



School of Law

**AN ASSESSMENT OF
BEHAVIORAL LAW AND ECONOMICS
CONTENTIONS AND WHAT WE KNOW
EMPIRICALLY ABOUT CREDIT CARD
USE BY CONSUMERS**

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**George Mason University Law and Economics
Research Paper Series**

14-46

August 31, 2014

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KNOW EMPIRICALLY ABOUT CREDIT CARD USE BY CONSUMERS

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Abstract

"Behavioral Law and Economics" (BLE) is a specialized component of the legal literature that purports to base its conclusions on a branch of economic analysis known as behavioral economics. The central claim of BLE is that by applying findings of behavioral economics to the real world it can provide more accurate assumptions about individual behavior and decision making than neoclassical economics and thus better and more effective policy prescriptions where needed. To date, however, BLE's claims have been almost entirely a priori, taking certain suggested biases identified in the laboratory experiments by behavioral economists and claiming that they extend significantly to actual consumer behavior and the need for regulation. Yet it is well-accepted that the proper test of the scientific validity of an economic theory is the accuracy of its predictions relative to empirically testable hypotheses, not a priori reasoning or hypothetical extensions. This paper focuses on an area where BLE has been particularly active and even influential—the analysis of consumer use of credit cards. Comparison of the claims of BLE against hypotheses of the traditional neoclassical model of consumer credit use developed over the past century finds that available empirical evidence uniformly rejects BLE's hypotheses for consumer credit. In short, while behavioral considerations are an important component of economic analysis, its BLE extension to policy in the consumer credit area has not yet proven to be useful.

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Careful study of the economics of consumer credit use and its underlying consumer decision making dates back almost a century, to the period before the Great Depression. In subsequent decades, economists have refined this theoretical model and provided numerous empirical confirmations of the conclusion that consumer credit use can be explained by rational decisions among users.¹

In recent years, however, this long-standing and well-confirmed model has been challenged by individuals offering a contrary model. "Behavioral Law and Economics" (BLE) purports to ground policy, especially consumer protection policy, in a "more realistic" model of human behavior than traditional economic analysis resting on rationality. It implicitly boasts that its approach will provide more accurate predictions of individual decision making than the traditional model and, therefore, better policy prescriptions. To date, however, this claim rests primarily on extrapolations from laboratory experiments involving hypothetical choices and has been subject to minimal empirical testing in real world contexts.

Despite the absence of empirical testing, advocates of BLE have often claimed to identify in the credit area substantial market failures that reduce consumer welfare. Further, as indicated, they have proposed aggressive policy prescriptions based on their theories.² Indeed, the establishment of the Consumer Financial Protection Bureau as part of the Dodd-Frank financial reform legislation in 2010 was closely tied to the policy agenda of BLE proponents.³ In contrast to the traditional economic model of consumer credit, BLE proponents conclude that not only do consumers suffer from certain welfare-reducing biases in their use of credit, but they suggest that consumer lenders implicitly prey on those biases through their product design and marketing.⁴

In this article, we identify predictions about consumer credit use found in BLE literature and review the available empirical evidence to determine whether BLE indeed meets its claims of providing a more accurate predictive model of individual choice concerning consumer credit use. The particular focus here is on credit cards because they have played a prominent role in the BLE literature as

¹ See Thomas A. Durkin, Gregory Elliehausen, Michael E. Staten, and Todd J. Zywicki, *Consumer Credit and the American Economy* (Oxford University Press, 2014) for an extensive review of the theoretical and empirical literature.

² See Ryan Bubb and Richard H. Pildes, *How Behavioral Economics Trims its Sails and Why*, 127 Harv L Rev 1593 (2014).

³ See Adam C. Smith and Todd Zywicki, *Behavioralism, Paternalism, and Policy: Evaluating Consumer Financial Protection*, NYU J L & Lib (forthcoming 2014) discussing history of the Consumer Financial Protection Bureau and relationship to behavioral law and economics).

⁴ See Oren Bar-Gill and Elizabeth Warren, *Making Credit Safer*, 157 U Penn L Rev 1(2008).

supposedly illustrating the value of adopting a different view of consumer credit. This article joins some new discussions elsewhere on other areas of consumers' credit use (mortgage loans, payday loans, and bank overdraft protection).⁵

Among the BLE prescriptive papers focusing on consumers' financial behavior, one of the best known is a lengthy theoretical and policy discussion about credit cards by law professor Oren Bar-Gill titled "Seduction by Plastic."⁶ We also discuss where relevant other papers within this genre, but Bar-Gill's paper is useful as a foundation for further review because it has been widely quoted and it directly suggests testable hypotheses.⁷

The rest of the article proceeds as follows. In Part I we briefly examine traditional economic and financial microeconomic theory of credit use developed in the twentieth century and then look at new BLE theories of the same phenomena. For the latter, as indicated, we focus especially on possibly its best known exposition, the widely quoted paper by Professor Oren Bar-Gill. In the process of describing BLE theory of credit cards as articulated there, we seek to identify core ideas in this area and preliminarily specify readily apparent testable contentions. As part of this discussion, we compare the Bar-Gill-BLE model and its implications with the contentions of traditional

⁵ See Todd Zywicki, *The Behavioral Law and Economics of Fixed-Rate Mortgages And Other Just-So Stories*, 21 S Ct Econ Rev 157 (2014); Ronald Mann, *Assessing the Optimism of Payday Lending Borrowers*, 21 S Ct Econ Rev 105 (2014); Todd Zywicki, *Behavioral Law and Economics and Bank Overdraft Protection*, Volokh Conspiracy (November 30, 2013) online at <http://www.volokh.com/2013/11/20/behavioral-law-economics-bank-overdraft-protection>.

⁶ Oren Bar-Gill, *Seduction by Plastic*, 98 NW U L Rev 1373 (2004). Professor Bar-Gill has recently updated his analysis in a book, *Seduction by Contract*. Oren Bar-Gill, *Seduction by Contract: Law, Economics, and Psychology in Consumer Markets* (Oxford University Press 2012). Most of the analysis of credit cards in the book is largely a reiteration of the arguments in his earlier article. We generally refer to his article when discussing his arguments. Where, however, the analysis differs or has been updated we also discuss the arguments of the book.

⁷ See also Samuel Issacharoff and Erin F. Delaney, *Credit Card Accountability*, 73 U Chi L Rev 157(2006), and George Loewenstein and Ted O'Donoghue, *We Can Do This the Easy Way or the Hard Way: Negative Emotions, Self Regulation, and the Law*, 73 U Chi L Rev 183 (2006). The Bar-Gill paper provides the best framework for empirical review. A search of Westlaw's JLR database of law review articles in July 2014 finds that Bar-Gill's article has been cited 146 times since publication. Notably, many of those who have provided behavioral law and economics analysis of consumer credit use and its regulation have no obvious expertise or knowledge regarding the economics or history of consumer credit and its regulation.

microeconomics.⁸ In Part II, we examine available relevant empirical evidence.

To preview, although both Bar-Gill and others have pointed to his discussion as a basis for government regulation of credit cards, in fact he actually focuses on theoretical discussion and *a priori* assertions but provides no empirical underpinning for his arguments. Rather, he hypothesizes what he believes to be welfare-reducing behavior by consumers and uses several *ad hoc* explanations based on behavioral economics to conclude that these welfare-reducing practices persist because credit card issuers prey on consumer biases.⁹ This lack of empirical evidence is especially troubling in light of the extensive existing empirical literature that neither he nor other BLE scholars have addressed, much less refuted. Although Bar-Gill himself provides no empirical testing of his arguments, other economics researchers have tested BLE propositions.

I. Theories of Consumer Credit Use

BLE offers a model of consumer credit use that challenges the traditional model of consumer credit use, rooted in neoclassical economics. First introduced by Edwin R. A. Seligman in 1927 based upon Irving Fisher's earlier model of investment and interest and refined by Jack Hershleifer in the 1950s and F. Thomas Juster and Robert P. Shay in the 1960s, the traditional model sees consumer credit use as best explained by rational efforts by consumer to undertake wealth increasing household investments and shift consumption through time, subject to constraints. BLE, by contrast, hypothesizes that consumers are systematically irrational in their use of consumer credit. This section introduces the theoretical foundations of both models for purposes of identifying their testable hypotheses.¹⁰

⁸ We distinguish throughout in this article between behavioral economics, which posits a set of assumptions about how consumers behave (usually in laboratory experiments) and behavioral law and economics (BLE), which seeks to apply behavioral economics to particular real-world questions and to make policy recommendations based on them.

⁹ This behavioral law and economics methodology has been described elsewhere by one of us as a "just-so stories" approach to research. Todd Zywicki, 21 S Ct Econ Rev 157 (cited in note 5). It seems that BLE authors who focus in this area tend to single out credit card use for special scrutiny because they believe that credit card use by consumers is especially prone to irrational behavior when compared to other types of consumer credit. This purported difference between credit card usage and other types of credit is also *ad hoc*, however, and ultimately is simply assumed rather than demonstrated. In fact, many current criticisms of credit card usage by consumers today echo similar criticisms of other types of consumer credit in the past.

¹⁰ We have developed and explained the neoclassical model extensively in a co-authored book, to which this article may be viewed as a complement. While we summarize the model here, those seeking a fuller exposition may refer to our

A. The Traditional Model of Consumer Credit: The Juster-Shay Model

Traditional economic analysis models consumers as using credit in much the same way as businesses, namely to invest in capital goods such as housing, automobiles, and other consumer durable goods or to make human capital investments like higher education and then to smooth discontinuities between income and expense flows. Such actions involve allocation of present and future income, including intertemporal shifting of spending and consuming, through using consumer credit.¹¹

The theory of consumer credit was developed by Irving Fisher, Edwin R. A. Seligman, Jack Hirshleifer, and F. Thomas Juster and Robert P. Shay in the early part and middle of the twentieth century.¹² Fisher formulated a model that considered production, borrowing or lending, and consumption decisions over time.¹³ The model demonstrated that borrowing opportunities can enable an individual to undertake more productive investment and then borrow or lend to achieve more highly valued current and future consumption than would be possible without borrowing and lending opportunities. In a perfect market (that is, a market with a single, constant borrowing and lending rate of interest, a theoretical constraint relaxed in later work by others), the investment decision is to choose the amount of investment that maximizes wealth, regardless of consumption preferences. Having maximized wealth, an individual may borrow or lend at the constant interest rate to obtain the preferred pattern of consumption over time.

Seligman applied Fisher's model to consumer credit decisions.¹⁴ He pointed out that many goods purchased by consumers are not consumed at once but instead produce a flow of services over time. He proposed that the flow of services from a consumer durable asset is not fundamentally different from a flow of income from a business investment. In each case, the objective is to procure a surplus of benefits in terms of utilities or income over cost. In the case of consumer durable assets, the role of consumer credit is to put "goods

book. See Durkin, et al., *Consumer Credit and the American Economy* (cited in note 1). As indicated, those seeking further elaboration of the BLE model should refer to Bar-Gill, *Seduction by Contract* (cited in note 6).

¹¹ For more extensive discussion of the standard model, see Durkin, et al., *Consumer Credit and the American Economy* (cited in note 1), especially chapters 3-5.

¹² Id., Chapter 3.

¹³ See Irving Fisher, *The Rate of Interest: Its Nature, Determination, and Relationship to Economic Phenomena* (MacMillan 1907); Irving Fisher, *The Theory of Interest* (MacMillan 1930).

¹⁴ See Edwin R. A. Seligman, *The Economics of Installment Selling: A Study in Consumers' Credit, with Special Reference to the Automobile* (Harper & Brothers 1927).

of potential productive utilization at the disposal of the consumer at an earlier period than would be otherwise practicable."¹⁵ In other words, consumer credit enables consumers to acquire more productive household investment in durable assets earlier without large sacrifices in current consumption to purchase the durable assets. For example, a household could purchase a washing machine on credit, thereby acquiring it earlier than if it had to save for it, while also avoiding the cost and inconvenience of alternatives, such as using a laundromat.¹⁶ Thus, the washing machine can be best understood as a type of capital good for the household that provides a stream of benefits to the household. Such purchases may be especially useful to younger households just starting out. They may receive the highest value from the purchase of such goods but also are most likely to be constrained in terms of access to such credit.

Hirshleifer extended Fisher's model to markets in which the interest rate for borrowing is greater than the interest rate for lending.¹⁷ The extension demonstrated that the investment decision involves consideration of not only the borrowing rate but also the lending rate and rate of time preference (that is, the rate of substitution between current and future consumption). When investment opportunities provide relatively high returns, an individual might borrow to finance additional investments. An individual with relatively low-return investments might make few investments and also lend part of current income. Between these two possibilities is a third possibility in which an individual neither borrows nor lends and the rate of time preference determines the amount of investment. This extension addressed an important limitation of Fisher's perfect capital market model.

Juster and Shay modified Hirshleifer's extension for certain institutional characteristics of consumer credit markets.¹⁸ These characteristics included absolute limits on amounts borrowed and availability of unsecured credit at a higher interest rate from supplementary lenders. The existence of absolute limits to borrowing is a consequence of uncertainty and borrowers' finite ability to repay. As the amount of principal and interest rise, the likelihood of default becomes greater. Low-rate credit is limited by the amounts of equity and collateral that the borrower is able to provide. Unsecured supplemental credit may be available at higher rates, but such credit is available only in amounts well below levels that make default

¹⁵ Id at 335.

¹⁶ Dunkelberg, W.C. and J. Stephenson, *Durable Goods Ownership and the Rate of Return*, National Commission on Consumer Finance: Technical Studies, Vol. IV (GPO 1975).

¹⁷ See Jack Hirshleifer, *On the Optimal Investment Decision*, 66 J Pol Econ 329 (1958).

¹⁸ See F. Thomas Juster and Robert P. Shay, *Consumer Sensitivity to Finance Rates: An Empirical and Analytical Investigation* (National Bureau of Economic Research 1964).

probable. When returns to household investment are relatively high, Juster and Shay's model showed that use of higher rate supplemental credit may be utility increasing. Another notable contribution of Juster and Shay is the suggestion that in many cases the evaluation of household investments may not be especially onerous. For example, the cost of replacing an item may be compared with the cost of its repair and maintenance, or goods may have close substitutes in services provided in the market. Thus, the relative dollar values of benefits are often readily available to consumers.

When Juster and Shay published their study, supplementary credit was primarily in the form of personal loans from banks and finance companies. These forms of credit still exist, but since then credit cards have become an additional source for supplemental credit. Credit cards eliminate the need to incur transaction costs for seeking out and applying for a loan each time credit is needed. Brito and Hartley showed that even very small transaction costs can make credit card borrowing an attractive alternative to personal loans.¹⁹ This conclusion is especially relevant for small loans from other sources, which may carry interest rates of 36% or more.

