Empirical research on competition, innovation and the consumer

Summary of Working Paper

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Derek Ireland
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Introduction

The Office of Consumer Affairs at Industry Canada commissioned this report to further understanding in the area of consumer behaviour and competition—for the benefit of policy-makers, economists and academics. The object of the research behind the report was to locate hard data (quantified and with dollar values attached) showing the impact consumers may or may not have on competition, innovation and competitiveness in the marketplace.

In particular, the report reviews published research in the area of behavioural economics, which has been garnering the attention of policy-makers recently, highlighting many prominent studies. The report also looks at implications of the consumer role in the marketplace on public policy development, offering lessons for and limitations of applying the principles of behavioural economics to consumer policy and regulatory development.

The report results from two stages of work: a literature review followed by the development of 11 case studies and analysis of other existing research.

The purpose of the literature review was to identify the extent to which the economics and business literature provides empirical evidence of consumers’ impact on competition and innovation. It became apparent in the course of the review that some original research was required to augment the available evidence, which is limited.

This led to the development of a number of case studies from the innovation, information, behavioural and marketing/business strategy economics literature. These case studies look at a number of attempts by governments to create conditions under which particular markets would become more competitive and by businesses to convince consumers to adopt new or improved products and services.

What follows is an overview of the research, major findings and key lessons for policy development, and some observations on how these factors can be taken into account in future research and policy development.

A full version of the report is available by request. Please contact the Office of Consumer Affairs by email at Peter.Murphy@ic.gc.ca to receive a copy.
Results of the literature review

The literature review showed that academic studies and policy analysis of the ability of demanding and well-informed consumers to drive competition and promote national innovation and competitiveness are, for the most part, theoretical and conceptual. Consequently, there are only a few studies that provide empirical evidence of the consumer-competition-innovation relationship.

Academic and policy work in the areas of competition, industrial organization, trade and innovation policy, intellectual property rights, and regulatory reform does not for the most part directly address or credit the role of the activating consumer. In this literature, the role of the consumer is, at most, one of many indicators of policy success and failure rather than the central one. Consequently, increases or decreases in economic welfare are associated with the policy regime under investigation, emphasizing such supply-side factors as the degree of competition, trade liberalization, and the role of successful innovation policies and regulatory reform in promoting lower prices and greater consumer choice and welfare. With a few important exceptions in the industrial organization and innovation literature, the role and contributions of activating consumers are implied, inferred or ignored and, therefore, given little or no attention in either the theory or the empirical results.

Given this focus, it is not surprising that few of these studies quantify the changes in economic efficiency and consumer welfare that result from government and corporate measures that enhance or diminish the role of the activating consumer. Fewer still place monetary value on those changes.

This is a serious shortcoming for policy-makers, economists and other academics interested in determining how public policy can enable consumers to be more effective drivers of competition and, therefore, help improve it. They would be better served by research that provided the very type of data these studies do not supply. Further, they would benefit from work that interpreted these empirical findings from a demand-side or consumer perspective, based on the presumption that, in most cases, the economic benefits credited to competition, trade and innovation policy and regulatory reform would only have been realized if these reforms had removed information, behavioural and other constraints to otherwise sound purchasing decisions (see, for example, Gans 2005:1 and 2005:2).

This approach would further require the application of the analytical model being developed by the Consumer Policy Committee of the Organisation for Economic Co-operation and Development (OECD)—that supply-side and demand-side considerations and policies are separate, but equally important, factors in determining the extent of meaningful competition and innovation in an industry, a market or, indeed, a national economy. This model is based on the assumption that meaningful competition and innovation require not only a reasonable number of suppliers but also appropriate information, behaviours, decisions and interactions between consumers and vendors, along with consumer-empowering strategies on the part of government and corporations, to ensure that consumers make well-informed purchasing decisions.
A closer look at what behavioural economics is telling us

Over the past two decades, academics in the areas of economics, psychology, sociology and game theory have been conducting empirical and experimental research on how consumers actually make decisions in, and think about, the marketplace. Some of the major contributors to this work are Daniel Kahneman (the 2002 winner of the Nobel Prize for economics), Amos Tversky, Richard Thaler, Cass Sunstein, Colin Camerer, Joshua Gans, Simona Botti, Sheena S. Iyengar, Marianne Bertrand, Chris Wilson and Catherine Waddams-Price (see the bibliography for individual works by these authors).

