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Unintended Consequences: An Experimental Investigation of the (In)Effectiveness of Mandatory Disclosures

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**UNINTENDED CONSEQUENCES: AN
EXPERIMENTAL INVESTIGATION OF THE
(IN)EFFECTIVENESS OF MANDATORY
DISCLOSURES**

Molly Mercer* & Ahmed E. Taha**

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INTRODUCTION

Imagine that you go to a nearby electronics store to buy a DVD player. At the store you find two very similar DVD players that meet your needs. One costs \$69.99; the other costs \$79.99 but offers a \$20 mail-in rebate. Which one will you choose?

If you are like most people, you will buy the \$79.99 DVD player because when you compute its post-rebate price, it will seem like the better value. However, that DVD player is a better value only if you later take the steps necessary to redeem the mail-in rebate. Unfortunately, you will probably never redeem the rebate because you will either forget about it, procrastinate until the deadline has passed, lose the receipt or UPC code, or later decide that the \$20 rebate is not worth the redemption effort. Indeed, almost 80% of rebate dollars go unclaimed, and the high percentage of unredeemed rebates appears to be a major reason for rebates' use.¹ As one retailer explained to *The New York Times*, “[m]anufacturers love rebates . . . [t]hey get people into stores, but when it comes time to collect, few people follow through. And this is just what the manufacturer has in mind.”²

Lawmakers and legal scholars have proposed various ways to protect consumers from their failure to redeem rebates. These proposals vary dramatically in the degree to which they restrict consumer choice. At the most restrictive end of the spectrum, lawmakers in several states have proposed legislation that would ban mail-in rebate offers altogether.³ This solution, however, would harm savvy

1. PROMOTION MARKETING ASSOCIATION, PMA MAIL-IN REBATE BENCHMARKING STUDY (May 1, 2005), https://pmalink.site-ym.com/resource/resmgr/research_open/pmamailinrebate.htm [hereinafter REBATE BENCHMARKING STUDY].

2. Catherine Greenman, *The Trouble With Rebates*, N.Y. TIMES, Sept. 16, 1999, at G1. See also Tim Silk & Chris Janiszewski, Managing Mail-in Rebate Promotions 8–9 (undated) (unpublished manuscript), available at <http://warrington.ufl.edu/mkt/docs/janiszewski/Rebate.pdf> (“Successful rebate promotions are also designed to limit the number of rebate-dependent purchasers that attempt to redeem a rebate offer.”).

3. Cornelia Pechmann & Tim Silk, *Policy and Research Related to Consumer Rebates: A Comprehensive Review*, 32 J. PUB. POL’Y & MARKETING 255, 256 (2013).

consumers who save money on their purchases by redeeming rebates. Several prominent legal scholars have argued that less restrictive, disclosure-based regulations could improve rebate-related purchase decisions without restricting consumer choice. Specifically, they propose requiring rebate offers to disclose the actual rebate redemption rates.⁴

This proposal is just one example of the recent surge of interest in non-restrictive regulatory interventions that “nudge” people toward desired behaviors without foreclosing other choices.⁵ In fact, the Obama administration recently proposed a Social and Behavioral Science Team to help identify such interventions.⁶ Non-restrictive regulations are attractive to lawmakers and academics because they interfere less with free-market principles than do other regulatory approaches and better preserve consumer autonomy.⁷

In addition to preserving consumer choice, redemption rate disclosures are an intuitively appealing solution to the widespread problem of consumers failing to redeem rebates. When faced with strong evidence of others’ redemption failures, consumers should realize that they themselves are also unlikely to redeem rebates. However, some scholars have expressed skepticism about the likely effectiveness of such disclosures,⁸ and there are no existing studies on the effectiveness of mandatory redemption rate disclosures.

Our Article is the first to provide evidence on this issue.

4. Ian Ayres, *Did you use that gift card or rebate?*, MARKETPLACE (Aug. 9, 2007), <http://www.marketplace.org/topics/business/did-you-use-gift-card-or-rebate> (“If sellers disclosed [mail-in rebate] redemption rates, then consumers could decide whether it’s worth the risk.”); Oren Bar-Gill & Franco Ferrari, *Informing Consumers About Themselves*, 3 ERASMUS L. REV. 93, 109 (2010). See also Jeff Sobern, *Toward a New Model of Consumer Protection: The Problem of Inflated Transaction Costs*, 47 WM. & MARY L. REV. 1635, 1703 (2006), (“If, for example, consumers understood that they were not likely to obtain rebates, they would not take rebate offers into account in deciding whether to buy products . . . policymakers might require rebate offers to disclose that few consumers redeem similar rebates.”).

5. For example, the book *Nudge: Improving Decisions About Health, Wealth, and Happiness*, which called for adoption of non-restrictive regulatory approaches was recently a *New York Times* bestseller. RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008).

6. Katrin Bennhold, *The Ministry of Nudges*, N.Y. TIMES, Dec. 8, 2013, at BU 1.

7. Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1162 (2003).

8. John G. Lynch Jr. & Gal Zauberaman, *When Do You Want It? Time, Decisions, and Public Policy*, 25 J. PUB. POL’Y & MARKETING 67, 71–72 (2006).

Previous research on warnings and disclaimers in other domains shows that their effects are context-specific and difficult to predict.⁹ Specifically, some disclosures, such as on-product safety warnings, can be effective.¹⁰ However, other warning disclosures are ineffective¹¹ or, even worse, boomerang and increase the undesirable behaviors they are meant to prevent.¹² Uncertainty regarding the effects of rebate disclosures means that this issue is ripe for empirical examination.

This Article presents the results of our experiment that investigates whether legally mandated disclosures decrease consumers' optimism about redeeming mail-in rebates and their willingness to purchase rebated products. The experiment examines the effects of two different rebate disclosures on 549 U.S. consumers. One disclosure directly tests whether consumers who are made aware of low rebate redemption rates are less likely to purchase rebated products. This disclosure (the "Redemption Rate Disclosure") states that "*sales records show rebate redemption rates of approximately 30% for rebates of this type and size.*" The other disclosure attempts to temper consumers' optimism about rebate redemption by explicitly warning them about overoptimism and the reasons for it. Specifically, this "Overoptimism Disclosure" states that "*[s]tudies show that people often overestimate the probability that they will redeem a mail-in rebate because they fail to anticipate that they will forget, procrastinate, lose the necessary materials, or later decide it is not worth the effort.*"

The experiment's results indicate that neither the

9. David W. Stewart & Ingrid M. Martin, *Intended and Unintended Consequences of Warning Messages: A Review and Synthesis of Empirical Research*, 13 J. PUB. POL'Y & MARKETING 1, 1-2 (1994).

10. Eli P. Cox III, Michael S. Wogalter, Sara L. Stokes, & Elizabeth J. Tipton Murff, *Do Product Warnings Increase Safe Behavior? A Meta-Analysis*, 16 J. PUB. POL'Y & MARKETING 195, 201 (1997).

11. Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 665-79 (2011); Kesten C. Green & J. Scott Armstrong, *Evidence on the Effects of Mandatory Disclaimers in Advertising*, 31 J. PUB. POL'Y & MARKETING 293, 302 (2012); Molly Mercer, Alan R. Palmiter, & Ahmed E. Taha, *Worthless Warnings? Testing the Effectiveness of Disclaimers in Mutual Fund Advertisements*, 7 J. EMPIRICAL L. STUD. 429, 429 (2010).

12. Debra Jones Ringold, *Boomerang Effect: In Response to Public Interventions: Some Unintended Consequences in the Alcoholic Beverage Market*, 25 J. CONSUMER POL'Y 27, 51-52 (2002); Stewart & Martin, *supra* note 9, at 12-13.

Redemption Rate Disclosure nor the Overoptimism Disclosure reduces consumers' willingness to purchase rebated products. Instead, the disclosures appear to backfire, increasing willingness to purchase rebated products. Additional analyses show similar effects on consumers' optimism about rebate redemption. Neither disclosure reduces consumers' optimism about the probability that they will redeem the rebate, and, in fact, the Redemption Rate Disclosure significantly increases this optimism. Overall, our results indicate that not only is a disclosure-based regulatory approach unlikely to improve consumers' rebate-related purchase decisions, it will likely harm consumers by making them even more optimistic about redemption, causing them to make poorer purchase decisions.

In addition to the obvious practical significance of these results for the debate over how to improve consumers' rebate-related purchase decisions, our results sound a broader warning to lawmakers who have proposed other non-restrictive regulations. Many lawmakers favor non-restrictive regulations such as mandatory disclosures because they believe that, even if mandatory disclosures do not help all consumers, such disclosures do no harm because consumers are free to ignore them.¹³ Our experiment shows that this belief is incorrect: mandatory disclosures—even those with strong intuitive support—can harm the very people they are intended to help.