B. Behavioral Law and Economics

In contrast to consumer credit (including credit card credit) use for rational economic reasons, BLE instead has offered "Seduction by Plastic" (the title of Bar-Gill's article in the *Northwestern University Law Review*). In this article Bar-Gill contends that consumer behavior with respect to credit cards exhibits two chronic behavioral biases: 1) consumers show imperfect self-control concerning sticking with their future borrowing and repayment intentions, a phenomenon he calls the "underestimation bias"; and 2) they also underestimate the likelihood of adverse events that might cause them to need to borrow, which he calls the "optimism bias." In his view, these two biases are behind what he considers to be excessive borrowing on credit cards. Moreover, he seems to assume implicitly that these biases are systematic and irremediable through learning.

As supporting evidence for the underestimation bias, he offers a small collection of examples not involving credit use: Homer's ancient story of Ulysses and the Sirens; a dieter on a treadmill who later falters at a restaurant "when the dessert cart is steered past the table and his mouth starts to water and he caves in and orders the chocolate cake;" makers of New Year's resolutions, "quickly forgotten when February replaces January;" and setters of alarm clocks, "only to be turned off and ignored the next morning."²⁰ From these simple examples, he leaps directly to assertions about significant financial behavior: "And weakness of the will also explains consumers'

¹⁹ See Dagobert L. Brito and Peter R. Hartley, *Consumer Rationality and Credit Cards*, 103 J Pol Econ 400 (1995).

²⁰ Bar-Gill 98 NW U L Rev at 1374-75 (cited in note 6)

underestimation of their future borrowing. Often the consumer will end up borrowing on her credit card, despite her ex ante assertions not to borrow."²¹ He does not elaborate upon how often is "often."

He then argues for the second bias that he alleges causes substantially more borrowing than planned: "The second bias underlying the underestimation of future borrowing is the optimism bias."²² As supporting evidence he again offers a few speculations, this time about how consumers underestimate the likelihood of adverse events like accidents or costly illnesses, without further analysis about frequency, financial impact, asymmetries, or other aspects of such estimates.

The evidence he offers in both areas is weak, and, without worrying here yet about evidence, it is equally possible to argue another set of contentions about credit cards: namely that even if these characteristics describe some consumers sometimes, the number is quantitatively small to the point that their impact on the overall functioning of credit markets is unimportant. If so, then standard economic analysis is not undermined as a descriptor of the fundamentals of consumer behavior with respect to credit, even after taking into account the findings and contentions of the psychologists and the survey researchers and marketers concerning variations in consumer behavior. Credit cards, then, represent the coming of technological change in the form of plastic credit access devices, more effective screening of applicants for unsecured credit, and the new availability of extensive, low cost communications networks for managing traditional credit demand and supply. Which hypothesis is correct? Merely stating contentions does not prove either point.

Importantly, Bar-Gill's analysis fails to consider other dimensions of the validity of BLE arguments. For example, economists have long understood that consumers make errors resulting from limited foresight and limited information, and that decisions that appeared beneficial at the time of the decision may later turn out to be harmful in some way after the fact because of changed circumstances. Consequently, it is necessary to distinguish BLE hypotheses within a standard error-correcting framework. Further, while some consumers may err by underestimating likelihood of subsequently revolving their balances, others may overestimate their likelihood of revolving. It is necessary to know the frequency of *both* types of mistakes in the pool of consumers to evaluate the behavioral hypotheses. Moreover, even if it is true that certain biases affect consumer behavior, it is still necessary to determine how those various biases affect consumer behavior in specific contexts. For example, even if consumers are overoptimistic or myopic, it is necessary to think carefully about how

²¹ Id.

²² Id.

those biases may actually apply in practice, for instance, seriousness of the mistakes and whether they are correctable and corrected.²³

In addition, it is also crucial to consider alternative hypotheses that could explain observed behavior. For example, the willingness of young households to revolve balances may sometimes appear irrational; on the other hand, younger households might have a greater demand for credit than older households (associated with beginning a household and having children) while at the same time having restricted access to credit supply because of lower assets and income. As a result, younger households might rationally be willing to pay higher prices than older households for credit. Thus, the willingness of younger households to revolve credit card balances would be consistent with rational behavior under their particular constraints.

C. Assessing BLE's Theoretical Claims

Clearly, the psychologists and behavioral specialists have usefully pointed out that people are heterogeneous and that they approach buying questions differently from one another. This is consistent with the behavioral findings of the marketers who have long usefully pointed out that people regularly approach issues and products in idiosyncratic ways.²⁴

But BLE proponents go beyond the traditional caution of analysts, or, indeed, of financial regulators, to recommend interventions into consumer credit contracts.²⁵ For some BLE proponents, the very process of market competition is *itself* suspect in a world of imperfect consumer decision making. The market process is seen as a mechanism by which lenders compete not to provide the highest-quality products at the lowest price, but rather to see which lender can best exploit consumer irrationalities. Consider Bar-Gill's characterization of the consumer credit market:

Consumer contracts are characterized by an asymmetry between the two parties, the seller of a good or the provider of a service on the one hand and the consumer on the other. One party is usually a highly sophisticated

²³ Zywicki, 21 S Ct Econ Rev 157 (cited in note 5), discusses how the same biases that might be claimed to lead consumers to be make suboptimal decisions to obtain adjustable-rate mortgages might also predict that consumers will make suboptimal decisions to obtain fixed-rate mortgages when applied to different components of the mortgage decision.

²⁴ See George Katona, *Psychological Economics* (Elsevier Scientific Publishing 1975); Roger D. Blackwell, Paul W. Miniard, and James F. Engel, 10th. ed. *Consumer Behavior*, (Thomson South-Western 2006); and Durkin, et al., *Consumer Credit and the American Economy* at Chapter 4 (cited in note 1).

²⁵ See Janis K. Pappalardo, *Product Literacy and the Economics of Consumer Protection Policy*, 46 J Consumer Affairs 319 (2012).

corporation, the other - an individual, prone to the behavioral flaws that make us human. Absent legal intervention, the sophisticated seller will often exploit the consumer's behavioral biases. The contract itself, commonly designed by the seller, will be shaped around consumers' systematic deviations from perfect rationality. Such biased contracting is not the consequence of imperfect competition. *On the contrary, competitive forces compel sellers to take advantage of consumers' weaknesses* (emphasis added). . . .

These welfare costs provide a prima facie case for legal intervention. The underestimation bias that underlies the identified welfare costs also qualifies the no intervention presumption of the freedom-of-contract paradigm. If a contracting party misconceives the future consequences of the contract, then the normative power of contractual consent is significantly weakened.

This Article challenges the no intervention position. . . .²⁶

Nor is Bar-Gill alone in recommending sweeping regulatory intervention predicated on the accepted truths of BLE.²⁷ Nonetheless, additional considerations may temper enthusiasm for this reform agenda among other observers. The antecedent conditions that elicit (or suppress) behavioral biases in the credit area are not well specified in the BLE literature. That the cognitive errors and biases from the behavioral science and behavioral economics literature (as opposed to BLE literature) exist is well established, but that they seriously impair actual financial behavior is not well established. In fact, many studies to be discussed suggest otherwise.

It is informative to visit in a bit more detail where BLE theory differs from the economists' model of intertemporal choice and credit use. Although BLE scholars seem largely unaware of it, their theoretical contentions would overturn nearly a century of well-established and empirically-validated analysis of the economics of consumer credit. Perhaps it is the case that they believe that the long-established body of research is irrelevant to the analysis of consumer use of credit cards today, but if so, they provide no

²⁶ Bar-Gill, 98 NW U L Rev at 1373 (cite in note 6). Bar-Gill draws no line as to why the rejection of the "no intervention" assumption of a free economy should be limited to credit cards specifically or even consumer credit generally. Should it apply to a restaurateur who offers high calorie chocolate cake for dessert or the middle class factory worker who takes an expensive winter trip to Hawaii or purchases an expensive beer at a baseball game? What would be the rationale for regulating the credit card used to finance the Hawaiian vacation or the beer but not the product itself?

²⁷ See Bubb and Pildes, 127 Harv L Rev 1593 (cited in note 2); Bar-Gill and Warren, 157 U Penn L Rev 1 (cited in note 4).

explanation for why they reject that body of literature without any discussion.

Although it is unclear why he rejects the traditional model of consumer intertemporal choice, in the middle of his article Bar-Gill discusses more fully the theoretical underpinning for the phenomena he suggests instead are associated with credit card credit demand: his specification of "hyperbolic discounting." According to him, "The evidence tells a story of debtors suffering from imperfect self-control who end up borrowing more than they have initially anticipated. What is the source of such widespread weakness of the will? Why do so many consumers fail to follow through with their initial plans? Hyperbolic discounting provides the answer."²⁸

Hyperbolic discounting refers to the observation that consumers appear to discount proximate outcomes more than distant outcomes. Economic models commonly assume that consumers' discount rates are constant with respect to time. A constant discount rate assures that decisions are consistent over time: if receiving X today is preferred to Y tomorrow, then receiving X in 100 days is preferred to receiving Y in 101 days.²⁹ If instead receiving X today is preferred to Y tomorrow but Y is preferred in 101 days to X in 100 days, preferences are "time inconsistent." Time inconsistent preferences in discounting may be an issue because it might cause consumers to deviate from prior optimal intertemporal allocations in future time periods.

Time inconsistent preferences might cause consumers to postpone earlier plans to repay credit card debt. Consumers may plan to extinguish debt in a future period, but impatience for current consumption and a lack of self-control cause them to abandon their plan as the future period approaches. But impatience is not the only reason for changes in plans,³⁰ and when the future is uncertain

²⁸ Bar-Gill, 98 NW U L Rev at 1398 (cite in note 6). The "evidence" to which Bar-Gill refers is actually metaphoric quotations from two sources he greatly approves of and relies on heavily in his paper: Lawrence M. Ausubel, *The Failure of Competition in the Credit Card Market*, 81 Am Econ Rev 50(1991), and Teresa A. Sullivan, Elizabeth Warren, and Jay Lawrence Westbrook, *As We Forgive Our Debtors: Bankruptcy and Consumer Credit in America*, (Oxford University Press 1989). The analogies he uses concern alcoholism and dieting: The individual is aware of the harm from drinking or eating too much but despite the knowledge cannot resist the temptation when faced with it.

²⁹ A constant discount rate is a simplifying assumption of Samuelson's generalization of Fisher's intertemporal choice model (see Paul A. Samuelson, *A Note on Measurement of Utility*, 4 R Econ Studies 155(1937). Samuelson did not propose that individuals actually discounted using a single constant rate. He maintained that it was a hypothesis subject to refutation by observable facts.

³⁰ Ariel Rubinstein, *Economics and Psychology? The Case of Hyperbolic Discounting*, 44 Int Econ Rev 1207(2003). Rubinstein proposes an intertemporal decision-making procedure in which the individual first looks for an dominant option. If no option is dominant, then the individual looks for similarities

hyperbolic discounting may be sensible.³¹ Moreover, consumers can exercise self-control to prevent impatience from jeopardizing long term plans; clearly many of them do so. They might still yield to a temptation if it does not perturb a saving plan too much, but the prospect of a large disruption would tend to inhibit impulsive behavior.³² Consumers can also enter into arrangements that precommit them to carry out their long-term plans.³³ In any event, consumers make many intertemporal choices, in most cases apparently without suffering any great harm. That such behavior is not always perfectly optimal according to the economic model does not imply that the behavior is not purposive or deliberate or in any way irrational, let alone that the traditional economic model should be rejected.

Bar-Gill presents his theoretical contentions with the help of a chart.³⁴ Although it is sometimes a bit difficult to determine exactly what he means economically from what he says, it seems that Bar-Gill's contentions are fundamentally based in neoclassical economics but with a few twists, some of which he may not be aware that he is making.

First, he hypothesizes a consumer who acquires a credit card and weighs the *future* benefit from its use against the still farther future cost of repayment on debt taken on. So far this is the same as the Fisher/Seligman/Hirshleifer/Juster-Shay framework: a consumer has a preference function for evaluating the benefits from consumption during some period versus the costs of future consumption foregone due to future debt repayment. Since, when the card is acquired, both benefits and costs are in the future and the consumer discounts both to the present, the hypothesized consumer evaluates the discounted costs and benefits of the consumption patterns with and without borrowing. In the Bar-Gill case, the consumer decides not to borrow in the present, certainly possible in the traditional case as well.³⁵

Second, he assumes that the consumer also decides *now* what his or her borrowing behavior will be in *future* periods. Bar-Gill apparently

along time and value dimensions and evaluates options based on the characteristic that is not similar. Lastly, if the first two steps are not decisive, some other criterion is used.

³¹ J. Doyne Farmer and John Geanakoplos, *Hyperbolic Discounting Is Rational: Valuing the Far Future with Uncertain Discount Rates*, Cowles Foundation Paper No. 1719 (Yale 2009).

³² For discussion of self-control mechanisms, see Jess Benhabib and Alberto Bisin, *Modeling Internal Commitment Mechanisms and Self-Control: A Neuroeconomic Approach to Consumption-Saving Decisions*, 52 *Games & Econ Behavior* 460 (1995).

³³ See R. H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*. 23-3 *Rev Econ Studies* 165 (1956); Juster and Shay, *Consumer Sensitivity to Finance Rates* (cited in note 18); and Katona, *Psychological Economics* (cited in note 24).

³⁴ Bar-Gill, 98 *NW U L Rev* at 1400 (cited in note 6).

³⁵ See Durkin, et al., *Consumer Credit and the American Economy* at Figure 3.4 and surrounding discussion (cited in note 1).

assumes this because it is important to his theoretical contentions, not because he offers any evidence that consumers behave this way.

He apparently regards the possibility that consumers can later change their minds about the desirability of future borrowing as important for contending that consumers' discount rates are not constant with respect to time (hyperbolic discounting). But as the future date approaches, consumers can change their minds about their planned borrowing for any number of reasons, including updated information about actual (as opposed to projected) circumstances as the time draws closer, changed circumstances, or different preferences. When the future is uncertain and unknown, nonconstant past discount rates are not necessary for consumers to change their minds as time passes.

Whether consumers actually underestimate their future borrowing, however, *is an empirical question*. How much, and the implications, are also empirical questions, but consumers seeking to increase their borrowing later would still face the reality that lenders may not be willing to supply the desired increase in funds. In other words, Bar-Gill implicitly assumes that not only will borrowers want to borrow more than they planned or can repay, but that lenders will also be willing to lend too much as well, despite the obvious default risk and potential subsequent loss from excessive lending. These are empirical matters for which Bar-Gill offers no empirical evidence.³⁶

Nonetheless, it is not borrowing that seems to interest Bar-Gill but rather that consumers *might change their minds* about borrowing. According to his discussion, "The preference reversal - a T=0 [i.e., right now] preference not to borrow evolving into a preference and a decision to borrow at T=1 [i.e., at some future time] - is an immediate implication of hyperbolic discounting".³⁷ Bar-Gill's Figure 1 in his article appears that it was drawn primarily to illustrate how preference reversal could come about between now and some future time in his construct when a decision must be made. As already discussed,

³⁶ Ironically, BLE concepts can be just as easily invoked to claim theoretically that consumers *underconsume* against their future income because of their tendency to irrationally discount future adverse life events, such as car wrecks, premature death, or divorce, that will reduce their ability to consume in the future. See Zywicki, 21 S Ct Econ Rev at 181 (cited in note 5). BLE has no theory as to how to weigh these factors that cause consumers to underconsume in the short-run weigh against those that purportedly cause consumer to overconsume.

