

SuperBias: The Collision of Behavioral Economics and Implicit Social Cognition

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*Justin D. Levinson**

Abstract:

The rapid growth of two prominent areas of legal scholarship with social scientific similarities, behavioral law and economics and implicit racial bias, has overshadowed the fact that scholars have largely failed to consider what happens when phenomena from the two areas collide. In particular, commentators have not investigated whether powerful implicit racial stereotypes may trump even well established behavioral economic principles when decision-makers make risk allocation decisions. Without considering and empirically testing whether behavioral economic principles yield to racial stereotypes, legal scholars not only risk embracing an incomplete model of human behavior, but they also risk advocating policies that may actually reinforce people's non-conscious need to maintain social hierarchies.

This Article considers behavioral economic phenomena in light of implicit social cognition research. It argues that human "irrational" behavior systematically yields to racial stereotypes, and employs an empirical study to test this hypothesis. The results of the study are mixed, but in some circumstances confirm the hypothesis that racial stereotypes are powerful enough to alter economic irrationalities, and therefore function as a "SuperBias," a bias so powerful that it modifies even existing biases. Building on these results, the Article proposes the creation of a stereotype competent model of behavioral law and economics.

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* Associate Professor of Law and Director, Culture and Jury Project, University of Hawai'i at Mānoa. The author would like to thank Susan Serrano, Robert J. Smith, Kapua Sproat, and Dina Shek for their input on previous drafts. Danielle K. Young provided data analysis critique and support. Dean Aviam Soifer provided generous summer research support.

INTRODUCTION

Legal scholars have thrived in incorporating the mind sciences into legal theory, particularly on two fronts. Behavioral law and economics,¹ relying in part on the Nobel Prize winning roots of Prospect Theory,² has made great strides in providing a realist critique of Law and Economics.³ Implicit racial bias scholarship, emerging from the field of implicit social cognition, has successfully challenged the law's purported race-neutrality by showing that

¹ Behavioral law and economics is the study of how cognitive biases or limitations predictably affect decision-makers' behavior in ways that cause the behavior to deviate from what is economically beneficial. More broadly, behavioral law and economics may be characterized as part of the broader innovation of considering empirical behavioral evidence in legal scholarship. *See generally* Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000); Avishalom Tor, *The Methodology of the Behavioral Analysis of Law*, 4 HAIFA L. REV. 237 (2008); BEHAVIORAL LAW & ECONOMICS (Cass R. Sunstein, ed., Cambridge University Press 2000); Cass Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115 (1999).

² Prospect theory describes the psychology of decision-making as it relates to value judgments of monetary gains and losses. It arose as a theoretical alternative to the rational choice assumptions underlying law and economics. Prospect theory holds, among other things, that individuals "consider outcomes in terms of gains and losses from some reference point," and that "losses loom larger than gains." PAUL BREST & LINDA HAMILTON KREIGER, PROBLEM SOLVING, DECISION MAKING, AND PROFESSIONAL Judgment 419 (2010). *See* Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979); Daniel Kahneman & Amos Tversky, *On the Psychology of Prediction* 80 PSYCHOL. REV. 237 (1973); Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124 (1974). Kahneman was the recipient of the Nobel Prize in Economic Sciences in 2002. *See Popular Information*, NOBELPRIZE.ORG, http://nobelprize.org/nobel_prizes/economics/laureates/2002/public.html# (last visited, Nov. 15, 2010). *See also* George Loewenstein & Richard H. Thaler, *Anomalies: Intertemporal Choice*, 3 J. ECON. PERSP. 181 (1989); RICHARD E. NISBETT & LEE D. ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT (1980).

³ As Richard Posner describes, "[t]he task of economics ... is to explore the implications of assuming that man is a rational maximizer of his ends in life . . ." RICHARD POSNER, ECONOMIC ANALYSIS OF LAW 3 (6th ed. 2003). Law and economics therefore embraces this assumption and considers the various implications of it. For more on law and economics, *see* HANDBOOK OF LAW AND ECONOMICS, vols. 1-2 (A. Mitchell Polinsky and Steven Shavell-eds., 2007); STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW (2004). Law and economics has had a massive impact on legal scholarship. As one commentator has surmised, "[r]elying on the rational-actor model, the economic approach has been able to reevaluate systematically one legal domain after another." *See* Tor, *supra* note 1, at 240.

people automatically exhibit racially biased attitudes.⁴ The prominence and rapid growth of these two fields of legal scholarship, however, has overshadowed the fact that, despite their social scientific similarities, scholars have largely failed to consider what happens when phenomena from the two areas collide.⁵ In particular, scholars have not investigated whether powerful implicit racial stereotypes may trump even well established behavioral economic principles when decision-makers make risk allocation decisions. Without considering and empirically testing whether behavioral economic principles yield to racial stereotypes, legal scholars not only risk embracing an incomplete model of human behavior, but they also risk advocating policies that may actually reinforce people's non-conscious need to maintain social and racial inequality. The interaction between behavioral economics and implicit social cognition must therefore be explored.