Our experimental results also speak to the likely effectiveness of other proposed disclosures that attempt to improve people's choices by informing them about average outcomes or behaviors. For example, scholars have proposed mandatory disclosures informing people buying gym memberships about average gym attendance statistics, because people buying gym memberships often vastly overestimate how often they will go to the gym.¹⁴ In our study, neither warning people about low rebate redemption rates nor warning them about consumers' general tendency to be overly optimistic reduced their optimism about their own future rebate redemption. The disclosures appear to fail because they inform people about average consumer behavior, and most people believe they are better than average. In

13. Ben-Shahar & Schneider, *supra* note 11, at 682.

14. Bar-Gill & Ferrari, *supra* note 4, at 106–07 (2010).

other words, people are overly optimistic about whether they are overly optimistic. Given that consumers reason this way, our results suggest that disclosures informing people about average behaviors might be similarly ineffective (or even harmful) in other contexts such as gym memberships.

The remainder of this Article more thoroughly develops these ideas. Part I discusses why firms offer mail-in rebates and why consumers fail to redeem them. Part II presents possible regulatory approaches to reduce the number of consumers who fail to redeem rebates. Part III reports the results of our experiment, and Part IV discusses these results and their implications for regulating mail-in rebate offers and for consumer disclosures in general.

I. BACKGROUND & THEORY

A. *Why Do Companies Offer Mail-In Rebates?*

A mail-in rebate is a promotion in which a manufacturer or retailer refunds a portion of a product's purchase price to consumers who purchase the product and later submit documentation regarding the purchase.¹⁵ Redeeming a rebate typically requires the consumer to mail materials such as a completed rebate form, the product's UPC code, and the sales receipt to the rebate offeror or a rebate fulfillment center.¹⁶ After the material is processed, a rebate check is sent to the consumer.¹⁷ For purposes of this Article, "mail-in rebates" also encompass rebate programs in which consumers can submit the required material via the internet rather than by mail, and those in which consumers receive something other than cash (e.g., a gift certificate) for redeeming the rebate. So-called "instant rebates" differ from mail-in rebates because instant rebates are discounts given at the time of purchase,

15. Matthew A. Edwards, *The Law, Marketing and Behavioral Economics of Consumer Rebates*, 12(2) STAN. J.L. BUS. & FIN. 362, 366 (2007) (defining a consumer rebate as a "delayed incentive offered by either a product manufacturer or retailer that requires consumers to: (1) make a purchase at a pre-rebate shelf price; (2) submit a request for a refund amount by mail or the Internet to the rebate offeror, or a fulfillment center that processes rebates for the rebate offeror; and (3) wait some period of time after the purchase and rebate submission for the rebate offeror or its agent to send a rebate check or something of value . . . to the consumer.").

16. Sandra Block, *Rattled about rebate hassles? Regulators starting to step in*, USA TODAY, Mar. 25, 2005, at B3.

17. Edwards, *supra* note 15, at 366.

rather than at a later date, and typically do not require redemption effort by the consumer.¹⁸ Thus, an instant rebate is structurally more similar to a sale than to a mail-in rebate.

Mail-in rebates are a popular promotional tool, although estimates of their use vary. In 2004, Promotion Marketing Association (“PMA”) members estimated that consumers redeemed mail-in rebates totaling \$487 million.¹⁹ A rebate consultant provides a higher estimate, stating that about 400 million rebate checks worth \$6 billion are mailed annually.²⁰ Rebates are especially common on certain types of consumer goods, such as electronics and computer-related products.²¹

Mail-in rebates are popular for several reasons. First, unlike coupons or sales, rebates allow the manufacturer or retailer to collect consumer information, such as names and addresses, which facilitates future marketing to those consumers.²² Second, a rebate does not require lowering the product’s nominal purchase price. Thus, a rebate is less likely than a sale to create consumer resistance to the regular price when the promotion ends.²³ Third, and perhaps most important, many rebate-induced purchasers later fail to redeem their rebates. Promotion managers report rebate redemption rates of about 40% on consumer electronics, redemption rates of between 10% and 30% for \$10–\$20 rebates on \$100 software, and “very low” redemption rates on rebates under \$10.²⁴ A study by the PMA found an overall

18. Damon Darlin, *Rebates On the Way to Expiring*, N.Y. TIMES, Nov. 11, 2006, at C1.

19. REBATE BENCHMARKING STUDY, *supra* note 1.

20. Betsy Spethmann, *The Real Problem with Rebates*, CHIEF MARKETER, (Jan. 11, 2006), http://chiefmarketer.com/othertactics/rebate_problems_011106.

21. Brian Grow, *The Great Rebate Runaround*, BLOOMBERG BUSINESSWEEK, (Dec. 5, 2005), http://www.businessweek.com/magazine/content/05_49/b3962074.htm.

22. Edwards, *supra* note 15, at 372.

23. *Id.* See also Valerie Folkes and Rita D. Wheat, *Consumers’ Price Perceptions of Promoted Products*, 71 J. RETAILING 317, 326 (1995); Grow, *supra* note 21 (noting that consumer-product companies “pioneered rebates in the 1970s as a nifty way to advertise small discounts without actually marking the products down.”).

24. Silk & Janiszewski, *supra* note 2, at 5. See also Johny Johansson, IN YOUR FACE: HOW AMERICAN MARKETING EXCESS FUELS ANTI-AMERICANISM 52 (2004) (“Redemption rates vary, but are generally low—less than 50% for big-ticket technology goods, and as low as 2% for packaged goods.”). Exact redemption rates are difficult to find because companies are reluctant to share redemption data. For example, in a survey of rebate fulfillment center managers, 80% of the managers reported believing they would benefit from additional research on rebates, yet only 17% said they would be willing to

average redemption rate of only 21%, as a percentage of total dollar sales.²⁵ In other words, consumers do not collect about four-fifths of the mail-in rebate dollars to which they are entitled.

Not all failures to redeem rebates should concern policymakers. Undoubtedly, some consumers buy rebated products not intending to redeem the rebates. These “intended non-redeemers” likely disregard rebate offers when making their purchase decisions.²⁶ Thus, rebate offers, like coupons, can be a form of price discrimination. A rebate offer, in effect, allows two different prices to be charged to consumers: an after-rebate price to consumers who redeem the rebate and a pre-rebate price to consumers who do not redeem the rebate.²⁷ This price discrimination can be efficient if more of the product is sold than would be if all consumers had to pay the same price.²⁸

However, rebate offers harm consumers who purchase a product because of the rebate but later fail to redeem it. This phenomenon is commonly referred to as “breakage” or “slippage.”²⁹ As noted above, the PMA estimated that approximately four-fifths of rebate dollars are not redeemed. It is unclear exactly how many non-redemptions stem from rebate-induced purchases, but the number is likely large. The PMA argues for using redemptions as a percentage of incremental sales (i.e., sales induced by the rebate offer) as a measure of the efficacy of a rebate offer.³⁰ A PMA survey found this percentage to be 68%, suggesting that approximately a third of rebates from rebate-induced

supply data on their past rebate promotions for an academic study. Silk & Janiszewski, *supra* note 2, at 24–25, tbl.1.

25. REBATE BENCHMARKING STUDY, *supra* note 1.

26. Timothy G. Silk, Examining Purchase and Non-redemption of Mail-in Rebates: The Impact of Offer Variables on Consumers’ Subjective and Objective Probability of Redeeming 5 (May 2004) (unpublished PhD dissertation, University of Florida), http://etd.fcla.edu/UF/UFE0004380/silk_t.pdf.

27. Yuxin Chen, Sridhar Moorthy & Z. John Zhang, *Price Discrimination After the Purchase: Rebates as State-Dependent Discounts*, 51 MGMT. SCI. 1131, 1131 (2005).

28. Matthew A. Edwards, *Price and Prejudice: The Case Against Consumer Equality in the Information Age*, 10 LEWIS & CLARK L. REV. 559, 586–87 (2006). This argument assumes that consumers who are more price sensitive are more likely to redeem rebates. However, survey evidence suggests that this might not be the case. *Rebates: Get What You Deserve*, CONSUMER REP., Sept. 2009, at 7.

29. Chen, Moorthy & Zhang, *supra* note 27, at 1131.

30. REBATE BENCHMARKING STUDY, *supra* note 1.

purchases are not redeemed.³¹ This calculation, however, likely overstates the redemption rate on rebate-induced purchases, because it assumes that all redemptions come from rebate-induced purchases.³² In reality, some redemptions are by “opportunistic redeemers”—consumers who would have purchased the product even in the absence of the rebate.³³ Thus, the true redemption rate on rebate-induced purchases is almost certainly lower than the two-thirds suggested by the PMA. Consistent with this, rebate fulfillment center managers estimate that more than half of non-redeemed rebates are attributable to consumers who intended to redeem the rebate.³⁴

In summary, many consumers who are induced to purchase products by mail-in rebate offers later fail to redeem those rebates. We next discuss why this occurs.

B. Why Do Consumers Fail to Redeem Rebates?

There are many reasons why consumers who make rebate-induced purchases fail to follow through on their redemption plans: they change their minds about whether the rebate reward is worth the redemption effort, procrastinate, forget about the rebate until the redemption deadline passes, or lose required redemption materials.

1. Consumers Change Their Minds Regarding Whether to Redeem Rebates

Mail-in rebates require consumers to make decisions at two points in time. Consumers must first decide whether to purchase the rebated product. Then, if they buy the product, they must later decide whether to redeem the rebate. This time separation causes some consumers who buy a product intending to redeem the rebate to later change their minds and decide that the rebate award is not worth the redemption effort. This likely occurs because, at the time of purchase, consumers overestimate the future utility from the rebate award and underestimate the future disutility from the

31. *Id.*

32. Firms cannot calculate the true redemption rate on incremental sales because they cannot tell whether a redemption was from someone who would have purchased the product even in the absence of a rebate. Silk & Janiszewski, *supra* note 2, at 7.

