

REGULATING FOR RATIONALITY

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Traditional consumer protection law employs various disclosure requirements to respond to market imperfections that result when consumers are misinformed or unsophisticated. This regulation assumes that consumers can rationally act on the information that disclosure seeks to produce. Experimental results in psychology and behavioral economics question this rationality premise. The numerous reasoning defects consumers exhibit in these experiments would vitiate disclosure solutions if those defects also presented in markets. To assume that consumers behave as badly in markets as they do in the lab implies new regulatory responses. This Article sets out the novel and difficult challenges that such “regulating for rationality”—intervening to cure or to overcome cognitive error—poses for regulators. Much of the challenge exists because the contracting choices of rational and irrational consumers often are observationally equivalent: both consumer types prefer the same contracts. Hence, the regulator seldom can infer from contract terms themselves that reasoning errors produced those terms. Rather, the regulator needs a theory of cognitive function that would permit him to predict when actual consumers would make the mistakes that laboratory subjects make: that is, to know which fraction of observed contracts are the product of bias rather than rational choice. The difficulties exist because the psychologists lack such a theory. Hence, cognitive-based regulatory interventions often are poorly grounded. A particular concern is that consumers suffer from numerous biases, and not every consumer suffers from the same ones. Current theory cannot tell how these biases interact within the person and how markets aggregate differing biased consumer preferences. The Article then makes three further claims. First, regulating for rationality should be more evidence-based than regulating for traditional market imperfections: in the absence of a theory, the regulator needs to see what actual people do. Second, when the facts are unobtainable or ambiguous, regulators should assume that bias did not affect the consumer’s contracting choice because the assumption is autonomy preserving, administrable, and coherent. Third, disclosure regulation can ameliorate some reasoning errors. Hence, abandoning disclosure strategies in favor of substantive regulation sometimes would be premature.

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INTRODUCTION

The United States enacted a large amount of consumer protection regulation in the 1960s and 1970s.¹ The national and state legislatures then did little, apart from changes to consumer bankruptcy law, for decades. Recently, a new wave of consumer protection legislation has been passed or is being proposed, largely in consequence of market failures during the Great Recession.² The new laws add a regulatory premise.

1. For example, the Federal Trade Commission promulgated rules and regulations to implement the Magnuson-Moss Warranty—Federal Trade Commission Improvement Act, Pub. L. No. 93-637, 88 Stat. 2183 (1975) (codified as amended at 15 U.S.C. §§ 2301-2312 (2013)), and the Fair Packaging and Labeling Act, Pub. L. No. 89-755, 80 Stat. 1296 (1966) (codified as amended at 15 U.S.C. §§ 1451-1461). The Federal Reserve Board also was active. Major regulations passed by the Board included Regulation B (Equal Credit Opportunity), 12 C.F.R. § 202 (1976), carrying out the Equal Credit Opportunity Act, Pub. L. No. 93-495, 88 Stat. 1521 (1974) (codified as amended at 15 U.S.C. §§ 1691-1691f); Regulation C (Home Mortgage Disclosure), 12 C.F.R. § 203 (1977), implementing the Home Mortgage Disclosure Act of 1975, Pub. L. No. 94-200, 89 Stat. 1125 (codified as amended at 12 U.S.C. §§ 2801-2810 (2013)); and Regulation M (Consumer Leasing), 12 C.F.R. § 213 (1982), implementing the Consumer Leasing Act of 1976, Pub. L. No. 94-240, 90 Stat. 257 (codified as amended at 15 U.S.C. §§ 1667-1667f), which was an amendment to Regulation Z (Truth in Lending), 12 C.F.R. § 226 (1969) (revised several times throughout the 1970s), carrying out the Truth in Lending Act, Pub. L. No. 90-321, 82 Stat. 146 (1968) (codified as amended at 15 U.S.C. §§ 1601-1667f), as authorized by 15 U.S.C. § 1604(a). Also, by 1981, all fifty states and the District of Columbia had each enacted at least one consumer protection statute. See 1 DEE PRIDGEN & RICHARD M. ALDERMAN, CONSUMER PROTECTION AND THE LAW app. 3A, at 177 (2014) (listing complete citations for the consumer protection laws in all fifty states and the District of Columbia).

2. The United States recently created the Consumer Financial Protection Bureau (CFPB). See Consumer Financial Protection Act of 2010, Pub. L. No. 111-203, 124 Stat. 1955 (codified as amended at 12 U.S.C. §§ 5481-5603). This agency is enacting new rules to regulate financial contracting between financial institutions and individual persons. The CFPB's new rules regarding escrow requirements for higher-priced mortgage loans, and requiring consumer counseling before granting such mortgage loans, are reviewed in Laura Hobson Brown, Laura Greco & Robert Savoie, *Dodd-Frank Act Requirements for Escrow Accounts, High-Cost Mortgages, Homeownership Counseling, and Appraisal Requirements*

In the traditional view, consumer markets fail in consequence of monopoly power or imperfect information. Because monopoly power is the province of the antitrust laws, consumer protection regulators focused on imperfect information. Their standard response was disclosure. The Truth in Lending Act (TILA) is a good example.³ Prior to its passage, consumers had difficulty choosing among the interest rates that sellers or banks charged because these firms quoted rates in different ways, all of which were complex. TILA required firms to disclose the cost of money in a single number: the annual percentage (interest) rate. As a consequence, consumers could more easily compare credit costs across firms.

Two assumptions led Congress, in TILA, to regulate the form rather than the substance of credit transactions. First, there was no externality concern. A regulator necessarily has to regulate contract substance when a contract creates a negative externality. The problem that consumer markets appeared to pose, however, was poor consumer decisionmaking, not third-party effects. Second, Congress assumed consumers were able to make rational choices. That is, a consumer could compare the expected gain from knowing the interest rate a particular seller charged, and from knowing the distribution of interest rates in the relevant market, to the cost of becoming informed. As a consequence, the consumer would minimize her interest bill *unless* it was too costly for her to acquire the necessary information. Consumers thus would make poor decisions

Take Shape, 69 BUS. LAW. 563 (2014). The CFPB's new rule implementing the requirement that lenders must assess the consumer's ability to pay before extending a mortgage is reviewed in Sanford Shatz & Justin Angelo, *The Consumer Financial Protection Bureau's Ability-to-Repay/Qualified Mortgage Rule*, 69 BUS. LAW. 539 (2014). Critical views of the CFPB are in Roberta Romano, *Regulating in the Dark and a Postscript Assessment of the Iron Law of Financial Regulation*, 43 HOFSTRA L. REV. 25 (2014), and Todd Zywicki, *The Consumer Protection Bureau: Savior or Menace?*, 81 GEO. WASH. L. REV. 856 (2013). A similar development is taking place in Europe. Europe is considering adopting the Draft Common Frame of Reference (DCFR), a codified set of contract law principles commissioned by the European Union that functions similarly to a draft of the Uniform Commercial Code in the United States. See 1 PRINCIPLES, DEFINITIONS AND MODEL RULES OF EUROPEAN PRIVATE LAW: DRAFT COMMON FRAME OF REFERENCE (DCFR) 2-3 (Christian von Bar & Eric Clive eds., full ed. 2010). Under the DCFR, a party cannot enforce a term that it supplied if a court deems the term unfair. See *id.* art. II.-9:401 to :410, at 628-67. The DCFR also creates an affirmative duty for firms to ensure that terms in consumer contracts are "drafted and communicated in plain, intelligible language," and courts may find contract terms to be unfair on the sole basis that they fail to meet this transparency standard. *Id.* art. II.-9:402(1), at 629. The source of much current European consumer contract regulation is Directive 93/13/EEC on unfair terms, which contains a list of presumptively unfair terms and provides, in article 3(1), that any contract term is unfair if it is not individually negotiated and, "contrary to the requirement of good faith, . . . causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer." *Id.* art. II.-9:403 cmt. B, at 634 (quoting Council Directive 93/13/EEC, art. 3(1), 1993 O.J. (L 95) 29, 31 (EC)) (internal quotation mark omitted). The Directive is enforced by the Court of Justice of the European Union and the courts of member states. For a description and analysis, see Hans-W. Micklitz & Norbert Reich, *The Court and Sleeping Beauty: The Revival of the Unfair Contract Terms Directive (UCTD)*, 51 COMMON MKT. L. REV. 771 (2014).

3. 15 U.S.C. §§ 1601-1667f.

when and because it was inefficient for them to search. It followed that the regulatory task was to reduce the consumer's cost of learning about interest rates. TILA's rationality premise is plausible even today because the consumer's cognitive problem is simple: she has only to compare the numbers that firms quote.

Assuming rationality when the consumer must evaluate other contract terms is less plausible, however. Psychologists, and more recently some economists, have shown that consumers exhibit numerous reasoning errors in laboratory tests. Reasoning errors are attributed to "cognitive biases": laboratory subjects, that is, make mistakes because they violate rationality in numerous ways. Because traditional regulation presupposes rationality, the new social science learning suggests different types of reform.

Home mortgages are a good illustration. These mortgages contain many complex terms. Because consumers take out mortgages infrequently, and because terms change over time, consumers may rationally not incur the costs of learning what their mortgages say. A traditional regulatory response would be to require firms to simplify the language in which mortgages are cast. But suppose that lenders offer variable rate mortgages and some consumers irrationally (overoptimistically) believe that future housing prices will much exceed current prices. Such consumers may take out variable rate mortgages because they expect to satisfy the contractually required increase in the interest rate by refinancing their homes. If housing prices turn out to be flat or fall, these consumers cannot refinance and so may lose their homes. Simplifying mortgage language is an inadequate regulatory response if consumers will make poor decisions when they know what their contracts say. Regulating mortgage content may be better.

This Article argues that regulators should take a second look before making such strong interventions.⁴ Its more precise claim is that "regulating for rationality" poses different challenges than regulating for costly information. Scholars and regulators now pay insufficient attention to these challenges. The argument here does *not* hold that regulators should return to the 1970s and simply assume that everyone is rational. Rather, the regulator today needs new types of evidence, and new default normative premises when evidence is lacking, in order to intervene effectively in markets in which some consumers are making cognitive mistakes while others are not.

To introduce the new challenges, consider a current view of the regulatory task. Put schematically, the view holds that markets either offer one contract that it would be irrational of consumers to accept, or offer two contracts, one of

4. Consumer protection law is commonly made by statute or administrative regulation. Hence, the "regulator" in this Article is a legislature considering whether to enact a reform or an administrative agency either adopting or applying a regulation. This Article assumes that the regulator is well informed, is immune to cognitive error, and only pursues the public good. If it is difficult for this ideal regulator to regulate for rationality, it should be at least as difficult for actual regulators to do so.

which attracts irrational consumers (contract *A*) and the other of which attracts rational consumers (contract *B*). Because contracts *A* and *B* are facially distinguishable, the regulator can choose effectively from a standard set of regulatory responses: “nudge” consumers toward rational contract *B*, alter or ban the irrational terms in contract *A*, or ban contract *A* altogether.

This conceptualization of the regulatory task leads to error when, as often happens, there are no irrational contracts to regulate. Rather, in these cases there are contracts that are good deals for some and bad deals for others. A second look at the variable rate mortgage contract will show why. This mortgage may appeal to rational consumers who know what their probable future incomes are likely to be. A consumer in a steady job with plausible promotion prospects can hold a well-grounded belief that she will be able to pay a higher contract interest rate out of her income in the next period, if she cannot refinance. This consumer thus could rationally choose the variable rate mortgage because it enables her to buy a better home than her current income can support. But as shown, the variable rate mortgage also may appeal to consumers whose income prospects cannot support higher interest rates but who are irrationally optimistic about future housing prices.

This illustration shows that rational *and irrational* consumer contracting choices often present to the regulator in an “observationally equivalent” way: that is, both consumer types may prefer the same contract. As another salient example, consider a credit card contract with a low introductory rate and high late fees. A consumer with good impulse control may rationally prefer this contract either because she correctly anticipates that she will make timely payments or because she correctly anticipates that she may pay penalties but would rather borrow on her credit card (the late fees are the interest rate) than borrow from a payday lender or a pawnshop. The same contract may also appeal to a consumer who is prey to a myopia bias and to a present bias. This consumer focuses on the low introductory rate (the myopia bias) and fails to anticipate that she may overspend her current income (the present bias), and so she may be surprised by the substantial late fees her creditors charge.

It may help to be a little more formal about contracts that are both rationally and irrationally preferred. The substantive terms of these contracts generate positive utility for typical consumers. Thus, many consumers benefit from the additional current liquidity that a variable rate mortgage makes possible, or from a low introductory credit card rate. Consumer contracts have one universal cost and one possible additional cost. The universal cost is the price. Consumers who agree to a contract derive more utility from the substantive terms than they lose from parting with the price.