³⁷ Bar-Gill, 98 NW U L Rev at 1399(cited in note 6). Bar-Gill appears to assume not only that consumers are very skewed in favor of present consumption but that they are skewed *only* in that direction. Errors are thus assumed to be exclusively one-tailed in their distribution—consumers borrow and spend excessively today—and not two-tailed, meaning that consumers never overestimate their likelihood of revolving balances. This hardly seems to be the case for all consumers. Nor can it even be justified as a matter of a priori reasoning from BLE premises.

this could happen for any number of reasons and not only for his asserted reason, hyperbolic discounting.

Third, importantly, his graphical presentation suggests that all of the benefits from borrowing occur only in one period; there is no possibility that using credit could permit the purchase of durable goods and services that provide benefits in multiple periods. Thus, he *assumes* his preferred conclusion as follows: 1) If consumers can borrow only to move consumption forward in time rather than to acquire assets that can produce a surplus of benefits over costs over time and 2) consumers' discount rates are understated and hyperbolic; then, much of observed borrowing must be irrational.

But this reveals a significant difficulty with Bar-Gill's theoretical contentions: he assumes, and he does not seem to realize that he is assuming, that in his model consumer saving and investment are impossible. All of his discussion appears to contend that consumers' decisions involve the costs, benefits, and associated discount rates only for allocating consumption. He appears to allow no possibility of longer term investment spending, such as for a car or other consumer durable that incurs a cost but generates a stream of benefits over time. Instead, survey evidence has found that acquiring durable goods and services (like education) is the main use of consumer credit, making this oversight particularly problematic.³⁸ In short, it would be tantamount to modeling a business decision by a pizza restaurant to buy a new pizza oven as a pure expenditure which recoups no return to the business in the long run.³⁹ Or perhaps more to the point, it would be like modeling a household as only eating take-out food every night for dinner, rather than possibly buying a stove and preparing food at home.

Bar-Gill also assumes that (undiscounted) costs of borrowing are uniformly substantially greater than benefits (see his Figure 1). According to the way Bar-Gill has drawn his figure, with (undiscounted) costs much higher than benefits, then discounted costs are going to exceed benefits at almost any discount rate. In economists' model of intertemporal choice, however, consumers will not borrow under these conditions; rather they will borrow only when discounted costs are less than benefits. But Bar-Gill has drawn his

³⁸ See discussion in Durkin et al., *Consumer Credit and the American Economy* at Chapter 1 (cited in note 1).

³⁹ In fact, the failure to consider the ability of consumers to save and invest in his model becomes even more apparent, and challenging to the analysis, when he suggests that consumers will be better off with a credit card contract with a positive annual fee and a lower interest rate than with a zero annual fee and a higher interest rate. As Wright has observed, this result only comes about in Bar-Gill's model because in the zero annual fee model, the consumer's avoided annual fee simply disappears from the model and is not saved or invested for use in future periods. Joshua D. Wright, *Behavioral Law and Economics, Paternalism, and Consumer Contracts: An Empirical Perspective*, 2 NYU J L & Lib 470 (2007).

graph so this is impossible; hence, borrowing, which we all know takes place, depends on his other assumptions and is irrational.

Finally, by focusing on credit cards as uniquely susceptible to exploiting consumers, Bar-Gill implicitly ignores other types of credit (such as installment loans and retail store credit which credit cards replaced for many consumers) and which are potentially prone to similar problems of behavioral biases.⁴⁰ Indeed, Bar-Gill asserts that "credit card financing [is] *uniquely* vulnerable to the underestimation bias"⁴¹ and he suggests that the displacement by credit cards of other traditional types of consumer credit is attributable mainly to the comparatively-better opportunities that credit cards present by lenders to exploit defects in consumer decision-making, specifically due to the underestimation hypothesis. He writes:

What happened before credit cards? The consumer could apply for a bank loan equal to her credit card balance. But would she?

Juxtaposing the traditional bank loan and incremental credit card loan reveals the critical role of self-control (or lack thereof). When a consumer takes on a closed-end loan, all the parameters of the loan contract, including the amount of the loan, are determined up-front. No discretion is reserved for a later period, and thus self-control is not an issue. The credit card, on the other hand, separates the decision to obtain a card and the decision of which card to obtain, from the actual borrowing decision (or decisions). The amount of the loan is left open. And an open-end loan *inevitably* also opens the door to self-control problems... [A bank loan] serves as a commitment device, enabling the consumer to constrain her future self by pre-committing to a maximum amount of debt.⁴²

Virtually every factual statement in the just-quoted passage is historically and factually incorrect. As a matter of history, in fact, very few borrowers actually had access to bank loans, and most of those were higher-income borrowers.⁴³ In fact, most borrowers who needed cash credit relied on lenders such as personal finance companies and so-called salary buyers (forerunners to modern payday lenders). A loan from a finance company, of course, did not pre-commit the borrower to a "maximum amount of debt" because finance company loans could, and often were, refinanced at any time, and additional

⁴⁰ See Todd J. Zywicki, *Credit Cards and Bankruptcy*, unpublished manuscript available at http://works.bepress.com/todd_zywicki/3 (criticizing BLE scholars for contending that behavioral biases with respect to credit cards have led to increased consumer debt without examining whether the products that credit cards have replaced are susceptible to the same claims).

⁴¹ Bar-Gill, 98 NW U L Rev at 1379 (emphasis added) (cited in note 6).

⁴² Id at 1395-96.

⁴³ See Durkin, et al., *Consumer Credit and the American Economy* (cited in note 1); Todd Zywicki, *Economics of Credit Cards* 3 Chapman L Rev 79(2000).

loans sometimes were available from other lenders. For those who were especially creditworthy, additional loans and balances also were available.

Moreover, a primary source of credit for many consumers was also credit issued by retailers such as department stores, furniture stores, and appliance sellers to finance the purchase of goods and consumer durables. Much of this credit operated on "open book" revolving credit, similar to credit cards.⁴⁴ And, in fact, retailers were notorious for trying to induce consumers to purchase more goods on credit, thereby increasing their outstanding balance.⁴⁵

In short, it appears that Bar-Gill's assertion that credit cards present unique challenges with respect to the threat underestimation (and others who make similar claims⁴⁶), rests on a fundamentally erroneous understanding of the nature of consumer credit products in the past and the structure of the market that predated the rise of credit cards. Indeed, *all* of the criticisms of credit cards—most notably that they prey on consumers' impulsiveness and vulnerability—were also made of the installment lenders and retailers that anchored consumer credit markets for decades before the growth of access to credit cards.⁴⁷ Thus, while it might actually be true that credit card financing is "uniquely vulnerable to the underestimation bias" this cannot simply be assumed nor is it obviously correct as an historical matter.

II. Empirical Analysis of BLE Hypotheses of Credit Card Use

Moving from difficulties with BLE's theoretical analysis to consider empirical evidence, we arrive at the heart of the matter. Although Bar-Gill's BLE theoretical discussion is not satisfying, whether BLE hypotheses explain consumer behavior better than traditional economic analysis is what is important. Although Bar-Gill does not provide empirical support for the BLE "seduction by plastic" hypothesis, it is susceptible to empirical testing.

At the center of Bar-Gill's discussion is a key empirical question: are the suggested irrational behaviors common and uniform enough among consumers that they have a material effect on consumer welfare and market efficiency? Bar-Gill apparently contends they are common, but his view of the world may well let him down if he is willing to generalize from it without empirical testing for relevance, extent, and quantitative significance of the behaviors in question.

⁴⁴ Id.

⁴⁵ Zywicki, *Credit Cards and Bankruptcy* (cited in note 40).

⁴⁶ See discussion in Id.

⁴⁷ Id.

The availability of two inconsistent theories clearly suggests the usefulness of empirical testing, recalling Nobel Laureate Milton Friedman's recommendation for evaluating theories in his famous article on economic methodology:⁴⁸

Such a theory cannot be tested by comparing its "assumptions" directly with "reality." Indeed, there is no meaningful way in which this can be done. Complete "realism" is clearly unattainable, and the question whether a theory is realistic "enough" can be settled only by seeing whether it yields predictions that are good enough for the purpose in hand or that are better than predictions from alternative theories. Yet the belief that a theory can be tested by the realism of its assumptions independently of the accuracy of its predictions is widespread and the source of much of the perennial criticism of economic theory as unrealistic. Such criticism is largely irrelevant, and, in consequence, most attempts to reform economic theory that it has stimulated have been unsuccessful.

Ultimately, as Friedman argued, the important issue is whether the irrationality contentions of some BLE analysts have helped us to understand credit using behavior of consumers and the operations of credit markets better, or not.⁴⁹ Most of Bar-Gill's specific contentions are relatively early in his article; much of the remainder of his paper is given over to elaboration of these ideas. A listing of his important relevant arguments follows, along with his accompanying supporting statements. Each is then followed by discussion of the available empirical evidence.

1. Credit card use is only for changing the timing of consumption. BLE consumer credit theory suggests that such credit use is essentially for financing current consumption and, consequently, subject to problems of self-control. In Bar-Gill's words, "Many consumers overestimate their ability to resist the temptation to finance *consumption* by borrowing, and consequently underestimate future borrowing."⁵⁰ But survey evidence shows convincingly that most consumer credit is employed consistently with the neoclassical theoretical structure of Fisher, Seligman, Hirshleifer, and Juster and Shay, namely to allow for the financing of consumer investment

⁴⁸ Milton Friedman, *The Methodology of Positive Economics*, in his *Essays in Positive Economics* at 41 (1953, University of Chicago Press).

⁴⁹ See Fred McChesney, *Behavioral Economics: Old Wine in Irrelevant New Bottles*, 21 S Ct Econ Rev 43 (forthcoming 2014).

⁵⁰ Bar-Gill, 98 NW U L Rev at 1396 (cited in note 6)(emphasis added).

spending on goods and services that provide a return over time, not to enhance current consumption at the expense of future consumption.⁵¹

2. Credit card interest rates should rise over time: Bar-Gill writes, "If consumers underestimate their future borrowing, issuers can be expected to raise the long-term, borrowing-contingent elements of the credit card price. ... Issuers that do not take advantage of the underestimation bias, and offer lower interest rates instead of short term perks, would not succeed in the marketplace."⁵² In other words, because consumers too often believe that they will not revolve balances, they pay insufficient attention to the interest rates on revolving balances, which will rise over time.

But empirical evidence shows that interest rates charged on credit card accounts have fallen over time, not risen. Examining the Federal Reserve's statistical series on credit card interest rates reported in its statistical release G19, shows that card rates were indeed relatively constant in the 17-19 percent range over the period 1972-1992, but that they fell rather continuously over most of the next two decades.⁵³ Recently, credit card interest rates have been in the 13% vicinity. Experience over the period as a whole is not good supporting evidence for the hypothesis that credit card interest rates will rise over time.

Rates have fallen not only in nominal terms. Johnson has studied the trend in credit card interest rates and has demonstrated that card rates have fallen in inflation adjusted terms as well.⁵⁴ In her view,

⁵¹ See discussion above surrounding footnote 34 and discussion in Durkin et al., *Consumer Credit and the American Economy* at Chapter 1(cited in note 1).

⁵² See Bar-Gill, 98 NW U L Rev at 1373, 1382 (cited in note 6). Alternatively, Bar-Gill contends later in the paper that rates should have declined but did not: "As high inflation justified raising interest rates in the late 1970s and early 1980s, the subsequent decline in the inflation rate starting in 1982-83 might have been expected to produce a reduction in credit card interest rates. This reduction, however, never came." In any case, Bar-Gill contends that the direction of credit card interest rates was not, or could not be, downward, which can be evaluated empirically.

⁵³ For a summary, see Board of Governors of the Federal Reserve System, *Report to the Congress on the Profitability of Credit Card Operations of Depository Institutions* (Annually Published, most recently June 2014) available at www.federalreserve.gov/publications/other-reports/files/ccprofit2014.pdf.

⁵⁴ See Kathleen W. Johnson, *Recent Developments in the Credit Card Market and the Financial Obligations Ratio*, Federal Reserve Bulletin, at 478 (Figure 3) (Autumn 2005), available at

http://www.federalreserve.gov/pubs/bulletin/2005/autumn05_lead.pdf. Johnson discusses more fully in her report some possible reasons why consumers might be more sensitive to credit card interest rates over time and why, therefore, card issuers might be more responsive to their concerns. Such reasons include improved ability by consumers to predict future debt trends, lower card price search costs due to increased advertising, and improved issuer technology that permits issuers to differentiate better by risk class among present and potential customers. For discussion, see Id at 478-9.

much of the increase in flexibility of credit card interest rates in more recent years arises from growth in availability of variable rate cards, which she estimated had grown from about 3% of card accounts in 1989 to about 75% in 2005. Such growth in cards that permit falling rates in response to market forces hardly seems likely under the conditions Bar-Gill hypothesizes.

3. Consumers are insensitive to variations in interest rates:

Bar-Gill's core contention is that consumers are highly sensitive to the "short term" elements of a credit card contract, such as annual fees, but insensitive to the "long-term" elements of the contract, such as interest rates. He writes, "Due to the underestimation bias, consumers are insensitive to interest rates. They are, however, quite sensitive to the annual fee. Thus, competition concentrates on the annual fee dimension. Issuers attract consumers by offering low (or zero) annual fees and then extract significant interest payments from those consumers."⁵⁵ He adds, "Thus, interest rates and late and over-limit fees are set above marginal cost, since consumers are insufficiently sensitive to variation in these long-term elements of the credit card price."⁵⁶ The validity of the prediction that consumers are over-sensitive to short term elements of the credit card contract is discussed in the next section; here we focus on the asserted insensitivity of consumers to the long-term dimensions of credit card contracts, namely interest rates.

The hypothesis that consumers are indifferent to interest rates is also rejected by available empirical evidence.⁵⁷ Gross and Souleles analyzed account-specific information on credit card accounts and found a large impact of rate changes, apparently somewhat surprising to them: "Debt is particularly sensitive to large declines in interest rates.... The long-run elasticity of debt to the interest rate is about -1.3. Less than half of this elasticity represents balance switching across cards, with most reflecting net changes in total borrowing."⁵⁸

⁵⁵ Bar-Gill, 98 NW U L Rev at 1402-03(cited in note 6).

⁵⁶ See Bar-Grill, 98 NW U L Rev at 1373, 1402(cited in note 6). Bar-Gill raises this and his other contentions more than once in his paper, but it seems unnecessary to repeat all of them here and so it is not done.