This research is important because it has significantly added to, and in many cases challenged, traditional assumptions about consumer behaviour and the behaviour of other market participants. It concludes that the actual behaviour of all market participants, including consumers, businesses and government policy-makers and regulators, is a result of their operating within a bounded rationality. Bounded rationality is contrasted with what might be called optimal rationality: for example, consumers making an in-depth study of the technical details of products available to them and surveying all the options before making a choice. Instead, given such real world limitations as time, information, and computational and cognitive restraints, consumers put boundaries on their rational evaluations.

This leads to their using heuristics and rules of thumb, falling into routines and habit-based consumption. It is important to recognize that bounded rationality is rational. Consumers might recognize that they could make a better decision about sound equipment if they were to educate themselves about electronics and acoustics but determine that the cost of acquiring this knowledge would outweigh the potential benefits. At the same time, however, bounded rationality can lead to betraying behavioural biases and consequently to a large segment of consumers making mistakes that enable uncompetitive practices by market participants on the supply side.

Now a question immediately arises: Could market forces and consumer learning correct these mistakes? In some cases, certainly, but the more common result is significant and lasting negative effects on market decisions and outcomes, and business and economic performance. Another significant consequence is that consumers are prevented from playing their full role in activating competition, innovation and competitiveness.

Figure 1 summarizes the basic model outlined in this research. The author developed it based on OECD research and other sources noted in the bibliography.
Figure 1. Research model

Bounded rationality: Constraints on time, information, cognition, computational abilities, plus bounded self-interest

Heuristics, rules of thumb, routines, habit-based consumption

Behavioural biases and mistakes by consumers and other market participants

Less switching and inefficient switching, complex long-term contracts, and less effective government policies/regulations and corporate strategies

Consumers prevented from playing full role in activating competition, innovation and competitiveness

Lower consumer welfare, competition, innovation, competitiveness, and business and economic performance

Six behavioural biases

The behavioural economics literature identifies a large number of biases that are interrelated and that often interact together and reinforce one another to influence consumer behaviour, market outcomes and business and economic performance. The following paragraphs describe, based on OECD research, the six biases that are most important for consumer analysis and policy development.

*Information and product choice “overload.”* While additional information can help consumers make better choices, it can also make the choice more complex simply because consumers have more information to process. In addition, they are faced with the challenge of determining whether all the information is true and pertinent to the decision they have to make. At some point, the sheer volume of information can become an obstacle to decision making, leading to confusion, decision paralysis or decision aversion, or staying with the same supplier because of the fear and potential regret of making the wrong switching decision. All of these consumer decisions and “non-decisions” can have negative implications for the economy, as well as for consumers. This is well illustrated by attempts to deregulate markets in utilities that did not produce the desired market efficiencies because consumers did not make choices based on what conventional economics considers to be a rational, self-interested analysis of information.
Framing effects. These effects occur when consumer decisions are influenced by several factors:

- the context for the transaction;
- how information is presented or framed in, for example, contracts, advertising and sales pitches;
- how default options are defined and presented;
- whether a decision is presented as a loss or gain, or as a low-risk or high-risk decision (which exploits the loss and risk aversion of the typical consumer); and
- how consumers and others interpret the facts available to them (what the literature calls “construal effects”).

One example of a framing effect is when a contract is set up with one option presented as a default. Consumers wishing to make any other choice must make an active decision to do so, and this can influence consumers such that they make decisions to their detriment.

Endowment or status quo effects. These effects make consumers and business customers reluctant to change products, suppliers and vendors, even when alternative suppliers may offer lower prices, higher quality or both. These effects, which illustrate that consumer trust and loyalty to products and vendors can at times be misplaced to the detriment of consumers and the total economy, are important aspects of utility deregulation, as noted above, as well as the ability of established brands to dominate their markets. It also has made it possible for well-established companies to successfully present intentionally degraded goods, such as laser printers with reduced functions, to consumers as “economy” models.