This Article denotes the possible additional cost a “mismatch cost.” To understand what a mismatch cost is, reconsider the examples above. A consumer may lose her home because she cannot refinance. She probably would have escaped this problem had she not been excessively optimistic about future housing prices; for then she would have made a different contract under which she would borrow less and so have a better chance of keeping her home. A con-

sumer faces heavy late fees, which she may have escaped had she not been myopic and present biased; for then she likely would have rejected the credit card contract with the low introductory rate and high penalties in favor of a contract she could more easily sustain. A mismatch cost is incurred when a consumer makes a contract *that her rational self would have rejected*: the consumer and the contract are mismatched.⁵ To sum up this concept in economic language, a contract is rationally and irrationally preferred when, for every consumer who makes the contract, the utility that the terms yield exceeds the price *but*, for some consumers, the utility the terms yield is *less than* the sum of the price and the expected mismatch cost. These contracts create expected utility gains for rational consumers but expected utility losses, on net, for irrational consumers. The two consumer types are observationally equivalent to the regulator, however, because both types accept the same contract, which creates expected utility gains for them, the possibility of mismatch costs aside.⁶

Cognitive error is a concern in consumer markets when it causes many consumers to incur mismatch costs. The new regulatory challenge thus is to get behind observational equivalence in order to identify and ameliorate these costs. It is this Article's central claim that the challenge is much harder to meet than is commonly realized.

There are three major difficulties, the first and most significant of which is the lack of a theory of cognitive function. A theory is a related set of propositions that apply transcontextually. To understand why theories help regulators, realize that the laboratory is a context. Hence, when a general theory receives experimental validation, the regulator should believe, *prima facie*, that the theory applies in other contexts of interest to him. As an example, economic search theory predicts that consumers engage in more comparison shopping when the costs of comparing prices and contracts across firms are reduced. This theory has been validated in the lab. Therefore, a regulator could hold a well-grounded belief that he should reduce comparison costs in real markets. To be sure, more theory or facts could cause him to abandon this belief. But the combination of a theory and experimental confirmation gives the regulator a good place to start.

Psychologists have a large set of experiments, in most of which a subset of subjects makes systematic reasoning errors, but psychologists lack a general theory. In the absence of such a theory, the regulator lacks a well-grounded reason to believe, or not believe, that poor performance in an experimental context

5. The cognitive literature commonly contrasts actual with ideal choices. *See, e.g.*, Ben McQuillin & Robert Sugden, *Reconciling Normative and Behavioural Economics: The Problems to Be Solved*, 38 *SOC. CHOICE & WELFARE* 553, 560 (2012) ("The idea that choices are affected by mistakes and failures of self-control implicitly assumes that individuals have reasonably coherent 'true' preferences, even if these are not reliably revealed in choices.").

6. The argument above assumes that consumers can correctly trade off the utility that the terms yield—the benefit of a mortgage—against the price. In certain contexts, largely involving insurance purchases, this assumption is questionable. Part II.D below considers these contexts to show that the relevant irrationality—reference-dependent utility—also causes observational equivalence.

predicts poor performance in other experimental contexts or in markets. To understand the regulatory problem, consider an actual contract, such as the credit card contract just discussed, that can be both rationally and irrationally preferred. The regulator can rationalize the contract as the product either of rational choice or of myopia and present bias. Therefore, there would be a reason to regulate if many actual consumers were choosing irrationally but not if few were. Experiments in which some subjects make errors cannot answer this “how much” question because the credit card market is a different context than the laboratory market.

The second regulatory difficulty is that the regulator must go beyond the lab to make a demographic inquiry. The “how much” question would be irrelevant if consumers acted similarly in markets as the experimental subjects act in the lab. There is a temptation to assume such similarity because the consumers and the subjects are all just people. There are two difficulties with this belief. The first is that some subjects do not make mistakes in the lab. Hence, the belief implies that some consumers do not make mistakes in the market. This possible heterogeneity raises an equilibrium selection problem: How do firms respond when a part of their demand curve makes rational choices while another part does not? Because competition sometimes may cause irrationally preferred contracts to vanish and other times may not, the regulator should make a market-by-market inquiry.⁷ The other difficulty is that consumers in markets may not make the same mistakes the experimental subjects make because many biases moderate or vanish with experience. Actual consumers have opportunities to learn, particularly in connection with transactions they make repeatedly; for then they receive feedback. As an example, consumers who pay credit card late fees are less likely to pay such fees in future transactions.⁸ And in general consumers may make better decisions than laboratory subjects because consumers may be experienced while the subjects commonly face the experimental task for the first time.

The third regulatory difficulty follows from what this Article refers to as “the many bias problem.” This problem presents at both the individual and the market levels. Beginning with persons, psychology experiments commonly test for single biases. The experimental question is whether consumers are overconfident or subject to the endowment effect, or the like. Because laboratory subjects are selected to represent the population in general, experimenters claim

7. The effect of competition on irrational contracting choices is explored in Alan Schwartz, *How Much Irrationality Does the Market Permit?*, 37 J. LEGAL STUD. 331 (2008). Relevant to this Introduction, competition may induce firms to dispel myopia. See also Tobias Wenzel, *Consumer Myopia, Competition and the Incentives to Unshroud Add-On Information*, 98 J. ECON. BEHAV. & ORG. 89, 90 (2014).

8. See Sumit Agarwal, John C. Driscoll, Xavier Gabaix & David Laibson, *Learning in the Credit Card Market 3* (Nat'l Bureau of Econ. Research, Working Paper No. 13,822, 2008). As another example, overconfidence about one's abilities may vanish for tasks when subjects are given monetary incentives to perform the tasks correctly and receive feedback on their performance. See Jeremy Clark & Lana Friesen, *Overconfidence in Forecasts of Own Performance: An Experimental Study*, 119 ECON. J. 229, 232 (2009).

that actual consumers are prey to the biases that subjects exhibit in the lab. To grant such claims is to believe that the typical consumer suffers from numerous biases. That many biases may affect particular consumer contracting choices would not be a problem if the bias vector were monotonic: that is, each additional bias makes the consumer crazier. Biases may offset, however. Thus, the optimism bias may counteract the status quo bias. The latter bias makes the agent reluctant to act, but the former bias makes the agent believe success from acting is likely. Because several biases may affect choice in a particular context, and because the effect of those biases may be either to push the consumer further from or closer to rationality's true path, the regulator needs a theory of bias interaction. There currently is no such theory.

Turning to markets, because the experiments, testing for one bias at a time, uncover numerous biases, consumers probably differ in the biases that affect their choice. Thus, some consumers are overconfident, others are present biased, still others anchor on theories and so resist new evidence, many focus excessively on vivid stimuli, and so forth. This heterogeneity raises the question of how markets aggregate consumers' various possibly flawed contracting preferences. Put another way, what contracts will firms offer when they face many biased consumers, but the consumers are biased in different ways? There now is no answer to this question.

The lack of a cognitive theory, the heterogeneity of consumer populations, and the lack of a "subtheory" of bias interaction together show that the regulator cannot sensibly make direct inferences from subjects' laboratory choices to consumers' market choices. A regulator faced with the observational equivalence of consumer contracting choices thus needs to proceed in a different way. This Article's primary goal is to show the need for a new regulatory path rather than attempt to take readers to the path's end. Hence, what follows are preliminary suggestions.

Consumer regulators may have three positive directions to take. The first is to use actual evidence. For example, what fraction of consumers systematically pays late fees? Are these consumers aware that they face contractual penalties? Firms may use such information to price. Hence, a possible new disclosure strategy would be to require firms to disclose relevant data to the regulator or to consumers. Second, the regulator can do a field test if he believes that the relevant real-world context is similar to an experimental context in which individual agents often err.⁹ For example, John List studied the behavior of agents in the sports card market. Some agents were pros while others were first-time users. The pros did much better than the amateurs, but the amateurs who returned

9. A field test can measure consumers' real-world decisions against the decisions rational consumers would make. Recent reviews of such tests are in Dean Karlan, Aishwarya Lakshmi Ratan & Jonathan Zinman, *Savings by and for the Poor: A Research Review and Agenda*, 60 *REV. INCOME & WEALTH* 36, 37 (2014), and Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 *J. ECON. LITERATURE* 315 (2009).

to the market in the next period materially improved their performance.¹⁰ Field tests such as these may help the regulator choose better-grounded reform strategies. Third, the regulator should not give up too soon on traditional solutions. Thus, reducing search costs, it is argued below, not only increases comparison shopping but also may help consumers to avoid some cognitive errors. To sum this up, regulating for rationality should be more evidence-based than many prior reforms have been.¹¹

There are two difficulties with evidence-based solutions, however. First, evidence is costly to gather and sometimes is not accessible. Second, the most valuable evidence tests theoretical predictions. The absence of a general cognitive theory, noted above, implies that the regulator or scientist seldom will have such predictions. That the regulator often must act on a sketchy record thus suggests that there is need for new normative thinking. What should guide a regulator who plausibly suspects that many consumers are making poorly reasoned contracting choices when rational persons also could make the same contracts?

Scholars have given little thought to this question. As an early effort, two normative premises apparently are needed. Regarding the first, the regulator's *practical choice*, in the present state of knowledge, is to assume that bias does not affect consumers' contracting choices unless evidence of particular mistakes exists, or to assume that bias influences (or causes) consumer contracting choices unless evidence of rationality exists. A regulator who assumes that bias plays no role necessarily defaults to the premise that the "typical consumer" can make the tradeoffs the market presents—between variable and fixed rate mortgages, for example—if the consumer is well informed. A regulator who attributes a causal role to bias would assume the contrary.¹² This Article argues

10. John A. List, *Does Market Experience Eliminate Market Anomalies?*, 118 Q.J. ECON. 41, 42-43 (2003).

11. This view, it should be stressed, rests on the current state of theory. Recently, economists have been making interesting progress with new theoretical analyses. The idea is that if firms in the analyst's model profitably exploit consumer errors, then actual firms in markets may do so as well. As an illustration, a recent text, RAN SPIEGLER, *BOUNDED RATIONALITY AND INDUSTRIAL ORGANIZATION* (2011), analyzes several theoretical models that ask whether firms could profit by offering pricing menus to consumers in various contexts that exploit the consumers' tendency to err. In the models, prices charged to cognitively challenged agents sometimes exceed the willingness to pay of a fully rational consumer. These results are only suggestive for two reasons. First, the analyses do not consider how firms could exploit consumer errors through nonprice terms, which is the major consumer protection concern. Second, each of Spiegler's models assumes that an agent is prey to only one bias, but consumers may be biased in several ways. Part II.B discusses other separating equilibrium models.

12. The spate of mandatory rules in recent regulations seems consistent with a presumption of irrationality. As an example, the Credit CARD Act of 2009, Pub. L. No. 111-24, 123 Stat. 1734 (codified as amended in scattered sections of 15, 16, and 31 U.S.C.), regulates credit card contracts and contains several mandatory rules. Among other mandatory rules, the Credit CARD Act requires that credit card companies notify consumers in advance about increases in interest rates and other significant contract changes, § 101(a)(1), 123 Stat. at 1735-36, and allows consumers to opt in to completing and paying fees for over-the-limit

that regulators should “default to rationality”—that is, assume that bias does not affect choice—largely because current behavioral theory gives the regulator insufficient guidance when he is choosing reforms, but also because a rationality default is more consistent with our society’s general commitment to respecting a person’s autonomous choices just because they are her choices.¹³

Second, a rationality default should be qualified by a risk-of-error theory. Some consumer contracting choices are more consequential than others. Consumers’ reasoning errors regarding whether to accept a disclaimer of personal injury risk are attended with larger losses than reasoning errors regarding whether to accept a retailer’s policy on returning defective dishes or toasters. There is a need to rank consumer decisions on a metric of seriousness; a well-grounded cutoff would presume rationality for decisions on one side of the cut-

transactions, § 102(a), 123 Stat. at 1738-40. Congress also restricted the use of mortgage prepayment penalties in the Home Ownership and Equity Protection Act of 1994, Pub. L. No. 103-325, sec. 152(d), § 129(c), 108 Stat. 2190, 2192-93 (codified as amended at 15 U.S.C. § 1639(c) (2013)). Twenty-five states have adopted versions of this statute. *See also* Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified as amended in scattered sections of the U.S. Code); *supra* note 2 (discussing subsequent regulations).

13. Part III of this Article sets out additional reasons for a “rationality default.” It may be useful, as a prelude to what follows below, to quote recent reflections on the concern about a lack of guidance: First, “Links among behavioral biases, equilibrium contracts, and consumer debt levels are intriguing but remain largely speculative. Overall, the research is characterized by bias and model proliferation and a lack of empirical work with distinct testable predictions of one or more of the behavioral explanations.” Jonathan Zinman, *Consumer Credit: Too Much or Too Little (or Just Right)?*, 43 J. LEGAL STUD. (SPECIAL ISSUE) S209, S225 (2014). Second,

Two problems currently confront the attempts to explain asset pricing anomalies with behavioral models. The first, a widely recognized problem, is that there is no single, consistent model of investor behavior proposed by researchers in behavioral finance that may be falsified. Thus, while classical theories such as the Capital Asset Pricing Model have unambiguous empirical predictions, most behavioral models do not. Investor overreaction is consistent with one type of investor heuristic, while overconfidence is consistent with another. This problem can be interpreted as a sign that the field of behavioral finance, despite 25 years of exciting research, has not yet developed a complete, internally consistent, testable model of investor cognition and action.