⁵⁷ Bar-Gill appears to have amended this argument in a later article, albeit without acknowledging this important amendment. It appears that he may no longer lump together purported consumer insensitivity regarding the long-term interest rate on credit cards with other behavior-based fees, such as late fees and over-the-limit fees (see Oren Bar-Gill and Ryan Bubb, *Credit Card Pricing: The CARD Act and Beyond*, 97 Cornell L Rev 967(2012). This change in the hypothesis is discussed in section 12.

⁵⁸ David B. Gross and Nicholas S. Souleles, *Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data*, 107 Quart J Econ 149, 182 (2002). Gross and Souleles add an aside that the responsiveness of consumers to changes in interest rates "can explain the widespread use of teaser rates." Their analysis, however, does not turn on a distinction between teaser rates and long-term rates, which is a premise of the BLE hypothesis (that consumers are overly-responsive to teaser rates and

This finding is inconsistent with Bar-Gill's contention: Consumers cannot simultaneously be insensitive to rates and demonstrate large rate elasticity.

Johnson noted Gross and Souleles's findings but also reported her own evidence of significant rate elasticity when analyzing aggregate measures of debt consumer credit card debt outstanding. While exploring statistically why credit card payment obligations had risen 1989-2005 relative to income, a measure she refers to as the "credit card financial obligations ratio," (the "FOR"), she hypothesized three possibilities: an influx of new card holders, increased use of credit cards for routine transactions, and declining interest rates on credit cards. In her statistical work she found evidence of all three possibilities, including, notably, impact of lower interest rates on consumers' credit card use:⁵⁹

By mid-2004, the counterfactual series [which she calculates with statistical methodology] was about 1/3 percentage point below the actual. This gap implies that the decline in real credit card interest rates in the early part of this decade accounts for a material part of the rise in revolving credit FOR [i.e. financial obligations ratio] between 1989 and the second quarter of 2005" (footnote omitted).

Thus, consumers' sensitivity to credit card interest rates is a "material" factor explaining overall increasing macroeconomic credit card financial obligations. Again, this empirical finding is inconsistent with Bar-Gill's claim that consumer borrowing levels are unresponsive to changes in long-term interest rates.

Results of a large scale experiment undertaken by a bank produce further supporting evidence that consumers are sensitive to credit card interest rates. Agarwal, Chomsisengphet, Liu, and Souleles analyzed results of a program by "a large bank" that offered consumers a choice between credit card contracts, one with fee but a low interest rate and another with no fee but a higher rate.⁶⁰

These authors found that the majority of consumers made the "right" (cost minimizing) choice based on their subsequent card use behavior, suggesting the majority accurately predicted the likelihood of their future use of the card to add debt and chose the lowest cost card under the circumstances. Those who subsequently used the card to revolve balances were more likely to choose the high annual fee, low

under-responsive to long-term rates). See discussion at notes 102 and 137 and the accompanying text (discussing teaser rates).

⁵⁹ Johnson, *Recent Developments in the Credit Card Market and the Financial Obligations Ratio* at 482 (cited in note 52).

⁶⁰ Sumit Agarwal, et al, *Do Consumers Choose the Right Credit Contracts*, Federal Reserve Bank of Chicago Working Paper (2006), available at http://www.chicagofed.org/webpages/publications/working_papers/2006/wp_11.cfm

interest rate card, for example. Further, Agarwal, et al. report that the probability of making the wrong choice declines with the size of the potential error, and "those who made larger error in their initial contract choice were more likely to subsequently switch to the optimal contract."⁶¹ It is hard to reconcile these results with the hypothesis of consumer insensitivity toward rates.⁶²

Consumer surveys offer other findings that are inconsistent with the hypothesis of consumer rate insensitivity. For instance, Durkin found in a nationwide representative survey that 3% of holders of bank type credit cards indicated they agreed very strongly with the statement that credit card interest rates are "reasonable."⁶³ In contrast, he found 55% strongly disagreed. While an expression of attitude is not the same as behavior, this is clear evidence that they are able to classify rate levels in their minds.

In another study he found that 54% of those with bank type cards indicated that rate and/or finance charge information is the most important information to them if seeking a new card.⁶⁴ Some respondents indicated that rewards and other enhancements like insurance were most important to them, but this proportion of respondents was too small for separate identification in his table and necessarily less than the 10% proportion in the aggregate residual category where they were included.

In still another study, Durkin found that only about one quarter of survey respondents with no balance outstanding on their credit cards said they examined the annual percentage rate on their periodic (monthly) statements at least four times per year, but this proportion rose to about four fifths of respondents who regularly revolved their balances.⁶⁵ In addition, when asked about the importance of various kinds of information on credit card periodic statements, 24% of those with no balance outstanding mentioned some form of cost information as important, but the proportion rose to 57% of those with \$4500 or more outstanding on their cards.⁶⁶ More recently, Canner and Elliehausen

⁶¹ Id, at 5.

⁶² Id. They do note that a "small minority of consumers persists in holding substantially sub-optimal contracts without switching," but this suggests neither widespread irrationality nor is it biased toward repeated underestimation.

⁶³ Thomas A. Durkin, *Credit Cards: Use and Consumer Attitudes 1970-2000*, Federal Reserve Bulletin at 629 (Table 4)(September 2000) available at <http://www.federalreserve.gov/pubs/bulletin/2000/0900lead.pdf>.

⁶⁴ Thomas A. Durkin, *Consumers and Credit Disclosures: Credit Cards and Credit Insurance*, Federal Reserve Bulletin at 203 (Table 2) (April 2002) available at <http://www.federalreserve.gov/pubs/bulletin/2002/0402lead.pdf>.

⁶⁵ Thomas A. Durkin, *Credit Card Disclosures, Solicitations, and Privacy Notices: Survey Results of Consumer Knowledge and Behavior*, Federal Reserve Bulletin at A112 (August 2006) available at <http://www.federalreserve.gov/pubs/bulletin/2006/06creditcards.pdf>.

⁶⁶ Id at A113.

analyzed data from a consumer survey conducted in 2012 and reported findings similar to those of Durkin.⁶⁷ In each case, these survey findings indicate sensitivity to rates and cost information.

In addition, surveys find that those who revolve balances are more aware of the interest rates that they pay on their cards and are much more likely to shop and to change cards based on the offer of a superior interest rate than those who do not revolve balances.⁶⁸ For those who do not revolve balances, the interest rate is largely irrelevant to their card choice—they are more likely to choose based on the amount of the annual fee, rewards, or other card terms. Indeed, for those who pay their balance in full each month, it would seem to be irrational if they *did* choose their cards based on its interest rate, rather than more relevant terms.

Further, if consumers were insensitive to credit card interest rates, it seems unlikely they would want to pay them off rapidly with less expensive funding choices given the chance, but this is precisely what many of them do. A variety of survey studies has shown that one of the significant uses of cash raised in a home equity loan (a “cash out refinancing” of an existing mortgage, refinancing for an amount greater than the outstanding mortgage to raise additional funds for other uses) is to repay more expensive credit card balances.⁶⁹ Why would consumers want to refinance into lower cost credit unless they were sensitive to the credit card interest rates?

Brown and Plache also addressed this issue. Employing a large panel study generated by Visa from holders of Visa card accounts, they separated card holders into two groups, revolvers and nonrevolvers.⁷⁰ Interestingly, they found that the annual percentage rates faced by most card holders exceeded 10%, but within this group more card holders were nonrevolvers than revolvers. Among those with lower rate cards, the reverse was true: at the lower rates more card holders were revolvers than nonrevolvers. This finding is consistent with results of choices among new card contract holders explored by Agarwal, et al.

⁶⁷ See Glenn B. Canner and Gregory Elliehausen, *Consumer Experiences with Credit Cards*, Federal Reserve Bulletin (December 2013) available at <http://www.federalreserve.gov/pubs/bulletin/2013/pdf/consumer-experiences-with-credit-cards-201312.pdf>.

⁶⁸ See Zywicki, 3 Chapman L Rev 79 at 105-6 (cited in note 43)(discussing evidence that revolvers pay attention to interest rates when shopping among credit card offers).

⁶⁹ See Glenn B. Canner, Thomas A. Durkin, and Charles A. Lockett, *Home Equity Lending: Evidence from Recent Surveys*, Federal Reserve Bulletin at 247-8 (Table 8) (July 1994); see also Glenn B. Canner, Karen Dynan, and Wayne Passmore, *Mortgage Refinancing in 2001 and Early 2002*, Federal Reserve Bulletin (December 2002) available at <http://www.federalreserve.gov/pubs/bulletin/2002/1202lead.pdf>.

⁷⁰ Tom Brown and Lacey Plache, *Paying with Plastic: Maybe Not so Crazy*. 73 U Chi L Rev 63 (2006).

but not consistent with the idea that card holders are insensitive to annual percentage rates on credit cards.

4. Consumers are over-sensitive to short-term elements of credit card pricing: Bar-Gill writes, "On the other hand, competing in the credit card market forces issuers to compensate for these high long term prices by under-pricing the short-term, non-contingent elements of the credit card contract, which are not subject to the underestimation bias."⁷¹

As just discussed, consumers in fact are responsive to long-term attributes of credit cards, such as interest rates, especially those who revolve balances and therefore for whom those terms are most relevant. But not only are consumers not under-responsive to the long-term interest rates on their credit cards, they are also not over-responsive to the short-term elements card offers. For example, Durkin found in his study of responses to solicitations to credit card offers noted above that while 68% of respondents who found that solicitation information was helpful to them reported that interest rates were the helpful information, only 35% said that fee information was helpful (individuals could give up to two responses and so they were not forced to choose and could indicate both).⁷² Only 3% of these respondents said that information on benefits, rewards, and rebates was helpful.⁷³ While this finding does not describe actual behavior, it also does not support the contention that consumers are not sensitive to rates but are over-sensitive to other aspects of the credit card offer. Moreover, evidence shows that half or more of cardholders reduce their balances to zero regularly or frequently.⁷⁴ For that large group of consumers the interest rate should be less relevant to their decision than attributes such as the size of any annual fee or rewards.

Brown and Plache produced further findings inconsistent with the BLE hypotheses. They noted that cardholders without annual fees attached to their cards were *less* likely to carry balances, contrary to the "seduction by plastic" hypothesis:⁷⁵

Using this same data, we then looked to see whether credit card holders carrying cards with certain features, such as zero annual fees and rewards, would be more likely to carry balances on these cards than cardholders in general [footnote omitted].
... Cardholders with cards without annual fees are consistently less likely to carry balances on these cards than all

⁷¹ Bar-Gill, 98 NW U L Rev at 1375 (cited in note 6).

⁷² Durkin, *Credit Card Disclosures, Solicitations, and Privacy Notices* at A116 (Table 6 (cited in note 63)).

⁷³ Id.

⁷⁴ Durkin, et al., *Consumer Credit and the American Economy* at Chapter 7 (cited in note 1).

⁷⁵ Brown and Plache, 73 U Chi L Rev 63 at 81(cited in note 68).

cardholders. ... Cardholders with reward cards are less likely to have revolving balances on these cards than all cardholders. ... Both results confound the hypothesis that hyperbolic discounting results in consumer attraction to cards based on short-term features and the unintended acquisition of debt on these cards [footnote omitted].

Subsequent analysis by Beales and Plache, using the same database as Brown and Plache, also rejected the BLE hypothesis regarding credit card usage.⁷⁶ They found that, contrary to the BLE hypothesis, cardholders with annual fees are more likely to revolve balances than those who do not pay annual fees and that those consumers who acquire new rewards cards are less likely to subsequently revolve than those who acquire non-rewards cards.

Agarwal, et al. also provided evidence on sensitivity to fees and that choices involving tradeoffs between rates and fees usually were cost minimizing over subsequent behavior.⁷⁷ As indicated earlier, they analyzed results of a program by "a large bank" that offered consumers a choice between credit card contracts, one with fee but a low fixed interest rate and another with no fee but a higher fixed rate. The offer included the option to switch contracts after the initial choice. BLE theory predicts that consumers would systematically err in the direction of choosing the no-fee card even though they would end up paying more because of the higher interest rate on the back-end. They found that the majority of consumers made the "right" choice based on their subsequent card use behavior, suggesting the majority understood the likelihood of their future use of the card to add debt and chose the lowest cost card under the circumstances. Consumers who chose to pay an annual fee in order to obtain a lower interest rate (perhaps because planned to use the card for debt purposes) more frequently revolved balances and borrowed greater amounts than consumers who chose a higher interest rate and no fee.

In more detail, they found that 60.0% of the consumers who remained with their initial choice made an optimal choice.⁷⁸ The likelihood of making a cost-minimizing choice was much greater for consumers who did not pay a fee (79.0%) than for consumers who paid a fee (44.5%), contrary to the BLE hypothesis of irrational consumer optimism. That the frequency of errors was much higher for those who paid an annual fee and took the lower rate can be explained by the magnitude of the potential cost of the mistake. For consumers who paid

⁷⁶ Howard Beales and Lacey L. Plache, *Rationality, Revolving, and Rewards: An Analysis of Revolving Behavior on New Credit Cards*, 21 S Ct Econ Rev 133 (forthcoming 2014).

⁷⁷ See Agarwal, et al., *Do Consumers Choose the Right Credit Contracts* (cited in note 58).

⁷⁸ A choice that turns out to be a mistake ex post may not be a mistake ex ante. Consumers may experience unexpected expenses or shortfalls in income that cause them to borrow when they initially had not intended to borrow.

the fee, the potential cost is limited to the amount of the fee (in the study the range was \$10 to \$24). In contrast, the potential cost for those who did not pay a fee and took the higher rate depends on the amount of borrowing and can become quite large with frequent or large amounts of debt.

Significantly, consumers did not appear to be over-sensitive in advance to potential fees and they adjusted as needed. Those consumers who initially chose not to pay an annual fee were more likely to switch as the net savings from paying the fee increased, and consumers who initially chose to pay the fee were less likely to switch as net savings increased. Of the small percentage of consumers who eventually switched accounts, nearly all made a suboptimal choice initially and corrected their mistake by switching.

In another study Agarwal, Driscoll, Gabaix, and Laibson provided evidence that credit card holders' behavior is reasonable in that they were sensitive to late, over limit, and cash advance fees when they arise.⁷⁹ In their data obtained from a large bank, they observed that when consumers incurred these fees, they incurred the fees most commonly soon after opening an account. Subsequently, the incidence of these fees declined, falling by 75% during the first four years of account life. To explain this behavior, Agarwal, Driscoll, Gabaix, and Laibson suggested that consumers often learn about fees by incurring them, but having incurred a fee, they are then more careful in managing their accounts. Consumers learn from their mistakes and take steps in the future to avoid making a mistake again. In the case of late payments, they found that incurring a late payment fee reduced the probability of a late payment in the next month by 44%. They also found that a recent fee payment had a larger effect than more distant fee payments.

