Traditional vs. Behavioral Modeling of Consumer Decisions:

Myths, Caveats and the Importance of Evidence-Based Consumer Protection

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Introduction

By way of background, I had the pleasure of serving as the Director of the Bureau of Economics at the US Federal Trade Commission during 2007 and 2008—a period preceding the creation of the CFPB in July 2010 when Congress passed and President Obama signed the Dodd-Frank Wall Street Reform and Consumer Protection Act. While my responsibilities in antitrust and consumer protection matters at the FTC precluded me from specializing in applications to the financial sector, much of my time was devoted to economic analyses of consumer protection matters in financial markets (including payday loans, fair lending, various FTC reports related to FACTA, as well as studies on the efficacy of mortgage disclosures).

I am therefore keenly aware of the challenges the CFPB faces in protecting consumers in markets for consumer financial products and services, and the importance of symposiums and other efforts to ensure that the knowledge and capabilities of an agency are up-to-date. This panel is a shining example of the important work the CFPB is doing to ensure that it bases its policy and enforcement decisions on relevant academic research and knowledge gained by other agencies.

I am an academic, so it will come as no surprise that I believe in the market for ideas and that knowledge and education are important.[2] As a Professor at Indiana University's Kelley School of

[1] I am grateful to Nathan Blalock for helpful comments on an earlier draft, and to Patrik Bauer and Marihah Idroos for research assistance.

[2] During my tenure at the FTC, I found that the Commission welcomed competing thoughts on various policy and enforcement matters. Staff in the Bureau of Economics and the Director of the Bureau of Economics each provide the Commission with separate recommendations based on the economics of a case or policy matter, and the Commission also receives separate legal recommendations from attorneys in other Bureaus and Offices within the

Business, I view economic and financial education to be particularly important. Arguably, the CFPB's efforts to warn, inform and educate consumers—thereby empowering them to protect themselves from unfair, deceptive, or abusive practices—is more important than potential enforcement actions. Regardless, symposiums like this one on behavioral law and economics are important because they help ensure that the CFPB's policies and enforcement actions are based on scientific evidence and best-practices. As discussed below, policies grounded in scientifically testable hypotheses minimize the likelihood that well-intentioned policies have unintended, adverse effects that harm consumers or competition.

My comments are based on my enforcement experience and academic research, including discussions with numerous consumer protection economists at the FTC and my research with Professors John Morgan (Berkeley) and David Sappington (Florida) exploring the ramifications of consumer rationality, decision errors, or behavioral biases for consumer protection. I am grateful to these colleagues for all they have taught me over the years, and to the CFPB for allowing me to share my thoughts alongside an outstanding group of panelists.

Misperceptions and Caveats Regarding Behavioral and Traditional Economic Modeling

In our popular culture, the terms "behavioral economics (or finance)" and "traditional economics" are sometimes misused or framed in misleading ways. For example, a website affiliated with Wells Fargo Advisors states that:

> "The field of Behavioral Finance asserts: 1) Rather than 'rational,' human behavior is driven by fear and greed. 2) Rather than 'self-interest,' people can be self-destructive, charitable, religious, and be inclined to volunteer to help others. 3) Rather than 'perfect information,' people today are exposed to virtually an infinite amount of information, and often do not read the most relevant or important market data…*Behavioral Finance helps us explain actual investor and market behavior vs. theories of investor and market behavior."*[3]

Such descriptions paint an inaccurate picture of the utility of behavioral and traditional approaches to economic and financial models, and frame the behavioral approach in a manner that might lead uninformed readers to wrongly conclude that traditional models of behavior belong in ivory towers.[4] There are many different models of individual behavior in economics and psychology, and all

FTC. Ultimately, however, these recommendations are merely inputs in the production process, as FTC policies are formally determined by the votes of Commissioners.

