

Behavioral Economics: Implications for Antitrust Practitioners

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For antitrust practitioners, there are two familiar behavioral assumptions used in the economic models that underlie antitrust analyses: consumers maximize their utility, which non-economists call “happiness,” and firms maximize their profits. Both of these assumptions are wrong, at least to some extent, in the sense that there are many apparent real-world counterexamples.

With respect to consumers, we can all think of a time we did something out of a sense of fairness rather than out of an attempt to maximize our own self-interested utility (or happiness). For example, most people, at one time or another, have hesitated to be the one to take the last slice of pie, no matter how much we wanted it ourselves, out of a sense of fairness to others (i.e., did everyone else already get a piece?). With respect to firms, there are an increasing number of firms focused on balancing profit maximization with a sense of corporate social responsibility, which may be at odds with the notion of strict profit maximization.¹

Understanding how consumers, and to a much lesser degree firms, depart from the standard assumptions underlying these economic models is the focus of a field of economics research called “behavioral economics.”² The objective of this line of research is to understand how to modify unrealistic assumptions about individual and firm decision-making behaviors in order to make economic models more realistic.

While behavioral economics is a robust field in finance,³ behavioral economics is much less developed in the field of industrial organization, the field most closely related to antitrust.⁴ For an antitrust practitioner, understanding how well actual individual decision-making behavior lines up with that assumed in standard economic models makes good sense because antitrust uses economic models for a variety of tasks. Economic models are used in the merger context, among other things, to predict the effect of a merger on post-transaction prices. In the non-merger antitrust context, economic models are often used to assess certain single-firm conduct using tests

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¹ The popular business concept of the “triple bottom line,” in which a firm’s objective is to strike a balance between people, the planet, and their profits, is one example of such a business strategy.

² In 2002, the Nobel Prize was awarded to Daniel Kahneman for his contributions to behavioral economics; in 2007, the Federal Trade Commission held a conference on contributions of behavioral economics to consumer protection (information on the conference is available at <http://www.ftc.gov/be/consumerbehavior/docs/agenda.shtml>); and, in 2009, the Supreme Court heard arguments in *Jones v. Harris Associates*, 130 S. Ct. 1418 (2010), which pitted, in part, the Chicago School against Behavioralists before a Seventh Circuit Court of Appeals panel.

³ For a good overview of the behavioral finance literature, see Nicholas Barberis & Richard Thaler, *A Survey of Behavioral Finance*, in HANDBOOK OF THE ECONOMICS OF FINANCE 1051–21 (George Constantinides, Milton Harris, and René Stulz eds., 2003).

⁴ For a summary of the state of research in behavioral industrial organization, see Glenn Ellison, *Bounded Rationality in Industrial Organization*, in 2 ADVANCES IN ECONOMICS AND ECONOMETRICS: THEORY AND APPLICATIONS 142–74 (Richard Blundell, Whitney Newey, and Torsten Persson eds., 2006), available at <http://econ-www.mit.edu/files/904>.

related to profitability, such as the “no economic sense” test and the “profit sacrifice” test. While it is of interest whether the assumptions underlying the economic models are realistic, it is not necessary for these assumptions to hold perfectly for the standard model to provide valuable predictions of economic outcomes. In many settings, the standard model may work very well. For this reason, behavioral economics is not about throwing out the standard paradigm for how consumers and producers make decisions and replacing it with a different paradigm. Rather, the likely contribution of behavioral economics to antitrust is to make improvements in economic outcomes and policy decisions around the edges.⁵

To warrant a universal change in the economic models used for antitrust analysis, counterexamples to those predicted by the standard frameworks must be pervasive and have an economically meaningful effect on outcomes with respect to prices and/or consumer surplus. At this stage, such a change is not warranted because there is no evidence to date of consistent and persistent deviations in real-world settings. However, to the extent that it can be documented that consumers exhibit non-standard decision making in particular industries using relevant facts and data, there should be a willingness on the part of private parties, government agencies, and the courts to consider alternate economic models should there be sufficient data to support the use of such an alternate framework.