The findings of Agarwal, Driscoll, Gabaix, and Laibson suggest that consumers may not consider all available information in opening accounts or always manage their accounts carefully. That alone does not indicate that consumers' behavior is not rational, however. That consumers learn from experience and correct their behavior after mistakes is consistent with rationality, where rationality is viewed as taking actions to achieve objectives.⁸⁰

⁷⁹ Agarwal, Sumit, John C. Driscoll, Xavier Gabaix, and David Laibson, *Learning in the Credit Card Market*, National Bureau of Economic Research Working Paper 13822 (February 2008) available at <http://www.nber.org/papers/w13822.pdf>.

⁸⁰ See Maxwell Stearns and Todd J. Zywicki, *Public Choice Concepts and Applications in Law* at 8 (American Casebook Series 2009), (defining rationality as the notion that "individual rationality posits that whatever divergent preferences an individual might hold, she is presumed to engage in the cost-effective pursuit of her desired objectives").

5. Revenues for credit card companies arise from interest, not transaction interchange fees: Bar-Gill also argues, "Competition still dissipates cited in-competitive rents, but it does so through low (and even negative per account and per-transactions fees, teaser rates, and frequent flyer miles, rather than through interest rates."⁸¹ He adds, "Visa and MasterCard set only the interchange fee, the transfer from the merchant's bank to the card issuing bank, which does not seem to constitute a major source of revenue for the issuers."⁸²

While individuals may disagree concerning what is a "major source" of revenue for issuers, the proportion from interchange fees has been rising in recent years, likely because convenience use of credit cards has been rising relative to card use as a financing device. Thus, while interchange fees are still a minority of the revenues from credit cards, they are growing in size. Moreover, debit card use has risen dramatically in the period since Bar-Gill wrote his original article, thus the growth of interchange fee revenue from credit cards likely would have been even greater had many consumers who increased their use of electronic payments not shifted to increased use of debit cards. Information on the growth of interchange fee revenue relative to finance charges is available from industry sources.

For example, SourceMedia has collected revenue and cost information and has made the composite figures available soon afterward in the May issue of *PaymentsSource* magazine and its other publications. Compiling a time series of these data shows that interest is indeed the primary revenue source for credit card issuers, but it is not the only source and it has been declining relative to interchange revenue for years.⁸³

Specifically, revenue from interchange, which arises from the fees charged by card issuers to merchants who accept the cards for payments by consumers, has been rising steadily until it represented 23% of revenues for card issuers in 2011, the most recent data, up from 10% in 1991.⁸⁴ In fact, in every year since 1991, except 1998, revenue from interchange actually exceeded net income after taxes (net profit) for the industry as a whole. Consequently, it seems difficult to contend that interchange is not a "major" source of revenue. This does not mean, of course, that if interchange revenues were not

⁸¹ Bar-Gill, 98 NW U L Rev, at 1377 (cited in note 6). It is not clear what Bar-Gill means by "per-transaction" fees, but for purposes of the discussion here we will assume that he is referring to interchange fees, which are a form of per-transaction fee, although the fee is paid by merchants.

⁸² Bar-Gill 98 NW U L Rev at 1386 (cited in note 6).

⁸³ Authors' calculations from SourceMedia, *PaymentsSource* (formerly *Cards and Payments* and *Credit Card Management*), annually in the May edition 1991-2011. For details, see Durkin, et al., *Consumer Credit and the American Economy* at Chapter 7 (cited in note 1).

⁸⁴ Id.

available the industry would register losses every year; other adjustments would take place. But it does mean that adjustments by card issuers would have to be significant, if the industry were to remain viable.

This growth in interchange revenues also reflects an evolution in the usage of credit cards over the past decade. Interchange fees are the primary means by which card issuers generate revenues from transactional users who pay their bills in full each month and thus do not pay finance charges. This growth in interchange fees as a percentage of issuer revenue reflects how this transactional use of credit cards has risen faster than use of credit cards for revolving purposes.⁸⁵ For example, Johnson showed that transaction use grew by approximately 15% per year (primarily because of various incentives such as frequent flier or rebate programs), whereas the amount used for financing purchases grew only about 7% per year. The percentage of credit card transactions that are paid off at the end of each month also has risen as has the percentage of credit card holders who are transaction users.⁸⁶ In addition, the median monthly charge amount for transaction users has risen over four times more rapidly for transactional users than for revolvers.⁸⁷ None of these findings can be easily squared with the BLE hypothesis regarding credit card usage and revenues.

6. Consumers are highly responsive to teaser rates: Bar-Gill singles out teaser rates on credit cards for special criticism as exploiting consumer short-term biases while underestimating long-term interest rates: "And teaser rates lead to excessive pre-distress borrowing, which in turn render the consumer more vulnerable to financial hardships. ... In the credit card market, the ubiquitous unsolicited offers provide a natural target for default-rule type regulation".⁸⁸

⁸⁵ Kathleen W. Johnson, *Convenience or Necessity? Understanding the Recent Rise in Credit Card Debt*, Finance and Economics Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Working Paper 2004-47 available at

<http://www.federalreserve.gov/pubs/feds/2004/200447/200447pap.pdf>. See also Kathleen W. Johnson, *The Transactions Demand for Credit Cards*, 7 B. E. J. Econ Anal & Policy 1 (2007) at 20.

⁸⁶ The percentage of convenience users relative to revolvers has risen steadily over time as credit cards have replaced checks and cash as a transaction medium. See Johnson, *Transactions Demand* (cited in note 84). See also Jesse Bricker, Arthur B. Kennickell, Kevin B. Moore, and John Sabelhaus, *Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances*, vol. 98, no 2 (June 2012), p. 67.

⁸⁷ See Johnson, *Convenience or Necessity?* (cited in note 84).

⁸⁸ Bar-Gill, 98 NW U L Rev at 1378(cited in note 6). Bar-Gill has some apparent difficulty reconciling this contention with his earlier contention that consumers are insensitive to interest rates. He later states, "Why are teaser rates so effective? The answer is that the consumer with a financing

If consumers are highly responsive to teaser rates, to the extent that they "lead to excessive pre-distress borrowing" possibly necessitating "default-rule regulation" (presumably outlawing them in some way or under some circumstances), then it seems there should be some clear evidence to this effect.⁸⁹ Based on this assumption, Bar-Gill proposes limits (default-type regulation). Yet he provides no evidence of how many consumers respond to teaser rate offers, or more to the point, how many people who actually respond to teaser rate offers end up with a higher debt-service obligation than they would have carried had they stayed with the original card.⁹⁰

Despite their benefits as sources of pricing information, evidence suggests consumers actually are quite unresponsive to solicitations and their formerly ubiquitous teaser rates, even while they demonstrate sensitivity to the non-teaser rates. Furthermore, they have become less responsive to the solicitations over time, despite some teasers. Mail solicitations for credit card accounts expanded dramatically over the years before the financial crisis and exceeded 6 billion in 2005.⁹¹ But response rates, which were never very high, slid precipitously over the same time and approached zero before the financial crisis when the solicitations largely disappeared. Based upon this experience, it is difficult to argue that consumers are highly responsive to teaser rates.

In addition, a complete assessment of the consumer welfare effects of teaser rates would consider the benefits to consumers from them as well, such as so-called "card surfers" who jump from one introductory offer to another, in the words of one observer trying to "beat them at their own game."⁹² In measuring the welfare effects to consumers on teaser rate cards, therefore, it is essential to consider the benefits to these consumers as well.

Joshua Wright has observed that Bar-Gill's hypothesis that short-term price discounting is harmful to consumers flies in the face of

need will take the teaser rate bait. ... On the other hand, the consumer who underestimates her future borrowing will not mind the steep jump in the interest rate from the low teaser rate to the high post-introductory level. Id. at 1405.

⁸⁹ As with most advertising, solicitations can be useful in themselves, in that they provide constant reminders to consumers that there are alternative credit cards available in the marketplace, and the use of mail solicitations with their required cost disclosures likely has reduced search and switching costs for consumers. See Zywicki, 3 Chapman L Rev at 80 (cited in note 43).

⁹⁰ Note that it is not even sufficient to find that they ended up borrowing more because consumers would be expected rationally to increase their borrowing overall if the effective interest rate were lower, as is the case with teaser rates during the period the teaser rate is in effect.

⁹¹ Canner and Elliehausen, *Consumer Experiences with Credit Cards*, at 14 (cited in note 65).

⁹² Zywicki, 3 Chapman L Rev at 107 (cited in note 43).

established premises of competition law and economics, which sees short-term price discounting (sales, coupons, promotions, etc.) as beneficial to consumers.⁹³ Bar-Gill appears not to consider, for example, that like a sale or coupon, inducing the consumer to change cards requires some degree of uncertainty and transaction costs, for which short-term price discounts is a long-established, legitimate, consumer welfare-enhancing promotional technique. Teaser rates are quite often aimed at inducing consumers to switch card providers (thereby not inherently resulting in any increase in indebtedness), just as coupons are designed to encourage consumers to switch brands of baked beans, not to increase overall consumption of baked beans. Bar-Gill provides no empirical evidence contradicting the long-established premises of competition policy or distinguishing discounts on credit cards from other short-term price discounting, which economists and courts have long considered welfare-enhancing.

Consumer survey evidence, although limited, suggests that many consumers actually are suspicious of teaser rates. In 2000, Durkin found that more than 90% of holders of bank type credit cards believed that solicitations offering low rates but only for a short period of time probably mislead many consumers.⁹⁴ More telling, most responders in a newer Federal Reserve study admitted that they were confused by teaser rates, indicating that they were conscious of their limited knowledge and the complexity of the offers.⁹⁵

The consumer survey responses reported by Canner and Elliehausen also do not support the hypothesis that consumers are overly responsive to short-term offers.⁹⁶ Reasons for opening new accounts were related to credit availability for more than half of cardholders who sometimes or hardly ever pay in full.⁹⁷ The usual payment behavior of these cardholders indicates that they fully intended to use the credit. These card holders did not mention teaser rates or receiving rewards very frequently. In contrast, cardholders who almost always pay in full most frequently mentioned receiving rewards as the reason for opening new accounts. Since they usually pay in full, the long-term cost for these consumers is about zero. This pattern of responses reflects predictions of the traditional economic model, not the BLE model.

⁹³ See Joshua D. Wright, *The Antitrust/Consumer Protection Paradox: Two Policies at War with Each Other*, 121 Yale L J 2216 (2012).

⁹⁴ Durkin, *Credit Cards: Use and Consumer Attitudes 1970-2000* at 629 (Table 4) (cited in note 61).

⁹⁵ Id.; Canner and Elliehausen, *Consumer Experiences with Credit Cards*, at 33 (Table 19) (cited in note 65). Of course, despite their confessed lack of knowledge these consumers might nevertheless respond to teaser rates, but that is a form of behavior distinct from the BLE model of unwitting or overconfident consumers.

⁹⁶ Canner and Elliehausen, *Consumer Experiences with Credit Cards* (cited in note 65).

⁹⁷ Id at 27 (Table 13).

In sum, neither the evidence from industry sources nor from consumers indicates that most consumers are particularly responsive to teaser rates.⁹⁸ Even more, given the near-consensus among economists that short-term price discounting (such as sales and promotions) is usually welfare-enhancing for consumers, condemning similar practices in the context of credit cards should rest on something more than armchair surmise.⁹⁹ Nor is there any evidence to indicate that responding to teaser rates leads consumers to a higher debt-service burden over the long run. Although, without further evidence, the reasons for declining responses to mailings that mostly involved teaser rates amounts to speculation, the growing use of fees for balance transfers may have had something to do with it. It actually seems possible that card issuers prefer to drop unproductive teaser rate programs rather than expand them if they can find some other way to bring their brand of this mature product to the attention of jaded consumers. On this point, the future will tell.

7. Debit cards cannot compete with credit cards for consumers' payments business: In 2006, Bar-Gill stated "The article considers the role of charge cards and debit cards in affecting the desired unbundling, concluding that without regulatory help these competitors can expect only limited success vis-à-vis the credit card."¹⁰⁰

⁹⁸ See generally *Id.*

⁹⁹ As discussed in more detail below, one common error in this literature is the tendency to assume that mistakes are one-tailed as an *a priori* matter. For example, while Bar-Gill focuses on consumers who take teaser rate contracts but would have paid less overall if they had not, there appears to be no systematic effort to identify those consumers who *would have* paid less had they responded to a short-term teaser rate offer but did not—or, if teaser rates are to be banned by a policy-maker following BLE recommendations, teaser rates that *cannot* be offered. For example, Bar-Gill relies on a study by Shiu and Ausubel that finds (in Bar-Gill's words), "that at least some consumers were making a significant mistake, opting for the lower-rate, shorter-duration card even though they paid \$50 more in interest on this card than they would have with the longer-duration alternative." Bar-Gill, *Seduction by Contract*, at 92-93 (cited in note 6), citing Haiyan Shui and Lawrence M. Ausubel, *Time Inconsistency in the Credit Card Market*, 14th Annual Utah Winter Finance Conference working paper, available at <http://ssrn.com/abstract=586622>). Bar-Gill, however, provides no criteria for balancing the costs to the "at least some" consumers who made incorrect decisions with those who incorrectly chose the longer-term card or—critically—the net savings to those who benefited from short-term rate reductions compared to their alternative long-term offers.

¹⁰⁰ Bar-Gill 98 NW U L Rev at 1378(cited in note 6). Charge cards (cards issued from credit accounts that required payment in full within a short time after the billing date, typically at month end) were largely gone from the marketplace when Bar-Gill wrote these words, replaced by debit cards and revolving credit cards, the latter offering the *option* but not the requirement for payment in full with no cost to the consumer. For discussion of the different kinds of charge and credit cards, see Durkin, et al., *Consumer Credit and the American Economy* at Chapter 1 (cited in note 1).

This prediction has fared especially poorly. In the subsequent decade, growth of debit card use exploded, such that by 2006 debit card usage overtook and exceeded credit card usage in terms of transaction volume, and the comparative growth of debit cards versus credit cards accelerated during the financial crisis.¹⁰¹ Between 2003 and 2012, the compound annual growth rate in transaction volume for debit cards (13.0%) was substantially higher than that for credit cards (3.7%).¹⁰² While the Federal Reserve System regulates the payments system and federal regulation mandates basic protection for debit cards (and also credit cards), the rapid growth in debit card transactions could not have occurred without widespread consumer acceptance of this payment medium.

Brown and Plache (2006) also addressed this issue, testing it with their database of Visa credit card holders. They found that many revolvers and nonrevolvers who acquired debit cards used them, but revolvers tended to use them more:¹⁰³

We found that 62% of revolvers who acquired a general purpose debit card actually used that card. Revolvers who acquired and used a general purpose debit card did, in fact, shift spending to their new cards away from their credit cards. The rate of shift increased with usage. That is, revolvers who became high frequency debit card users shifted more spending away from credit cards than revolvers who used their card less frequently. Fewer nonrevolvers (37%) who acquired a general purpose debit card used the card. But nonrevolvers who became high frequency debit card users actually moved a greater percentage of their credit spending to debit cards than revolvers [referring to their Figure 6].