EDWIN J. ELTON, MARTIN J. GRUBER, STEPHEN J. BROWN & WILLIAM N. GOETZMAN, MODERN PORTFOLIO THEORY AND INVESTMENT ANALYSIS 498-99 (8th ed. 2009). Third,

[P]rospect theory is still widely viewed as the best available description of how people evaluate risk in experimental settings. . . .

It is curious, then, that so many years after the publication of the [leading] 1979 paper, there are relatively few well-known and broadly accepted applications of prospect theory in economics. . . . [T]he main reason that it has taken so long to apply prospect theory in economics is that . . . it is hard to know exactly *how* to apply it. While prospect theory contains many remarkable insights, it is not ready-made for economic applications.

Nicholas C. Barberis, *Thirty Years of Prospect Theory in Economics: A Review and Assessment*, 27 J. ECON. PERSP. 173, 173-74 (2013). Fourth, “[B]ehavioral economic theory as a whole is a young and rapidly growing field. Many modeling choices regarding belief formation and preferences have been recently proposed and no unifying approach has yet emerged. Consequently, modeling assumptions are still too context-specific. A theoretical overview is probably premature.” JEAN TIROLE, THE THEORY OF CORPORATE FINANCE 9 (2006).

off (buying dishes) but not the other (agreeing to personal injury disclaimers). Today, there is no risk-of-error theory that illuminates regulating for rationality.

Part I below sets out the traditional regulatory landscape. Part II formalizes the concepts of observational equivalence and the distinction between rationally and irrationally preferred contracts, discusses the many bias problem, and considers other causes of observational equivalence. Part III then considers potentially helpful regulatory responses to consumers' biased contracting choices in light of the problems Part II exposes. Part III also argues that regulators should default to rationality when there is a possible contracting problem but neither evidence nor theory clearly indicates how serious the problem is. The Conclusion then considers the analysis's relevance to courts applying such doctrines as the doctrine of unconscionability and the doctrine of good faith.

I. RATIONALITY AND TRADITIONAL REGULATION¹⁴

Before discussing regulatory strategies, it should be noted that the regulator is relatively unconstrained in the evidence he considers. The Administrative Procedure Act requires an agency to make a record when adopting rules, and to permit potentially affected parties to file comments.¹⁵ These parties can obtain judicial review of rules, but review is confined to asking whether the agency has the statutory authority to regulate and whether a particular regulation has a rational basis. In 2000, Congress enacted the Data Quality Act, which regulates the dissemination of (and, indirectly, the use of) information by agencies.¹⁶ The Act requires agencies to maximize the "quality, objectivity, utility, and integrity" of data,¹⁷ and supporters argued that it would induce agencies to regulate on the best science available.¹⁸ The Act is enforced by the Office of Management

14. This Article makes the standard assumption that firms behave rationally for substantive and methodological reasons. Regarding substance, there are two survivorship arguments: firms that are led by agents who make systematic cognitive mistakes will be out-competed by firms that do not; and low-level agents that make systematic cognitive mistakes will not be promoted to decisionmaking levels. Further, firms exhibit awareness of the possibility of error and set up institutions to minimize it, such as devil's advocate roles, group reviews, and anonymous hotlines. Similar justifications for a rationality premise as applied to firms are in DellaVigna, *supra* note 9, at 361. Methodologically, when firms err and when they do not is poorly understood. For example: "These individual propensities to cognitive distortion naturally raise the question of equilibrium: what [firm] environments will make such behaviours socially contagious or self-limiting, and with what welfare implications? Surprisingly, this question has never been considered." Roland Bénabou, *Groupthink: Collective Delusions in Organizations and Markets*, 80 REV. ECON. STUD. 429, 432 (2012). Thus, it seems best to accept the standard assumption.

15. See 5 U.S.C. §§ 551-553 (2013).

16. Pub. L. No. 106-554 app. C, § 515, 114 Stat. 2763A-153 (2000), reprinted in 44 U.S.C. § 3516 note (2013).

17. § 515(a), 114 Stat. at 2763A-154.

18. For further discussion, see CURTIS W. COPELAND, CONG. RESEARCH SERV., RL32532, THE INFORMATION QUALITY ACT: OMB'S GUIDANCE AND INITIAL IMPLEMENTATION (2006).

and Budget (OMB), which issues oversight guidelines regarding compliance, and each agency is supposed to create its own guidelines. There is no judicial review of compliance by either the OMB or an agency. Rationality review gives agencies wide scope, and, so far, the OMB has not regulated intrusively. Hence, our regulator has considerable discretion in his use of the relevant social science when choosing rules. The issue here is how that discretion is best used.

In introducing this question, it is helpful to distinguish two causes of suboptimal consumer contracting choices: those that are cost-based and those that are rationality-based. Regarding costs, consumers may not choose the best alternative because, relative to the gains, it is too costly (1) to observe the different choices the market offers, as in the TILA example above; (2) to read the various terms of complex contracts (or to invest in developing the sophistication to understand those terms), as in the mortgage example above; (3) to process the information necessary to evaluate alternative choices; or (4) to formulate the preferences that selecting from large choice sets requires the consumer to apply.¹⁹ Regarding rationality, the consumer may not choose the best alternative because she made a cognitive mistake.

To state the regulator's problem precisely, define the consumer's true preference as the contracting choice she would make if choosing were costless and she were free from bias. This choice is denoted k_T . The consumer's actual choice—the contract she accepted—is denoted k_R . There is cause for concern if k_R differs substantially from k_T . The regulator, however, cannot observe the “true preference choice” k_T , but rather can only observe the actual choice k_R . The regulatory tasks thus are to estimate the difference between the consumer's observed contracting choice and the true, unobservable choice, and to supply regulations that shrink that difference by responding to its causes. This is a difficult task when the actual choice may be a function of high costs, cognitive error, or both.

Traditional regulatory theory simplified the task by assuming that consumers made rational choices. The regulator then could proceed, in brief, by positing a rational consumer in a specified market environment and comparing the choices she would make if choice were costless with the choices she would make if choice were costly in various ways. If these (theoretically derived) choices differed widely (and the models had some empirical validation), there was reason to intervene in actual markets. And there was a regulatory strategy: to shrink whatever difference there may be between k_T and k_R in the context at issue by reducing the information costs that likely produced that difference.

19. Regarding the last cause, see Pietro Ortoleva, *The Price of Flexibility: Towards a Theory of Thinking Aversion*, 148 J. ECON. THEORY 903, 907 (2013). As an example, suppose ten stores offer different product assortments. “The cost of thinking could be understood as the cost that the agent has to sustain to figure out her preferences, at least insofar as required to determine which is the best choice in the set.” *Id.* Consumers may prefer to reduce the thinking cost by visiting less than all of the stores.

Earlier consumer protection legislation pursued this strategy.²⁰ The most important interventions were TILA, the Magnuson-Moss Warranty Act, state consumer protection laws, and regulations by the Federal Trade Commission and the Federal Reserve Board.²¹ TILA and the Federal Reserve Board primarily focused on reducing the consumer's cost of comparing market alternatives, while Magnuson-Moss and state plain-language laws focused on reducing the consumer's cost of reading contracts.

These regulations followed, and were partly influenced by, state court decisions not to enforce particular terms in consumer contracts. Under the common law (and the Uniform Commercial Code), a procedural defect and a substantive defect are jointly sufficient to justify the court in striking a term.²² A procedural defect essentially is a market imperfection. There are two types: sellers offer suboptimal contracts to consumers because (1) the sellers are exploiting monopoly power, or (2) the consumers are uninformed. A substantive defect exists when enforcing the contract would bear unfairly heavily on the consumer. Foreclosure and eviction thus may be unfairly harsh consequences of failing to make mortgage payments.

The legislation mentioned above responded to procedural defects. This is because there is no widely accepted theory of substantive harshness that justifies not enforcing contracts when procedural defects are absent: that is, when the consumer's contracting choice is informed and uncoerced. Because one of the two procedural defects—monopoly power—is best regulated under the anti-trust laws, consumer protection legislation focused on the second procedural defect: uninformed consumers. This focus made legislation desirable because the judicial power is limited to enforcing terms, or not enforcing them. Implementing disclosure schemes requires legislative and administrative action. And as just noted, this regulation sought to reduce the consumer's cost of becoming informed.

Modern psychology raises a basic objection to the traditional strategy: the theory on which the strategy is based rests on a false premise. The models assumed that consumers make rational choices, but consumers often make irrational choices. Today's regulator thus needs a new way to estimate the difference between k_T and k_R —the contracting choices that the consumer's true

20. Most of the legislation summarized immediately below was passed before 1975. The cognitive research relevant to regulation entered the literature later. For example, the famous Kahneman and Tversky paper that introduced prospect theory was published in 1979. See Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979). The early psychological literature is reviewed in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982), and *RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT* (1980). The early regulators focused on possible structural causes of market failure, such as costly information and monopoly power, because they were the only available tools.

21. See *supra* note 1.

22. See, e.g., JEFF FERRIELL, *UNDERSTANDING CONTRACTS* 641-44 (2d ed. 2009); ROBERT A. HILLMAN, *PRINCIPLES OF CONTRACT LAW* 219-24 (2d ed. 2009).

preferences and her observed preferences imply—and to respond to the causes of that difference when it is large. As is argued below, this task is complex when the new regulator, unlike his predecessor, lacks a general theory and the choices of apparently rational and irrational consumers appear similar to him.

II. RATIONALITY AND OBSERVATIONAL EQUIVALENCE²³

A. *Mismatch Costs and Observational Equivalence*

Three jointly necessary and sufficient conditions create observational equivalence and the possibility of mismatches. First, a contract's substantive terms create utility for both rational and cognitively challenged consumers. For example, both types of consumers benefit from a low introductory credit card fee. Second, the substantive terms also create risk, the severity of which varies with consumer type. A consumer thus may have to pay a high late charge under a contract with a low introductory rate. A well-off consumer may easily sustain the same late charge that would create difficulty for a liquidity-constrained consumer. Third, some consumers who make cognitive mistakes may underestimate the risk. An overconfident consumer, for example, may underestimate the variance of her future income, and so mistakenly believe that she always can pay a late fee when some of her possible income realizations would induce default. The first condition implies that the contract at issue has wide appeal; the second condition implies that the contract is not for everyone, despite its appeal; and the third condition implies that some consumers for whom the contract would be inefficient will make the contract anyway. When these three conditions hold, market contracts are not irrational; rather, some consumers are mismatched to those contracts while other consumers are not. As a consequence, the regulator cannot decide whether an intervention would help without identifying the former set and the costs of its members' mistakes.

23. Observational equivalence also may present when agents choose contracting strategies. For example, an agent may select a questionable buying or saving strategy in consequence of bias or because the same strategy is implied by a self-protecting rule, such as putting a fraction of one's income in a retirement account every year. The regulator may observe the rule but seldom can observe its basis. The relevance of this form of observational equivalence to regulation was first noted in Robert E. Scott, *Error and Rationality in Individual Decisionmaking: An Essay on the Relationship Between Cognitive Illusions and the Management of Choices*, 59 S. CAL. L. REV. 329, 348-49 (1986). The theoretical tension between optimizing particular choices and following optimal personal rules is explored in Roland Bénabou & Jean Tirole, *Willpower and Personal Rules*, 112 J. POL. ECON. 848 (2004). Sophisticated and naive present-biased consumers have been shown to make, and to defect from, consumption and saving choices in an observationally equivalent fashion. See M. Keith Chen & Alan Schwartz, *Intertemporal Choice and Legal Constraints*, 14 AM. L. & ECON. REV. 1 (2012); Lin Zhang, *Saving and Retirement Behavior Under Quasi-Hyperbolic Discounting*, 109 J. ECON. 57 (2013). This Article focuses on choosing contracts rather than choosing contracting strategies.

The next paragraphs formalize this argument. In the analysis, competitive firms can offer consumers any number of contracts ($N \geq 1$), but much of the argument is captured by analyzing just one contract (i.e., letting $N = 1$). This contract, denoted $k(\tau)$, has a price, p , and a vector of terms, τ . To focus on the rationality issue, consumers are assumed to know the price and what the terms say. A consumer who transacts expects to derive positive utility from the terms and will realize negative utility from paying the price. The consumer also may incur an additional monetary cost associated with the contract, $c \sim f(c | \tau)$, with support, $\{0, \infty\}$, with a distribution of cost values, F . The cost may be a late charge on a credit card contract or an increase in the interest rate on an indexed loan. The probability of incurring the cost, denoted m' , varies with consumer type. A rational consumer thus may stick to her budget, which includes paying the monthly credit card bill, while a present-biased consumer may deviate from her budget to make a large purchase and so not pay the bill.