33. Silk, *supra* note 26, at 5.

34. Silk & Janiszewski, *supra* note 2, at 9, 25 tbl.1.

redemption effort.

Overestimating the Future Utility from Rebate Awards. There are two possible reasons that consumers anticipate more utility from a rebate award at the time of purchase than they do at the time of the redemption decision. First, the time delay increases the likelihood that consumers will decouple the product price and the rebate amount. According to prospect theory, people value outcomes based on whether they represent gains or losses from a reference point,³⁵ and the amount of utility people experience from a gain is lower than the amount of disutility they experience from an equal-sized loss.³⁶ At the time of purchase, most consumers likely aggregate the loss from the product price and the gain from the rebate award. Consider a product with a \$10 price and a \$3 rebate. If consumers net the \$10 loss and the \$3 gain at the time of purchase, the rebate will be viewed as a reduction in the loss from buying the product.³⁷ When consumers make redemption decisions, however, enough time has passed that they often are no longer thinking about the product price. Thus, at that time, consumers view the rebate as a gain of \$3 rather than a \$3 reduction of a loss.³⁸ Because losses are more painful than gains are pleasurable, consumers will value the rebate award more at the time of purchase (when it reduces a loss) than at the time they make the redemption decision (when it creates a gain).³⁹

Two prior studies support the idea that a rebate's monetary amount receives more weight in consumers' purchase decisions than in their redemption decisions. In one experiment, participants completed a survey regarding their movie preferences.⁴⁰ They were told that in gratitude for completing the survey, a movie studio would sell them two discounted movie tickets. Participants could choose to purchase the two tickets for a total of \$11 or to purchase the two tickets for \$13 with the right to receive a mail-in rebate.

35. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263, 274 (1979).

36. Amos Tversky & Daniel Kahneman, *Loss Aversion in Riskless Choice: A Reference-Dependent Model*, 106 *Q.J. ECON.* 1039, 1039 (1991).

37. Sovern, *supra* note 4, at 1656.

38. *Id.*

39. *Id.*

40. Tim Silk, *Getting Started is Half the Battle: The Influence of Deadlines and Consumer Effort on Rebate Redemption* 13–14 (undated) (unpublished manuscript) (on file with author).

The amount of the rebate varied; some participants were offered a \$6 rebate and others were offered a \$9 rebate.⁴¹ The experiment found that participants were more likely to choose the rebated tickets when the rebate was \$9 than when it was \$6.⁴² However, the size of the rebate did not affect the likelihood that participants subsequently applied to redeem the rebate.⁴³

Another experimental study reported similar findings in a different setting. In that study, participants completed a short survey in return for a dollar.⁴⁴ At the end of the survey, they were told that instead of receiving the dollar, they could complete and mail in a second survey to receive higher compensation (either \$2 or \$4).⁴⁵ Participants offered \$4 were much more likely than those offered \$2 to forego the initial dollar and take the second survey, but were not significantly more likely to mail in the second survey.⁴⁶

A second reason that consumers anticipate more utility from rebate awards at the time of purchase also stems from the decoupling of the rebate award and the purchase price that occurs over time. At purchase, consumers' expected utility from the rebate award is likely a function of both the absolute size of the award and its size relative to the product's price. As time passes, however, consumers are more likely to frame the award solely in absolute terms. Consider again a product with a \$10 price and a \$3 rebate. At the time of purchase, consumers experience utility related to the reward both in absolute terms ("this rebate saves me \$3") and in relative terms ("this rebate saves me almost a third of the purchase price"). However, when consumers later decide whether to redeem the rebate, they are no longer thinking about the product's price. They therefore anticipate utility solely based on the award's absolute magnitude. In other words, at redemption, the rebate is viewed as merely \$3 rather than also as an impressive 30% of the purchase price.⁴⁷

41. *Id.* at 14.

42. *Id.* at 18.

43. *Id.* at 18–19.

44. Dilip Soman, *The Illusion of Delayed Incentives: Evaluating Future Effort—Money Transactions*, 35 J. MARKETING RES. 427, 436 (1998).

45. *Id.*

46. *Id.* at 430–31.

47. Soman, *supra* note 44, at 436. ("[T]he face value of an incentive may appear large when framed against the cost of the product (e.g., prior to choice) but insignificantly small after the purchase. This differential framing of the

In support of this idea, a study by the PMA found that “[i]ncremental sales gains [from a rebate] are influenced more by the size of the rebate relative to the list price [of the product] than by the absolute size of the rebate. Redemption rates are influenced more by the absolute size of the rebate than by the size of the rebate relative to the list price.”⁴⁸

Taken together, the prior literature suggests that one reason consumers fail to redeem mail-in rebates is that they anticipate more utility from a rebate award at the time of purchase than they do when later deciding whether to redeem the rebate.

Underestimating the Future Disutility of Redemption Effort. Consumers also change their minds regarding whether to redeem rebates because they underestimate the future disutility associated with the redemption tasks. Again, this underestimation appears to stem from the delay between the product purchase decision and the rebate redemption decision. Research shows that at the time of purchase, people overestimate the time they will have available for future redemption tasks.⁴⁹ Further, people tend to underestimate the length and unpleasantness of future tasks.⁵⁰ Thus, when deciding whether to purchase a rebated product, consumers likely underestimate the length and unpleasantness of the future tasks required to redeem the rebate (e.g., cutting out the UPC code, filling out the rebate form, and addressing and mailing the envelope) and overestimate the time they will have available for completing these tasks.

Consumers underestimate the unpleasantness of future redemption effort at least partly because they tend to think abstractly about future tasks.⁵¹ Temporal construal theory suggests that activities that are temporally distant are

face value could widen the discrepancy between choice and redemption rates.”).

48. REBATE BENCHMARKING STUDY, *supra* note 1.

49. Gal Zauberan & John G. Lynch, Jr., *Resource Slack and Propensity to Discount Delayed Investments of Time Versus Money*, 134(1) J. EXPERIMENTAL PSYCHOL.: GEN. 23, 30–31 (2005).

50. Robert A. Josephs & Eugene Hahn, *Bias and Accuracy in Estimates of Task Duration*, 61 ORG. BEHAV. & HUM. DECISION PROCESSES 202, 202 (1995); George Loewenstein, *Out of Control: Visceral Influences on Behavior*, 65 ORG. BEHAV. & HUM. DECISION PROCESSES 272, 281–82 (1996). *See also* Soman, *supra* note 44, at 429 (“there is broad consensus [in the behavioral decision theory literature] that the pain of future effort is underestimated.”).

51. Edwards, *supra* note 15, at 362, 394–95.

perceived as more abstract, while activities that are temporally close are perceived as more concrete.⁵² When consumers purchase a rebated product, rebate redemption effort is in the future, so consumers represent this effort as an abstract, high-level construal (i.e., they think about this effort only in broad, general terms). At the time of the redemption decision, however, consumers represent the effort as a concrete, low-level construal (i.e., they think of the specific tasks they will need to perform to redeem the rebate). When consumers think of the effort in more concrete terms, the effort looms larger than it did at the time of purchase.⁵³

Prior experimental evidence supports the idea that consumers underestimate the disutility of future redemption effort and, as a result, later fail to redeem rebates that they had anticipated redeeming. In one experiment, participants chose between purchasing two similar products.⁵⁴ One of the products did not offer a rebate. The other product had a higher base price but offered a rebate that, if redeemed, made it the less expensive product. Before making their choice, participants were told that they would need to drive to a nearby store to collect the rebate.⁵⁵ The experiment varied the time between the product purchase and the required rebate redemption effort (i.e., people had to drive to the store the same weekend as the experiment or in 2–4 weeks) and varied the amount of effort required to redeem the rebate (i.e., either a 20-mile or 10-mile drive to the store).⁵⁶ When the redemption effort had to be expended the same weekend as the purchase, the amount of redemption effort (i.e., 20-versus 10-mile drive) affected participants' willingness to choose the rebated product.⁵⁷ However, if there was a substantial delay before the redemption effort had to be expended, then the distance to the store did not affect participants' product choices.⁵⁸

Another experiment in a different context confirms that consumers underestimate the future disutility of redemption

52. Yaacov Trope and Nira Liverman, *Temporal Construal and Time-Dependent Changes in Preference*, 79(6) *J. PERSONALITY & SOC. PSYCHOL.* 876, 877–78 (2000).

53. Soman, *supra* note 44, at 429.

54. *Id.* at 432–33.

55. *Id.*

56. *Id.* at 433.

57. *Id.* at 433–34.