Overconfidence of consumers and other market participants. This bias encompasses consumers’ overconfidence in their own decisions, behaviour and ability to understand complex products, information, transactions and contracts, and their often misplaced confidence in the honesty and conduct of vendors and other market participants. That misplaced confidence may at times include faith in the ability of government to protect consumers from deceptive sales practices and unsafe products, and is increasingly a focus of study in the behavioural economics literature. The overconfidence bias is particularly evident, for example, in consumers’ overestimating their ability to accurately assess the value of pre-paid commitment contracts, to fully utilize the prepaid services offered by health clubs, funeral and cemetery companies, travel firms and a wide variety of other sellers, and gift, phone and debit cash cards, or their ability to pay their credit cards down every month.

Time-variant rather than stable preferences. Human beings are not very good at predicting their own future desires and needs, and, therefore, are likely to incorrectly assess what a long-term financial commitment is likely to be worth in the future. Actual preferences often vary through time in an unstable and unpredictable manner: people are prone to both over and undervalue future choices, depending on the situation, meaning that the problem cannot be addressed by intentionally erring towards the presumed opposite of the bias.

In the behavioral economics literature, time-variant preferences are often associated with the highly technical concept of “hyperbolic discounting,” which means that consumers and others apply different discount rates to immediate events, tasks and consumption from those they apply
to events, tasks and consumption in the future. In many situations, hyperbolic discounting means that consumers place a greater value on smaller benefits today compared with future benefits and costs, which are highly discounted.

As a result, many people consume too much today and do not save enough for retirement to support their future consumption, or enter into credit card and telecom contracts that involve low up-front costs that facilitate current consumption but ignore high interest charges and other charges that result in significant costs and lower consumption in the future. In this manner, time-variant preferences are also related to procrastination. Consumers put off starting a retirement savings plan until “tomorrow” (and tomorrow never comes) or enter into long-term self-binding contracts with high front-end costs and then fail to utilize the service fully over the term of the contract (essentially “paying not to go to the gym” because of procrastination and too little willpower in the future).

Because consumers’ preferences are less stable and predictable than the conventional economic model would suggest and because suppliers are aware of this consumer shortcoming, suppliers tend to gain the upper hand in their dealings with consumers. Credit card issuers, telecom service providers, health club operators and many other suppliers have learned through time and experience how to design long-term contracts, product bundling and related marketing strategies to benefit from these consumer biases. This has resulted in reduced consumer welfare, inefficient market outcomes and sustainable supra-competitive profits in some industries over an extended period, despite a reasonable number of competitors.

Socially and culturally influenced preferences, obligations, decisions and goals (linked to “bounded self-interest”). These preferences recognize that consumers, markets and the economy are embedded within, and thus influenced by, the social norms, values and conventions of the broader society and culture, and more specifically by the views of relatives, friends, neighbours and co-workers. Cooperation, trust, reciprocity and concerns for fairness and legitimacy often trump competition, conflict and non-cooperative (prisoners’ dilemma) outcomes in game theory-based experimental research and in empirical research on the preferences and decisions of consumers and other market participants.

For example, consumers often avoid retailers that have treated them badly in the past, even though the stores’ prices and product quality are competitive. Experimental and empirical research has identified many instances of individuals’ imposing penalties on non-cooperative people, even though the penalties also hurt the individuals themselves. Companies benefit significantly when they develop a reputation for treating their employees, suppliers, customers and business partners fairly (see, for example, Kreps 1990). Finally, with the interesting exception of economics students, most participants show an inclination to trust others and to contribute to public goods in empirical research designed to assess the “free-rider problem” and the importance of the non-cooperative prisoners’ dilemma compared with “tit-for-tat” coordination and other cooperative strategies (see, for example, Marwell and Ames 1981).

Socially and culturally influenced preferences, and our preference for cooperation over conflict in many but not all situations, often result in positive outcomes. This is illustrated by, for example, sustainable consumption and purchasing from suppliers that meet environmental,
human rights and worker rights standards, learning from “consumer leaders” (avid hobbyists, computer geeks) in innovative product markets, and taking account of harm to others (the negative externalities of consumption) when making consumer decisions.