Each consumer assigns a subjective value to the probability of incurring the cost c of $m(b_i)$, where b reflects the possibility that the consumer's probability assessment may be influenced by bias. The consumer may be prey to numerous biases or none: $b = (0, 1, 2, \dots, B)$. For example, $b = 3$ if the consumer is optimistic, present biased, and risk seeking in losses; $b = 0$ if the consumer's reasoning is bias free. When $b > 0$, however, $m(b_i) \neq m'$: the biased consumer's subjective probability of incurring the additional cost differs from the true probability.²⁴

Using this analysis, the consumer's subjective utility from making contract $k(\tau)$, $v(k(\tau))$, is

$$v\{\tau - [p + m(b_i) \int_0^{\infty} cf(c; \tau) dc]\} \quad (1)$$

The first term in the braces is the positive utility the consumer derives from the contract terms. A consumer would transact only if this utility equals or exceeds the utility loss from paying the price, which is the first term in brackets. The second term in brackets is the expected additional cost the contract terms may create: the probability the consumer assigns to incurring the cost times the possible cost itself.²⁵

Consumers can make two mistakes. First, the consumer may erroneously attribute less (or more) utility to the terms—the τ variable in Expression (1)—than her unbiased self would attribute. Second, the consumer may make the correct comparison between term utility (positive) and price utility (negative) but mistake the net utility the contract yields because she incorrectly estimates the probability of incurring the extra cost c . Part II.D below considers the first error; this and the next two Subparts consider the second error.

24. A consumer may mistake her true probability because she is uninformed. This Article focuses on biased rather than uninformed distortions.

25. When the consumer is bias free, $v(k(\tau))$ is "correct": the consumer's true expected utility from the contract is positive.

The argument thus temporarily assumes that consumers correctly trade off term against price utility.²⁶ As a benchmark, let $v(k(\tau))$ be positive for a consumer who assigns the true value m' to the probability of incurring the additional cost c . This consumer is making a rational contracting choice: she buys after having correctly traded off her positive utility from the terms against the negative utility from *the sum* of the price *and* the risk of incurring the additional cost.

There is a rationality concern when for a consumer $m(b_i) \neq m'$: the consumer mistakes the true probability of incurring the expected additional cost c . The difference between the subjective and the true probability times the expected cost is the “mismatch cost”: $|m(b_i) - m'c| = \Delta mc$. The mismatch cost is positive if the consumer pessimistically thinks that she is more likely to incur the additional cost than the facts warrant. As Expression (1) above shows, the consumer’s expected utility from a contract falls as the consumer’s subjective probability that she will incur the additional cost rises. Thus, a pessimistic mistake may cause a consumer to reject contract $k(\tau)$ inefficiently, even though the contract would have generated positive utility for her. Regulators seem relatively unconcerned about excess rejections, however, because the consumer incurs only an opportunity cost; she fails to make a deal that she would have liked. More importantly, firms have an incentive to cure pessimistic errors because the errors dampen demand.

The principal policy problem is excessive acceptances. When Δmc is negative—that is, the consumer *underestimates* the probability of incurring late fees—the consumer believes that she will realize more utility from making contract $k(\tau)$ than the contract actually provides. This belief may cause some consumers to accept the contract, though their unbiased selves would reject it.

Turning to observational equivalence, because positive term utility exceeds negative price utility for every consumer who purchases, every actual consumer contracting choice is potentially rational. Irrationality presents as *underestimating* the negative expected utility of the extra cost. As a consequence, contract $k(\tau)$ can be rationally preferred (the rational consumers chose on the true probability m') *and* irrationally preferred (the irrational consumers chose on the *incorrectly low* probability $m(b_i)$). The regulator, however, cannot tell good from bad consumer choices by inference from the contract itself. To be sure, he can observe the contract price, p , the contract terms, τ , and the monetary additional cost, c , that a particular consumer incurs. But consumers assign different probabilities to the risk of incurring the cost c . Some of these probabilities are correct and others are not, but which is which is hard to observe because probabilities are not objective entities; they are in consumers’ heads. Therefore, though rational and irrational consumers are making different contracting choices in

26. This often is a weak assumption. Consumers commonly can predict how much they will enjoy the music system or the car and how much they will miss the money used to buy them. As said, Part II.D discusses cases in which this apparently plausible assumption may not hold.

fact, those choices appear the same to an outside observer. Using the terminology above, the regulator observes k_R , the market contract, but he does not observe the proportion of consumers for whom $k_R = k_T$ (when the market contract reflects the consumers' true preferences) and the proportion for whom $k_R \neq k_T$ (when the contract reflects the consumers' biased preferences).

Such observational equivalence also can exist when firms offer several contracts. There is no theoretical reason to suppose that some of these contracts will be preferred only by irrational consumers, while others will be preferred only by rational consumers. Rather, it is the regulator's task to discover how much "separation" there is in fact.²⁷

Some recent papers illustrate how firms may separate consumers by rationality, but these papers usually focus on only one bias—weakness of will—and the agents in the models do not learn from experience.²⁸ This seems implausi-

27. The Introduction used as examples of contracts that are observationally equivalent the home mortgage and the credit card. Regarding mortgages, a recent large study showed that almost every home mortgage type written before and during the crisis, and now being regulated, can be preferred by rational, informed borrowers. Jason S. Johnston, *Do Product Bans Help Consumers? Questioning the Economic Foundations of Dodd-Frank Mortgage Regulation* (Univ. of Va. Sch. of Law Pub. Law & Legal Theory Research Paper Series, Paper No. 22, 2015), available at <http://ssrn.com/abstract=2593151>. The author observes: "Many, perhaps most of the mortgage contract types that Dodd Frank penalizes—those that fall into the 'Non-Qualified' category—are mutually beneficial for lenders and for some types of borrowers." *Id.* at 43. Regarding credit cards, see Ryan Bubb & Alex Kaufman, *Consumer Biases and Mutual Ownership*, 105 J. PUB. ECON. 39, 40, 50 (2013) (suggesting unbiased and naive agents prefer the same credit card contract, with a low introductory rate and high late fees, because both agent types believe they will make timely payments). In addition to these examples, realize that a consumer who poses a low insurance risk may prefer a contract with a high deductible to free up cash, but an overconfident, high-risk consumer may prefer the same contract because she also likes cash and underestimates the probability of incurring a loss. See Alvaro Sandroni & Francesco Squintani, *Overconfidence, Insurance, and Paternalism*, 97 AM. ECON. REV. 1994, 1995 (2007) ("[O]verconfident agents cannot be screened from low-risk agents. These agents share the same beliefs about their risk and so make identical decisions.").

28. The leading paper is Paul Heidhues & Botond Köszegi, *Exploiting Naïvete About Self-Control in the Credit Market*, 100 AM. ECON. REV. 2279 (2010). The paper assumes that a naive present-biased consumer, who is unaware of her penchant to overweight the present, will accept a credit card contract with a penalty for late payment because the contract is favorably priced and the consumer assumes she will not pay late. This contract is suboptimal because the consumer's present bias prevents her from making timely payments. Sophisticated consumers prefer a different contract because they are aware of their weakness. The model does not consider the possibility that naive consumers may make payments just because they commit to make them. See, e.g., Alice Hsiaw, *Goal-Setting and Self-Control*, 148 J. ECON. THEORY 601, 602 (2013) ("The presence of a goal increases the agent's incentive to wait [rather than consume excessively in the current period] because he wishes to avoid incurring comparative disutility from falling short of it. For any degree of present-biasedness, there exists a level of reference dependence such that the agent can achieve the first-best from an ex-ante perspective, which coincides with the time-consistent solution."). More seriously, Heidhues and Köszegi's paper does not explain why consumers have no other biases or why the present bias presents in the way they assume, and notes: "[W]e have completely ignored . . . the source of consumer beliefs." Heidhues & Köszegi, *supra*, at 2301. The particular form those beliefs take is to assume a greater ability to stay with a payment schedule

ble in the modeled contexts. That observational equivalence is common thus seems the better working assumption. And when the assumption holds, *there are no good or bad contracts*; there are only (unobservable) good or bad contracting choices.

The task that regulating for rationality poses thus is to get behind observational equivalence: that is, to estimate the difference between the probability the consumer assigns to incurring an additional contracting cost and the actual probability of incurring that cost for the consumer, given her circumstances. If Δmc is substantial for many consumers in a market, many contracts would reflect irrational contracting choices. The next two Subparts argue that the cognitive experiments are of little help to a regulator who is attempting to measure the gap between what he observes (k_R) and what he wants to observe (k_T) by estimating Δmc .

B. *The Many Bias Problem*

The regulatory task seldom can be confined to estimating the effect of a laboratory bias on actual choice for two reasons. First, consumer probability assessments may be a function of several biases, and these could push the consumer in different directions. Second, consumers differ in the biases from which they suffer, so the regulator must assess how markets respond to bias heterogeneity. Regarding the first reason, the possibility that several biases affect an agent's choice exists because the cognitive capability experiments commonly test for one bias at a time. Some subjects commonly exhibit the bias at issue. The laboratory results thus suggest that subjects who are prey to one

than actually exists. Consumers begin to use credit cards, and to make installment purchases, early in life, so a biased consumer should ultimately become aware of her weakness: consumers, that is, should become sophisticated over time regarding whether they routinely deviate from contractually required payment schedules. The paper notes that consumers may learn but does not pursue the possibility. *Id.* Similarly, Michael Grubb modeled how firms could exploit cell phone users who misestimated their monthly use patterns. He found some support for the model using a dataset of college students and noted: "I have not modeled the possibility that over time consumer beliefs become calibrated correctly." Michael D. Grubb, *Selling to Overconfident Consumers*, 99 AM. ECON. REV. 1770, 1800 (2009). Many consumers are experienced cell phone users, and theory so far cannot identify the fraction whose errors present in the way these papers assume. Jonathan Zinman thus observes: "One striking observation [from a literature review] is that no extant model, behavioral or otherwise, can generate even half of the credit card debt that U.S. households hold in steady state." Zinman, *supra* note 13, at S220. A recent field test found

that on average consumers chose the credit contract that ex post minimized their total interest costs net of the annual fee. A substantial fraction of consumers (about 40%) still chose the ex post sub-optimal contract . . . These sub-optimal outcomes appear not to be entirely due to ex post shocks. Nonetheless, the probability of choosing the sub-optimal contract declines with the dollar magnitude of the potential error.

Sumit Agarwal, Souphala Chomsisengphet, Chunlin Liu & Nicholas S. Souleles, *Do Consumers Choose the Right Credit Contracts?* 4-5 (Fed. Reserve Bank of Chi., Working Paper No. 2006-11, 2006), available at https://www.chicagofed.org/digital_assets/publications/working_papers/2006/wp2006_11.pdf.

bias would exhibit other biases if the experimenter tested for those: the typical person, that is, likely is prey to numerous biases.

A consumer's probability assessment also may reflect a rational element. As an example, an overconfident consumer may correctly predict the mean of possible future housing prices, but her confidence intervals around that mean would be too tight. Such a consumer may correctly believe that the average housing prices in the next period will be the same as current prices, and also believe that future prices will rise or fall by no more than ten percent. The latter belief is incorrect—due to overconfidence—when the true range is twenty-five percent. Thus, it is more accurate to write the consumer's subjective probability of incurring the additional cost c as $m(b_i, r)$, where r reflects the rational element in the consumer's reasoning.

A common move in the literature is to choose a particular r —a particular bias—to analyze.²⁹ In the example here, an analyst thus may suppose that the consumer is unrealistically optimistic about future housing prices. This method rests on two implicit assumptions: (1) bias affects the consumer's action choice in the context at issue; and (2) *only one* bias is operative in that context. These assumptions elide the issues of whether bias actually affects a particular choice; if so, how many biases affect that choice; if more than one bias is at play, how the biases interact; and how those biases interact with the rational element in the consumer's decision function.

There are two difficulties with this way of proceeding. First, there is no a priori reason to believe that only one bias at a time influences probability assessments or other contracting decisions. For example, optimism is unlikely to be the only bias that bears on a consumer's mortgage choice.³⁰ Second, there is no a priori reason to believe that the effect of bias is monotonically increasing in B : that is, the more biases there are, the crazier the consumer behaves. Rather, biases may offset one another. As examples:

1. Consumers who have a present bias—they discount the future too heavily—may underweight the costs of credit card late fees. Suppose, however, that consumers also are loss averse and overweight the harm such fees could cause. The former bias may excessively increase consumers' willingness to pay for risky credit card contracts, but the latter bias may excessively decrease this willingness. Consumers thus may choose correct credit card contracts.
2. Assume now that illustrative consumers suffer from the status quo bias: they are more reluctant to begin *ex ante* efficient projects than the facts

29. As one of many examples of this method, each chapter of SPIEGLER, *supra* note 11, proceeds by assuming that consumers are influenced by one bias and then models how firms respond. Biases are not aggregated.