[3] Peter Vrooman and Jonathan Sarver, "18 Key Behavioral Finance Biases," available at: http://www.sarvervrooman.wfadv.com/files/68283/18_Key_Behavioral_Sarver-Vrooman_WFA_4cF_hi-res.pdf.

[4] Lay descriptions of behavioral economics and finance need not be inaccurate or divisive, as the following definition makes clear: "Behavioral finance is the study of the influence of psychology on the behavior of investors or financial analysts. It also includes the subsequent effects on the markets. It focuses on the fact that investors are not always rational, have limits to their self-control, and are influenced by their own biases." (Corporate Finance Institute, "Behavioral Finance," available at: https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/behavioral-finance/.

are potentially valuable. Traditional economic models readily accommodate greed, destructive and/or charitable behavior, as well as imperfect and/or incomplete information. The distinguishing feature of "behavioral" models is that they relax certain assumptions in classical consumer choice theory, such as consistency of consumer choices among alternatives, consistency of discounting future events, and failure to choose the utility-maximizing option (owing to errors in decision-making, satisficing, or ignorance). Among other things, behavioral economics allows for the possibility that the framing of information impacts consumer behavior.

In the economics literature, consumer rationality typically means that a consumers' preferences are (a) complete and (b) transitive; "rational-maximizing consumer" means that a consumer makes (c) optimal choices given her preferences (which may be selfish, altruistic, sadistic or masochistic). The tough policy questions are not whether real-world consumers make rational-maximizing decisions (in some environments they may, in others they may not), or whether traditional vs. behavioral models are useful (they both are). The tougher questions relate to the efficacy of consumer protection policies in a democracy—and the accountability of a consumer protection agency—when consumers are not rational. If consumers are not rational maximizers, is it right for a policymaker to dictate outcomes based on the policymakers' own preferences? If consumer preferences are not transitive, will policymakers get stuck in a costly, viscous circle of changing policies from A to B to C back to A, and so on, in their attempt to implement policies to protect consumers? More generally, what competitive force or countervailing power prevents policymakers from abusing the irrationality of consumers by implementing policies for selfish gain?

Another misconception is that traditional models favor laissez faire policies while behavioral models favor interventionist policies. This is not the case; the traditional economics literature—which assumes rational-maximizing consumers and firms—identifies numerous environments where markets may fail to achieve efficient outcomes owing to market power, imperfect or incomplete information, informational asymmetries, and so on.

Likewise, the behavioral approach may identify environments where intervention is inferior to laissez faire policies. A recent example is *Expressions Hair Designs v. Schneiderman, Attorney General of New York*. Here—presumably in an attempt to protect consumers—New York passed a law that essentially forced businesses to frame differential pricing for cash and credit-card purchases as a "cash discount" rather than as a "surcharge" for using a credit card. The Supreme Court summarized it this way:

> Each time a customer pays for an item with a credit card, the merchant selling that item must pay a transaction fee to the credit card issuer. Some merchants balk at paying the fees and want to discourage the use of credit cards, or at least pass on the fees to customers who use them. One method of achieving those ends is through differential pricing—charging credit card users more than customers using cash. Merchants who wish to employ differential pricing may do so in two ways relevant here: impose a surcharge for the use of a credit card, or offer a discount for the use of cash. In N. Y. Gen. Bus. Law §518, New York has banned the former practice.[5]

[5] *Expressions Hair Design v. Schneiderman*, 581 U.S. ___ (2017).