However, the behavioural economics literature also illustrates numerous possibly negative aspects: status consumption (“keeping up with the Joneses”; see, for example, Lane 2000 and Layard 2003 and Appendix 3), marketing strategies that evoke and exploit one of many consumer identities (as exemplified by many beer commercials) and trust in and loyalty towards products, brands and companies that can be misplaced. In these instances, socially influenced preferences add to and reinforce the endowment effect and perceived switching costs.

Research results

With the literature review providing little fruit, the author developed a number of case studies of initiatives by either government or industry that either failed or succeeded because they effectively recognized, or failed to recognize, the role of the consumer in driving competition or innovation in the marketplace. These case studies included instances of government policy intervention or deregulation, or government or corporate innovation in the development and/or marketing of a product or service.

Each case study outlines the behavioural, information and other economics issues that were most relevant to the consumer decisions that led to the success or failure of the measure. The case studies also look at the economic impact (such as dollar losses or benefits to the consumer) of that success or failure, citing and analyzing empirical data on its extent—which in all cases is considerable. When the source literature did not provide monetary values for the economic impact (as was most often the case), this report’s author, wherever possible, calculated order-of-magnitude estimates.

All the case studies are examples of market outcomes that do not easily fit into what classical economic theory would predict. Some of these examples are provided below.

For example, neo-classical economic theory assumes that consumers make decisions based on pure self-interest, rationality and welfare maximization. Governments, believing this to be true, justified deregulation of utilities to the public, for example, by emphasizing the benefits that would result. Consumers, given a greater choice of suppliers, would make cost-driven decisions that would motivate suppliers to compete with one another. However, as the experience in nations such as the United Kingdom shows, consumers proved far more reluctant to switch suppliers than expected, or they switched to costlier service providers. Consumers either did not understand the information they collected (which was often very complicated) or they did not have the time and expertise to effectively review all of this information and make a better decision.

Product and service providers know that most consumers behave this way and take advantage of it. Drivers in two U.S. states, for example, were offered a choice between automobile insurance that did or did not include the right to sue for damages. One state presented the more expensive choice as the default option and the other state did the reverse. Consumers, falling victim to the
framing effect described earlier, were more likely to stay with the default option rather than take the time to objectively compare the options and select which was best for them.

At the same time, overconfidence, as noted, often causes consumers to act against their own best interests. For example, consumers overestimate their ability to calculate the real costs and benefits of various credit card options and to understand the complex terms and conditions in credit card contracts. In particular, they are too confident of their ability to pay off the monthly balance at the end of every month. For similar reasons, many consumers end up with gym memberships and other pre-payment plans that they do not fully use. This is because they overestimate their future time availability, and interest and willpower to go to the gym or to read the magazine and book that they have already paid for. Markets characterized by overconfident consumers and related information asymmetries (where suppliers are more aware of the consumers’ overconfidence than are consumers themselves) can generate significant losses in consumer welfare and total economic efficiency even when the markets have a large number of suppliers and product choice, and the level of competition appears to be sufficient based on conventional economic theory.

On a much larger scale, the sub-prime mortgage crisis in the United States and the existence and inevitable collapse of a vast pyramid scheme in Albania are the result of, among other things, everyone involved being subject to behavioural biases, particularly overconfidence in their ability to understand complicated financial arrangements and in the trustworthiness and knowledge of other market participants.

In both countries, the roots of the scandal lay in government-endorsed schemes to facilitate certain kinds of investments. In the United States, it was mortgage companies who provided mortgages to aspiring homeowners who did not qualify for conventional mortgages. In Albania, it was deposit-holding companies that held money for investors whom existing banks would not serve. Many of the Albanian deposit holders, as is typical in a pyramid scheme, were not investing the money in their care but merely relying on a steady flow of new investors to cover the cost of payouts.

Until recently, it was expected that a pyramid scheme of such magnitude could only happen in a country with relatively unsophisticated investors. Albania, which had just emerged from under the thumb of an authoritarian regime, was a classic example of such a country. However, the sub-prime mortgage crisis suggests that even advanced nations, such as the United States, with sophisticated consumers and regulators are susceptible to similar weaknesses, stemming from information failures and behavioural biases.