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The Standard Individual Decision-Making Framework

Understanding how individuals make decisions is a fundamental issue in economics. For example, how do consumers choose between purchasing Cheerios, Raisin Bran, or neither of the two? And among the different varieties of Cheerios, how do consumers choose between Honey Nut, MultiGrain, Frosted, or Yogurt Burst? The answers to these questions are fundamental because insight into how consumers make choices and the way in which consumers prefer certain product attributes (e.g., sweetness) to another (e.g., fiber) provides information about the demand curve for each of these types of breakfast cereals.

The standard economic model of individual decision-making behavior assumes that consumers make choices to maximize a utility function, using all of the information available to them, and that they fully, and rationally, process that information. In this framework, an individual cares only about her own level of payoffs, is agnostic about how the decision is framed, and has preferences that are consistent across time. Mathematically, individual i at time $t=0$ is assumed to make a choice, $x \in X$, that maximizes his or her expected utility, subject to a probability distribution, $p(s)$, of his or her beliefs about the possible states of the world $s \in S$:

$$\text{Max}_{x \in X} \sum_{s \in S} p(s) U(x|s).$$

Behavioral economics is the research agenda that considers deviations to this standard framework. One question that behavioral economics raises about the standard consumer decision-making framework is whether consumer preferences, $U(x|s)$, are modeled realistically in the

⁵ Behavioral economics has made a similar contribution to the field of finance. For example, while behavioral economics is able to explain some anomalies with the “efficient market hypothesis,” it is nevertheless the case that “opportunities for easy profits are rare.” See RICHARD BREALEY & STEWART MEYERS, PRINCIPLES OF CORPORATE FINANCE 333–36 (5th ed. 1996).

standard framework.⁶ By consumer preferences, an economist simply means how consumers value a product or service. For example, is it realistic to assume that individuals care only about themselves? Similarly, is it realistic to assume individuals care only about the absolute level of utility they receive?

Carefully designed laboratory-style experiments suggest that consumers can deviate from the standard model of individual decision making. There is also a growing body of non-laboratory empirical research that attempts to tease out the ways in which consumers deviate from the standard model of individual decision making in real-world settings, outside the carefully designed laboratory setting. Non-laboratory style evidence is important because antitrust analyses require one to bring real-world evidence to the table that is fact-specific to the product, market, and conduct at issue. While the standard model of individual decision-making behavior may work very well in many situations, the empirical research discussed below suggests that, in certain settings, there may be room to improve the standard model.

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Consumer Preferences as “Referenced-Based” and Incorporating “Fairness”

Standard economic models consider individuals to be purely self-interested, caring only about the absolute level of utility they receive. For example, the standard framework assumes individuals receive the same utility from receiving \$100 regardless of whether they had previously received \$0 (an increase of \$100) or previously received \$200 (a decrease of \$100). In addition, the standard model assumes that individuals receive the same utility from \$100 irrespective of how much others received.

Of course, in the real world, almost everyone can imagine getting a raise of \$10,000 and feeling very different about that \$10,000 raise, depending on whether they had previously received raises of only \$1,000 or previously received raises of \$50,000. In the real world, one can also imagine feeling very differently about that \$10,000 raise, depending on whether everyone else got the same raise as you did or whether everyone else got a raise three times larger than yours.

One way in which the modeling of consumer preferences has been modified in order to capture more realistic notions of such consumer preferences is to model preferences as “reference based.” Reference-based preferences are designed to capture the idea that consumers may care about changes as opposed to just the absolute level. This incorporates the observation in experimental settings that people dislike losing things much more than they like gaining things. When consumers dislike losing things more than they like gaining things, behavioral economics calls this “loss aversion.” Prospect theory, developed by Daniel Kahneman and Amos Tversky, provides an alternative framework for modeling individual decision-making behavior when individuals exhibit loss aversion.⁷ While consumers exhibit loss aversion in experimental settings,⁸ only recently has

⁶ Two other broad categories of questions raised about the standard individual decision-making framework are: (1) whether consumers form their beliefs, $p(s)$, rationally (for example, do consumers instead tend to be overconfident); and (2) whether the decision-making criteria, $\text{Max} \sum p(s)U(x|s)$, is being modeled realistically in the standard framework (for example, do consumers instead tend to have limited ability to pay attention to complex information). For a summary of the many ways in which behavioral economics considers modifications to the standard individual decision-making framework, see Matthew Rabin, *A Perspective on Psychology and Economics*, 46 EUR. ECON. REV. 657–85 (2002).