Eleven prominent scholars of behavioral economics—including a Nobel Laureate and one of my fellow panelists—submitted a brief to the Supreme court explaining that "[t]he state no surcharge laws at issue in this case limit the manner in which merchants communicate to their customers the costs of credit-card transactions, forcing merchants to frame those costs in a way that biases consumers toward credit-card use."[6] As they eloquently explained to the Court:

> Under traditional economic theory, the market impact of a "cash discount" should be the same as the impact of a "credit-card surcharge." Credit-card customers pay more, and cash customers pay less, regardless of the label attached. Traditional economic theory would thus predict that a cash-discount framing would induce consumers to pay with their credit cards at the same rate as an economically equivalent credit card surcharge framing. After all, surcharges and cash discounts are just two ways of conveying identical information about the relationship between two prices. But behavioral economics research shows that these two framings do not generate equivalent preferences. Instead, consumers' decisions can be materially influenced by the manner in which information is presented: a perceived reward garners a minor, positive reaction, while a perceived penalty produces a strong, negative reaction.[7]

Ultimately, the Supreme Court did not base its decision on traditional or behavioral economics, nor on the impact of the law on consumer welfare. Instead, it wrote:

> The question presented is whether §518 regulates merchants' speech and—if so—whether the statute violates the First Amendment. We conclude that §518 does regulate speech and remand for the Court of Appeals to determine in the first instance whether that regulation is unconstitutional.[8]

My own academic work employs both traditional and behavioral modeling techniques. It is my strong belief that the choice of modeling techniques should be driven by data rather than researcher biases. In the case of behavioral vs. traditional modeling, both are useful, both have limitations, and their value for explaining behavior is subject to academic debate.[9]

In fact, classical and behavioral models may predict or explain similar behavior. Consider, for instance, the "law of demand," which in traditional economic theory indicates that other things equal (e.g., holding real income constant), a rational-maximizing consumer will buy more of a product at lower prices than at higher prices. Almost 60 years ago, Nobel laureate Gary Becker showed that this prediction also obtains in a model with irrational consumers (e.g., consumers are not rational

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[6] "Brief of Scholars of Behavioral Economics as Amici Curiae In Support of Petitioners in *Expressions Hair Design v. Schneiderman*," available at: https://www.scotusblog.com/wp-content/uploads/2016/11/15-1391-tsac-Scholars-of-Behaviorial-Economics.pdf.

[7] "Brief of Scholars of Behavioral Economics as Amici Curiae In Support of Petitioners in E*xpressions Hair Design v. Schneiderman*," available at: https://www.scotusblog.com/wp-content/uploads/2016/11/15-1391-tsac-Scholars-of-Behaviorial-Economics.pdf.

[8] *Expressions Hair Design v. Schneiderman,* 581 U.S. ___ (2017).

[9] As a behavioral matter, one should recognize that a researcher who has invested in developing a particular modeling technique may have a tendency to over-utilize and/or potentially oversell the merits of his or her investments. These and other potential biases in research are themselves related to several behavioral anomalies (e.g., self-attribution bias, endowment or affinity biases), and neither behavioral nor traditional modelers are immune from potentially overselling the merits of their ideas.

maximizers but, instead, randomly choose the items placed in their grocery carts).[10] This is not purely an artifact of ivory tower economic theorizing; there is abundant empirical evidence in favor of the law of demand. Hence, it would be a non sequitur to dismiss the law of demand because its foundation—traditional economic modeling—is based on the rational-maximizing consumers assumption.

Another example is the sunk-cost fallacy, which as a matter of economic theory, can be rationalized using traditional modeling. Kanodia et al. (1989) explain it this way:

> A department manager makes a large investment in new production equipment and, soon after, learns of different equipment that could perform the same operations at lower cost. Incremental analysis favors switching, but the manager refuses saying he does not want to waste the investment already made.
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> Such real-world examples have been extensively documented and studied by social scientists (see Thaler [1980] and Staw [1981]). In these examples, the decision maker, having committed to a course of action, subsequently discovers new information that indicates that continuing the earlier commitment would likely result in worse consequences than switching. In spite of this he clings to and even escalates his earlier commitment, a commitment often involving large expenditures of resources. In this case, escalation has been interpreted as evidence that decision makers do not ignore sunk costs, and is part of a general phenomenon carrying various titles such as "the sunk cost effect," "escalation behavior," and "escalation error." Why does this seemingly irrational behavior occur? Existing explanations rely exclusively on psychological factors such as psychic accounting (Thaler [1980]), framing (Laughhunn and Payne [forthcoming]), and need for internal justification…We demonstrate that escalation behavior can be explained as part of a larger phenomenon of hiding private information on human capital. When information on his human capital is private to a manager, and can only be inferred by others from observation of the former's actions and their consequences, these actions acquire a reputation value.[11]