30. Two scholars, one a cognitive psychologist, claim that the consumer's mortgage choice is affected by fourteen biases, including the availability heuristic, the endowment effect, present bias, and confirmation bias. See Debra Pogrud Stark & Jessica M. Choplin, *A Cognitive and Social Psychological Analysis of Disclosure Laws and Call for Mortgage Counseling to Prevent Predatory Lending*, 16 PSYCHOL. PUB. POL'Y & L. 85, 89 (2010).

warrant.³¹ But suppose that consumers also are prey to the personal ability form of the overconfidence bias: consumers believe that they are better able to implement a project than the average person is. The overconfidence bias (“I am very good”) may overcome the status quo bias (“do not move when things are OK”). A consumer thus may begin a house renovation project when the facts warrant.³²

3. Optimistic consumers may underestimate the probability that they will incur the additional cost $c(\tau)$ associated with mortgage default, but consumers also may be subject to the availability heuristic. If dramatic stories of mortgage foreclosures are common in the media, though the optimism bias could push consumers to understate the relevant probability $m(b_i)$, the availability bias could push consumers to overstate that probability. Consumers thus may contract on a probability that approximates the true probability m^t .
4. The self-serving bias causes people to overestimate their own abilities, but this bias is now thought to be adaptive. As an illustration, the self-serving bias may overcome excessive risk aversion.³³

These examples show that the regulator cannot get a theoretical purchase on the relevant subjective probability $m(b_i)$ by extrapolating from particular psychological experiments. Because the consumer’s contracting choices may reflect a rational element interacting with the resultant of several biases, and because the biases themselves may exacerbate *or* ameliorate the consumer’s forecasting errors, the regulator needs a theory of bias interaction. Such a theory would permit the regulator, at the least, to identify the net direction of the

31. The status quo bias may present when agents have reference-dependent utility functions and one of their reference points is the current state. See Raphaël Giraud, *Money Matters: An Axiomatic Theory of the Endowment Effect*, 50 *ECON. THEORY* 303, 304-05 (2012); Keith M. Marzilli Ericson & Andreas Fuster, *Expectations as Endowments: Evidence on Reference-Dependent Preferences from Exchange and Valuation Experiments*, 126 *Q.J. ECON.* 1879, 1901 (2011). The effect of reference-dependent utility is considered in Part II.D below.

32. Theoretical support for this possibility is in Bruce A. Weinberg, *A Model of Overconfidence*, 14 *PAC. ECON. REV.* 502, 503 (2009) (“We show that moderately overestimating ability leads the person to undertake the challenging task more often, yielding higher expected output and a higher expected utility (even net of the utility from being deluded about his or her ability).”). To the same effect, see Olivier Compte & Andrew Postlewaite, *Confidence-Enhanced Performance*, 94 *AM. ECON. REV.* 1536, 1536-37 (2004). Oren Bar-Gill also shows that the optimism bias and the overconfidence bias can offset. See Oren Bar-Gill, *Pricing Legal Options: A Behavioral Perspective*, 1 *REV. L. & ECON.* 203, 208 (2005). Recent field data support these theoretical results, showing that overconfidence about the agent’s ability increases the agent’s effort at the relevant task. See Gigi Foster & Paul Frijters, *The Formation of Expectations: Competing Theories and New Evidence*, 53 *J. BEHAV. & EXPERIMENTAL ECON.* 66, 66-67 (2014).

33. See Todd R. Kaplan & Bradley J. Ruffle, *The Self-Serving Bias and Beliefs About Rationality*, 42 *ECON. INQUIRY* 237, 244-45 (2004).

rational and irrational influences on the consumer's behavior, but no such theory exists.³⁴

There also is a many bias problem even if each consumer suffers from only one bias because it is unlikely that every consumer suffers from the same one.³⁵ Therefore, the regulator must identify the firms' best contracting response when facing differently biased consumers. For example, suppose that some consumers suffer from an optimism bias, which makes them reluctant to purchase extensive product warranties (they think either the product will perform or they can avoid problems by being careful); other consumers are prey to the availability heuristic, which makes defects more salient than performance. These consumers may be too eager to purchase unnecessary extended warranties. Are actual market warranties right on average or not? Such questions cannot be answered theoretically today, and the empirical data are sparse or absent. And to sum up this discussion, because biases interact within the person, and differently biased persons interact with firms, the many bias problem is a significant barrier for the regulator to overcome when attempting to get beyond the observational equivalence concern.³⁶

C. *Consumer Heterogeneity Generally*

The theory concern cannot be elided by assuming that actual consumers must make the same mistakes that laboratory subjects make because human beings are basically the same. Actual consumers are not "basically the same" as laboratory subjects; rather, real people are heterogeneous in two ways relevant to regulation. First, market consumers differ among themselves in experience, and actual consumers commonly are more experienced than experimental subjects because the subjects usually face the experimental task for the first time. Consistent with the latter possibility, biases that present in the laboratory sometimes present in attenuated form or not at all when experienced agents choose.³⁷ Second, consumers differ materially in their cognitive styles. Some

34. Dean Karlan, Aishwarya Lakshmi Ratan, and Jonathan Zinman conclude their extensive review of the behavioral biases that may affect savings behavior with the following remark: "Remarkably little is known about which behavioral biases actually drive savings behavior, and whether and how different biases interact with each other. This has potential implications for [financial] product design." Karlan, Ratan & Zinman, *supra* note 9, at 72.

35. If every consumer suffered from only one bias, and that bias were very widespread, the many bias problem would vanish. This seems only a theoretical possibility, however. The experiments uncover so many biases that an assumption that everyone suffers from only one bias and an assumption that this bias is very widespread cannot coexist.

36. Firms must solve the same problem as the regulator in order to exploit consumers. Models of how firms may do this commonly assume that only one bias affects the consumer's choice, which suggests that how actual firms aggregate biases is poorly understood. See *supra* notes 11, 28.

37. As an example of an established view and recent revisions, compare Joan Costa-Font, *Behavioural Welfare Economics: Does 'Behavioural Optimality' Matter?*, 57 CESIFO ECON. STUD. 551, 552 (2011) ("Another classical cognitive bias . . . is that of 'anchoring' welfare evaluations. This is a well-established bias whereby a 'starting point' acts as 'refer-

consumers make more analytic choices, while others make more intuitive choices. These distinctions sometimes blend, but data show that more cognitively able consumers make fewer errors.³⁸ Hence, the mix of actual consumers

ence point' in judging goods and events.”), with Drew Fudenberg, David K. Levine & Zacharias Maniadis, *On the Robustness of Anchoring Effects in WTP and WTA Experiments*, 4 AM. ECON. J.: MICROECON. 131, 141 (2012) (“[O]ur data supports the idea that anchoring goes away when bidding on objects with greater familiarity . . .”), and Zacharias Maniadis, Fabio Tufano & John A. List, *One Swallow Doesn't Make a Summer: New Evidence on Anchoring Effects*, 104 AM. ECON. REV. 277, 278 (2014) (finding much smaller anchoring effects than in prior studies). See also Liran Einav, Amy Finkelstein, Iuliana Pascu & Mark R. Cullen, *How General Are Risk Preferences? Choices Under Uncertainty in Different Domains*, 102 AM. ECON. REV. 2606, 2608 (2012) (finding that more experienced persons make more consistent choices across domains). Many prior studies show that persons perform well on familiar tasks. For further citations and analysis, see Luigino Bruni & Robert Sugden, *The Road Not Taken: How Psychology Was Removed from Economics, and How It Might Be Brought Back*, 117 ECON. J. 146, 162-64 (2007). The experience issue is pursued immediately below in connection with an analysis of the endowment effect.

38. Agents that stress the “system 1” reasoning system—the intuitive system—are more likely to make mistakes in the laboratory and in life. As examples, Chris Dawson and Andrew Henley show that “British households who report mortgage payment distress or arrears appear to have significantly higher financial over-optimism prior to taking on a mortgage advance”; but only 30% of persons in their study were optimists. Chris Dawson & Andrew Henley, *Something Will Turn Up? Financial Over-Optimism and Mortgage Arrears*, 117 ECON. LETTERS 49, 50, 52 (2012). Similarly, Grubb found that firms could exploit cell phone users whose overconfidence caused them to believe that they would use fewer minutes than they actually used, but that “83 percent of the time customers on plans 1-3 do not exceed their allowance, using only half of included minutes on average.” Grubb, *supra* note 28, at 1798. A recent study asked whether persons made maximizing decisions in connection with certain uses of credit cards and mortgage loan applications. The study found that one-third of its subjects did not make mistakes and another one-third did but promptly corrected themselves. See Sumit Agarwal & Bhashkar Mazumder, *Cognitive Abilities and Household Financial Decision Making*, 5 AM. ECON. J.: APPLIED ECON. 193, 196 n.9 (2013). For similar results, see Agarwal, Chomsisengphet, Liu & Souleles, *supra* note 28, at 11. Some consumers in credit card markets are excessively optimistic about their ability to make payments while others are not. See Sha Yang, Livia Markoczy & Min Qi, *Unrealistic Optimism in Consumer Credit Card Adoption*, 28 J. ECON. PSYCHOL. 170 (2007). Also, some stock market participants make intuitive judgments while others make more analytical judgments. See Johannes Binswanger & Martin Salm, *Does Everyone Use Probabilities?: Intuitive and Rational Decisions About Stockholding* (Inst. for the Study of Labor, Discussion Paper No. 7265, 2013), available at <http://ftp.iza.org/dp7265.pdf>. As a general matter, the likelihood of getting correct answers in the experiments correlates positively with scores on SAT and similar tests, and with measures of cognitive style, such as reflecting on choices rather than choosing impulsively. See Daniel J. Benjamin, Sebastian A. Brown & Jesse M. Shapiro, *Who Is ‘Behaviorial’? Cognitive Ability and Anomalous Preferences*, 11 J. EUR. ECON. ASS'N 1231 (2013) (finding that students with higher test scores exhibit greater rationality); Jeffrey Carpenter, Michael Graham & Jesse Wolf, *Cognitive Ability and Strategic Sophistication*, 80 GAMES & ECON. BEHAV. 115, 115-16 (2013) (confirming and generalizing “recent studies [that] have found strong associations between broader cognitive skills and related aspects of economic choice,” supporting “the emerging consensus . . . that people with higher cognitive ability tend to be more patient and closer to risk neutral,” and finding that subjects who do better on college entrance exams make better strategic choices); Syngjoo Choi, Shachar Kariv, Wieland Müller & Dan Silverman, *Who Is (More) Rational?*, 104 AM. ECON. REV. 1518, 1531 (2014) (“[T]he higher CCEI [critical cost efficiency index] scores among high-income, high-education, and younger subjects suggest that these groups

in a market of interest to the regulator likely differs importantly from the mix of subjects in any particular experiment.

To summarize, consumer heterogeneity prevents the regulator from plausibly assuming that consumers make mistakes in life just because experimental subjects make mistakes in the lab.³⁹ Rather, the regulator needs a theory to help him predict when market consumers are likely to make irrational probability assessments and when not. In the absence of such a theory, the regulator needs actual evidence of how consumers decide.

D. *Reference Dependence and Observational Equivalence*

Parts II.A-C assumed that consumers can correctly weigh term utility (a positive gain in utility for the consumer) against price utility (a negative loss in utility for the consumer). Consumers, in the analysis above, differed in their ability to evaluate the likelihood and magnitude of the nonprice costs a transaction could impose on them. In an important set of consumer contracting choices that involve partly exogenous risks, some consumers may make the term/price utility tradeoff incorrectly. These choices include whether to buy a narrow, broad, or extended warranty; a homeowner's insurance policy; collision insurance for a car; trip insurance; and the like. In these contexts, bias may cause consumers to underinsure. The basic regulatory concern remains the same, however: rational and irrational consumers can choose the same contractual risk allocations, so that both consumer types seem alike to the regulator.

Prospect theory attempts to explain these possibly irrational contracting choices. Relevant here, the theory rests on two premises: (1) persons assess losses and gains, not absolutely, but relative to a reference point; and (2) persons weight downward deviations from the reference point (losses) more heavily than they weight upward deviations (gains). The theory is commonly used to explain an inefficient reluctance to trade. Parting with the price is a downward deviation while getting a product is an upward deviation. Similarly, parting with the product is a downward deviation while getting the price is an upward deviation. Because both the possible buyer and the possible seller weight losses

may have better economic outcomes, not only because they face fewer constraints or have more normative preferences, but also because they tend to have superior decision-making ability.”); Shane Frederick, *Cognitive Reflection and Decision Making*, 19 J. ECON. PERSP. 25 (2005) (introducing the cognitive reflection test and reaching similar results).

39. Omar Al-Ubaydli and John List recently set out general criteria for when experimental results are a good guide to real-world contexts:

[W]hen moral concerns are absent, the computational demands on participants are small, non-random selection of participants is not an important factor, experience is unimportant or quickly learned, and the experimenter has created a lab context that mirrors the important aspects of the real-world problem. At that point, we would expect results from the lab to be a closer guide to natural settings.

Omar Al-Ubaydli & John A. List, *On the Generalizability of Experimental Results in Economics: With a Response to Camerer* 14 (Nat'l Bureau of Econ. Research, Working Paper No. 19,666, 2013).

much more heavily than gains, they may not trade where unbiased parties, who weight losses and gains approximately equally, would trade. The common term for the reluctance to trade is the “endowment effect.”⁴⁰

Part II.D uses the consumer’s choice of a product warranty to illustrate prospect theory’s possible relevance to the consumer protection regulator. Consumers are more likely to be prey to the endowment effect—not to buy warranties that would maximize their expected utility—when the consumers’ reference point is the status quo.⁴¹ In this case, a potential buyer may weigh her utility loss from deviating from the status quo—paying the price—more heavily than she would weigh the utility gain from the insurance a warranty would yield. As a consequence, she may reject an efficient warranty. On the other hand, nothing internal to prospect theory justifies choosing the status quo as the reference point. Rather, the choice of a reference point is outside the theory. Further, reference points other than the status quo would induce consumers to buy efficient warranties or to overinsure. Hence, whether the regulator should respond to the endowment effect turns on whether there is theoretical (or empirical) reason for him to believe that consumers commonly choose reference points that induce inefficient choices. As of yet, the regulator lacks such reasons. In addition, rational and irrational consumers can choose the same reference point. When they do, both consumer types may make the same contracting choice, which could be to buy the efficient warranty or not to buy it. The endowment effect thus is a weak premise for regulation because the related problems of identifying reference points in common use, and of deciding whether those reference points are the product of efficient or biased choices, have not been solved.