A second area in which real-life experience shows the weaknesses of traditional economic assumptions is in the interactions between producers and consumers. For example, in the computer and sound technology markets, innovative companies listen to and interact with motivated and educated consumers to produce continuous improvements in both the quality and price of the products. This is not what neo-classical models, which discount the possibility of these interactions bringing any benefit, predict. Similarly, Southwest Airlines, which has thrived in the deregulated U.S. air industry for more than 30 years approached its clients as boundedly
rational but intelligent consumers, focusing intently on uniformity, consistency, predictability, transparency and fairness of service.

In contrast, companies that do not fully disclose information about products and services forfeit such interactions and their potential benefits. A good example of this is companies that pursue what the literature calls “damaged goods” strategies. While promoting products with limited capabilities (“damaged” goods) as economy models may lead to increased sales, it damages relations with customers in the long term. By not clearly communicating the products’ limited capabilities and therefore compromising consumers’ trust, it is less likely that those same consumers would constructively interact with the firm on future product development.

Finally, in the marketing of consumer goods, Coke’s decision to simply replace its classic beverage with New Coke, rather than giving consumers the chance to decide between the new and old product, is an example of a failure in introducing a new product on par with Ford’s experience with the Edsel. Coca-Cola responded effectively by admitting its mistake and listening to consumers’ preferences.

These examples indicate the importance to government policy and corporate strategy of treating the consumer as more than the “unthinking and passive market participant and rational fool” of conventional microeconomic price theory (Sen 1990). They illustrate the major, high-impact and large-dollar-value successes and failures that demonstrate in a tangible manner the consumer’s fundamental role and importance in driving competition, innovation and competitiveness.

**Lessons learned**

Research on the implications of bounded rationality and behavioural biases for consumer welfare, competition, innovation, competitiveness, and business and economic performance emphasizes market decisions and outcomes that are very different from those that conventional economic theory would predict.

Businesses have been incorporating these consumer biases explicitly into their advertising, marketing, product diversification and other strategies for more than 60 years. In contrast, governments turn to conventional economic theory—which generally pays little attention to how consumers actually function in the modern marketplace—when they design and implement programs, policies, laws and regulations.

Behavioural biases and the resulting mistakes of consumers and other market participants can reduce consumer welfare, competition, innovation and business and economic performance, hinder the effectiveness of government policy and regulatory measures, and limit the benefits of research and development and innovation. The resulting, and substantial, economic losses can often be measured in dollar values.

In light of this, below are five lessons for public policy development in Canada and OECD partner countries.
Behavioural biases and the resulting mistakes of consumers and others are important to a large and expanding number of products, industries, markets, and business-to-business and business-to-consumer transactions. The number of markets, products, transactions and contracts for which behavioural biases influence consumer and other participant decisions, market outcomes and economic performance is expanding with the growth in services, innovative consumer products, and other experience and credence goods, and the introduction of new and unfamiliar goods, services and marketing strategies as part of the knowledge-based economy.

The decisions of all market participants, including regulators, are influenced by information problems, behavioural biases and resulting mistakes. These biases and mistakes especially, although not exclusively, hurt vulnerable groups of consumers and small businesses. However, it should be emphasized that, for some products and transactions, all consumers are vulnerable regardless of their personal characteristics and country of residence.

For some products and markets, more suppliers and greater competition and product choice can hurt consumer welfare and economic efficiency. This is the consequence of information and product choice overload, and intense interfirm rivalry, which lead to wasteful advertising, too much product diversity, and strategies of exclusion and dominance that hurt competition and confuse consumers. These empirical results indicate that measures to increase competition often need to be supported by improved consumer protection and other regulations and voluntary measures by industry to ensure that greater competition and choice provide real benefits to consumers and the economy. For example, when industries are being deregulated to introduce greater competition, consumer protection measures should also be introduced or strengthened to ensure that contracts and product information provide appropriate consumer information in plain language, and that advertising and other product promotions are not used to mislead or confuse the consumer to stay with a powerful high-priced incumbent supplier or to transfer to a very aggressive but higher priced new entrant.