58. *Id.*

effort.⁵⁹ As discussed above, in that experiment, participants completed a short survey for a dollar. After completing the questionnaire, participants could choose to forego the dollar and receive greater compensation in exchange for completing and returning a longer questionnaire in a few weeks.⁶⁰ The experiment varied the length of the second questionnaire (i.e., the effort required to collect the greater compensation).⁶¹ The second questionnaire's length did not affect participants' willingness to give up the dollar for the second questionnaire,⁶² but it had a large effect on whether people later completed the second questionnaire.⁶³

In summary, some consumers fail to redeem rebates because they change their minds regarding whether the rebate award is worth the redemption effort. This occurs because they anticipate more utility from the rebate award and less disutility from the redemption effort when making purchase decisions than they do when making redemption decisions.⁶⁴

2. *Consumers Procrastinate, Forget About the Rebate, or Lose Redemption Materials*

Although some rebates are not redeemed because consumers change their minds, others are not redeemed because consumers procrastinate, forget about the rebate, or lose required redemption materials. The time delay between the product purchase and rebate redemption is responsible for these phenomena as well. Akerlof attributes procrastination to temporal differences in the salience of costs.⁶⁵ Because the effort (i.e., cost) of completing a task in the present is more salient than the cost of completing it in the future, people postpone the task until a future day

59. *Id.* at 430.

60. *Id.*

61. *Id.* at 430.

62. *Id.*

63. *Id.* at 430–31 & fig.1.

64. Further evidence of this comes from the movie ticket experiment discussed above. Silk, *supra* note 40. Of participants who chose the rebated ticket offer yet later failed to redeem it, 8.3% stated that they failed to redeem the rebate because they “decided the money saved was not worth the effort required,” and another 12.5% stated that they started the redemption process but gave up because “it was too much work.” *Id.* at 60 tbl.2.

65. George A. Akerlof, *Procrastination and Obedience*, 81 AM. ECON. REV. 1, 3–4 (1991).

without foreseeing that, when that future day arrives, they will postpone the task again for the same reason. Because rebate redemption effort occurs after the product purchase, mail-in rebates automatically start consumers down this procrastination road.⁶⁶

The delay between product purchase and rebate redemption also causes some consumers to forget to redeem the rebate. Research has shown that “[d]elays or intervening activities that separate formation of an intention and the opportunity to act on the intention are likely to foster forgetting.”⁶⁷ Procrastination and forgetting are intertwined; the longer consumers procrastinate, the more likely they are to forget to redeem the rebate. In the movie ticket experiment, about half of participants who said they forgot to redeem the rebate stated that they had procrastinated before eventually forgetting.⁶⁸ In addition, the longer that consumers procrastinate, the longer they have to misplace or accidentally dispose of necessary rebate redemption materials, such as their receipt or UPC code.

C. Why Don't Consumers Anticipate that They Will Fail to Redeem Rebates?

Procrastinating, forgetting, losing things, and misestimating utility from future rewards and effort are not unique to mail-in rebates—people experience them in other parts of their lives as well. Given that people fall prey to these phenomena frequently and thus often experience the resulting negative consequences, why do they not learn from their past behaviors?

The optimism bias provides a simple and powerful explanation for consumers' failure to anticipate that they will fail to redeem a rebate. People are overoptimistic in a wide variety of contexts, from underestimating the probability of getting fired or divorced to overestimating the probability of outliving one's peers.⁶⁹ Overoptimism appears to persist even

66. Indeed, 47% percent of the participants in the movie ticket experiment who failed to redeem the rebate stated that they had procrastinated until the deadline for redeeming the rebate had passed. Silk, *supra* note 40, 60 tbl.2.

67. Silk & Janiszewski, *supra* note 2, at 17.

68. *Id.* In total, 13% of the movie ticket experiment participants who failed to redeem the rebate stated that they forgot to do so. Silk, *supra* note 40, at 60 tbl.2.

69. Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 810 tbl.1 (1980). See also Manju Puri &

after past failures.⁷⁰

In some contexts, being overly optimistic is beneficial. Optimism creates the illusion that people have more control over outcomes than they actually do, which gives them confidence they can achieve their goals.⁷¹ Studies have found, for example, that optimistic people are more likely to eat healthy food, exercise, and save for the future.⁷²

In other contexts, however, overoptimism leads to negative consequences.⁷³ A recent experiment provides evidence of the negative consequences of overoptimism regarding rebate redemption. In that study, consumers chose between a rebated product and a non-rebated product in a context where those who failed to redeem the rebate would have saved money by choosing the non-rebated product.⁷⁴ Participants who chose the rebated product estimated a 94% probability that they would redeem the rebate, but only 69% actually redeemed it.⁷⁵

Another recent paper offers an explanation for consumers' overoptimism about future rebate redemption. In that study, consumers were asked either to list reasons they might or might not redeem a rebate on a desired product.⁷⁶ Listing reasons for successful redemption did not affect consumers' beliefs about the likelihood they would redeem the rebate.⁷⁷ In contrast, consumers who were told to list reasons why they might *not* redeem the rebate estimated a

David T. Robinson, *Optimism and Economic Choice*, 86 J. FIN. ECON. 71, 79 (2007).

70. Roger Buehler, Dale Griffin & Michael Ross, *Exploring the "Planning Fallacy": Why People Underestimate Their Task Completion Times*, 67(3) J. PERSONALITY & SOC. PSYCHOL. 366, 379 (1994); Cade Massey, Joseph P. Simmons & David A. Armor, *Hope Over Experience: Desirability and the Persistence of Optimism*, 22(2) PSYCHOL. SCI. 274, 277 (2011).

71. Shelley E. Taylor & Jonathon D. Brown, *Illusion and Well-being: A Social Psychological Perspective on Mental Health*, 103 PSYCHOLOGICAL BULLETIN 193, 199 (1988).

72. Charles S. Carver, Michael F. Scheier & Suzanne C. Segerstrom, *Optimism*, 30 CLINICAL PSYCHOL. REV. 879, 883–85 (2010). See also Puri & Robinson, *supra* note 69, at 89.

73. See, e.g., Amanda J. Dillard, Amanda M. Midboe & William M. P. Klein, *The Dark Side of Optimism: Unrealistic Optimism about Problems with Alcohol Predicts Subsequent Negative Event Experiences*, 35 PERSONALITY & SOC. PSYCHOL. BULL. 1540, 1547 (2009).

74. Silk, *supra* note 40, at 23–25.

75. *Id.* at 25.

76. John T. Gourville & Dilip Soman, *The Consumer Psychology of Mail-in Rebates*, 20 J. PRODUCT & BRAND MGMT. 147, 149 (2011).

77. *Id.*

significantly lower likelihood of rebate redemption.⁷⁸ These results suggest that when consumers wish to purchase a rebated product, they naturally generate scenarios in their minds in which they will redeem the rebate, rather than scenarios in which they won't do so.⁷⁹ These positive scenarios, in turn, lead to overoptimism about the likelihood of redeeming.

In summary, consumers appear to be overly optimistic about the likelihood they will redeem rebates. This overoptimism, which appears to be the result of consumers' tendency to focus too much on positive redemption scenarios, harms consumers by causing poor purchase decisions. These prior studies suggest one possible way to improve rebate-related purchase decisions might be to provide disclosures that reduce consumers' overoptimism by informing them about this general tendency toward overoptimism. In the following section, we discuss this type of disclosure-based solution, as well as other possible regulatory approaches to reducing the number of rebate-induced purchasers who subsequently fail to redeem their rebates.

II. POSSIBLE REGULATORY SOLUTIONS

Several types of regulatory actions have been proposed to reduce the number of rebate-induced purchasers who fail to redeem their rebates (i.e., breakage). These potential solutions vary in the extent to which they restrict consumer behavior. They range from highly restrictive (e.g., prohibiting mail-in rebates) to moderately restrictive (e.g., prohibiting certain rebate terms) to nonrestrictive (e.g., mandating disclosures in rebate advertisements). We discuss each category of solutions, with a special focus on the potential effects of nonrestrictive, disclosure-based solutions.

A. *Prohibiting Mail-In Rebates*

An extreme approach to addressing breakage is to prohibit mail-in rebate offers altogether. In other words, regulators could mandate that any price discounts must be given at the time of purchase, or at least not be contingent on future consumer effort. Lawmakers in Massachusetts, New Hampshire, and Delaware have introduced legislation

⁷⁸ *Id.*

⁷⁹ *Id.* at 150.

banning mail-in rebates, although thus far, none of these bills have become law.⁸⁰ Such legislation likely has failed to gain support because it would have some negative consequences. For instance, prohibiting mail-in rebates harms savvy consumers who do save money by redeeming rebates, interferes with consumer autonomy by limiting consumer choice,⁸¹ and eliminates a method of potentially efficient price discrimination.⁸²

B. Mandating or Prohibiting Rebate Terms

Mandating rebate terms that increase redemption rates and prohibiting rebate terms that decrease redemption rates are less extreme regulatory interventions. Redemption processes vary depending on the rebate offeror. However, some are quite onerous and could be streamlined to make the process easier for consumers.⁸³ For example, the redemption process would be less onerous if UPC codes, or any other portion of the product packaging required for redemption, were easy to find and remove and if consumers had easy access to redemption forms throughout the redemption period. It is difficult to mandate product packaging due to the wide variety of products that offer rebates, but New York and Maine have passed laws requiring easier access to redemption forms.⁸⁴ However, existing empirical evidence on how ease of redemption affects breakage is mixed,⁸⁵ suggesting a need for further research on the effectiveness of interventions related to the redemption process.