This tendency of credit card revolvers to use debit cards *more*, not less, than non-revolvers raises more doubts about the validity of the BLE hypothesis. If consumers revolve because of lack of self-control or some other irrational reason, then those who revolve balances (the irrational consumers) would be predicted to be those who would be *least* likely to use debit cards.

¹⁰¹ See Todd J. Zywicki, Geoffrey Manne, and Julian Morris, *Price Controls on Interchange Fees* at 18 (cited in note 88). Since the imposition of the Durbin Amendment, imposing price controls on debit card interchange fees, however, the growth of debit cards has slowed as many consumers have switched to increased use of credit cards from debit cards. *Id.*

¹⁰² Federal Reserve System, *The 2013 Federal Reserve Payments Study, Recent and Long-Term Payment Trends in the United States: 2003-2012, Summary Report and Initial Data Release*, at 7 (Exhibit 1) (December 2013) available at http://www.frb services.org/files/communications/pdf/research/2013_payments_study_summary.pdf.

¹⁰³ Brown and Plache, 73 U Chi L Rev 63 at 84(cited in note 68).

But if consumers are rational, then those who revolve would be most likely to switch to debit cards, exactly the observed result. Jonathan Zinman found this to be the case in the US,¹⁰⁴ and researchers in Australia found similar results there: transaction users of credit cards who paid their balance in full each month used credit cards for payments almost twice as frequently as revolvers (22% of transactions compared to 12%).¹⁰⁵ Revolvers also were substantially more likely to use debit cards than transaction users.

Indeed, in his more recent writings Bar-Gill acknowledges the spectacular failure of this prediction, as he notes that "Debit cards have enjoyed substantial growth in recent years."¹⁰⁶ He also notes, "This growth has come, at least in part, at the expense of credit cards."¹⁰⁷ Nevertheless, Bar-Gill argues that even though it is the opposite of his initial prediction, the rapid growth of debit cards is in fact consistent with the BLE theory, arguing that this growth of debit cards can be explained by consumers becoming "more sophisticated and less optimistic about their willpower..."¹⁰⁸ Thus, he insists that debit cards are only a "limited" solution to the purported problems of credit cards as "Only sophisticated consumers who understand the risks of credit cards will choose debit cards instead."¹⁰⁹ He makes no effort to try to identify or empirically demonstrate the class of "sophisticated" consumers who switched from credit cards to debit cards. In fact, as just discussed, the available empirical evidence suggests that those who revolve credit card balances were also those more likely to use debit cards as well, behavior that (as noted) is well-explained by standard economics. Thus, he seems to have retroactively constructed his theory to explain either an increase or a decrease in debit card usage, which is more tautological than scientific.

8. Credit card availability has led to heavier use of consumer credit: According to Bar-Gill's rendition of BLE, "These high interest rates, which stubbornly fail to keep up with the declining cost of funds, have allowed credit card issuers to offer more credit and to target less credit-worthy consumers. The result was an explosion of consumer credit, leading to a dramatic expansion of consumer debt and also to an increase in consumer bankruptcy rates. ... Credit card debt has exhibited an extraordinary growth rate, gradually taking over the entire consumer debt category. This growth in credit card debt

¹⁰⁴ Jonathan Zinman, *Debit or Credit?* 33 J Banking & Fin 358 (2009).

¹⁰⁵ See David Emery, Tim West, and Darren Massey, *Household Payment Patterns in Australia*, Proceedings of Payment Systems Review Conference, Reserve Bank of Australia at 139, 158-9 (November 2007) available at <http://203.34.60.68/PaymentsSystem/Publications/PaymentsInAustralia/PaymentsSystemReviewConference/2007/index.html>.

¹⁰⁶ Bar-Gill, *Seduction by Contract* at 103 (cited in note 6).

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 104.

¹⁰⁹ *Id.* at 105.

accounts for the steady increase in the ratio of consumer debt to income."¹¹⁰

This statement, which is actually a grouping of related but separate statements, is inconsistent in a number of ways with available empirical evidence.

First of all, it refers to "these high interest rates, which stubbornly fail to keep up with the declining cost of funds,"¹¹¹ But as discussed above, credit card rates have declined substantially over the last two decades. Further, evidence shows that they became more sensitive to the cost of funds. According to Johnson, writing just before publication of the Bar-Gill paper:¹¹²

One might expect credit card interest rates to vary with the cost of funds, given the important role of these costs in lenders' credit card expenses [footnote omitted]. But in the early 1980s and 1990s, credit card interest rates changed little, showing a correlation of 0.09 [reference to location of further discussion omitted]. *The correlation subsequently rose sharply, and it has averaged 0.9 during the past ten years* [emphasis added].

Although card rates have not reached the extremely low rate of funds costs in the last few years, expecting them to do so is not reasonable given the necessity of covering the substantial operating costs associated with credit card credit (and other consumer

¹¹⁰ Bar-Gill 98 NW U L Rev at 1382, 1385 (cited in note 6).

¹¹¹ In fact, while credit card interest rates traditionally were relatively insensitive to changes in the underlying cost of funds, this generalization was true not only when the underlying cost of funds fell, but also when the cost of funds rate rose. See Zywicki, 3 Chapman L Rev at 109 (cited in note 43). In other words, regardless of the direction in which the cost of funds rate moved, credit card interest rates were less-responsive, an observation that seems hard to square with BLE assumptions about consumer choice, as opposed to other factors. Would Bar-Gill consider those same consumers to be "sophisticated"? It is not clear, as he provides no criteria by which to identify members of that category, but he also seemingly defines "sophistication" as avoidance of revolving behavior (with "high" interest rates and other fees). If this is an accurate characterization of his category of "sophisticated" consumers, then the evidence rebuts his hypothesis, even though it is well-explained by standard models of consumer rationality. Finally, during the decade during which debit card usage rose most rapidly, transaction use of credit cards increased much more rapidly than revolving use, suggesting that the truly "sophisticated" consumers (high-income, well-educated consumers who pay their balance in full every month) were using their credit cards as a transactional device, in order to accrue benefits and time their payment obligations more precisely so as to avoid maintenance of large precautionary balances.

¹¹² Johnson, *Recent Developments in the Credit Card Market and the Financial Obligations Ratio* at 477 (cited in note 52).

credit).¹¹³ Furthermore, there is little evidence of excessive profitability of card operations during this time.¹¹⁴

Second, Bar-Gill's statement next contends that this produced an "explosion of consumer credit, leading to a dramatic expansion of consumer debt...." But evidence shows that consumer credit growth has not been anything like "explosive." Consumer credit has grown during the post-World War II period, but so have consumer income, assets, and wealth. It goes beyond the scope of this current article to provide here an extensive discussion of the lack of evidence for the claim that increased access to credit cards has produced a "dramatic expansion of consumer debt," but the authors have done so elsewhere.¹¹⁵

Third, Bar-Gill argues, "Credit card debt has exhibited an extraordinary growth rate, gradually taking over the entire consumer debt category. This growth in credit card debt accounts for the steady increase in the ratio of consumer debt to income."¹¹⁶

It is true that credit card debt grew rapidly and took over large areas of consumer credit traditionally filled by providers such as retailers and personal finance companies.¹¹⁷ In addition, Bar-Gill may be right as a literal matter that the consumer debt to income ratio may have risen during this period. On the other hand, it is well-recognized that debt to income ratio is a poor measure of household financial condition.¹¹⁸

¹¹³ For extended discussion of consumer credit production costs and the relation to rates of charge, see Durkin, et al., *Consumer Credit and the American Economy* at Chapter 5 (cited in note 1).

¹¹⁴ See Board of Governors of the Federal Reserve System, *Report to the Congress on the Profitability of Credit Card Operations of Depository Institutions* (cited in note 51).

¹¹⁵ See Durkin, et al., *Consumer Credit and the American Economy* at Chapter 2 (cited in note 1) (showing that credit cards have not increased overall consumer indebtedness, merely changed the mix of credit types used by consumers).

¹¹⁶ Bar-Gill, 98 NW U L Rev at 1385 (cited in note 6).

¹¹⁷ Id.

¹¹⁸ The debt to income ratio is a flawed measure primarily because it ignores important factors such as interest rates and maturity lengths. See Zywicki, 3 Chapman L Rev at 107 (cited in note 43). For example, if mortgage interest rates decline consumers will be able and willing to purchase higher priced homes, because their monthly payments are more affordable. Similarly, a 30-year mortgage will be more affordable than a 15-year mortgage on a month-to-month financing basis, thus consumers can afford to finance a larger principal amount. Furthermore, the "debt to income ratio" is a comparison of a "stock" value (total debt) to a flow measure (monthly income) and it is not the only or the best way to measure changes in debt levels over time. For consumer credit, it also has not risen more than a few percentage points for decades and has fallen in recent years. For discussion of these points, see Durkin, et al., *Consumer Credit and the American Economy* at Chapter 2 (cited in note 1).

More significant, while the ratio of consumer debt to income may have arisen marginally over the period preceding Bar-Gill's writing, this does not reflect a real change in the condition of household balance sheets. As Johnson pointed out in her *Federal Reserve Bulletin* article dealing with the financial obligations ratio, this burden ratio has not risen much either and all of the rise can be account for by new card holders, declining credit card interest rates, and increased transactions use of credit cards:¹¹⁹

Had the share of households with credit cards, the level of credit card interest rates, and the transactions-related demand for credit cards all remained at their 1989 levels, credit card debt outstanding in 2005 would have been significantly lower. In the absence of other changes, the rise in the total FOR [i.e. the financial obligations ratio] over the past fifteen years would have been as much as 1 percentage point smaller than it actually was, a reduction that would have left the 2005 FOR well in line with levels that existed earlier.

Moreover, the past two decades have seen an extraordinary growth in student loan debt, such that student loan debt is now the largest total component of household debt other than mortgages—greater than outstanding credit card debt or automobile loans.¹²⁰ Thus, while credit card debt has replaced traditional types of debt for the purchase of consumer durables and the like, it has not "tak[en] over" the category of consumer debt once student loans and auto loans are taken into account.

9. Interest rates on credit cards are not responsive to default rates: Bar-Gill writes, "The evidence suggests that prices in the credit card market significantly exceed costs, and that credit card interest rates are not responsive to cost declines.... However, there is no evidence that consumer interest rates have risen and fallen with the rates of defaulted consumer debts, so there is no basis to think that fewer defaults would produce lower interest rates for the rest of us." ¹²¹

It is true that, in general, credit card interest rates are less responsive to the cost of defaults and chargeoffs than other types of credit, such as mortgages and car loans, but this is for a variety of reasons having little to do with behavioral biases. Instead, it reflects the unique cost structure of credit cards, for which the costs of account maintenance and customer service comprise a much greater percentage of the cost of credit card operations than for

¹¹⁹ Johnson, *Recent Developments in the Credit Card Market and the Financial Obligations Ratio* at 484 (cited in note 52).

¹²⁰ See Federal Reserve, *Consumer Credit*, Statistical Release G.19 at 2 (April 2014) available at <http://www.federalreserve.gov/releases/g19/current/g19.pdf>

¹²¹ Bar-Gill, 98 NW U L Rev at 1389(cited in note 6) (citations omitted).

other types of consumer credit, as well as the unique moral hazard risks and other characteristics of consumer use of credit cards.¹²²

Despite these peculiar characteristics of credit card pricing, empirical analysis nevertheless finds that interest rates on credit card pricing are responsive to default rates, contrary to the BLE hypothesis. For instance, Ashcraft, Dick, and Morgan found that when charge-offs on credit cards rose, the spread between the underlying cost of funds and card interest rates increased as well, reflecting default costs.¹²³

Other terms of the credit contract also adjust in response to higher defaults and chargeoffs, not just interest rates.¹²⁴ In an analysis of impact of chargeoffs on credit card pricing, Massoud, Saunders, and Scholnick found that a one standard deviation increase in bankruptcy per capita was associated with an increase in penalty fees of \$0.62 to \$1.31. Similarly, a one standard deviation change in the chargeoff ratio was found to change late fees in a range of \$4.35 to \$7.57. Thus, not only are interest rates on credit cards responsive to default rates, other risk-based fees are as well.

10. Consumers' credit card borrowing will commonly increase inexorably: Bar-Gill also argues that the gradual nature by which debt is accumulated by credit cards will lead consumers invariably to increase their borrowing over time: "Many consumers overestimate their ability to resist the temptation to finance consumption by borrowing, and consequently underestimate future borrowing. ... Such gradual accumulation of debt was made possible, *perhaps inevitable*, by the introduction of the credit card."¹²⁵

Beales and Plache specifically tested this proposition by examining borrowing behavior when a consumer acquires a new card. They found no evidence that acquiring a new card results in an increased likelihood of revolving nor does acquiring a new rewards card increase the likelihood that a consumer will revolve.¹²⁶ Moreover, contrary to

¹²² For a discussion of these distinctive cost and risk characteristics associated with credit cards, see Zywicki, 3 Chapman L Rev at 120-23(cited in note 43). For extended discussion of costs of consumer lending and the relationship to rates, see Durkin, et al., *Consumer Credit and the American Economy* at Chapter 5 (cited in note 1).

¹²³ See Adam B. Ashcraft, Astrid A. Dick, and Donald P. Morgan, *The Bankruptcy Abuse Prevention and Consumer Protection Act: Means-Testing or Mean Spirited?*, Federal Reserve Bank New York Staff Report No. 279 (March 2007) available at http://www.newyorkfed.org/research/staff_reports/sr279.html.

¹²⁴ See Nadia Massoud, Anthony Saunders, and Barry Scholnick, *The Cost of Being Late: The Case of Credit Card Penalty Fees*, 7 J Financial Stability 49 (2011).

¹²⁵ Bar-Gill, 98 NW U L Rev at 1396 (cited in note 6, emphasis added). He provides no estimate for what he means by "many" consumers who succumb to these errors.

¹²⁶ See Beales and Plache, 21 S Ct Econ Rev 133(cited in note 73).

the BLE hypothesis, they found that rather than the acquisition of a new card leading to the gradual accumulation of debt over time (as predicted by the BLE model as articulated by Bar-Gill), the propensity to revolve *declines* as time passes. As they put it, "Thus, the longer a consumer has had a card, the less likely [he/she is] to carry a balance on that card,"¹²⁷ a result that holds for both rewards and non-rewards cards. They concluded, "The coefficient on the rewards card variable is negative and statistically significant. Thus, given their prior behavior, consumers are less likely to revolve on a new rewards card than they are on another new card. This result is the opposite of the behavioral prediction that consumers are more likely to revolve on a rewards card."¹²⁸

11. Consumer Errors Should Be Systematically Biased: Zywicki has noted another testable implication of BLE not specifically indicated by Bar-Gill, but suggested by him: That consumer errors with respect to credit card use should be systematically biased in a determinate direction predicted by BLE.¹²⁹ Economists operating within a rational choice framework have long recognized that consumers can be expected to make errors with respect to their use of consumer credit, predominantly because of information and decision costs, limited foresight, and uncertainty about the future. As a result, when consumers make rational decisions to borrow, save, or consume, they are making projections based on expectations of future income, expenses, and other variables that might affect financial condition. But, as discussed above, consumers operating under such conditions sometimes make errors in their projections such that after the fact, different decisions would have been preferable.