⁷ Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 49 ECONOMETRICA 263–91 (1979).

⁸ A frequently described example of loss aversion in an experimental setting involves coffee mugs. Individuals randomly assigned a free coffee mug were found to be willing to sell their coffee mug at prices substantially higher than the prices individuals who were not given a coffee mug were willing to pay. The explanation given for the observed behavior is that those who had a coffee mug in hand perceived a bigger loss to losing the coffee mug than the gain perceived by those who did not have a coffee mug in hand. See Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325–48 (1990).

research provided evidence of some individuals exhibiting loss aversion in certain real-world settings, including the housing market, the stock market, in bike messenger services, and the New Jersey police in contract negotiations.⁹

A second way in which the modeling of consumer preferences has been modified to capture more realistic notions of consumer preferences is to model preferences as having a social dimension rather than purely self-interest. Social preferences encompass several ways in which individuals may not be purely self-interested. One such way incorporates the notion of “fairness.” Matthew Rabin developed an alternative framework for modeling individual decision-making behavior when individuals care about fairness.¹⁰ Preferences that incorporate fairness may recognize that individuals care about how resources are allocated. In addition, preferences that incorporate fairness may recognize that individuals care about the reasons why an individual or firm takes an action, and thus allows for the possibility of individuals retaliating against behavior perceived as unfair.

In the experimental setting, it has been shown that some individuals exhibit a sense of fairness in their preferences, rather than strictly self-interested behavior.¹¹ Recent research has provided evidence of some individuals exhibiting fairness in their behavior in certain real-world settings, such as retaliation by unionized tire manufacturer workers in response to perceived unfair behavior by management.¹²

Implications for Antitrust Analyses

Modifications to standard consumer decision-making behavior, such as consumers who exhibit referenced-based preferences or preferences that incorporate fairness, can lead to interesting implications for how the economic analysis of a potential merger proceeds.¹³

For example, suppose the facts and data in a particular relevant market suggest that some consumers care much more about price increases than price decreases for the particular product or service at issue. In this situation, some consumers exhibit reference-based preferences. Referenced-based preferences can give rise to a demand curve with a kink in it at current prices. In other words, the demand curve is more elastic for price increases (above the kink) than for price decreases (below the kink). While certain economic analyses typically rely on a demand curve that is smooth, reference-based preferences can result in a kinked demand curve. The kinked demand curve can have meaningful implications for how an economic analysis proceeds if a substantial fraction of customers make decisions using referenced-based preferences and there is a substantial difference in how consumers behave in response to a price increase compared to a price decrease. One implication of a demand curve with a meaningful kink at current prices is that the Lerner Equation, which is used in mergers for a critical loss analysis, will not hold.¹⁴ As a result,

⁹ See Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LIT. 315–72 (2009).

¹⁰ Matthew Rabin, *Incorporating Fairness into Game Theory and Economics*, 83 AM. ECON. REV. 1281–1302 (1993).

¹¹ See DellaVigna, *supra* note 9 (describing the dictator experiment in which individuals given a lump sum of money are found to share that money with others rather than keep all the money for themselves).

¹² *See id.*

¹³ As a general matter, however, modifications to consumer decision-making behavior should have little effect on how an antitrust analysis proceeds because antitrust analyses are firmly grounded in a fact-specific understanding of how consumers behave in a particular market.

¹⁴ The Lerner Equation is an equilibrium relationship which states that a profit-maximizing firm will choose price such that the firm's percentage mark-up of price over incremental cost is equal to the own-price elasticity of demand faced by the firm.

reference-based preferences could affect certain analyses, such as a critical loss analysis.

Before employing an economic model that relies on a kinked demand curve, however, the analysis should be grounded in the specific facts for the specific product at issue. In the case of assuming referenced-based preferences, it makes sense to establish the fraction of customers making decisions using referenced-based preferences, whether there is a substantial difference in how consumers behave in response to a price increase compared to a price decrease, and whether the kink is located at current prices.