One rebate feature that has been clearly demonstrated to affect redemption rates is the length of the redemption period (i.e., the amount of time consumers have to submit the rebate

80. H.B. 3670 (Ma. 2005) (prohibiting mail-in rebates); H.B. 167 (N.H. 2005) (prohibiting mail-in rebates); H.B. 389 (De. 1994) (prohibiting mail-in-rebates under \$100). For a summary of rebate-related legislation, see Pechmann & Silk, *supra* note 3.

81. Thaler & Sunstein, *supra* note 5, at 5–6, 11 (arguing that paternalistic interventions that preserve people's freedom of choice are superior to those that restrict choice).

82. Chen, Moorthy & Zhang, *supra* note 27, at 1131.

83. Pechmann & Silk, *supra* note 3.

84. ME. REV. STAT. tit. 10, § 1232 (2005); N.Y. GEN. BUS. LAW § 391-q (2006).

85. Soman, *supra* note 44, at 430–31 & fig.1 (experiment results suggesting that increasing required redemption effort increases breakage); Silk, *supra* note 26, at 32, 34 fig.6. (experiment results finding that increasing required redemption effort decreases breakage).

materials). Specifically, prior studies suggest that redemption rates decrease with longer redemption periods, probably because consumers are more likely to procrastinate, lose redemption materials, or forget.⁸⁶ Thus less breakage should occur if regulations specified maximum redemption periods. Though shorter redemption periods would likely reduce overall breakage, some individual consumers who would have redeemed within a longer redemption period might be unable to redeem in a shorter redemption period. Further, mandating short maximum redemption periods would probably be met with resistance from both consumers and policymakers because the idea that consumers benefit from a shorter redemption period is counterintuitive.⁸⁷ In fact, in a misguided effort to protect consumers, some states have mandated minimum, rather than maximum, redemption periods.⁸⁸

C. Mandating Rebate Disclosures

Though prohibiting mail-in rebates would eliminate breakage and mandating less onerous rebate terms might reduce breakage, those restrictive approaches also have significant downsides. A less restrictive regulatory approach to breakage is mandating disclosures in rebate offers. Several prominent academics have argued that disclosure-based interventions that inform consumers about actual rebate redemption rates might improve purchase decisions without restricting consumer choice.⁸⁹ However, others argue that a mandatory disclosure “should be considered only if experiments demonstrate that it will give rise to net long-

86. REBATE BENCHMARKING STUDY, *supra* note 1 (finding that rebates with shorter redemption deadlines exhibit higher redemption rates). *See also*, Silk, *supra* note 26, at 31–32, 34 fig.6 (experiment finding that a 1-day redemption deadline results in more consumers applying for their rebate than does either a 7-day or 21-day redemption deadline).

87. This idea is counterintuitive even to industry members. A survey of PMA members found that only 2.7% believe that longer redemption periods cause lower redemption rates. REBATE BENCHMARKING STUDY, *supra* note 1. In addition, the survey found a “strong consensus that . . . giving consumers more time to redeem increases redemption rates.” *Id.*

88. *See, e.g.*, N.Y. GEN. BUS. LAW § 391-q(3) (2005) (New York law requiring consumers to have at least 14 days after purchase to submit rebate redemption materials); N.C. GEN. STAT. § 75-40 (2007) (North Carolina law requiring consumers to have at least 30 days after purchase to submit rebate redemption materials).

89. *See supra* note 4.

term benefits.”⁹⁰ This Article reports the results of our experiment that examines the effectiveness of a redemption rate disclosure, as well as the effectiveness of a more direct disclosure about overoptimism.⁹¹ However, before discussing these two disclosures and the reasons they might or might not be effective, we review prior studies that have investigated other disclosure-based solutions to breakage.

1. *Prior Literature on Disclosure-Based Approaches*

Most advertisements for rebated products emphasize the product’s after-rebate price.⁹² Other advertisements are more extreme, either omitting the before-rebate price entirely or failing to clearly state that the advertised savings is contingent on redeeming a mail-in rebate.⁹³ Lawmakers in several states have passed laws that mandate how before- and after-rebate prices must be disclosed in advertisements. For example, California requires advertisements to prominently disclose the before-rebate price, the rebate amount, and the after-rebate price, and Connecticut prohibits advertising an after-rebate price at all.⁹⁴ No prior research has explicitly examined the effects of California’s policy, but research in related areas suggests that requiring firms to emphasize the before-rebate price might backfire because this type of disclosure highlights a high reference price that consumers believe they will not end up paying.⁹⁵ Connecticut’s policy might be more effective. A recent study shows that advertisements that disclose the before-rebate price, the rebate amount, and the after-rebate price induce more purchases than do advertisements that do not explicitly disclose the after-rebate price.⁹⁶

Another study examined the effects of disclosures that describe the redemption process and found that such disclosures are somewhat effective in reducing consumers’

90. Green & Armstrong, *supra* note 11, at 302.

91. *See infra* Part III.

92. Hyeong M. Kim, *Consumers’ Responses to Price Presentation Formats in Rebate Advertisements*, 82(4) J. RETAILING 309, 310 (2006).

93. *Id.* *See also* Pechmann & Silk, *supra* note 3.

94. Pechmann & Silk, *supra* note 3.

95. *Id.*

96. Sridar Moorthy & Dilip Soman, *On the Marketing of Rebates: Having Your Cake and Eating It Too?* 20 (2005) (unpublished manuscript) (on file with authors).

tendency to purchase rebated products.⁹⁷ Specifically, in an experiment, consumers chose between a rebated product and a non-rebated product, both before and after reading a disclosure that listed five key steps in rebate redemption.⁹⁸ This redemption process disclosure caused approximately 20% of consumers who initially chose the rebated product to change their minds and choose the non-rebated product instead.⁹⁹

Taken together, these studies suggest that rebate-related disclosures might be a viable method for reducing breakage. Prohibiting after-rebate price disclosures and requiring redemption process disclosures are likely successful interventions because they address some of the underlying causes of consumers' failure to redeem rebates. For example, the redemption process disclosure addresses consumers' tendency to underweight future effort by getting consumers to think carefully about future redemption effort at the time of purchase (i.e., making the construal of the future effort less abstract).

In our experiment, we investigate the effectiveness of two disclosure-based solutions that attack a root cause of breakage: consumers' overoptimism about the likelihood of redeeming mail-in rebates.¹⁰⁰ One disclosure informs consumers about low historical redemption rates.¹⁰¹ The other disclosure is even more direct, warning that consumers often overestimate the probability of redemption and listing common reasons for redemption failures.¹⁰² In the remainder of this section, we discuss why these disclosures might or might not be effective in reducing consumers' overoptimism and willingness to purchase rebated products.

2. Redemption Rate Disclosure

Mandatory disclosure of redemption rates in advertisements for rebated products might curb consumers' overoptimism about redemption for at least two reasons.

97. Joel B. Cohen, Julia Belyavsky & Tim Silk (2008), *Using Visualization to Alter the Balance Between Desirability and Feasibility During Choice*, 18 J. CONSUMER PSYCHOL. 270, 272–74 (2008).

98. *Id.* at 272.

99. *Id.* at 273–74.

100. *See infra* Part III.

101. *See infra* Part III.B.

102. *Id.*

First, the redemption rates might be lower than consumers presume, so this information might cause consumers to realize that they too are unlikely to redeem. Second, even if consumers are already aware of low redemption rates, the disclosures might focus consumers' attention on those rates and provide a low anchor for consumers' estimates of their own probability of redemption.¹⁰³

Little research has examined the impact of disclosures that inform consumers about average consumer behaviors. However, a recent study in a different domain suggests these disclosures might be effective. In that study, payday loan borrowers were provided with a disclosure about the surprisingly long period of time that it takes the typical borrower to repay a payday loan. Specifically, the disclosure stated that “[o]ut of 10 typical people taking out a new payday loan. . . 2½ people will pay it back without renewing, 2 people will renew 1 or 2 times, 1½ people will renew 3 or 4 times, 4 people will renew 5 or more times.”¹⁰⁴ This disclosure reduced the amount borrowed by 17%.¹⁰⁵

Though the results of that study are encouraging, the effectiveness of redemption rate disclosures is not a foregone conclusion. There are several reasons why redemption rate disclosures might fail to temper consumers' optimism. First, consumers might fail to read the disclosures. Second, even if consumers read them, the disclosures might fail to provide consumers with new information.¹⁰⁶ Third, even if the disclosures provide new information, consumers might believe that information about average consumer behavior tells them little about their own future behavior. Indeed, studies in

103. Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1128 (1974).

104. Marianne Bertrand & Adair Morse, *Information Disclosure, Cognitive Biases and Payday Borrowing*, 66 J. FIN. 1865, 1872–73 (2011).

105. *Id.* at 1881–84.