Some of the case studies indicate that behavioural biases and mistakes can generate significant consumer, business and economic losses that represent a measurable portion of gross domestic product (approaching or even surpassing two percent in a typical year). Other case studies indicate significant consumer and business gains for high technology and other companies and industries that address these biases in a positive manner in their marketing and product

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1 These limitations of other market participants are important for assessing corporate strategy and formulating government policies and regulations. More specifically, because government policy-makers and regulators face the same constraints of time, information, effort and cognition as consumers and other market participants, behavioural economics often proposes that government policy and regulatory interventions should employ more selective, targeted, nuanced and flexible approaches to the consumer problems and market distortions and failures caused by information asymmetries and behavioural biases.

2 For example, the financial market and other case studies that focus on the consumer costs and risks of underdeveloped regulatory regimes and too much deregulation indicate three important findings. First, consumer protection problems with similar characteristics can arise in very different countries. Second, all kinds of countries regardless of their levels of economic, market and institutional development require some minimum level of financial market and consumer protection regulation. Third, in all countries, both financial market and consumer protection regulatory regimes should treat consumers and other market participants as they really are, as described in the information, behavioural and other non-conventional economic literature, not as they are supposed to be, as assumed in and deduced from neo-classical economics.
development strategies, and thus allow consumers to play a full role in activating competition and innovation and improving business and economic performance.

Applying the insights from behavioural economics and the resulting biases and mistakes, which all consumers and other market participants make from time to time, helps to explain why past policy and deregulation initiatives resulted in lower net economic benefits and greater number of consumer complaints than government and industry proponents had anticipated. These insights can also provide real-world empirical evidence for how to improve policy and regulatory impacts and performance in the future. This is particularly true in deregulated former monopoly markets in which there are significant endowment or status quo benefits accruing to incumbent firms and in which product or service markets are complex and involve significant level of analysis by consumers to assess their true value.

**Recommended directions for future work**

The behavioural economics lens should be applied more frequently to past and current policies, regulations and strategies of governments and non-government partners, in order to better understand the reasons for past successes and failures, and to identify ways to improve both current and future initiatives.

More specifically, the insights and lessons from behavioural economics should be integrated into the formulation of new policies, regulations and laws. The current work of the Office of Consumer Affairs (OCA) and its federal and provincial partners on payday loans is a good example of how behavioural biases and related problems that are ignored in conventional economics can be put to work.

Finally, it is essential to expand Canadian academic and policy research on behavioural economics and biases, and their implications for consumer welfare, innovation, competitiveness, business and economic performance, and related policy development in Canada. Additional and more specific proposals for further research are described below.

**Limitations**

The literature review, case studies and an earlier study on consumer impacts (Ireland 2007) indicate five major limitations to applying the insights of behavioural and information economics to policy formulation and to regulatory design, impact analysis and implementation.

First, it is largely only the behavioural and information economics literature that addresses both demand- and supply-side factors and recognizes the contributions of the activating consumer. In most of the economics articles reviewed for this study, the role of the consumer is implicit, inferred, underdeveloped or unacknowledged, as most attention is given to demand-side dynamics.

The good news is that there is a growing body of work that is bringing the demand-side insights from behavioural and information economics into the industrial organization and innovation economics literature (see, for example, Langlois and Robertson 1995, Azar 2006:1 and 2006:2,
Ellison 2006, and Xavier and Laibson 2006). It is hoped that this research and the work being carried out by researchers in public institutions on the role of the consumer in activating competition and innovation will encourage more economists and policy analysts to give greater attention to demand-side factors in developing their models, theories and empirical research.

Second, the economists who have analyzed and placed dollar values on the consumer and economy-wide costs and benefits of government and corporate measures typically have applied conventional economic and business theory. Consumer impacts are, therefore, often restricted to the supply-generated changes in price, quantity and perhaps quality. Demand-side factors related to information asymmetries, behavioural biases, social preferences and the boundedly rational but demanding and learning consumer of behavioural economics are largely ignored. This means that the role and contributions of the final consumer are ignored, assumed and/or implied in the underlying economic model. These problems are further discussed in the final section of the literature review contained in the full version of the report.