40. A competing theory exists to explain the endowment effect: avoiding anticipated regret. Agents are too reluctant to trade because they may ultimately regret losing the object that was previously in their possession. In recent experimental tests, regret was the best explanation for agents’ reluctance to trade lottery tickets, but loss aversion better explained the data when agents were not gambling. See Christoph Kogler, Anton Kühberger & Rainer Gilhofer, *Real and Hypothetical Endowment Effects when Exchanging Lottery Tickets: Is Regret a Better Explanation than Loss Aversion?*, 37 J. ECON. PSYCHOL. 42 (2013). Two other recent papers contribute further to these theories. See Anmol Ratan, *Anticipated Regret or Endowment Effect? A Reconsideration of Exchange Asymmetry in Laboratory Experiments*, 14 B.E. J. ECON. ANALYSIS & POL’Y 277 (2014) (finding that experimental subjects did not experience the endowment effect when they could reverse their decisions because, the author argues, the possibility of reversal eliminates the possibility of regret); Jennifer Arlen & Stephan Tontrup, *Does the Endowment Effect Justify Legal Intervention? The Debiasing Effect of Institutions* (N.Y. Univ. Sch. of Law Pub. Law & Legal Theory Research Paper Series, Paper No. 14-36, 2014), available at <http://ssrn.com/abstract=2473758>. Persons experience anticipated regret when they are responsible for decisions, but responsibility is muted when persons trade through common institutions, such as voting or agents. The authors’ experimental results are consistent with this theory, and the theory implies that there are too few endowment-plagued choices for decisionmakers to worry about. This Article analyzes the prospect theory explanation for the endowment effect for two reasons: it is still the dominant theory, and it provides the strongest case for regulation.

41. In common parlance, the consumer is prey to the status quo bias.

The analysis next formalizes this reasoning.⁴² Firms can offer a narrow warranty, w_n , or a broad warranty, w_b . The narrow warranty covers defects in the product itself; the broad warranty covers consequential losses that those defects could cause. The two warranty types are priced competitively at z_n and z_b , respectively ($z_n < z_b$). The benchmark case is a fully rational consumer, who makes an absolute comparison between her utility gain from coverage and her utility loss from paying for coverage. To begin, suppose that this consumer has a comparative advantage at self-insuring against consequential losses (she may be wealthy or have convenient access to market insurance). As a consequence, she buys the narrow warranty w_n .

Now consider a consumer who cannot conveniently self-insure. Because consumers are risk averse, this consumer, if rational, would insure by buying the broad warranty. Prospect theory suggests that she may not. To see why, let x denote her reference point. She derives utility $v(x) = x$ for gains when x is positive, and $v(x) = \lambda x$ ($\lambda \geq 1$) when x is negative. Lambda is the loss aversion parameter. Because it exceeds one, this expression shows that the consumer weighs losses from deviations from her reference point more heavily than gains. The change in the consumer's utility level from having the warranty but losing the price is weighted by κ_x , which reflects how important deviations from the reference point are.

In the example, the consumer's initial reference point is the status quo, which is the product unaccompanied by a warranty. This point is denoted ($v(x | z_b)$) to reflect the utility the consumer gets from the money that equals the broad warranty's price. The consumer will part with the money—purchase the broad warranty w_b —if

$$v(x' | w_b) + \kappa_x(v(x' | w_b) - \lambda v(x | z_b)) \geq v(x | z_b) \quad (2)$$

As noted, the term on the right-hand side of Expression (2) is the utility the consumer attaches to the money she would have to pay—the warranty price. The first term on the left-hand side is the utility the consumer would realize from the broad warranty; the terms in the parenthesis are that utility less the loss from paying the price, which is weighted by the loss-aversion parameter λ . Hence, the parenthetical terms sum the consumer's change in utility levels from having the warranty but losing the price. This difference is multiplied by κ_x , the weight the consumer attaches to the difference between these utility levels.⁴³

42. The following adapts the model in Keith M. Marzilli Ericson & Andreas Fuster, *The Endowment Effect*, 6 ANN. REV. ECON. 555 (2014). A more comprehensive model is in Lorenz Goette, Annette Harms & Charles Sprenger, *Randomizing Endowments: An Experimental Study of Rational Expectations and Reference-Dependent Preferences* (Inst. for the Study of Labor, Discussion Paper No. 8639, 2014), available at <http://ftp.iza.org/dp8639.pdf>. The simpler model above is sufficient to make this Article's points.

43. The entire second term on the left-hand side of Expression (2) vanishes if the consumer is not subject to the status quo bias. Then the consumer makes a correct choice: she

Regarding the consumer's choice, if λ is sufficiently large, the term in the parenthesis becomes negative; and if κ_x is sufficiently large, the entire left-hand side of Expression (2) will fall below the right-hand side. In words, the consumer would then derive less utility from buying the broad warranty than she would lose by paying its price. Therefore, the status quo bias could cause a risk-averse consumer to purchase the narrow warranty w_n —that is, inefficiently to self-insure against consequential losses. On the other hand, if the consumer *expects* products to come with broad warranties, Expression (2) should be rewritten so that the loss parameter, λ , attaches to the consumer's loss *from not having the warranty*. Then the consumer would weigh that loss more heavily than she would weigh paying the warranty's price. This consumer would buy the broad warranty (or might buy an excessive warranty) when it would generate more utility for her than the price. Whether the liquidity-constrained consumer in this example chooses efficiently thus may depend on whether her reference point is the status quo or the insured state.

Turning to observational equivalence, suppose that the regulator observes many consumers purchasing the narrow warranty w_n . This warranty can be preferred by unbiased consumers who can self-insure and biased consumers who anchor on the status quo. Similarly, suppose the regulator observes many consumers buying the broad warranty w_b . An unbiased consumer could prefer insuring with her seller—choosing w_b —to creating a reserve to cushion against product defects. On the other hand, a consumer whose reference point is the insured state may buy more warranty coverage than she needs—buy w_b —because she overweights not being insured relative to her resources. In both of these cases, the regulator again is faced with the challenge of deconstructing the observationally equivalent choices of biased and unbiased consumer types.

The challenge is similar to the challenges described above. The regulator can observe the warranties consumers choose and their prices, but the observational equivalence barrier remains opaque because the regulator cannot observe (1) the reference points on which consumers act; (2) the bias parameter λ ; and (3) the weighting parameter κ_x . The latter two parameters vary across persons, and all three, like the probability parameter discussed above, exist in consumers' heads, not in the measurable world. Recent theory suggests that a person's expectations may influence her choice of a reference point.⁴⁴ Actual consumer expectations, however, are difficult for the regulator to recover, and the experimental evidence regarding whether expectations can explain the endowment effect is conflicting.⁴⁵

buys if the utility the warranty yields ($v(x' | w_b)$) exceeds the lost utility from paying the price ($v(x | z_b)$).

44. The leading paper is Botond Köszegi & Matthew Rabin, *A Model of Reference-Dependent Preferences*, 71 Q.J. ECON. 1133 (2006).

45. Compare Ericson & Fuster, *supra* note 42 (supporting the expectation theory), with Goette, Harms & Sprenger, *supra* note 42 (refuting the expectation theory), and Ori Heffetz & John A. List, *Is the Endowment Effect an Expectations Effect?*, 12 J. EUR. ECON. ASS'N 1396 (2014) (arguing that expectations explain little of the endowment effect).

Prospect theory itself therefore is unhelpful to the regulator because the theory does not tell how persons choose reference points;⁴⁶ how they weight gains and losses from deviations; and how they experience changes in utility levels. These theoretical gaps would be less serious if it were obvious which reference points consumers choose in particular contexts, but it does not seem obvious. A recent review summarizes studies:

[M]any different reference points have been found to affect choice in experiments, including current ownership/the status quo, expectations of future ownership or consumption, historical ownership, and physical proximity. Other reference points—norms, social comparisons, arbitrary anchors, goals, reference prices, or contracts—likely also matter, at least in some situations.⁴⁷

Also, the choice of a reference point itself may partly be a product of cognitive bias.⁴⁸

To be sure, the experimental evidence supports some type of endowment effect, but this may be a function of the laboratory setting. The laboratory subjects are asked *whether* they want to trade the experimental object for money; they do not come to the lab *expecting* to trade objects for money. In contrast, when consumers come to markets, they expect to trade goods or services for money. This reasoning suggests that there cannot be a large endowment effect in markets because the status quo there is buying, *not* retaining an object or money. The evidence supports this suggestion: the endowment effect moderates

46. A recent review explains:

The central idea in prospect theory is that people derive utility from “gains” and “losses” measured relative to a reference point. But in any given context, it is often unclear how to define precisely what a gain or loss is, not least because Kahneman and Tversky offered relatively little guidance on how the reference point is determined.

Barberis, *supra* note 13, at 178. For similar observations, see Johannes Abeler, Armin Falk, Lorenz Goette & David Huffman, *Reference Points and Effort Provision*, 101 AM. ECON. REV. 470, 471 (2011) (stating that “the key open question for reference-dependent preferences” is, “what determines the reference point?”); Timothy N. Cason & Charles R. Plott, *Misconceptions and Game Form Recognition: Challenges to Theories of Revealed Preference and Framing*, 122 J. POL. ECON. 1235, 1241 n.7 (2014) (“The ‘prospects’ of prospect theory are defined in terms of subjectively determined reference points. Thus, prospects differ from person to person, reflect no common unit of measurement, and need not be observable.”); and Ericson & Fuster, *supra* note 42, at 561 (“The reference point is left imprecise in Tversky & Kahneman’s (1991) theory of loss aversion in riskless choice; they suggest it is often an individual’s current position but could also be her aspirations, expectations, norms, or social comparisons.”).

47. Ericson & Fuster, *supra* note 42, at 561. For a similar list, see Dmitri Kuksov & Kangkang Wang, *The Bright Side of Loss Aversion in Dynamic and Competitive Markets*, 33 MARKETING SCI. 693, 695-96 (2014) (“Regarding reference point formation, numerous empirical marketing studies have shown that the reference price may be affected by past prices, competitors’ prices, and future price expectations, as well as other factors such as the purpose of the [shopping] trip, frequency of sales, store characteristics, the amount of information provided by retailers, and prices paid by other consumers.” (citations omitted)).

48. See, e.g., Asa B. Palley, *Great Expectations: Prospect Theory with a Consistent Reference Point 2-3* (Aug. 28, 2013) (unpublished manuscript), available at <http://ssrn.com/abstract=2313851> (arguing that disappointment aversion affects an agent’s choice of a reference point).

or vanishes as experimental subjects are trained to trade or as market participants become more experienced.⁴⁹

Formally, Expression (2) above implicitly assumed that the consumer did not expect to trade because it asked the consumer to compare, not the gain from a warranty against the price, but the gain *less* the utility loss from deviating from her reference point, which was the price, against the price. Thus, there should be no loss if the consumer *prefers* to yield money for goods. To reflect this conclusion formally, Expression (3) immediately below varies Expression (2) by letting q be the probability that a consumer attaches to the likelihood of trading, and then weights the utility loss—the second term—by the probability that there will be no trade.

$$v(x' | w_b) + \kappa_x \{ (1 - q) [v(x' | w_b) - \lambda v(x | z_b)] \} > v(x | z_b) \quad (3)$$

As that probability approaches one—as q approaches zero—Expression (3) reduces to Expression (2), which characterizes a status quo bias. As said, the consumer may reject the efficient broad warranty. But as q approaches one—the consumer expects to trade—the entire left-hand-side second term falls out and the consumer behaves rationally; she compares the utility of having a broad warranty against the price alone. That many consumers are experienced at buying goods or insurance thus is another reason why endowment effects are unlikely to plague markets.

E. Summary

The demand side in consumer markets is heterogeneous. Consumers differ in their experiences, cognitive styles, time preferences, and susceptibility to cognitive bias. These differences surprisingly seldom cause biased consumers to choose different contracts than those which rational consumers choose: rather, the biased consumers may be mismatched to some contracts in common use, in the sense that the rational versions of the biased consumers would reject those contracts. The regulator thus cannot distinguish rational from irrational consumer contracting choices by inference from the contracts alone.