106. The payday loan study found that people underestimated the average time it takes borrowers to repay a payday loan. *Id.* at 1878–79. In contrast, the movie ticket experiment described earlier suggests that consumers might overestimate only their own likelihood of redeeming a rebate, not average redemption rates. There was significant overoptimism in participants' estimates of their own probability of redemption. On average, participants who chose the rebated tickets estimated a 94% probability that they themselves would redeem the rebate, yet only 69% of them actually later redeemed it. Silk, *supra* note 40, at 25. However, participants who chose the rebated tickets also estimated that only 54% of participants who chose the rebate offer would redeem the rebate, suggesting that they are already aware of low average redemption rates. *Id.*

other domains find that people tend to underutilize general base rate information (e.g., information about typical outcomes and behaviors) when predicting their own outcomes and behaviors.¹⁰⁷

Thus far, we have outlined why redemption rate disclosures might or might not be effective in reducing consumers' overoptimism and willingness to purchase rebated products. However, prior research suggests a third possibility as well: redemption rate disclosures could boomerang and *increase* consumers' desire to purchase rebated products.¹⁰⁸ Some warning disclosures, especially those issued by authoritative sources, appear to backfire and increase the very behaviors they are meant to discourage. For example, studies show that warning labels can increase, rather than decrease, drinking and driving,¹⁰⁹ interest in violent films and television programs,¹¹⁰ and desire to eat high-fat foods.¹¹¹

Most studies explain these boomerang effects using Brehm's¹¹² theory of psychological reactance.¹¹³ "Reactance" is a motivational state that occurs when a consumer feels that his or her freedom of choice is threatened.¹¹⁴ Consumers respond negatively to perceived threats to their freedom of choice and, as a result, can become more attracted to the threatened attitudes, beliefs, or behaviors.¹¹⁵ In our experiment, participants might feel that the disclosure is pressuring them to change their beliefs about the likelihood of rebate redemption and/or the desirability of the rebated

107. Daniel Kahneman and Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 *MGMT. SCI.* 17, 26 (1993); Yechiel Klar, Avita Medding & Dan Sarel, *Nonunique Invulnerability: Singular versus Distributional Probabilities and Unrealistic Optimism in Comparative Risk Judgments*, 67 *ORG. BEHAV. & HUM. DECISION PROCESSES* 229, 229 (1996); Heather C. Lench & Peter H. Ditto, *Automatic Optimism: Biased Use of Base Rate Information for Positive and Negative Events*, 44 *J. EXPERIMENTAL SOC. PSYCHOL.* 631, 634 (2008).

108. Stewart & Martin, *supra* note 9, at 3.

109. Ringold, *supra* note 12, at 37–39.

110. Brad J. Bushman & Angela D. Stack, *Forbidden Fruit versus Tainted Fruit: Effects of Warning Labels on Attraction to Television Violence*, 2 *J. EXPERIMENTAL PSYCHOL.: APPLIED* 207, 214–15 (1996).

111. Brad J. Bushman, *Effects of Warning and Information Labels on Consumption of Full-Fat, Reduced-Fat, and No-Fat Products*, 83(1) *J. APPLIED PSYCHOL.* 97, 99–100 (1998).

112. JACK W. BREHM, *A THEORY OF PSYCHOLOGICAL REACTANCE* (1966).

113. Ringold, *supra* note 12, at 42–43.

114. Mona A. Clee & Robert A. Wicklund, *Consumer Behavior and Psychological Reactance*, 6 *J. CONSUMER RES.* 389, 389 (1980).

115. *Id.* at 391–93.

product. If so, the disclosure could backfire and ultimately increase consumers' desire to purchase the rebated product.

3. *Overoptimism Disclosure*

Scholars have focused on redemption rate disclosures as a way to reduce consumers' suboptimal purchase decisions induced by mail-in rebates.¹¹⁶ As discussed above, there is some support for the idea that a redemption rate disclosure will temper consumers' optimism about the likelihood of rebate redemption,¹¹⁷ but there are also reasons to believe that such a disclosure might be ineffective or even harmful.¹¹⁸ Thus, we also test the effectiveness of a stronger disclosure that directly informs consumers that, "people often overestimate the probability that they will redeem a mail-in rebate because they fail to anticipate that they will forget, procrastinate, lose the necessary materials, or later decide it is not worth the effort."

The process underlying optimism is neurologically-based,¹¹⁹ which makes it particularly hard to change.¹²⁰ However, prior research in psychology suggests that one way to combat overoptimism is to ask people to list "counterfactuals" (i.e., reasons that they might not be successful).¹²¹ A recent experiment demonstrates the effectiveness of this technique in the rebate realm—consumers who were asked to list reasons why they might not redeem a mail-in rebate were significantly less likely to want to purchase the rebated product.¹²² Though it is unrealistic to

116. See *supra* note 4.

117. Bertrand & Morse, *supra* note 104, at 1881–84.

118. Ben-Shahar & Schneider, *supra* note 11, at 665–79; Green & Armstrong, *supra* note 11, at 302; Mercer, Palmiter & Taha, *supra* note 11, at 429; Ringold, *supra* note 12, at 51–52.

119. Tali Sharot, Alison M. Riccardi, Candace M. Raio & Elizabeth A. Phelps, *Neural Mechanisms Mediating Optimism Bias*, NATURE, November 1, 2007, at 102, 103.

120. Hal R. Arkes, *Cost and Benefits of Judgment Errors: Implications for Debiasing*, 110 PSYCHOL. BULL. 486, 493 (1991) (doubting that warning people about an unconscious cognitive bias would be an effective debiasing technique because "[i]t would be difficult for subjects to abort a cognitive process that occurs outside of their awareness.").

121. Asher Koriat, Sarah Lichtenstein and Baruch Fischhoff, *Reasons for Confidence*, 6(2) J. EXPERIMENTAL PSYCHOL.: HUM. LEARNING & MEMORY 107, 111 (1980); Stephen J. Hoch, *Counterfactual Reasoning and Accuracy in Predicting Personal Events*, 11(4) J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION 719, 725 (1985).

122. Gourville & Soman, *supra* note 76, at 149.

mandate that consumers write such a list prior to purchasing a rebated product, lawmakers could mandate disclosures that *provide* counterfactuals to consumers. Thus, our study tests the effectiveness of a stronger disclosure listing the reasons consumers fail to redeem rebates.

Although this disclosure relies on a mechanism that has successfully reduced overoptimism in other domains, it suffers from some of the same limitations as disclosing redemption rates: consumers may fail to read the disclosure, and, even if they do read it, they may believe that the reasons other consumers fail to redeem rebates do not apply to themselves. In other words, consumers may be overly optimistic about whether they are overly optimistic. Further, like the redemption rate disclosure, this disclosure could result in psychological reactance and a resulting increase in consumers' desire to purchase the rebated product. In fact, to the extent that consumers perceive the overoptimism disclosure as a warning, rather than an informational disclosure, this disclosure might be even more likely to backfire than is the redemption rate disclosure.¹²³

In summary, prior studies suggest that redemption rate and overoptimism disclosures could decrease, increase, or have no effect on consumers' overoptimism and willingness to purchase rebated products. This uncertainty regarding the benefits of such disclosures indicates that empirical evidence on their effectiveness is necessary.¹²⁴ In the following section, we describe our experiment, which provides such evidence.

III. THE EXPERIMENT: TESTING REBATE DISCLOSURES

A. *Participants*

Five hundred forty-nine U.S. citizens recruited by Toluna USA, a market research firm, participated in the experiment.¹²⁵ Participants appeared to be familiar with and influenced by rebate offers. Eighty-two percent of them reported having previously seen an advertisement for a product offering a mail-in rebate. Ninety-one percent had purchased a product offering a mail-in rebate before, and 73% of those stated that a rebate offer influenced their most recent

123. Bushman & Stack, *supra* note 110, at 223.

124. Green & Armstrong, *supra* note 11, at 302.

125. TOLUNA, <http://www.toluna-group.com> (last visited Feb. 18, 2015).

purchase of a rebated product.

Demographic information for the study participants, as well as comparison data for the general U.S. adult population, is provided in Table 1. The table shows that the participants are a diverse group, ranging in age from 18–88, with a variety of racial/ethnic backgrounds and education and income levels. Our participants are fairly representative of the general U.S. population, although the sample includes a higher proportion of females, a lower proportion of racial/ethnic minorities, a slightly lower median household income, and is slightly older and better educated than the general population.

TABLE 1
Demographic Data on Experimental Participants

	Experimental Participants	U.S. Adult Population^a
Gender		
Male	34%	48%
Female	66%	52%
Age		
18 to 39 years old	27%	37%
40 to 59 years old	47%	38%
60 to 79 years old	25%	20%
80 or older	1%	5%
Race/Ethnicity		
African American (Non-Hispanic)	9%	12%
Asian	4%	5%
White (Non-Hispanic)	81%	65%
Hispanic or Latino	4%	16%
Native American	1%	< 1%
Other	1%	1-2%
Highest Education Level Achieved		
No high school degree	2%	13%
High school degree	24%	31%
Some college	30%	17%
College degree	28%	28%
Some graduate school	5%	n/a

Graduate degree	11%	11%
<hr/>		
Household Income		
Less than \$25,000	23%	25%
Between \$25,000 and \$49,999	32%	25%
Between \$50,000 and \$74,999	19%	18%
Between \$75,000 and \$99,999	8%	12%
\$100,000 or more	10%	20%
Prefer not to answer	8%	n/a
<hr/>		

^a Data for U.S. Adult Population from the U.S. Census website (<http://www.census.gov/>). Gender, age, and race/ethnicity are based on 2010 census data, and education level and household income are based on 2009 census data. We were not able to find race/ethnicity data stratified by age, so the data for race/ethnicity includes children as well as adults. U.S. population growth is lower for White (Non-Hispanic) than for some other racial categories, so eliminating children would likely result in a higher percentage of people in the White (Non-Hispanic) category.