Thus, while consumers can be expected to make mistakes, such errors likely are randomly distributed and unsystematic unless there is a specific reason for another outcome (like dramatically different impact). Some consumers will underestimate the likelihood that they will revolve balances on their credit cards, but others would be expected to *overestimate* their likelihood of revolving debt (or indeed, that the same consumers might sometimes appear to be overoptimistic, sometimes appear to be overpessimistic, and sometimes accurately optimistic). Moreover, under conditions of adequate information, consumers are expected to make choices that are wealth increasing. To the extent that consumers make errors, therefore, the distribution of these errors should "two-tailed." That is, both positive and negative errors are likely to be observed.

¹²⁷ Beales and Plache *Rationality, Revolving, and Rewards: An Analysis of Revolving Behavior on New Credit Cards* 21 S Ct Econ Rev 147 (cited in note 73).

¹²⁸ *Id.*

¹²⁹ See Zywicki, *The Behavioral Law and Economics of Fixed-Rate Mortgages and Other Just-So Stories*, 21 S Ct Econ Rev 157 (cited in note 5).

For the BLE hypothesis to be confirmed, therefore, it is not sufficient to find simply that consumers make mistakes, because *ex post* "mistakes" are inevitable in a world of limited foresight and uncertainty. For the BLE hypothesis to be valid, certain types of errors must be more frequent than others in a way predicted by the model (for example, that because of an optimism bias, cardholders are more likely to underestimate their long-term credit card borrowing and therefore choose cards without annual fees or temporary teaser rates but higher regular interest rates).

Available evidence indicates that while consumers make errors, the frequency of those errors tend to be unbiased, contrary to the BLE hypothesis. In other words, consumers are about as likely to be *underoptimistic* about their likelihood of paying their credit card bill each month as *overoptimistic*; they make errors of both optimism and pessimism. Agarwal, et al. tested this hypothesis by examining experimental data involving consumers choices from two different credit card offers and following the consumers' borrowing behavior after taking up the various offers. As described above, consumers were offered a choice between two credit card offers: one which had an annual fee of \$25 and a lower interest rate and another that offered no annual fee but a higher interest rate. As noted above, a majority of consumers make the correct choice with respect to their predicted behavior, choosing the optimal card offer in light of their subsequent behavior. But the authors also found that, contrary to the predictions of BLE, the frequency of errors by consumers were systematically unbiased—while a substantial minority of consumers committed errors, those who did were no more likely to exhibit errors of overoptimism than overpessimism (indeed, the latter mistake was more common). To restate the point, while some consumers erroneously believed that they would not revolve but ended up doing so, the frequency of this error was not more common than the frequency of errors by those who were overpessimist in believing that they would revolve but did not. In short, errors were unbiased in their distribution, contrary to the BLE hypothesis.¹³⁰ To the extent that the frequencies differed, cardholder mistakes were more likely to involve an annual fee, which limited the error to a small dollar amount, than no fee and a higher interest rate.

12. "Shrouded Fees" and Credit Card Pricing: As indicated, the core of Bar-Gill's initial "Seduction by Plastic" guide to BLE was

¹³⁰ A paper by Yang, Markoczy, and Qi, purports to find support for the BLE hypothesis by finding that some consumers err by underestimating their likelihood of revolving debt on their credit cards. But instead, they inadvertently highlight some of the problems with empirical tests of BLE hypotheses: While they find that some consumers are unduly optimistic about credit card use, they did not even inquire as to whether other consumers might be unduly *pessimistic* about revolving, and so this paper cannot serve as a suitable test. See Sha Yang, Livia Markoczy, and Min Qi, *Unrealistic Optimism in Consumer Credit Card Adoption*, 28 J Econ Psy 170, 177 (2007).

that consumers would be generally unresponsive to long-term terms of credit card contracts, notably the long-term interest rate, instead focusing unduly on short-term elements such as the annual fee and rewards.¹³¹ It is thus somewhat surprising that in his recent book he seemingly abandons that initial core claim to acknowledge that consumers are aware of long-term interest rates, although he still believes that consumers are highly (more?) responsive to short-term teaser rates.¹³² Instead, it appears that he now distinguishes between supposedly "salient" costs, such as annual fees or interest rates (both short-term and long-term), and "non-salient" fees, such as late fees, over-the-limit fees, and "cash-advance fees and rates."¹³³

The implied theory of "consumer saliency" rests on the notion that consumers pay more attention to certain provisions of a contract than others. Under the pressure of competition, lenders should offer low prices on "salient" margins that consumers pay attention to and higher prices on "non-salient" dimensions.

The theory of salience and "shrouding" of contract terms derives from an influential article by Gaibax and Laibson.¹³⁴ This paper argues as a theoretical matter that it is possible for certain costs or fees to persist in consumer contracts without being competed out of the market, if those fees are sufficiently shrouded or non-salient to myopic consumers that these consumers do not take account of the fees in their purchase and contracting decisions but subsequently incur the fees. Concerning credit, lenders offset high prices for non-salient features by low prices for on salient features. Sophisticated consumers who do not incur these fees take advantage of shrouding schemes and choose contracts with low prices on salient features. Lenders do not compete by offering lower prices on non-salient features because the contracts would be less profitable than contracts with shrouded prices. The theory contends that the shrouded fees are simply a concealed wealth transfer to lenders and sophisticated consumers. The theory provides no valid cost or risk-based pricing purpose for non-salient features.

Bar-Gill offers a credit-cards BLE version: He states, "Salience is fluid, evolving over time. A non-salient price or term can eventually become salient. For example, before the early 1990s, the

¹³¹ See discussion at notes 26, 39, & 89 and accompanying text.

¹³² It is not clear as a logical matter whether these propositions can simultaneously be true, i.e., that consumers can be overresponsive to short-term interest rates but not underresponsive to long-term interest rates. For example, the fundamental premise of his original article was that teaser rates work because consumers are insufficiently attentive to long-term interest rates. He now states that consumers are aware of long-term interest rates, yet he evidently believes that teaser rates still work.

¹³³ See Bar-Gill and Bubb, 97 Cornell L Rev at 971 (cited in note 55).

¹³⁴ See Xavier Gabaix and David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Quart J Econ 505 (2006).

annual fee was salient to consumers and issuers competed by lowering or waiving the annual fee. At the time, the interest rate—the basic interest rate for purchases—was not salient to consumers. Accordingly, issuers did not compete on interest rates. This changed in the early 1990s: Consumer awareness of the purchase Annual Percentage Rate (APR) increased and interest rates decreased as well.”¹³⁵

Before turning to the empirical evidence, it is worth noting the problematic nature of the BLE hypothesis as described here. First, Bar-Gill provides no evidence that consumers were previously unaware of their credit card APRs in the 1990s or that consumers became more aware of their APRs in subsequent decades. Furthermore, he offers no explanation for the recharacterization of the purchase APR, which originally and logically was a “long-term price,” as suddenly a short-term price like the annual fee. By providing no explanation, he also provides no coherent model or potentially falsifiable hypotheses that can be tested to determine whether certain fees are salient or non-salient. And, if the BLE hypothesis has now been retrenched to indicate new-found responsiveness to credit-card interest rates, then this is a major pullback with respect to the supposed salience of the BLE hypothesis for consumer welfare and economic efficiency.

With this change, the fees alleged to be shrouded fees account for only a very small part of credit card revenue. As discussed earlier in Section 5 above, finance charges on revolving balances amount to roughly 70% of credit card revenues, followed by interchange fee revenue (20%). As a result, revenues from all other fees combined only amount to approximately 10% of the revenues of credit card operations. Of all other fee revenue, almost half is from annual fees, leaving behavior-based fees (such as late fees, over-the-limit fees, balance transfer, and cash advance fees) amounting to approximately six percent of all revenues. Even most BLE scholars presumably would acknowledge that the fees that are imposed are not entirely arbitrary, but that they serve at least some risk-pricing efficiency function or are compensation for risk. Further, several of those fees seemingly should be salient to those who actually incur them, such as cash-advance and balance-transfer fees, which are incurred at the moment of taking the relevant action (as noted, it is not completely clear which fees Bar-Gill considers to be salient and which are not as he lumps them all together). Thus, to the extent that the BLE hypothesis might be confirmed by empirical testing, its importance now seems to apply to only a small fraction of the credit card market: six percent of all revenues at most, and likely much less than that. Thus, contrary to the suggestion in the BLE literature, such fees are not a significant source of revenue for credit card companies.

Even relegated to this narrow slice of the credit card market, empirical support for the allegation that these fees are shrouded is weak at best. As noted earlier, research by Massoud, Sanders, and

¹³⁵ Bar-Gill, *Seduction by Contract*, at 95.

Scholnick found large, statistically significant effects of heightened default risk on the size of risk-based fees, such as late fees and other penalty fees.¹³⁶ To the extent that the incidence of these is risk based, they do not serve solely as "shrouded" price terms. Further, as evidence on actual behavior of cardholders discussed above, even if consumers are not fully aware of various fees when they open an account, they learn about them rapidly and soon change their behavior so as to avoid them in the future. While this knowledge does depreciate, on net knowledge accumulation exceeds knowledge depreciation.¹³⁷ This knowledge presumably would carry over to any new card the borrower might acquire in the future. If consumers rapidly change their behavior once these fees are incurred, it seems that they must be salient.

Recent federal regulation and legislation provides further opportunity to examine the economic significance of risk-based fees. In May 2008 the Federal Reserve Board proposed and then in December 2008 adopted final rules that regulated credit card contract terms, although those new rules were not scheduled to go into effect until July 1, 2010. In 2009 Congress passed the Credit Card Accountability, Responsibility, and Disclosure Act of 2009 (the "CARD Act"),¹³⁸ which legislated many of the terms of the Fed's regulation, thereby superseding the Fed's action. In August 2010 the Federal Reserve issued its rules implementing the CARD Act. Thus, even though the final regulations were not implemented until August 2010, banks were aware by May 2008 at the latest (and presumably by 2007 or early 2008) of pending regulation governing credit card terms.

Both the Fed's regulations and the CARD Act apply significant limitations to terms of the credit card agreement that BLE proponents claim to be non-salient. For example, except for introductory rates and variable rate cards, issuers are required to provide 45 days' notice before increasing interest rates and fees and prohibited from increasing interest rates on existing balances unless the account falls deeply in arrears, and such rate increases must be reevaluated every six months. These provisions limit risk based penalty pricing, which credit card issuers have used to help manage risk on which risky behavior was observed. The rules also placed price ceilings on the size of penalty fees requiring them to be reasonably proportional to the cost to the issuer. In short, the Fed's rules implementing the CARD Act substantially restricted the ability of card issuers to raise interest rates, to adjust contract terms, and to assess back-end behavior-based fees on credit card contracts.

Standard economics holds that in order to make a loan, lenders must be able to price the risk of the loan. If a loan becomes riskier

¹³⁶ See Massoud, et al., 7 J Financial Stability 49 (cited in note 129).

¹³⁷ See Agarwal, et al., *Learning in the Credit Card Market* (cited in note 79).

¹³⁸ Credit Card Accountability Responsibility and Disclosure Act of 2009, Pub L 111-24, 123 Stat 1734 (2009) codified at 15 USC § 1601.

and lenders cannot re-price loans when borrower behavior indicates that they are riskier, lenders must charge every borrower higher interest rates or reduce their risk exposure as needed, either by lending to fewer borrowers (by reducing loans to higher-risk borrowers) or by reducing overall exposure by lending less to all borrowers (reducing credit lines).¹³⁹ If, however, such fees are "non-salient" to consumers, then they could simply be absorbed by lenders as a lowering of the wealth transfer occurring in their favor.

Bar-Gill and Bubb looked at effects of the CARD Act on credit card markets.¹⁴⁰ Using the Federal Reserve's *Report of Terms of Credit Card Plans*, they compared the terms of credit card plans just prior to the CARD Act rules going into effect (in February 2010) to the terms of plans after the final rules became effective in August 2010.¹⁴¹ They found first, unsurprisingly, that fees that were subject to heightened regulation, such as over-the-limit and late fees, fell after the enactment of the rules. They also found an increase in the average annual fee for cards, but that the increase was not statistically significant during the time period that they examined.¹⁴² They also concluded that during the time period studied there was no significant increase in the average APR on purchases. They did find evidence of an increase in the average size of a cash advance fee. Because over-the-limit and late fees declined and interest rates did not increase significantly, they concluded that the newly-regulated fees must have been non-salient to consumers, as there was no apparent offsetting price increase from terms they classified as salient (such as interest rates). As a result, they implied, those particular terms served no economic purpose but were merely a wealth transfer to card issuers.

Bar-Gill and Bubb's conclusions, however, are subject to substantial qualifications. First, their conclusions depend greatly on their classification of whether certain fees are considered to be salient or non-salient fees, a classification which seems to be questionable. For example, they classify cash-advance fees as non-salient fees, but they provide no reason why they do so.¹⁴³ For those who never take cash advances, of course, those fees are irrelevant. But for those who do, cash-advance fees would seem to be "salient" in that they apply only to those who take them and the fees are incurred

¹³⁹ See Todd J. Zywicki, *The Condition of Small Business and Commercial Real Estate Lending in Local Markets*, Testimony before United States House of Representatives, Committee on Financial Services and Committee on Small Business (Feb. 26, 2010), available at <http://mercatus.org/publication/condition-small-business-and-commercial-real-estate-lending-local-markets>.

¹⁴⁰ Bar-Gill and Bubb, 97 Cornell L Rev 967 (cited in note 55)

¹⁴¹ *Id.* at 984. The *Report of Terms of Credit Card Plans* is collected semiannually since 1990 from the twenty-five largest issuers of credit cards and 125 other issuers.

¹⁴² *Id.* at 993. It appears that they pool all cards in the average, including those that charge no annual fee.

¹⁴³ *Id.* at 978.

at the time of the advance.¹⁴⁴ The authors provide no theory on this point.

Second, the sample period—February 2010 and August 2010 is both too short and too late to examine all of the effects of the CARD Act. As noted, the CARD Act regulations in 2010 came on the heels of earlier proposed Federal Reserve regulations, and those regulations were anticipated as early as 2008 (the CARD Act itself was enacted in 2009). Credit card issuers would be expected to phase in their new terms over that full time period rather than waiting until the date the final rule was issued under the CARD Act. Although Bar-Gill and Bubb do not report statistical review dating back to the earlier period, it is quite evident from some of their charts that many prices, such as annual fees and purchase APR, began rising in 2008, which would be expected. If the longer period were considered, the conclusion could be different.