Consumer preferences that incorporate fairness also can lead to interesting implications for the economic analysis of mergers. In particular, preferences that incorporate fairness have the potential to discipline the exercise of market power post-merger. For example, suppose the facts and data related to a specific market suggest that consumers do not make decisions based on pure self-interest, but rather make decisions incorporating a sense of fairness. If it can be shown that consumers would consider the exercise of market power post-merger to be an unfair reason to raise price (a fair reason to raise price may be one related to cost increases), then consumers may refuse to buy the product post-merger even if buying the product would be worth it to them in the framework of purely self-interested decision making.¹⁵

The theory of harm laid out by Commissioner J. Thomas Rosch in his concurring statement in a case the Federal Trade Commission brought against Ovation Pharmaceuticals in December 2008 is a theory of harm that can be framed in the context of consumers having preferences that incorporate fairness.¹⁶ The FTC had challenged Ovation's acquisition of the rights to NeoProfen from Abbott Laboratories in January 2006 as a two-to-one merger in a product market defined as drugs used to treat heart defects in infants. While no apparent horizontal overlap or vertical concern existed when Ovation acquired from Merck its first drug used to treat heart defects in premature babies, Indocin, Commissioner Rosch alleged that "there is reason to believe that Merck's sale of Indocin to Ovation had the effect of enabling Ovation to exercise monopoly power in its pricing of Indocin, which Merck could not profitably do."¹⁷ Commissioner Rosch suggests that if Merck had sold Indocin at the monopoly price, its reputation would be sufficiently damaged such that it would lose sales on the other products in its large product portfolio. Underlying this statement is an assumption about consumer preferences and individual decision-making behavior. In particular, if consumers perceive the monopoly price for a drug used to treat heart defects in premature babies to be unfair, these consumers could retaliate by refusing to buy other products in Merck's large product portfolio even if buying those products would be worth it to them when considered in the framework of purely self-interested decision making.

To support the theory of firm behavior underlying Commissioner Rosch's analysis, fact-specific information and data that consumers behave in such a way is required. Important information to collect and develop includes whether purchasers would know that Merck was charging a

¹⁵ In the purely self-interested context, a consumer would consider it "worth it" to purchase if their willingness to pay was greater than the product's price.

¹⁶ See Concurring Statement of J. Thomas Rosch, Ovation Pharmaceuticals, Inc., FTC File No. 081-0156 (2008), available at <http://www.ftc.gov/os/caselist/0810156/081216ovationroschstmt.pdf>. Another interesting context in which to consider the effect of fairness is in the context of firm decision-making behavior. One such example is the so-called "good guys" defense. When asked why the parties to a proposed transaction would not be able to raise prices post-transaction, business people are often known to respond because we are "good guys." It would be an interesting exercise to empirically test to what extent a sense of fairness on the part of business people results in exercisable market power not being exercised to its fullest extent out of a sense of fairness.

¹⁷ *Id.* at 1.

monopoly price for Indocin; whether purchasers would know which other products were part of Merck's product portfolio; and whether there were a substantial number of customers who purchase a wide variety of products from Merck's product portfolio. A difficult, but important, empirical exercise would be to document the likelihood that purchasers would behave in a way consistent with preferences that incorporate "fairness," namely choosing not to purchase even if their willingness to pay for other products in Merck's portfolio exceeds the prices charged by Merck for those products.

Firms modifying

their behavior to take

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The implications for

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Non-Standard Producer Decision-Making Behavior

As mentioned earlier, behavioral economics primarily focuses on how consumers may deviate from the standard model of individual decision making, not how firms may deviate from the standard model of firm decision making. Behavioral economics, as it relates to firms, often assumes firms are rational profit-maximizing entities, focusing instead on how firms modify their behavior to take advantage of the ways in which consumers deviate from the standard model.¹⁸ Firms modifying their behavior to take advantage of consumer behavior may have implications for consumer protection activities designed to protect consumers from unfair or deceptive practices. The implications for antitrust, however, are much less clear.

Two arguments are usually raised for continuing to treat a firm as a rational, profit-maximizing entity.¹⁹ First, firms may have access to a wide array of consultants and advisors who can assist in information processing and making optimal pricing decisions. Second, firms which stray from profit maximization are unlikely to survive in the long-run due to competition. It certainly makes sense that at any point in time a firm may make a mistake, thereby deviating from profit-maximizing behavior or by having short-run objectives to maximize revenue or market share rather than maximizing profits. However, consistent with the continued reliance on firms behaving as profit maximizers in the economic literature, there is little research that provides evidence suggesting that firms deviate from profit-maximizing behavior in a systematic or persistent way. Rather, anecdotal evidence on deviations appear to be related to non-systematic mistakes or to a firm targeting an interim goal related to revenues or market share that evolves over time to profit maximization.