A logistic regression with the five demographic variables as independent variables and product choice as the dependent variable finds that only Race/Ethnicity is a significant predictor of participants' product choice ($\chi^2 = 5.32$, $p = 0.02$). When we run a full-factorial logistic regression with the Race/Ethnicity variable and our two manipulated variables (the rebate disclosures) as independent variables and product choice as the dependent variable, we find that Race/Ethnicity does not interact with either of our manipulated variables (all $p > 0.10$). This suggests that, although Race/Ethnicity affects the general propensity to choose the rebated product (perhaps due to different brand loyalties), it does not affect how participants respond to rebate disclosures.

B. Experimental Design and Procedures

Toluna USA administered the experiment online and compensated participants with points that could later be converted into prizes. Participants began by viewing an advertisement for two portable DVD players: a Panasonic DVD player and a Sony DVD player (see Figure 1).¹²⁶ The

126. To prevent order effects, we randomized the order that the two DVD players appeared in the advertisement and the order of the response possibilities for the choice dependent measure.

Panasonic DVD player was priced at \$169.99. The Sony was priced at \$179.99 with a \$40 mail-in rebate, for an after-rebate price of \$139.99. We wanted most participants to prefer the Panasonic in the absence of a mail-in rebate offer on the Sony; this allowed the rebate to induce an increase in the percentage of people who chose the Sony. Consequently, we set the product features so that the Panasonic DVD player was slightly better than the Sony (e.g., 8-hour battery for the Panasonic versus 7-hour battery for the Sony).

FIGURE 1

Sample Advertisements from Experimental Materials

Panasonic

9-Inch-Screen Portable DVD Player

- Model # DVD-LS86
- Multi Format playback: DVD, DivX, DVD-RAM, DVD-R, DVD-RW, CD, CD-R, CD-RW, JPEG, MPEG4
- 8-hour rechargeable battery
- 2 Headphone Terminals
- Dimensions: 9.5 x 7.2 x 2.1 inches ; 2 pounds
- Average Customer Review: 4.3 out of 5 stars



only \$169.99

Limited to Quantities on Hand. No Substitutions. No Rainchecks on this item.

SONY

9-Inch-Screen Portable DVD Player

- Model # DVP-FX930
- 7-hour rechargeable battery
- Multiple format disc playback
- Dual sensors for enhanced remote control use
- Dimensions: 8.9 x 6.5 x 1.8 inches ; 2 pounds
- Average Customer Review: 4.2 out of 5 stars



\$179.99 - \$40.00 = \$139.99

In-Store Price
Mail-In Rebate*
After-Rebate Price

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* Studies show that people often overestimate the probability that they will redeem a mail-in rebate because they fail to anticipate that they will forget, procrastinate, lose the necessary materials, or later decide it is not worth the effort. Our sales records show rebate redemption rates of approximately 30% for rebates of this type and size.

Figure 1 shows the advertisements viewed by experimental participants. The Panasonic advertisement did not vary across experimental conditions. The disclosure(s) at the bottom of the Sony advertisement varied across conditions. The above Sony advertisement is from the Yes Redemption Rate Disclosure / Yes Overoptimism Disclosure condition.

After reviewing the advertisement, participants indicated which DVD player they would be more likely to purchase. Participants also answered two questions that capture their optimism about rebate redemption. Specifically, we follow Weinstein's seminal paper, which measured optimism as the difference between a person's perceptions of their own and

others' chances of experiencing an event.¹²⁷ We therefore asked participants to assess: (a) the probability that *they themselves* would redeem the rebate and (b) the probability that *others* who purchased the rebated product would redeem the rebate. Finally, participants answered a number of demographic and manipulation check questions.

1. *Experimental Conditions*

The experiment has a 2×2 design: we manipulated whether consumers received a Redemption Rate Disclosure (Yes, No) and an Overoptimism Disclosure (Yes, No). In other words, there were four experimental conditions. The advertisement in the Yes Redemption Rate Disclosure/No Overoptimism Disclosure condition contained only the redemption rate disclosure. The advertisement in the No Redemption Rate Disclosure/Yes Overoptimism Disclosure condition contained only the overoptimism disclosure. The advertisement in the Yes Redemption Rate Disclosure/Yes Overoptimism Disclosure condition contained both disclosures, and the advertisement in the No Redemption Rate Disclosure/No Overoptimism Disclosure condition contained neither disclosure.

In the Yes Redemption Rate Disclosure conditions, the advertisement contained a disclosure stating, “[o]ur sales records show rebate redemption rates of approximately 30% for rebates of this type and size.” We chose a 30% redemption rate because it should be low enough to reduce rebate-induced purchases if participants believe the 30% base rate applies to them¹²⁸ and it is high enough to be believable.¹²⁹ Advertisements in the Yes Overoptimism Disclosure conditions contained the disclosure “[s]tudies show that people often overestimate the probability that they will redeem a mail-in rebate because they fail to anticipate that they will

127. Weinstein, *supra* note 69, at 809.

128. For participants who believed that they had only a 30% chance of redeeming the rebate, the expected cost of the rebated Sony DVD player to them would be \$167.99 (i.e., the \$179.99 before-rebate price minus 30% multiplied by the \$40 rebate). Because the Panasonic DVD player has slightly better features, costs almost the same (\$169.99), and doesn't require redeeming a rebate, we anticipated that most such participants would buy the Panasonic instead.

129. Silk & Janiszewski, *supra* note 2, at 5 (promotion managers report rebate redemption rates of about 40% on consumer electronics and between 10%–30% on \$10–\$20 rebates on \$100 software).

forget, procrastinate, lose the necessary materials, or later decide it is not worth the effort.”

2. Control Conditions

In addition to the four experimental conditions, there were three control conditions. In the Full Price control condition, the Sony DVD player did not offer a rebate; it merely had a price of \$179.99. Because the Panasonic had slightly better features and a price of \$169.99, we expected most participants in the Full Price condition to prefer the Panasonic. Indeed, only 25% of participants in the Full Price condition chose the Sony DVD player over the Panasonic. This number provides an important baseline: if more than 25% of participants chose the Sony in any of the four rebate conditions, this suggests that the rebate offer influenced product choice in that condition.

In the second control condition, the Sale Price condition, the Sony product offered an instant savings of \$40 (i.e., a sale), rather than a \$40 mail-in rebate. We expected more participants to prefer the Sony in this condition because, although the Panasonic had slightly better features, the on-sale Sony was \$30 cheaper than the Panasonic. Indeed, 65% of participants in the Sale Price condition chose the Sony. This condition also provides an important baseline. Sixty-five percent of consumers chose the Sony when no effort was required to get the \$40 savings, so if fewer than 65% of participants in any of the rebate conditions choose the Sony, this suggests that the effort associated with rebate redemption influenced consumers' purchase decisions.

The experiment also included one final control condition. If rebate disclosures are ineffective, it is important to know if this is because participants fail to read the disclosures or because they deem the disclosures irrelevant. Thus, the experiment also included a condition where the Sony DVD player offered a rebate, but instead of one of the rebate disclosures, the advertisement contained a non-rebate disclosure that we expected to play a role in consumers' product choice: *“This DVD player has been refurbished by the manufacturer to like-new condition.”* This Refurbished Disclosure had the identical font size, color, and location as the rebate disclosures in the other experimental conditions. If participants did not respond to any of the disclosures, including the Refurbished Disclosure, this would suggest that

participants tend to ignore disclosures at the bottom of advertisements. However, if participants ignored the rebate disclosures but responded negatively to the Refurbished Disclosure, this would suggest that they notice the rebate disclosures but deem them irrelevant.

C. Results

Panel A of Figure 2 displays the percentage of participants who chose the rebated product in each experimental condition. As the figure shows, neither the Redemption Rate Disclosure nor the Overoptimism Disclosure reduced the proportion of consumers who chose the rebated product. Indeed, the disclosures appear to have had the opposite effect. Forty-six percent of experimental participants who received neither disclosure chose the rebated Sony DVD player, compared with 55% who received the Redemption Rate Disclosure, 59% who received the Overoptimism Disclosure, and 72% who received both disclosures.¹³⁰ Panel A of Table 2 reports the results of a logistic regression that formally tests whether these differences are statistically significant. This analysis confirms that both disclosures significantly increased participants' willingness to purchase the rebated product (Redemption Rate Disclosure: $\chi^2 = 3.94$, $p = 0.05$; Overoptimism Disclosure: $\chi^2 = 7.95$, $p < 0.01$).

We next compare the percentage of people who chose the rebated product in the experimental conditions with those in the control conditions. Comparisons with the Full Price control condition, where the Sony DVD player did not have any sales promotion, suggest that the rebate offer increased the product's attractiveness to consumers. Only 25% of consumers in the Full Price condition chose the Sony DVD player, compared to 46% to 72% in the experimental conditions where the Sony DVD player had a \$40 rebate offer (all $p \leq 0.01$).