There are two basic reasons for this observational equivalence. First, contracts create gross positive utility for many consumers, defined as the expected utility the terms yield less the utility loss from paying the price. These con-

49. For experiments, see Dirk Engelmann & Guillaume Hollard, *Reconsidering the Effect of Market Experience on the “Endowment Effect,”* 78 *ECONOMETRICA* 2005, 2015 (2010) (involving trained subjects); and Daniel Svirsky, *Money Is No Object: Testing the Endowment Effect in Exchange Goods*, 106 *J. ECON. BEHAV. & ORG.* 227, 228 (2014) (“The [experimental] results suggest that, whatever is the theoretical driver of endowment effect behavior, it does not appear as strongly, or at all, for goods held for exchange.”). For market participants, the data are summarized in John A. List, *Does Market Experience Eliminate Market Anomalies? The Case of Exogenous Market Experience*, 101 *AM. ECON. REV. (PAPERS & PROC.)* 313, 316 (2011).

tracts, however, also create different additional costs, depending on the consumer's type. Using an example above, a narrow warranty that covers only product defects is beneficial to every consumer relative to no warranty. On the other hand, a narrow warranty can impose large mismatch costs on consumers who cannot self-insure against consequential losses. Cognitive bias can cause some consumers to underestimate costs such as these. Hence, biased consumers may buy the narrow warranty although that warranty contract creates negative utility for them on net.

Second, the extent to which consumers insure against product, property, mortgage default, health, and life risks is a function of how consumers weight the gains from coverage against the costs. Bias, particularly the status quo bias, can cause some consumers to buy less insurance than their objective circumstances would warrant. On the other hand, rational consumers may buy narrow insurance policies if they can cushion losses in other ways. Again, the rational and the irrational consumer can accept similar or identical contracts. The analysis to here thus is aptly summarized in the remark that contracts seldom are rational or irrational; only contracting choices are.⁵⁰

The regulatory task thus is to get behind observational equivalence—to recover the bases for consumer choices. As a consequence, regulating for rationality poses different challenges than regulating for costly information. In the latter case, almost everyone is disadvantaged in the same way and can be helped in the same way. The Introduction thus remarked that everyone was disadvantaged by the confusing ways in which firms quoted interest rates and was helped by TILA's required simplification. Today, many consumers are overwhelmed by the complexity and number of health care plans the market offers. A recent Massachusetts reform that reduced the number of plans and required plans to be set out in standard ways apparently induced consumers to choose more generous plans and increased consumer welfare.⁵¹ But what is the regulator to do when the issue is not costly information but bias, wherein both rational and irrational consumers prefer the same contracts, and neither current theory

50. The claim here is not that rational and irrational consumers choose the same contracts at the same rates. Rather, the claim is that observational equivalence can exist largely independently of the portions of rational and irrational consumers. To see why, suppose that there are $0 < \alpha < 1$ rational consumers in a market and these consumers prefer contract $k(r)$ because they correctly believe that the contract maximizes their expected utility. The remaining irrational consumers also prefer this contract because they mistakenly believe it maximizes their expected utility. The market will generate contract $k(r)$ because $\alpha(k(r)) + (1 - \alpha)(k(r)) = k(r)$, which is what the regulator observes. And he will observe this contract whether α is big (most consumers are rational) or small (most consumers are irrational). There is a regulatory problem in the latter case.

51. See Keith M. Marzilli Ericson & Amanda Starc, *How Product Standardization Affects Choice: Evidence from the Massachusetts Health Insurance Exchange* 3-4 (Nat'l Bureau of Econ. Research, Working Paper No. 19,527, 2013).

nor the psychological experiments permit the regulator to identify the frequency or the consequences of biased choices? This is the challenge.⁵²

III. NEXT STEPS

A. Evidence

It is difficult to obtain evidence regarding how bias affects consumers' contracting choices. The best practice is to develop a general model and test the model either in the laboratory or in a market. As remarked above, this cannot be the practice given the current state of knowledge because there is no general model of cognitive function and no model of bias interaction. Empirical work has to proceed in a less formal way.

There are two possibly fruitful directions to take. The first is to undertake serious counting. A credit card market, say, would apparently be working poorly if over half the consumers in it were paying two or more credit card late fees a year. A regulator then could sample among consumers in this market to see how they reason about the credit card choice. The regulator could make a well-grounded intervention if the macro data suggested a problem and the micro data were consistent with it.

Information of this kind is not readily available, however, and would be costly and time-consuming for the regulator to collect. On the other hand, firms may know much of the information, such as the portion of their credit card contracts on which late fees are paid. A promising regulatory strategy thus may be to require firms to disclose data to the relevant administrative agency when there is at least some reason to believe that there is a bias problem. The basic idea is to substitute for theory as much actual data as it is possible to collect.⁵³

A second way to proceed is to use field tests. As stated above, field tests study how actual market participants perform. The regulator sometimes could

52. There is a tendency to avoid this challenge by assuming that every market consumer is prey to the same (single) bias. For example, in Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593 (2014), the authors claim that myopia causes consumers to prefer the low-late-fee, high-penalty credit card contract. *See id.* at 1642. In Heidhues & Kőszegi, *supra* note 28, the authors claim that consumers are aware of the late-fee possibility but are present biased by a "taste for immediate gratification." *See id.* at 2279. Naive present-biased consumers do not appreciate how this bias affects their behavior, and so wrongly predict that they will always pay on time. Neither paper defends its choice of the operative bias or its implicit premise that only one bias influences the consumer's contracting behavior.

53. Sumit Agarwal, Souphala Chomsisengphet, Chunlin Liu, and Nicholas Souleles persuaded a bank to make many actual consumer credit card files available for their study of consumer contracting choices. *See* Agarwal, Chomsisengphet, Liu & Souleles, *supra* note 28, at 5. Whether the CFPB or other agencies use firm data in this way is not known.

make plausible inferences to the market as a whole from the well-observed performance of a small subset.⁵⁴

In many cases, however, the evidentiary base on which to regulate for rationality will be thin. The regulator thus needs a “normative default” that directs him to assign the burden of proof in any area either to the rationality proponent or to the bias proponent. Part III.B next argues for a “rationality default,” but such a default does not imply regulatory passivity. For example, as consumer contracts become more complex, fewer of their terms may be salient even to rational consumers. Heightened disclosure of payoff-relevant terms that evidence indicates are not salient thus may substantially improve market performance.⁵⁵ More to the point here, Part III.C below argues that some disclosure solutions also respond to bias problems. But as a general matter, the regulator often will need to assign a burden of proof, and that burden, it is next argued, should rest on the bias proponent.

B. *Defaulting to Rationality*

There are four reasons for the regulator to begin with the premise that bias does not influence the consumer’s contracting choices. First, the presumption is consistent with the assumptions of a liberal state, which assign to the government the burden of justifying the imposition of restrictions on consensual transactions. Second, assigning an important causal role to bias when regulating contracts is morally incoherent because the state defaults to rationality for product choices in which observational equivalence *also presents*. To see how, consider the consumer’s choice between a large and a small car. Many consumers can prefer the utility from small-car attributes—better handling ability, better gas mileage, easier to park—to the utility loss from paying the price of these cars. Small cars, however, are less safe than large cars. A rational consumer can make roughly accurate predictions of how dangerous small cars are

54. A third possibility is for the regulator to conduct experiments. These generally are a good idea, but the text above raises a valid concern that good experiments test theoretically grounded hypotheses, and when rationality is the issue there are few such hypotheses.

55. A recent example of the effect of salience is in Victor Stango & Jonathan Zinman, *Limited and Varying Consumer Attention: Evidence from Shocks to the Salience of Bank Overdraft Fees*, 27 REV. FIN. STUD. 990 (2014). A market research firm did not warn consumers against incurring overdrafts but rather asked some consumers questions, in a survey, about overdraft payments or dissatisfaction with overdraft fees. Consumers who were asked these questions materially reduced their probability of making overdrafts. The authors attributed this result to the heightened salience of this probability that the survey induced. *See id.* at 1021. This author recently argued that the state should require firms to increase the salience of terms that consumers seldom read but believe are more favorable to the consumers than the terms actually are. *See* Ian Ayres & Alan Schwartz, *The No-Reading Problem in Consumer Contract Law*, 66 STAN. L. REV. 545 (2014). Salience as a problem in consumer markets generally is analyzed in OREN BAR-GILL, *SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS* 17-25, 91-96 (2012). For a thoughtful review of that book, see Adam B. Badawi, *Rationality’s Reach*, 112 MICH. L. REV. 993 (2014) (book review).

because she knows how well (or how poorly) she drives. An overconfident consumer, in contrast, may underestimate the probability because she overestimates her driving ability. The small car thus may generate positive expected utility for the rational buyer but probably generates negative expected utility for the irrational buyer, who is mismatched.

The automobile purchase choices of these rational and irrational consumers are observationally equivalent to the regulator, however.⁵⁶ He would know that small cars exist in consequence of consumer preferences, but the regulator cannot directly observe the fraction of consumers who incur mismatch costs because probability and utility functions are in consumers' heads, not in the observable world. A regulator considering whether to ban small cars or to make firms alter them thus must solve the same problem as the contract regulator analyzed above. The car regulator needs evidence that he is unlikely to have, and in its absence he must presume rationality or not. In the world of presumptions, then, it is rationality across the board or the reverse. Few would presume that rationality is generally lacking, but those who reject that presumption when consumers are choosing goods cannot coherently presume irrationality when consumers are choosing contract terms.

Some commentators argue that rational consumers' free choice can be preserved by requiring firms to offer contracts that appear efficient to the regulator, but permitting consumers to reject these contracts. For example, the state should require employers to enroll employees in particular 401(k) plans but permit employees to choose other plans or none. This suggestion cannot be fully analyzed here, but there are three apparent difficulties. First, employees may choose their current plans for rational reasons, a possibility the literature does not exclude.⁵⁷ Second, a fraction of employees may come irrationally to prefer the new contracting option. As an illustration, vivid but unrepresentative tales of old-age hardship could cause employees to privilege future consumption irrationally over present needs and to save more than their unbiased selves would want. This possibility suggests that nudging consumers into particular plans will not necessarily improve outcomes. Third, consumers are said to eschew generous retirement plans in consequence of the status quo bias, but that con-

56. Small cars are regulated: for example, they must have brakes and shatterproof glass. Nevertheless, these cars are much more dangerous to their drivers in a collision than larger vehicles. Using the notation above, rational consumers assign the correct probability m' to the collision risk while irrational consumers assign the probability $m(b)$. When these consumers are optimists, they incur the expected mismatch cost Δmc because they buy the car that is wrong for them. The regulator cannot estimate Δmc theoretically.

57. A recent field study showed that employees who did not participate in their company's 401(k) plan either were liquidity constrained or were not aware of the full benefits that tax-qualified retirement saving could provide. Consistent with the second reason, enrollment increased when the employer's disclosure improved. See Robert L. Clark, Jennifer A. Maki & Melinda Sandler Morrill, *Can Simple Informational Nudges Increase Employee Participation in a 401(k) Plan?*, 80 S. ECON. J. 677, 678, 695 (2014). This study is consistent with the possibility that the employees' current retirement choices were rationally made.

sumers generally use their current state as the choice-affecting reference point should be shown, not assumed.⁵⁸ Therefore, while the possibility of choice-preserving defaults should remain on the table, the need for a general normative default remains.

The third reason that supports defaulting to rationality begins with the finding that some experimental subjects behave rationally in the experiments. This suggests that some actual consumers also behave rationally. Because common consumer contracts can be rationally and irrationally preferred, the laboratory results suggest that some contracts that can be rationally preferred by actual market consumers in fact are. Regulation that bans or raises the costs of these contracts thus disadvantages the rational consumers.

The final reason for supposing that bias does not influence choice is that, in the current state of knowledge, to presume irrationality would leave the regulator without a well-grounded starting point, and may do harm. Regarding the former concern, theory does not predict when a bias that presents in the lab also presents in the world, nor does theory permit the regulator to quantify the bias vector when more than one bias may affect a particular choice. To presume irrationality is to presume that there are bias-created problems everywhere, but the regulator must act context by context, and, without evidence of the type discussed above, he cannot identify the problems in particular contexts. As for the possibility of making things worse, suppose that two biases that affect a particular choice offset, but the regulator eliminates one of them. Then the other must function without constraint. All in all, irrationality seems an unworkable regulatory premise. To summarize, these four reasons imply that while the

58. See *supra* Part II.D. Choice-preserving defaults are argued for in RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 86 (2008), and Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O'Donoghue & Matthew Rabin, *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism,"* 151 U. PA. L. REV. 1211, 1224-26 (2003). The "nudge" solution assumes that reasoning defects, in particular the status quo bias, cause defaults to be "sticky" because the transaction costs of opting out of a default seem low. Small transaction costs may have large effects, however. A recent paper models the consumer's choice whether to accept a default or choose another option. In the paper's simulation, when the market offers ten choices, and search and switching costs "each account for 1% of the maximum possible gains from selecting an alternative, . . . the default is selected over 70% more often than it would be if $c = s = 0$ [i.e., choosing were costless]." Chris M. Wilson, Luke Garrod & Alistair Munro, *Default Effects, Transaction Costs, and Imperfect Information*, 119 ECON. LETTERS 213, 214 (2013). Consistent with this view, economists now treat "inertia" not as a bias but as a switching cost. See Benjamin R. Handel, *Adverse Selection and Inertia in Health Insurance Markets: When Nudging Hurts*, 103 AM. ECON. REV. 2643, 2645, 2661 (2013). Lauren Willis argues that the law should *increase* the consumer's cost of altering policy-favored defaults because otherwise there is too much opting out. See Lauren E. Willis, *When Nudges Fail: Slippery Defaults*, 80 U. CHI. L. REV. 1155, 1214-16 (2013). In their literature review, Karlan, Ratan, and Zinman state: "Despite widespread interest in, for example, 'nudging' people to save more, it is not clear whether, where, to what extent, and for whom such nudges would be desirable." Karlan, Ratan & Zinman, *supra* note 9, at 38.

regulator should always search for evidence, he should presume rationality when evidence is lacking.