One possible precedent for the antitrust agencies being open to considering systematic non-profit maximizing behavior on the part of a firm is former FTC Chairman Muris's 2004 closing statement in the FTC's investigation into Genzyme Corporation's acquisition of Novazyme Pharmaceuticals.²⁰ Genzyme and Novazyme were two firms conducting early studies into a treatment for Pompe disease, a rare and usually fatal genetic disorder that affects infants and children. Given that both firms had treatments in the pipeline, the FTC's investigation focused on the likelihood that the transaction would lessen the pace of innovation and R&D into the development of a treatment for Pompe disease or otherwise dampen the incentive to race to be the first firm to market a treatment for Pompe disease. The FTC's closing statement suggests that a manager's personal interests may deter a firm from otherwise engaging in a profit-maximizing strategy. In particular, the FTC noted that the structure of the Genzyme/Novazyme transaction "strongly suggest[ed]" that the transaction would not dampen incentives to develop a treatment because the manager placed

¹⁸ See DellaVigna, *supra* note 9.

¹⁹ See ROBERT PINDYCK & DANIEL RUBINFELD, MICROECONOMICS 264–65 (2009); *see also* DellaVigna, *supra* note 9.

²⁰ See Statement of Chairman Timothy J. Muris in the Matter of Genzyme Corporation/Novazyme Pharmaceuticals, Inc., FTC File No. 021-0026 (2004), available at <http://www.ftc.gov/opa/2004/01/genzyme.shtm>.

in charge of the Pompe disease research program post-transaction had two children afflicted with Pompe disease.²¹

While not described in the closing statement to the Genzyme/Novazyme transaction, there is an alternate behavioral explanation for why Genzyme/Novazyme would have no incentive to dampen innovation related to Pompe disease post-transaction that does not rely on non-profit-maximizing behavior. The argument is similar to that used to explain Merck's pricing decisions with respect to Indocin. In particular, given Genzyme's portfolio of other medical and biotechnology products, Genzyme/Novazyme may have found it profit-maximizing to not slow the pace of R&D for a treatment for Pompe disease post-transaction because, if it did, purchasers would consider such a strategy unfair, leading them to reduce their purchases of other products in Genzyme's portfolio in response. As discussed above, how sensible such a behavioral explanation is depends on the particular facts at hand. In this instance, the viability of such a behavioral explanation rests on key questions, such as whether purchasers would know that Genzyme/Novazyme slowed down the pace of innovation; whether purchasers would know which other products were part of Genzyme's portfolio; and whether substantial numbers of customers purchase a wide variety of products from Genzyme's portfolio.

Conclusion

Just as one would not conclude switching costs are high in one industry because switching costs are high in an unrelated industry, the same should be true for modifications to the standard frameworks for individual decision making and firm decision making. Antitrust analyses are fact-specific, and the facts related to the industry at hand must accord with the assumptions about how individuals make decisions in that industry and how firms make decisions in that industry. If it can be shown using the relevant facts and data for the specific product or service at issue that consumers care much more about price increases than price decreases in a systematic and persistent way, then it makes sense to consider an alternate framework, such as a kinked demand curve. Similarly, if it can be shown using the relevant facts and data for the specific product or service at issue that a firm (or firms) deviates from standard profit-maximizing behavior in a systematic and persistent way, then it makes sense to consider an appropriate alternate framework of firm decision making for evaluating the competitive concern at hand.

Absent fact-specific evidence of systematic and persistent deviations, it makes sense to rely on the standard frameworks for consumer and firm decision-making behaviors as the default economic model. The standard frameworks are familiar frameworks, tractable frameworks, and, absent evidence to the contrary, appear to describe consumer and firm behavior well. It would be an unfortunate turn in how antitrust analyses are conducted if behavioral economics became a means to justify making any ad hoc, unsupported assumption on decision-making behavior to fit with one's agenda. Rather, it makes good sense for private parties, government agencies, and the courts to incorporate alternate economic models based on behavioral economics when the facts and data in the specific issue at hand merit the use of an alternate analytical framework. ●

²¹ *Id.* at 15.