Third, the economists who have been conducting theoretical and empirical research that applies the insights from behavioural and information economics have at times indicated the cost and other implications for individual consumers and transactions. However, instances are rare of these economists extrapolating these individual consumer and transaction impacts in order to estimate the economy-wide costs and benefits of demand-side factors for consumer welfare, economic efficiency, innovation, competitiveness, gross domestic product and other standard economic indicators.

Fourth, much more work is needed on interpreting the insights from behavioural and information economics within a government policy and regulatory context, and providing guidance to government policy-makers and regulators on how these insights should be applied to the design, analysis, implementation and monitoring of new policies and regulations. There is both limited experience in directly applying these insights to policy and regulation development and implementation, and often a lack of consensus among researchers regarding the extent to which specific behavioural biases and the resulting mistakes require full regulatory intervention or a much lighter regulatory touch, called “nudging” in the literature, or are better addressed through market forces and consumer learning.

The development of greater experience and consensus on how the insights from behavioural economics should be applied to policy and regulatory development should be given significant attention in the future work of OCA, the OECD, and the academic, research, business and civil society communities.

Fifth, none of the cases and almost none of the behavioural, information, innovation and industrial organization articles and other sources used to prepare the cases studies were based on Canadian developments, sources and empirical research.

It may be reasonable to assume for research purposes that Canadian consumers and other market participants face the same or at least similar behavioural and information problems as market participants in the United States, the United Kingdom, continental Europe, Australia and the few other OECD countries that are taking these consumer and economic issues seriously. At the same
time, there are risks to using this assumption. The lack of Canadian cases and research is a serious impediment to consumer and related policy formulation in Canada. Governments, the academic community and non-government organizations must address this constraint in the coming years.

**Areas for further research**

Beyond the need for more Canadian research and policy analysis, more detailed research, either in the form of cases studies or fuller investigations, should be considered in four other subject areas.

First would be expansion of the concepts of the innovation-activating consumer to develop a fuller appreciation of the role of consumer leaders and ordinary consumers in the establishment and evolution of the Internet, and in subsequently using it in a highly proactive manner to activate competition and innovation. For example, has the Internet played a role in reducing consumer prices, and information, search and switching costs, in increasing product choice and variety, and in forcing corporations and governments to employ more consumer-friendly business models and competitive strategies?

Consumer research on the Internet would address both the direct and indirect consumer benefits associated with the Internet, including network effects (see Werden 2001, for example). In addition, the potential and actual consumer costs and risks of scams, frauds and misinformation from, for example, the rapid expansion of the Internet, in terms of the number and complexity of transactions and novel forms of electronic transactions, should also be considered. For example, consumer-to-consumer transactions through auction sites such as eBay are increasing in number and range of products, but are often not covered explicitly by consumer protection and related laws. The Internet also provides increasing opportunities for consumer scams and frauds, with businesses masquerading as consumers to avoid consumer protection law.

The growing use by consumers of the Internet to guide their decisions on pharmaceuticals and other health care remedies could also be addressed in order to indicate how changes in context, framing and the medium used for securing information and making purchases can provide benefits, costs and risks to consumers.

Second, there is growing empirical evidence that behavioural biases and related information asymmetry problems can distort consumer prices to a significant degree. In a free market economy, prices play an essential role in determining the allocation of resources, in shaping consumer preferences and decisions, and in providing the right information, signals and incentives to producers and vendors to guide their production, purchasing, marketing, innovation and competitiveness decisions and strategies. Accurate price signals are also important to governments in establishing fiscal, monetary and other policies. Distorted consumer prices as a result of behavioural and information problems that are not addressed in conventional economic theory could have serious implications and consequences for consumer welfare, market outcomes, competition, innovation and competitiveness in a knowledge-based economy in which information is highly valued.
Third, the demand-side lens of behavioural and information economics could be applied to other cases in the marketing and corporate strategy literature on, for example, major marketing successes and failures and their consequence for companies, their customers, industries as well as in some cases national economies. The strength of these marketing stories is that consumers, and their responses to changes in corporate strategy, are generally at the centre of the narrative, particularly when a strategic marketing approach is applied.

Fourth, using the insights from behavioural and information economics and recent advances in innovation economics, the potential for nanotechnology and other transformative technologies to follow the same development trajectory as food biotechnology could be the subject of future government, industry and civil society cooperative research and policy analysis.
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