Regardless, empirical evidence suggests that it would be a mistake to dismiss traditional economic modeling even if one is biased in favor of behavioral explanations for the sunk-cost fallacy:

> So who is right, the economist model builders who assume rationality, or the economist teachers and textbook writers who think that hard work is needed to stamp out the fallacy? How widespread really is the sunk cost fallacy? Our own interest in these questions began with a practical issue in e-commerce: is it true, as claimed by several observers, that people stay at a website longer when it takes longer to download? Our investigation encountered many surprises. The first is that the published evidence for the fallacy is not as definitive as we had supposed [and] one can rationalize the choices featured in most studies and anecdotes… The next surprise was the difficulty in demonstrating the fallacy…The most recent data confirm a sunk cost effect, but it is much smaller and less robust than we had

[10] Gary S. Becker, "Irrational Behavior and Economic Theory," *The Journal of Political Economy*, Vol. 70, 1, 1962, pp. 1-13.

[11] Chandra Kanodia, Robert Bushman, and John Dickhaut, "Escalation Errors and the Sunk Cost Effect: An Explanation Based on Reputation and Information Asymmetries," *Journal of Accounting Research*, Vol. 27, 1989, pp. 59-77, at pages 59-60.

> originally expected. Variables representing rational choice are much more powerful in explaining the data than any of the psychological variables we have investigated.[12]

One additional caveat: To be useful in guiding consumer protection policy, an economic theory of harm must be falsifiable. It is obvious that the predictions of some traditional economic models have been falsified, and this is a virtue rather than a vice. Falsification is the way science progresses: Rejected models are supplanted with new and more sophisticated models. These models may assume that consumers are rational-maximizers, are prone to behavioral biases or that they make decision errors. What is less widely recognized is that, while behavioral models are capable of fitting observed data very well, some behavioral models impose no falsifiable restrictions, and this significantly limits their utility for scientific, evidence-based policy or enforcement decisions.[13]

The Importance of Targeting the Right Pathology

Different modeling assumptions (regardless of whether they are traditional or behavioral) result in different avenues through which a business practice might harm consumers. Effective consumer protection requires an objective examination of data and evidence rather than merely assuming harm based on a policymaker's philosophical beliefs or flavor of economic model.

To be concrete, consider drip pricing. Drip pricing is the practice whereby a business (say, a lender) divides the total price (the all-in cost of a loan) into two or more parts (e.g., interest rate, processing fee, surcharge, closing costs, etc.), and discloses these parts sequentially in a manner that makes it costly for consumers to discover the total cost of the loan. As I note in a paper with John Morgan, much of the policy concern surrounding drip pricing stems from the worry that it permits firms to exploit consumer irrationality to increase prices and, consequently, harm consumers.[14] However, the literature demonstrates that it would be a mistake to take enforcement actions based purely on the assumption that consumers are irrational—and it would also be a mistake to assume that drip pricing does not harm consumers who make rational decisions:

> Optimal consumer protection policy regarding drip pricing or obfuscation depends on the source of market imperfections, such as whether consumers are fully rational or suffer from behavioral biases. The degree to which behavioral factors affect consumer choice is hotly debated by academics and policy makers with markedly different world views.

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[12] Daniel Friedman, Bernardo A. Huberman, Rajan Lukose, Garrett Milam and Kai Pommerenke, "Searching for the sunk cost fallacy," *Experimental Economics*, Vol. 10, 2007, pp. 79-104, at p. 80.