Comparisons with the Sale Price condition, where the Sony offered a \$40 instant savings instead of a rebate, suggest that consumers are somewhat sensitive to future redemption effort at the time of purchase, but only in the absence of rebate disclosures. Specifically, 65% of

130. Results of a smaller pilot test on 76 undergraduate students showed a similar pattern of results.

participants in the Sale Price condition choose the Sony, compared to 46% in the experimental condition where consumers received no rebate disclosures ($Z = 2.47$, $p = 0.01$). However, in the three experimental conditions where consumers viewed rebate disclosures, consumers were not significantly less likely to purchase the Sony DVD player when the \$40 saving was in the form of a rebate rather than an instant savings (all $p > 0.10$). Thus, any sensitivity consumers have to future redemption effort at the time of purchase appears to be largely offset by the negative boomerang effect of the rebate disclosures.

TABLE 2
Regression Results

**Panel A: Logistic Regression Results for Choice
Dependent Measure**

	<u>df</u>	β	<u>Wald χ^2</u>	<u>p-value</u>
Redemption Rate Disclosure	1	0.46	3.94	0.05
Overoptimism Disclosure	1	0.66	7.95	< 0.01
Redemption Rate Disclosure \times Overopt. Disclosure	1	0.19	0.17	0.68

**Panel B: ANOVA Results for Optimism Dependent
Measure**

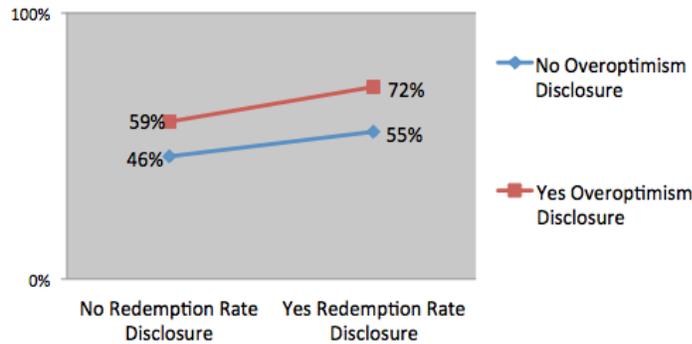
	<u>df</u>	<u>MSE</u>	<u>F-Statistic</u>	<u>p-value</u>
Redemption Rate Disclosure	1	9,706.59	11.60	< 0.01
Overoptimism Disclosure	1	635.90	0.76	0.38
Redemption Rate Disclosure \times Overopt. Disclosure	1	1894.24	2.26	0.13

Panel A of Table 2 reports logistic regression results with the percentage of participants who chose the rebated product as the dependent variable and the presence of the Redemption Rate and Overoptimism Disclosures as categorical independent variables. Panel B reports ANOVA results with participants' Optimism scores as the dependent variable and the presence of the Redemption Rate and Overoptimism Disclosures as independent variables. The Optimism measure was calculated by subtracting each participant's assessment of the probability that others would redeem the rebate from the participant's assessment of the probability that they themselves would redeem the rebate.

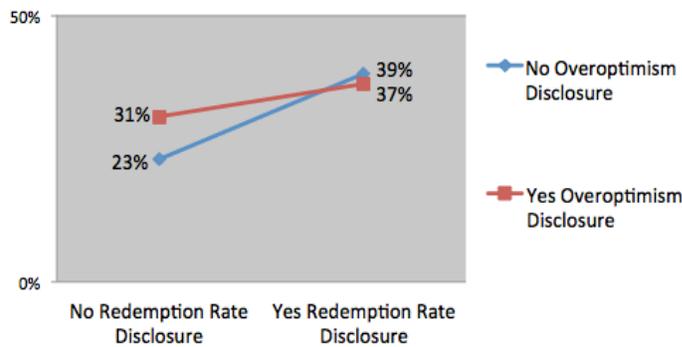
FIGURE 2

Effects of Rebate Disclosure on Product Choice and Optimism

Panel A: Percentage of Participants Who Chose the Rebated Product by Condition



Panel B: Mean Level of Optimism by Condition



Panel A of Figure 2 reports the percentage of participants who chose the rebated product in each experimental condition. Panel B reports the mean level of optimism in each experimental condition. The Optimism measure was calculated by subtracting each participant's assessment of the probability that others would redeem the rebate from the participant's assessment of the probability that they themselves would redeem the rebate.

Our experiment measures participants' assessments of their willingness to purchase products rather than their actual purchase decisions. As such, it is possible that participants did not focus on the experiment and that the rebate disclosures' ineffectiveness is a result of this. However, the fact that the disclosures cause a boomerang effect, rather than no effect, helps rule out this possibility. If participants were not paying attention, the disclosures would have had no effect on their choices. As further evidence, participants responded very negatively to a disclosure with

identical formatting and placement that disclosed that the rebated product was refurbished. Specifically, only 21% of participants in the Refurbished Disclosure control condition chose the Sony player. This result suggests that the absence of similar negative reactions to the rebate disclosures is likely not due to a lack of care or an unwillingness to read disclosures at the bottom of advertisements.

Our theory suggests that breakage results from consumers' overoptimism about future rebate redemption, so we also examine the effects of the rebate disclosures on participants' optimism. We capture participants' optimism by asking them to assess the probability that other consumers who purchased the Sony would redeem the rebate and the probability that they themselves would redeem the rebate if they were to purchase the Sony. We then compute a measure of each participant's optimism by subtracting their assessed probability of others' redemptions from their assessed probability of their own redemption. Panel B of Figure 2 reports the level of optimism across conditions and shows that the rebate disclosures actually increase, rather than decrease, consumer optimism. Specifically, we observe an optimism score of 23% for participants who viewed neither disclosure, 31% for participants who viewed only the Overoptimism Disclosure, 39% for participants who viewed only the Redemption Rate Disclosure, and 37% for participants who viewed both disclosures. An ANOVA, which tests whether these differences are statistically significant, (see Panel B of Table 2) shows that the increase in optimism for those who viewed the Redemption Rate Disclosure is statistically significant ($F = 11.60, p < 0.01$) but the increase for those who viewed the Overoptimism Disclosure is not ($F = 0.76, p > 0.10$). Given these effects on consumer optimism, it is unsurprising that the disclosures increased, rather than decreased, the percentage of consumers who chose the rebated product.

IV. IMPLICATIONS & CONCLUSION

Lawmakers and academics often propose mandatory disclosures as the primary method of consumer protection.¹³¹ Mandatory disclosures are popular because they are generally

131. Ben-Shahar & Schneider, *supra* note 11, at 652, 681–84.

considered to be the cheapest and easiest-to-implement fix.¹³² Further, many lawmakers mistakenly believe that even if disclosure-based solutions do not help, they cannot hurt.¹³³ That is, unlike other regulatory approaches, mandatory disclosures do not restrict consumer behavior because consumers are free to ignore the disclosures. Consequently, many lawmakers assume that such disclosures will have either, (a) a positive effect, if consumers are influenced by the disclosures, or (b) no effect, if consumers are not influenced by the disclosures. Our results provide support for a third alternative—that disclosures can harm consumers—and highlight the potential danger of using mandatory disclosures to improve consumer decision-making.

We examined the effects of two rebate disclosures on the optimism and rebate-related purchase decisions of a large, diverse set of consumers. One disclosure informed consumers about low rebate redemption rates and the other informed consumers about their overoptimism. We found that the both disclosures were not only ineffective, they were harmful: the disclosures generally increased, rather than decreased, consumer optimism and the percentage of consumers who chose the rebated product.

Our study is not the first to demonstrate these types of boomerang effects in response to mandatory disclosures. Prior research suggests that warning disclosures, especially those issued by authoritative sources, sometimes increase undesirable behaviors.¹³⁴ Brehm's reactance theory¹³⁵ is the most common explanation for boomerang effects.¹³⁶ If consumers who are warned not to engage in a behavior believe that their freedom of choice is being threatened, reactance theory predicts that they will respond by becoming more attracted to the threatened alternative.¹³⁷ In our rebate setting, it is perhaps less surprising that the Overoptimism Disclosure, which explicitly warned consumers about the reasons people fail to redeem rebates, caused reactance. However, our Redemption Rate Disclosure was much subtler,

132. Daylian M. Cain, George Loewenstein, & Don A. Moore, *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest*, 34 J. LEGAL STUD. 1, 3 (2005)

133. Ben-Shahar & Schneider, *supra* note 11, at 682.

134. *See supra* notes 109–11 and accompanying text.

135. Brehm, *supra* note 112.

136. Ringold, *supra* note 12, at 42–43.

137. Clee & Wicklund, *supra* note 114, at 391–93.

simply informing consumers about low redemption rates. Despite this, consumers responded almost as negatively to the implicit warning contained in the Redemption Rate Disclosure as they did to the more heavy-handed Overoptimism Disclosure.

Regardless of the reason for the disclosures' perverse effects on consumers' purchase decisions, one thing is clear: these types of disclosures are not a viable solution for policymakers trying to curb consumers' overoptimism about rebate redemption. Further, our results highlight the importance of empirical study of any proposed disclosure before implementation. Prior to our study, there were good reasons to believe that redemption rate disclosures might be an effective way to reduce breakage, and, as such, these disclosures were an oft-proposed solution. Rebate disclosures are likely not the only regulatory solution with subtle unanticipated negative effects, making empirical investigation critical.