 1979). Furthermore, experiments show that the minimum amount of money a person is willing to accept to part with an object generally exceeds the minimum amount of money that he is willing to pay (WTP) to obtain the same object (Bateman, Kahneman et al., 2005; Kahneman and Tversky, 2000; Altman, 2006).<sup>2</sup>

Thus, loss aversion in experimental economics is thought to contribute to the inertial tendency to choose the status-quo option. For its part, neuroeconomics hypothesizes that loss aversion is the interaction of diverse neural structures that registers the emotional and affective impact of the loss and computes the probability and magnitude of the loss. To this extent, neuroeconomists believe that loss aversion is rational, because preferring a certain outcome minimizes the displeasing feeling of loss and the post-decision feeling of regret.<sup>3</sup>

## **How has behavioural economics helped regulatory and policy impact analysis?**

Behavioural economics has already had a significant impact on the economics of regulatory and policy development. Most notably, the methods have been used to generate the economic value of non-marketed goods, such as environmental goods and services and human health effects (i.e. the social benefits of policies and regulations as opposed to financial costs or benefits).

Stated preference methods, such as choice experiments and contingent valuation techniques, have been used to elicit economic values for several decades. The development of these approaches has been influenced by the work of Daniel Kahneman and Amos Tversky, as elucidated by Jack Knetsch. Insights from experimental efforts, which have helped identify biases in early formulations of stated preference techniques, now serve as good quality indicators.

Among the many biases that researchers undertaking primary surveys must ensure against are these: starting point bias (where WTP is affected by the initial value), warm-glow effects (enjoyment derived by contributors when they consider the benefits realized by the beneficiaries), anchoring (relying too heavily on only one characteristic), loss/gain issues, and scope effects.

Also of note is the appointment of Cass Sunstein as Administrator of the White House Office of Information and Regulatory Affairs. Mr. Sunstein, who has written extensively about behavioural economics and public policy, is influencing regulatory development in the United States.

## **What does this mean for policies and regulations?**

Individuals often have limited capacity for calculating or judging decisions that may be in their best interest, primarily due to the burdens of processing information. Consequently, government policy and regulatory interventions are fundamentally about inducing a desired response from a target group that might not otherwise act in a way that maximizes societal benefit. Therefore, understanding assumptions about how individuals behave is essential to ensuring that regulations and policies are effective and that policy-makers fully appreciate the impact a regulation might exert on the whole economy.

How an issue is framed affects individual response. If we must make a decision between two actions, we are strongly influenced by how the two possible outcomes are presented to us. If one is characterized as a loss and the other as neutral or as a gain, we will often act to avoid the apparent loss—even when the two outcomes are mathematically identical.<sup>4</sup> Consider the classic case of the default on donor cards. If the default (e.g. if you don't sign your driver's licence) is to donate organs in an accident, the majority donate. If the default is to not donate, then most do not. Thus, designing the default is a key policy issue.

Camerer et al., (2003) introduce the concept of “asymmetric paternalism”—the concept of creating regulations that are relatively harmless to those who regularly make decisions in their best interest, while at the same time helping those who do not independently seek better choices. To illustrate this concept, they provide numerous references to existing and potential regulatory responses. For example, the US *Federal Truth in Lending Act* was created to promote the informed use of consumer credit by requiring disclosures about its terms and cost. Because this regulation would not significantly affect those who already research this information but would greatly benefit those who do not, it has the potential to influence public behavioural response.

In developing a proposed regulation or policy, from identification of a problem through its promulgation/implementation, an understanding of how affected parties will respond to potential measures is critical for goals achievement. Behavioural research, working closely with experts from other disciplines such as risk assessors and psychologists, could help avert unintended consequences.

Without this understanding, impacts such as risk and production trade-offs may remain unaccounted. A prime example of this is in regulating against bovine spongiform encephalitis (“mad cow disease”), where the proposed regulations may increase prices of bone-in meat relative to ground beef, which has a higher risk of microbial illness for the public—i.e., a risk-risk trade-off. Alternatively, regulations that increase production costs in one area may lead producers to cut expenditures for risk reduction in other areas. Regulators can use behavioural economics to anticipate how the public may react and therefore more effectively achieve government objectives.

Many aspects of current regulatory and policy analysis and design have their roots in traditional economic theory. This means that many policies are based on assumptions about rational decisions, self-interest, and complete information that are undoubtedly useful, but that may not be realistic in all cases.

However, alternative theories from diverse disciplines such as experimental economics, behavioural economics, and neuroeconomics, with their insight from psychology, allow policy-makers to take alternative perspectives, complementing traditional economics in explaining individuals’ behaviour.

These new contributions into behavioural economics point to a constructive technique for modifying efforts for economic evaluation (e.g. benefit-cost analysis). Indeed, a greater understanding of human thought processes may help policy-makers predict the impact of a particular policy on behaviour, which is of primary importance in choosing the structure of a regulation or policy. In a report for the Dutch government, Kooreman and Prast (2007) argued that behavioural economics can help policy-makers better design policies, at lower cost, without distorting markets or limiting individual choice. This may be an interesting research project to undertake for Canada.

## Conclusion

The goal of every department and agency is to develop policies and regulations that meet objectives and respond to and are representative of society. Behavioural research at the earliest stages of regulatory development may help to achieve these goals—and it would not necessitate a significant shift from activity that government already undertakes.

Accordingly, departments and agencies need to assess the potential role of behavioural research in implementing/complementing their ongoing regulatory and policy activities. Questions will undoubtedly remain regarding the breadth of applicability for behavioural economics studies for proposed regulatory and policy initiatives.

Research to identify the nature of the regulations and policies that would be most suitable may encourage behavioural research in those fields. Research identifying the practicality of such analyses for typical regulatory and policy initiatives in Canada, possibly contrasted to more traditional analyses, maybe informative.

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## Notes

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<sup>2</sup> The authors cited in Altman, 2006, pp. 246-54, are Heberlein and Bishop, 1985; Kahneman, Knetsch, and Thaler, 1990; and Loewenstein, 1988.

<sup>3</sup> Glimcher, Camerer, and Poldrack, *Neuroeconomics*, pp. 151-152.

<sup>4</sup> NEF, "Behavioural Economics."

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