[13] *See*, for instance, Phillip A. Haile, Ali Hortacsu and Grigory Kosenok, "On the Empirical Content of Quantal Response Equilibrium," *The American Economic Review,* Vol. 98, 1, 2008, pp. 180-200. I note that not all behavioral models are subject to this criticism, including the logit specification of decision errors in Michael R. Baye and John Morgan, "Price Dispersion in the Lab and on the Internet: Theory and Evidence," *The RAND Journal of Economics*, Vol. 35, 3, 2004, pp. 449-466.

[14] Michael R Baye and John Morgan, "Search Costs, Hassle Costs, and Drip Pricing: Equilibria with Rational Consumers and Firms," Working Paper, 2019, available at: http://nash-equilibrium.com/PDFs/Drip.pdf. See also Mary W. Sullivan, "Economic Analysis of Hotel Resort Fees," Bureau of Economics, Federal Trade Commission, 2017; Department of Transportation, "Enhancing Airline passenger Protections," *Federal Register*, 76, pp. 23110-23111; Department of Transportation, "New Airline Passenger Protections Take Effect This Week," 2012; Office of Fair Trading, "Advertising of Prices," *OFT Report*, 1291, 2010; and Office of Fair Trading, "The Impact of Price Frames on Consumer Decision Making," *OFT Report*, 1226, 2010.

> We find it unhelpful to promulgate policy based on ideological beliefs concerning rationality—appropriate policy should be guided by facts and evidence rather than dogma. Depending on the facts, imperfections in market outcomes may stem from either (a) consumer biases and departures from full rationality, (b) from market imperfections that permit firms to exploit rational consumers, or both. Effective consumer protection policies must (1) target the pathology producing the harm, and (2) minimize the prospect of causing unintended harm to competition or consumers. If, as in our model, drip pricing harms consumers via coordinated hassle costs, rather than through inadequate disclosure or behavioral factors, then policies requiring the cessation of obfuscation (e.g., full up-front disclosure of the total price) will fail on both counts: They target the wrong pathology and could, unintentionally, cause harm…A broad implication of our analysis is that an idealized benchmark, like perfect information through a full up-front disclosure, is an inappropriate counterfactual for measuring policy effectiveness. Indeed, Stigler (1961) anticipated this almost 60 years ago when he noted that information acquisition and disclosure is inherently costly and that it is not generally optimal for any decision-maker to pursue or obtain perfect information. Our model of drip pricing illustrates this starkly—a policy requiring full up-front disclosure of the total price provides no benefits to consumers or to competition so long as hassle costs remain the same. Thus, if a policy requiring greater disclosure entails any costs whatsoever, it reduces social welfare. While we view this, too, as a mere benchmark, it highlights an important lesson for contemporary policy makers: Even information disclosure suffers from diminishing (or possibly negative) returns to consumers and to competition.[15]

In short, different models imply different pathologies, and therefore call for different solutions. Scientifically sound data analysis is the key to determining the pathology and quantifying potential consumer harm.

Distributional Effects and Social Welfare

Heterogeneities in consumer rationality significantly complicate the implementation of consumer protection policies; policies designed to protect consumers with one type of behavioral bias can harm consumers without (or with different) behavioral biases, and vice versa.[16] Such policies may also have other unintended consequences, including reductions in overall social welfare.

By way of example, David Sappington and I examine the impact of privacy regulation on consumer and social welfare in an environment where consumers have differing degrees of rationality. In our model, two different types of consumers make purchases on an online shopping platform: (1) Sophisticated (or rational) consumers, who take into account that information the platform learns about them in one transaction might be exploited in other transactions, and (2) unsophisticated consumers, who are myopic and do not take this information sharing into account when using the platform. In such an environment:

> Sophisticated consumers…generally benefit when the platform shares all transactions data with third parties (i.e., other merchants on the platform). The data sharing provides a channel

[15] Michael R Baye and John Morgan, "Search Costs, Hassle Costs, and Drip Pricing: Equilibria with Rational Consumers and Firms," Working Paper, 2019, available at: http://nash-equilibrium.com/PDFs/Drip.pdf.