C. *Disclosure and Social Learning*

Disclosure regulation may facilitate social learning about contracting choices and thereby increase market efficiency, even when some consumers make biased choices. It is helpful to begin with learning.⁵⁹ Consider the decisionmaking heuristic called “minimizing regret.” Market participants are assumed to choose actions in every period. Before making a current-period choice, the agent recalls her previous choices. Suppose that an agent chose an action, denoted a_j , in T prior periods. The agent can repeat this choice in the current period t or choose a different action a_k .

This illustrative agent asks herself what her average per-period payoff would have been in the T prior periods if she had played a_k instead of a_j . If the difference between the agent’s average per-period payoff and her possible alternative average payoff is positive, the agent plays a_j again in the current period because her past actions paid off better for her than the action a_k would have paid. The likelihood that the agent will switch to action a_k thus is increasing as the difference between her actual and her possible payoffs becomes increasingly negative. For example, if in the past the agent traded individual stocks, and she would have done much better buying index funds, then the agent is likely to switch in the current period to index funds.

This agent violates classical rationality, which would, in a forward-looking way, require her to calculate the expected payoff of holding an index fund portfolio and compare it to the payoff of holding an individual stock portfolio. Instead, the agent looks backward to how things might have been. The agent may play this “minimizing-regret heuristic” in connection with repeated decisions, such as trading stocks, making transactions under credit card contracts, or buying consumer goods under standard contracts.

Suppose now that a population of agents plays the heuristic. Each of them compares her average per-period payoff to how she might have done had she chosen a different presently available action. Suppose further that each agent can observe the choices that other agents make in each period. Then, each agent can make inferences about what choices have paid off well or badly for other agents who are in circumstances similar to hers.

The better a particular observed action did, the more likely other agents are to switch to it. The agents, that is, may coordinate their choices with the observed choices of other agents. The equilibrium of any such game, if the agents are playing it, will converge to a member of the set of correlated equilibria.⁶⁰

59. The following analysis draws from Sergiu Hart, *Adaptive Heuristics*, 73 *ECONOMETRICA* 1401 (2005).

60. “A *correlated equilibrium* . . . relative to information structure $(\Omega, \{H_i\}, p)$ is a Nash equilibrium in strategies that are adapted to this information structure.” DREW FUDEN-

Because correlated equilibria result from agents pursuing rational strategies, these equilibria are better for agents than the equilibria of isolated play. Indeed, it is possible for the equilibrium of the total game to approach the full rationality equilibrium.⁶¹

This possibility raises the question of how regulation can facilitate social learning. Analysts have left this question largely unexplored for commercial contexts. This Article next conjectures that the traditional regulatory method of reducing consumers' costs of acquiring information may be helpful.

There are two principal ways to reduce the consumer's cost of becoming informed. First, the regulator can reduce the consumer's cost of comparing the contracts of different firms. Second, the regulator can reduce the cost of understanding commonly misunderstood terms. Part III.C returns to the warranty example above to explain the first reform. Firms offer two warranties: broad (or extended) (w_B) and narrow (w_N). The broad warranty, w_B , costs a firm c_B to sell, and w_N costs c_N . Broad warranties are more costly for firms to honor, so $c_B > c_N$. If the market were competitive, these costs would become the prices: $p^*(c_B) > p^*(c_N)$. A consumer is assumed here to prefer a broad warranty if she sees both warranty types priced competitively and buys w_B . A preference for the narrow warranty w_N is similarly defined. Consumers know the warranty coverage of the firms they visit, but some consumers of both types may visit only one firm.

A consumer would make a mistake if bias caused her to prefer w_N but her rational self would prefer w_B , and the reverse. It is possible, however, for a "debiased" consumer to stay with her initial choice. For example, an optimistic consumer would prefer the narrow warranty w_N because she underestimates the defect probability, but the consumer would stay with w_N when debiased because she recognizes her comparative advantage at self-insuring. Hence, the narrow warranty could be rationally and irrationally preferred.

BERG & JEAN TIROLE, *GAME THEORY* 56 (1991). Here Ω is the game, H is the history of play to time t , and p reflects payoffs. Less formally, the "motivation for this concept [of correlated equilibrium] is that players' choices of pure strategies may be correlated due to the fact that they use the same random events in deciding which pure strategy to play." MICHAEL MASCHLER, EILON SOLAN & SHMUEL ZAMIR, *GAME THEORY* 300 (Mike Borns ed., Ziv Hellman trans., 2013).

61. Recent experimental evidence is consistent with this regret analysis. It shows that subjects do better when the possibility that they may regret their choices is made salient to them. See, e.g., Terry Connolly & Jochen Reb, *Regret Aversion in Reason-Based Choice*, *73 THEORY & DECISION* 35, 48 (2012) ("These [experimental] results extend Reb[']s (2008) recent findings that increased regret salience leads to more careful information search and deliberation during the decision process."); *id.* at 49 ("Our analysis . . . suggest[s] that humans may have also developed emotion-based mechanisms, such as regret and its anticipation, that can extend our argument-making skills into the balance and synthesis required for consequential thinking."). A debiasing method is to ask actual agents whether they would choose differently than they had chosen. The minimizing-regret heuristic is a do-it-yourself version of this method. Game theorists know that there is always a question of how quickly convergence to equilibrium occurs. The text assumes that convergence can occur before the world materially changes.

A regulator who cannot get behind such observational equivalence could increase the probability that both warranty types trade at their competitive prices by reducing the consumers' cost of comparing warranties across firms. This would have a real virtue and two potential virtues. Because both rational and irrational consumers prefer lower prices to higher prices, both consumer types would shop more if the costs of shopping were lower. The more that consumers shop, in turn, the fewer the consumers who will select high-price firms. And when firms respond to such reduced demand by lowering prices, the surplus a consumer realizes from purchase—her value less price—increases. Hence, the real virtue of reducing consumers' search costs is that both consumer types benefit, although some irrational consumers may be purchasing the warranty that is wrong for them: it is better to purchase the wrong warranty at a low price than at a high price.

The first potential virtue of reducing search costs is that it may reduce the likelihood that irrational consumers will make irrational contracting choices. As the proportion of comparison-shopping, rational consumers increases, it becomes more profitable for firms to satisfy their preferences. And when the portion of contracts that appeals to unbiased consumers increases, it becomes more costly for biased consumers to find contracts that appeal to them and becomes less profitable for firms to serve those consumers.⁶²

The second potential virtue, which is more relevant to this Article's concern, is that the price premium for a broad warranty may *itself* be informative. For example, let bias cause a consumer to prefer the narrow warranty w_N at the competitive price $p^*(c_n)$, but the consumer observes other consumers purchasing the broad warranty w_B at its competitive price $p^*(c_{bf}) = 2p^*(c_n)$. The consumer may ask why other consumers were willing to pay relatively high premiums for broader warranty coverage. If this strategy appeared to pay off for the other consumers—they seldom appeared to be stuck with bad products—a consumer playing the minimizing-regret heuristic may switch to the broader warranty. In a competitive context, the heuristic thus may help consumers to debias themselves.⁶³

To summarize, a regulator who is aware of the possibility of bias nevertheless should continue to pursue the traditional remedy of reducing information acquisition costs. The remedy has two additional virtues. First, there are well-

62. The circumstances in which this externality may occur are analyzed in Schwartz, *supra* note 7.

63. When the market is not competitive, there is no necessary relation between the prices of broad and narrow warranties. The competitive price equals cost, so competitive pricing informs consumers of the marginal cost of broader warranty coverage. This is why reducing search costs may reduce biased contracting decisions. Bar-Gill and his coauthors suggest a novel disclosure reform: firms should reduce the costs to consumers of learning how to use (and how not to misuse) goods and services. See Oren Bar-Gill & Franco Ferrari, *Informing Consumers About Themselves*, 3 ERASMUS L. REV. 93, 119 (2010); Oren Bar-Gill & Oliver Board, *Product-Use Information and the Limits of Voluntary Disclosure*, 14 AM. L. & ECON. REV. 235, 237-38 (2012). This reform also may facilitate social learning because it tells consumers what other consumers have done.

known ways to implement it: to require that contracts be written in standardized ways; to provide comparative price information; and to increase the salience of important terms. Second, this disclosure reform does not require the regulator to solve problems for which the tools are lacking.

CONCLUSION

Subjects in psychology and economics experiments exhibit numerous reasoning errors, and this suggests that actual consumers do as well. The regulatory problem is that these errors often do not cause irrational consumers to prefer different contracts than rational consumers prefer. Rather, rational and irrational consumers commonly accept the same contracts. This is because both consumer types derive utility from these contracts that exceeds their price, but the irrational consumers also may incur mismatch costs—costs that exist because the contracts are wrong for them—that make the contracts inefficient on net. The best way to put this outcome is that “rational contracts” can coexist with a substantial number of irrational contracting choices. The regulator, however, cannot intervene effectively unless he can get behind such observational equivalence, to distinguish consumers by their cognitive styles.

This Article’s central claim is that getting beyond observational equivalence is very hard for the regulator to do. This largely is because today there is no psychological theory that permits the regulator to make well-grounded inferences about agents’ market behavior from their experimental behavior. Consumer heterogeneity, both in experience and in reasoning styles, also precludes simple inferences that behavior that presents in the lab must present in life because people are people.

Rather, when regulating for rationality, the regulator needs evidence of how actual consumers behave. For example, if the data show that consumers understand that they are subject to late fees if they miss credit card payments, but many consumers nevertheless incur frequent late fees, the consumers may be influenced by present bias and myopia, cognitive problems that the regulator may want to correct. Evidence of this type often is lacking, however, and in its absence regulatory interventions are poorly grounded.

Because the facts are so sparse, there is a need for new normative assumptions. Currently, decisionmakers and commentators tend to believe that everyone is irrational or everyone is sane, so fairness and efficiency “obviously” dictate that either there is a need for major reform or there is not.⁶⁴ To the

64. Bubb and Pildes seem to assume that every consumer makes cognitive errors. *See* Bubb & Pildes, *supra* note 52, at 1612. John Pottow makes a similar assumption: “Consumers of unsecured revolving credit are notoriously irrational. . . . The principal concern with credit borrowing is with the cognitive bias for risk underestimation and the irrational discounting (myopia) that makes ‘seduction by plastic’ so attractive.” John A.E. Pottow, *Private Liability for Reckless Consumer Lending*, 2007 U. ILL. L. REV. 405, 412-13 (citing Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373 (2004)). There are many other examples.

contrary, there is a need for a normative default, which should guide the evidence-challenged regulator.

This Article argues that the regulator should default to rationality for four reasons: the default is more consistent with the premises of a liberal state, which puts the burden of regulating on the government; many consumers make rational choices and would be harmed by mandatory contract restrictions; extant theory and evidence provides little guidance to a regulator attempting to take cognitive error into account when choosing rules for particular contexts; and an irrationality default cannot be confined to contracting choices because consumers' product choices as well often produce observational equivalence, in the sense that the same products can be both rationally and irrationally preferred. A rationality default, however, should be qualified by a risk-of-error theory, which reverses the burden of proof for particularly consequential contracting choices.

This Article has focused on statutory and administrative regulation, but there is room, under the capacious unconscionability doctrine, for a court to consider the possibility of cognitive error when deciding whether to enforce a contract. An implication of this Article is that the possibility of such error should be irrelevant to an unconscionability finding. This is because a rationality default should carry especial weight for courts. A regulator sometimes can get behind observational equivalence—that is, distinguish rational from irrational contracting choices—with survey data, field tests, or experiments. None of these strategies are available to courts in lawsuits. A court may attempt to gather “micro data”: that is, the court can ask if the consumer in the lawsuit made an irrational choice. There are two reasons why this would be a bad idea. First, the psychologists are good at showing what people tend to do, but less good at evaluating particular individual choices. More importantly, dignity and autonomy concerns argue that the state should not require a consumer to fail a psychological evaluation in order to escape an unfair contract.

A simple way to put this judicial-passivity claim is that getting behind observational equivalence requires either macro data, which courts cannot get, or micro data, which courts should not get. But if courts do not get behind observational equivalence, they must default to something, and rationality is the better-grounded premise. Particular consumer contracts could still fail a fairness test, in consequence of fraud, imperfect information, coercion, or the like. Courts, however, more than any other legal institution, should evaluate consumer contracts on the assumption that the individual parties to them are capable persons.