Third, they did not address the alternative market adjustment that might be predicted, namely that issuers reduced their overall risk exposure in response to the CARD Act, such as by reducing the availability of credit cards to higher-risk consumers. This omission is particularly relevant in this context because the restrictions of the CARD Act, such as limiting the ability to adjust interest rates or limiting behaviorally-based fees, would be most likely to restrict their pricing for higher risk borrowers.

A study by the Pew Trust found some evidence of term re-pricing in response to the Federal Reserve's regulations and the Credit CARD Act.¹⁴⁵ As with Bar-Gill and Bubb, the Pew group found that newly-regulated fees (such as over-the-limit fees) declined, as expected. Pew also found that for cards that charged an annual fee, the average annual fee rose from \$50 to \$59 for banks and \$15 to \$25 for credit unions. The Pew group also found a substantial increase in interest rates and that the greatest jump occurred from December 2008 to July 2009, the period following issuance of the Federal Reserve's proposed rules but before the time Bar-Gill and Bubb examined. When the Federal Reserve's rules had just been issued (the period excluded by Bar-Gill and Bubb), than in the period from July 2009 to February 2010 when the CARD Act was passed (but the regulations had not yet been issued). Pew also found a dramatic increase in cash-advance fees as well as increases in other fees and penalty interest rates.

¹⁴⁴ We are not aware of any direct tests of salience, such as whether those who take cash-advances are aware of the price.

¹⁴⁵ Nick Bourke and Ardie Hollfield, *Two Steps Forward: After the Credit Card Act, Credit Cards are Safer and More Transparent—But Challenges remain*, Report of the Pew Health Group, Pew Trusts (July 2010) available at <http://www.pewtrusts.org/~media/Assets/2010/07/22/PEWCreditCard-FINAL.pdf>.

In October 2013 the Consumer Financial Protection Bureau (CFPB) issued a report on the effects of the CARD Act.¹⁴⁶ As would be expected, the CFPB found that the CARD Act's limits on the ability to adjust interest rates and other terms led to the elimination or reduction in "back-end fees." The CFPB also found a dramatic increase in the interest rates on credit card accounts.¹⁴⁷ Overall, between the first quarter of 2009 and the second quarter of 2010, the average purchase APR rose by 230 basis points.

The CFPB also identified a dramatic decrease in the availability of credit, both with respect to reduced access to credit for all borrowers, but especially to higher-risk consumers. The CFPB found that from the time the CARD Act regulations took effect in February 2010 and the end of 2012, total credit lines on all credit cards fell by \$200 billion.¹⁴⁸ Moreover, the decrease in credit lines was greatest for subprime borrowers.¹⁴⁹ Moreover, mail volume by credit card issuers soliciting new accounts fell much more dramatically for subprime borrowers than for all consumers,¹⁵⁰ and the approval rate for new cards for subprime borrowers fell much more than for other card segments.¹⁵¹ Overall, originations of new subprime accounts declined sharply. The CFPB concluded, "The decline in origination volume suggests a reduction in availability of credit for customers with subprime scores."¹⁵²

Overall, the CFPB found a significant decline in the percentage of households that had cards, from 76% to 71%. Although the CFPB did not attempt to distinguish this loss of access to cards by risk profile, other research indicates that the loss of access to credit cards was disproportionately imposed on low-income consumers. According to Canner and Elliehausen, the percentage of households in the lowest quintile of credit scores with credit cards fell from 65% in 2008 to 54% in 2010.¹⁵³ By contrast, for highest-quintile

¹⁴⁶ See Consumer Financial Protection Bureau, *CARD Act Report: A Review of the Impact of the CARD Act on the Consumer Credit Market* (October 2013) available at http://files.consumerfinance.gov/f/201309_cfpb_card-act-report.pdf.

¹⁴⁷ Id at 30.

¹⁴⁸ The CFPB's analysis does not consider the effects of the Federal Reserve's rulemaking, but the CFPB's data shows a substantial reduction in credit lines beginning in 2008. Much of this is likely attributable to the recession that began around that time, but some might also be attributable to the Fed's rules. Moreover, the period that the CFPB does examine was during a period of modest economic recovery, which would be predicted to have led to increased credit lines, thus the finding of a decline is even more striking.

¹⁴⁹ Consumer Financial Protection Bureau, *CARD Act Report: A Review of the Impact of the CARD Act on the Consumer Credit Market* at 52 (cited in note 153).

¹⁵⁰ Id at 42.

¹⁵¹ Id at 47-49.

¹⁵² Id at 43.

¹⁵³ Canner and Elliehausen, *Consumer Experiences with Credit Cards* at 10 (Table 2) (cited in note 65).

households, card holding fell only one percentage point (from 91% to 90% of households).

Agarwal, Chomsisengphet, Mahoney, and Stroebel examined the effects of the CARD Act using a data set of 150 million accounts, but like Bar-Gill and Bubb they focused on the period immediately surrounding the effective date of the CARD Act regulations, February 2010 and July 2010.¹⁵⁴ They found an impact on specific terms regulated by the CARD Act but no increase in interest rates. They also found no evidence of a reduction in credit supply during the period surrounding the effective date of the CARD Act's regulations.¹⁵⁵

Unfortunately, their study is subject to the same timing difficulty as Bar-Gill and Bubb's—namely, that they focus their inquiry on the period immediately surrounding the CARD Act's implementation, thereby excluding any impact from the Federal Reserve regulations or other adjustments made in anticipation of the CARD Act. They also do not examine the impact on other fees, such as cash-advance fees or default interest rates that may have changed.

This failure to consider the anticipatory effects of the Federal Reserve's regulations turns out to be important, as shown by Jambulapati and Stavins.¹⁵⁶ Examining data from the Consumer Financial Monthly survey, Jambulapati and Stavins examined the effect of the CARD Act on the supply of credit card credit and credit card terms. Moreover, they examined not just the period preceding the effective date of the CARD Act's rules (February 2010) but also the earlier period of the Federal Reserve's rulemaking. Between May 2009, when the CARD Act was signed, and February 2010, they found that banks reduced credit limits but did not close accounts at a higher rate than previously. When they expanded their inquiry to consider the possible preemptive effects of the Federal Reserve's earlier rulemaking, however, they found that a higher fraction of accounts was closed immediately following adoption by the Federal Reserve of its rules in 2008.¹⁵⁷ They also found evidence that the reduction in credit lines began during that period as well. Thus, once the Federal Reserve's earlier rulemaking is taken into account, the two waves of regulations were associated with led to a reduction in both access to credit cards and credit lines, as would be predicted by the standard model.

¹⁵⁴ Sumit Agarwal, Souphala Chomsisengphet, Neale Mahoney, Johannes Stroebel, *Regulating Consumer Financial Products: Evidence from Credit Cards*, National Bureau of Economic Research Working Paper 19484 (September 2013) available at <http://www.nber.org/papers/w19484>.

¹⁵⁵ *Id.* at 27.

¹⁵⁶ Vikram Jambulapati and Joanna Stavins, *The Credit CARD Act of 2009: What Did Banks Do?*, Federal Reserve Bank of Boston Public Policy Discussion Paper No. 13-7 (Oct. 2013) available at <http://www.bostonfed.org/economic/ppdp/2013/ppdp1307.htm>.

¹⁵⁷ They note that this period coincides with the onset of the recession, so it is difficult to disentangle the two factors.

In addition to identifying a reduction in lending, Jambulapati and Stavins found that average interest rates rose almost two percentage points in the period preceding the effective date for most of the CARD Act's rules.¹⁵⁸ Taking into account the market responses to the Federal Reserve's regulations as well as the Credit CARD Act, they also found reductions in credit supply, both in terms of fewer accounts and lower credit limits.

Han, Keys, and Li further examined the effect of the CARD Act on access to credit by examining the volume of solicitations of new accounts before and after the CARD Act became effective.¹⁵⁹ Focusing on a pool of consumers who had filed bankruptcy, they sought to identify the access of those high-risk borrowers to credit and the impact of the CARD Act on their access to credit.

They found that after the CARD Act became effective, the number of offers for new accounts to higher-risk borrowers fell sharply, suggesting a substantial decrease in the supply of credit available to riskier borrowers. Moreover, they found a substantial deterioration in the quality of the cards offered to those borrowers when compared to the pre-CARD Act period. "Before the financial crisis, the offers to [bankruptcy] filers are more comparable with those to nonfilers; but, in the post-CARD-Act period, on balance, filers tend to receive much less favorable offers."¹⁶⁰ In particular, following the enactment of the CARD Act, lenders offered riskier borrowers much lower credit limits than before the act. Offers were less likely to have low introductory teaser rates or rewards. Moreover, following the enactment of the CARD Act, riskier borrowers were more likely to be offered cards with an annual fee, and the spread between the cost of funds and the APR widened substantially. In fact, while the interest rate spread for those who filed bankruptcy and those who did not was similar prior to the enactment of the CARD Act, subsequently the spread was 175 points wider for those who had filed bankruptcy than those who had not.¹⁶¹ As they observed, "Thus, although filers continue to receive credit card offers, lenders who extend credit to them apparently engage in a different business strategy—keeping credit limits low to mitigate default risk and levying fees to boost profit from such borrowers."¹⁶² Although they found the largest effects for riskier borrowers, they found that the interest rate spread increased

¹⁵⁸ Id at 7.

¹⁵⁹ Song Han, Benjamin J. Keys, and Geng Li, *Unsecured Credit Supply over the Credit Cycle: Evidence from Credit Card Mailings*, Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Working Paper 2011-29, (2011) available at <http://www.federalreserve.gov/pubs/feds/2011/201129/201129abs.html>.

¹⁶⁰ Id at 22-23.

¹⁶¹ Id at 25.

¹⁶² Id at 23.

for all borrowers, including even those who had not filed bankruptcy.¹⁶³

In sum, there does not appear to be much support for the view that "shrouded" or "non salient" terms are a major component of credit card pricing that results in large wealth losses to consumers or distortions. Standard economics predicts that regulating certain terms, such as limiting behavior-based fees or restricting the ability to adjust interest rates, will lead to offsetting adjustments to other terms of the contract, such as annual fees, interest rates, default interest rates, and other fees that remain unregulated, such as cash-advance fees. Although certain studies fail to identify any effect when the CARD Act is examined in isolation, combining the effects of the Federal Reserve's regulations and the CARD Act rejects the BLE hypothesis that regulating these fees had little effect.

In addition, standard economics predicts that regulations that make it more difficult to price risk accurately will lead to a reduction in credit access. The evidence indicates that there was a reduction in both the number of accounts as well as credit lines as a result of the CARD Act and the Federal Reserve's prior regulation, and that this effect fell hardest on riskier borrowers, just as standard economic theory would predict. Those who find no effects from the CARD Act have failed to examine this point.

IV. Conclusion

BLE contends that consumers suffer fundamental cognitive flaws and that credit cards are "uniquely" designed to exploit these limits. Indeed, if this is true, then profit-seeking firms must seek to exploit these flaws or be eliminated from the market.¹⁶⁴ But BLE commentators do not appear to have examined empirical evidence very closely to determine whether their theories pass Friedman's test for evaluating a new theory, in this case an economic theory: "whether it yields predictions that are good enough for the purpose in hand or that are better than predictions from alternative theories."¹⁶⁵ In fact, the case can be made that the score after further empirical review here is Other Theories 12, BLE 0. At this point, that score is not good enough to warrant replacing standard economic and behavioral explanations of consumer credit use developed over decades and even centuries with *ad hoc* BLE theories. Again quoting the same passage from Friedman:¹⁶⁶

¹⁶³ Id at 23.

¹⁶⁴ Subject to the limitation, however, that if exploiting consumer biases results in heightened rates of consumer distress, then both borrowers and lenders suffer.

¹⁶⁵ Friedman, *The Methodology of Positive Economics*, at 41 (cited in note 48).

¹⁶⁶ Id.

Yet the belief that a theory can be tested by the realism of its assumptions independently of the accuracy of its predictions is widespread and the source of much of the perennial criticism of economic theory as unrealistic. Such criticism is largely irrelevant, and, in consequence, most attempts to reform economic theory that it has stimulated have been unsuccessful.

Brown and Plache have extended the same idea to law and social policy:¹⁶⁷

The supply and demand characteristics of this industry, as depicted by our data, do not follow the pattern predicted by the phenomenon of hyperbolic discounting upon which certain arguments about the harmfulness of credit cards are based. In fact, the hyperbolic discounting narrative failed to line up with any of our results. Existing work in this area, although interesting, does not provide a sufficient basis for overturning long established legal or social policy.

In sum, it is difficult to conclude at this point that available evidence concerning consumers' use of credit cards necessitates at this time wholesale revision to the microeconomic theory of the demand for consumer credit inherited from decades past. This is not to say that the behavioral scientists have not enriched the theory; clearly, they have done so, as discussed above, and the work is ongoing. Economic theory evolves as insights arise and is likely to continue from enhancements due to behavioral economics.¹⁶⁸ This is not new and it should not be surprising, but without care it can jump analytical stages and reach places where it should not go. As articulated by Joshua Wright,

"Modern legal scholars frequently and increasingly base their analyses on the assumption, grounded largely in the extensive experimental literature, that individuals are subject to a number of systematic behavioral biases. Within the legal literature, behavioral economic analysis has been relied upon to generate a significant number of proposals for paternalistic regulation."¹⁶⁹ However "[w]hile economic analysis of the law certainly is capable of incorporating the insights of behavioral economics, the question is whether such a move would be desirable. This is largely an empirical question that turns on whether incorporating the insights from behavioral economics improves the ability of economics to explain the law or the

¹⁶⁷ Brown and Plache, 73 U Chi L Rev 63, at 86 (cited in note 68).

¹⁶⁸ See, for example, Luis Rayo and Gary Becker, *Evolutionary Efficiency and Happiness*, 115 J Pol Economy 302 (2007), who advance a model of this kind but do not extend their paper to empirical tests. More modeling and more tests are needed before this area settles down, likely as an extension of Juster-Shay, a process that could take years or even decades.

¹⁶⁹ Joshua D. Wright, 2 NYU J L & Lib at 470 (cited in note 39).

behavior of economic agents, or to predict the consequences of legal change."¹⁷⁰

Indeed, the weakness of BLE's predictive power is especially striking in that it comes against a backdrop of nearly a century of theoretical and empirical research that has validated the basic neoclassical model of consumer credit choice.¹⁷¹ By contrast, while boasting to be a more "realistic" model of consumer decision-making that it claims can explain large elements of the credit card market, BLE instead has fallen short of the traditional model. While continued research is appropriate and unquestionably will continue, to date BLE has not replaced standard economics in explaining the dynamics of consumer choice and market competition regarding credit cards.

¹⁷⁰ Id at 74.

¹⁷¹ See Durkin, et al. (cited in note 1).