[16] *Expressions Hair Design v. Schneiderman* is one recent example.

> through which sophisticated consumers can credibly signal when their reservation values for the merchants' products are low. Such signaling induces price concessions from merchants. When the platform does not share transactions data, it effectively closes the signaling channel, thereby harming sophisticated consumers…In contrast, unsophisticated consumers benefit when the platform never shares transactions data with third parties. This privacy policy prevents merchants from exploiting unsophisticated consumers by charging them higher prices after they are observed to pay high prices to other merchants. Thus, the privacy policy that best serves unsophisticated consumers harms sophisticated consumers. Consequently, the formulation of privacy regulations for online platforms can be challenging even when the sole objective of the regulations is to maximize consumer welfare.[17]

There is not only a tension between the differential impact of privacy policies on consumers with differing degrees of rationality; our research shows that consumer protection policies designed to protect unsophisticated consumers can reduce overall social welfare:

> The welfare of sophisticated (fully rational) consumers, and platform profit are all maximized when the platform provides transactions data to all merchants. In contrast, the welfare of unsophisticated consumers is maximized when no transactions data are shared with third parties. Consequently, an important tension arises. Privacy policies that best protect unsophisticated consumers may do so at the expense of sophisticated consumers. These policies may also reduce social welfare (and platform profit).
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> This tension between policies that best serve different types of consumers raises subtle considerations in the formulation of platform privacy policies. For example, opt-in or opt-out requirements can benefit unsophisticated consumers but harm sophisticated consumers. In addition, data breaches and violations of platform privacy policies can have different effects, and can affect sophisticated and unsophisticated consumers in different ways. Consequently, the most appropriate privacy policy for online shopping platforms typically will vary with the relevant social objective and with prevailing institutional features, including the status quo policy, the costs of opting into and out of a privacy policy, and the degree of consumer sophistication.[18]

Evidence-Based Policy and Enforcement Decisions

Effective consumer protection requires evidence-based policy and enforcement decisions. It is not sufficient to simply assume or assert that consumers suffer from a behavioral bias. Nor is it sufficient to simply provide evidence that consumers are rational or, alternatively, suffer from certain behavioral biases. One must demonstrate that specific business practices actually harm consumers and quantify the harm in manner that accounts for distributional effects and potential unintended consequences.

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[17] Michael R. Baye and David E. M. Sappington, "Revealing Transactions Data to Third Parties: Implications of Privacy Regimes for Welfare in Online Markets," Working Paper, 2019, available at: http://nash-equilibrium.com/PDFs/Privacy.pdf.

[18] Michael R. Baye and David E. M. Sappington, "Revealing Transactions Data to Third Parties: Implications of Privacy Regimes for Welfare in Online Markets," Working Paper, 2019, available at: http://nash-equilibrium.com/PDFs/Privacy.pdf.

Three primary types of data are available to guide evidence-based consumer protection decisions: surveys, experiments and field data. During the course of my career, I have used all three approaches to answer different questions, and each has value. Other things equal, though, I prefer field data to experimental data, and prefer experimental data to survey data.[19] Of course, field data are not always available and other things are not always equal.[20]

Consider, as one example, mortgage disclosures. When I was at the FTC, Staff in the Bureau of Economics conducted a scientific study to examine the efficacy of government-mandated disclosures—specifically, the Truth-in-Lending (TILA) statement and the Good Faith Estimate of Settlement Costs (GFE).[21] Prior to this study, there was little empirical work on the impact of disclosures on consumers' understanding of mortgage costs. Based on interviews, surveys and a scientific experiment, staff provided evidence that:

> Many borrowers, both prime and subprime, were confused by disclosures in the current TILA and GFE forms and did not understand key terms. Further, some of the required disclosures actually misled consumers. Many believed, for example, that the "amount financed" disclosed on the TILA statement was their total loan amount, even though this figure is calculated by subtracting finance charges from the loan amount. A number of borrowers also mistakenly believed that the "discount fee" disclosed on the GFE was a discount they had received rather than a fee they had paid. Many borrowers also did not understand important costs and terms of their own recently obtained loans. Many had loans that were significantly more costly than they believed, or that contained significant restrictions, such as prepayment penalties, of which they were unaware. Many of these borrowers did not learn of these costs and terms until at or after the loan settlement, and some appeared to learn this information for the first time during the study interview.
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> The second part of the study examined the effectiveness of current and prototype mortgage disclosures using quantitative testing in a controlled experiment with 819 recent mortgage customers in 12 locations across the country...[and found that nearly] a quarter of the participants using current disclosures could not correctly identify the amount of settlement charges, about a third could not identify the interest rate, a third did not recognize that the loan included a large balloon payment, a third did not recognize that the loan amount included money borrowed to pay for settlement charges, half could not correctly identify

[19] For a few reasons why, see Steven D. Levitt and John A. List, "On the Generalizability of Lab Behaviour to the Field," *Canadian Journal of Economics,* Vol. 40, No. 2 (2007), pp. 347-370. To the extent that one uses surveys to establish behavioral biases, one must exercise great care because biases in survey design and/or behavioral biases by respondents can distort data. Examples include biases stemming from the manner in which questions are framed, the use of leading questions, inadequate filter questions, the absence of an appropriate control group, selection bias, and so on. For a discussion of these and related issues, see: see Michael R. Baye and Joshua D. Wright, "How to Economize Consumer Protection," *The Antitrust Source*, Vol. 17, No. 4 (February 2018), pp. 1-15, available at: https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/feb18_baye_2_15f.pdf.

[20] For a discussion of the strengths and weaknesses of these different data types, see Michael R. Baye and Joshua D. Wright, "How to Economize Consumer Protection," *The Antitrust Source*, Vol. 17, No. 4 (February 2018), pp. 1-15, available at: https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/feb18_baye_2_15f.pdf.

[21] James M. Lacko and Janis K. Pappalardo (2009), FTC Report, "Improving Consumer Mortgage Disclosures: An Empirical Assessment of Current and Prototype Disclosure Forms," available at: https://www.ftc.gov/reports/improving-consumer-mortgage-disclosures-empirical-assessment-current-prototype-disclosure.

> the loan amount, two-thirds did not recognize that they would have to pay a prepayment penalty if they refinanced, three-quarters did not recognize that a substantial charge for optional credit insurance was included in the costs, and nearly nine-tenths could not identify the total amount of up-front charges.[22]

Two aspects of this study are worth noting. First, it illustrates that government-mandated disclosures may themselves be misleading or deceptive; it is an open question whether these government-mandated disclosures enhanced consumers' understanding of mortgage terms relative to a "but-for" world without mandated disclosures. Second, while useful, the data do not demonstrate or quantify actual harm to consumers—that is, whether the misleading or deceptive disclosures were "material" in any meaningful economic sense. Expressed differently, surveys do not establish whether borrowers would have made different economic choices in a "but-for world" with superior disclosures. As I note in a paper with Joshua Wright, the mere fact that information was inadequately disclosed does not imply that consumers were harmed; indeed, they might have made the same choices or decisions in a "but-for world" with better information. Field data, coupled with econometric techniques such as difference-in-difference or before-after analysis, permit one to quantify any actual harm to consumers.[23] These observations may be useful for the CFPB to consider in its own rulemaking.[24]

Concluding Remarks

Evidence that firms may attempt to profit from consumers' behavioral biases—or that the informational content of financial disclosures does not mirror the idealized world of perfect competition—does not guarantee that consumers benefit from consumer protection regulation. Nor does the fact that a firm attempts to profit from consumers' behavioral biases necessarily imply that the firm succeeded in extracting ill-gotten gains from the market.[25] Careful empirical analysis is necessary to determine impact and to quantify harm. Failure to do so can result in well-intentioned policies that harm rather than protect consumers. Courts are increasingly requiring evidence beyond

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[22] Michael R. Baye, Matias Barenstein, Debra J. Holt, Pauline M. Ippolito, James M. Lacko, Jesse B. Leary, Janis K. Pappalardo, Paul A. Pautler and Michael G. Vita, "Economics at the FTC: The Google-DoubleClick Merger, Resale Price Maintenance, Mortgage Disclosures, and Credit Scoring in Auto Insurance," *Review of Industrial Organization*, Vol. 33, 3, 2008, pp. 211-230.

[23] Michael R. Baye and Joshua D. Wright, "How to Economize Consumer Protection," *The Antitrust Source*, Vol. 17, No. 4 (February 2018), pp. 1-15, available at: https://www.americanbar.org/content/dam/aba/publishing/antitrust_source/feb18_baye_2_15f.pdf.

[24] In the spirit of the FTC's analysis of mortgage disclosures, the CFPB is currently utilizing consumer surveys to guide rulemaking on debt collection disclosures. See, for instance, the Bureau's proposal to amend Regulation F (which implements the Fair Debt Collection Practices Act), available at: https://files.consumerfinance.gov/f/documents/cfpb_debt-collection-NPRM.pdf. See also "CFPB to Mail Debt Collection Surveys to Consumers," available at: https://www.insidearm.com/news/00040394-cfpb-to-mail-debt-collection-surveys-to-c/.

[25] Enforcers, in allocating scarce resources across caseloads, should not lose sight of the possibility that consumers learn and adapt to potentially misleading information before committing to a purchase decision. Many consumer financial decisions involve a journey through multiple steps over an extended period of time before the consumer makes a commitment, during which time more complete information may be revealed. Furthermore, experience with similar products can provide consumers with context to make informed decisions despite incomplete or misleading information.

that provided by consumer protection agencies in their attempts to prove that that certain business practices harm consumers, or to justify requests for certain types of information from businesses.[26]

Consumers are not the only economic actors who may behave irrationally or suffer from behavioral biases. Casual empirical evidence suggests that at least some government leaders and/or policymakers suffer from behavioral biases, including affinity bias, anchoring, cognitive dissonance, self-attribution bias, confirmation bias, hindsight bias, and outcome bias.[27]

[26] This includes two recent court decisions that thwarted enforcement actions by the FTC and CFPB. After hearing the FTC's case-in-chief support for its allegations that DirecTV failed adequately to disclose key terms in its advertisements, the court concluded that the FTC failed "to establish that the ads were likely to mislead reasonable consumers." (See "Judge Rejects Large Parts of FTC Suit Against DirecTV," available at: https://www.wsj.com/articles/judge-rejects-large-parts-of-ftc-suit-against-directv-1534445947). Similarly, after reviewing the CFPB's support for its claim that a debt collector harmed consumers by sending "demand letters that were false, misleading or deceptive," the court concluded that the CFPB failed to provide "evidence that any debtor's decision to pay a debt was influenced by attorney identifiers on the demand letter and that the CFPB provided no evidence that debtors were harmed by the letters." (See "Consumer Financial Protection Bureau loses lawsuit against Cleveland debt collection firm," available at: https://www.cleveland.com/court-justice/2018/07/consumer_financial_protection.html).

[27] These are some of the biases that a website affiliated with Wells Fargo Advisors suggests plague consumers in financial markets. See: Peter Vrooman and Jonathan Sarver, "18 Key Behavioral Finance Biases," available at: http://www.sarvervrooman.wfadv.com/files/68283/18_Key_Behavioral_Sarver-Vrooman_WFA_4cF_hi-res.pdf for their description of these and other biases.