Behavioral economic theory has been embraced as a sophisticated behavioral update to legal decision-making models.⁶ It has introduced an overwhelming array of evidence that, rather than following rational wealth

⁴ Justin D. Levinson, *Forgotten Racial Equality: Implicit Bias, Decisionmaking, and Misremembering*, 57 DUKE L.J. 345, 363 (2007) [hereinafter Levinson, *Forgotten Racial Equality*]; Linda Hamilton Krieger, *The Content of Our Categories: A Cognitive Bias Approach to Discrimination and Equal Employment Opportunity*, 47 STAN. L. REV. 1161 (1995) (introducing the concept of unconscious discrimination to the employment discrimination realm). See also Samuel R. Bagenstos, *Implicit Bias, "Science," and Antidiscrimination Law*, 1 HARV. L. & POL'Y REV. 477 (2007)[hereinafter Bagenstos, "Science," and Antidiscrimination Law]; Jerry Kang & Mahzarin R. Banaji, *Fair Measures: A Behavioral Realist Revision of "Affirmative Action,"* 94 CAL. L. REV. 1063 (2006); Linda Hamilton Krieger & Susan T. Fiske, *Behavioral Realism in Employment Discrimination Law: Implicit Bias and Disparate Treatment*, 94 CAL. L. REV. 997 (2006); Jerry Kang, *Trojan Horses of Race*, 118 HARV. L. REV. 1489, 1497–1539 (2005).

⁵ One social scientist has tested what whether the hindsight bias operates in the context of stereotypes. See Galen V. Bodenhausen, *Second-Guessing the Jury: Stereotypic and Hindsight Biases in Perceptions of Court Cases*, 20 J. APPLIED SOC. PSYCHOL. 1112 (1990). This study is discussed *infra* note 225-227 and accompanying text.

⁶ See Donald Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499 (1998). See also Kent Greenfield, *Using Behavioral Economics to Show the Power and Efficiency of Corporate Law as Regulatory Tool*, 25 U.C. DAVIS L. REV. 581 (2002); Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115 (2003)[hereinafter Guthrie, *Prospect Theory*]; Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630 (1999); Christine Jolls & Cass R. Sunstein, *The Law of Implicit Bias*, 94 CAL. L. REV. 969 (2006); Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998) [hereinafter Korobkin, *Status Quo Bias*].

maximizing principles as homo economicus (or rational wealth maximizers), people make decisions in predictably irrational ways.⁷ A few of the more prominent examples of this legal scholarship include expositions of hindsight bias,⁸ anchoring effect,⁹ and the endowment effect,¹⁰ among others.¹¹ These cognitive biases and heuristics¹² demonstrate that people are quite susceptible to situational influences, including whether outcome information is known (people overestimate the ex-ante likelihood of events occurring)¹³ and whether “anchor” amounts are given (people cannot ignore the effect of the anchor on

⁷ BEHAVIORAL LAW AND ECONOMICS, *supra* note 1; Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115 (2003); Jolls et al., *supra* note 1. Jeffrey J. Rachlinski, *Cognitive Errors, Individual Differences, and Paternalism*, 73 U. CHI. L. REV. 207 (2006)[hereinafter Rachlinski, *Cognitive Errors*]; Sunstein, *supra* note 1; Korobkin & Ulen, *supra* note 1.

⁸ See Rebecca L. Guilbault et al., *A Meta-Analysis of Research on Hindsight Bias*, 26 *Basic and App. Soc. Psych* (2004); Kim A. Kamin & Jeffrey J. Rachlinski, *Ex Post Ex Ante: Determining Liability in Hindsight*, 19 *LAW & HUM. BEHAV.* 89 (1995); Susan J. LaBine & Gary LaBine, *Determinations of Negligence and the Hindsight Bias*, 20 *LAW & HUM. BEHAV.* 501 (1996); Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998)[hereinafter Rachlinski, *Judging in Hindsight*].

⁹ Dan Orr & Chris Guthrie, *Anchoring, Information, Expertise, and Negotiation: New Insights from Meta-Analysis*, 21 *OHIO ST. J. ON DISP. RESOL.* 597 (2006); Jennifer K. Robbennolt & Christina A. Studebaker, *Anchoring in the Courtroom: The Effects of Caps on Punitive Damages*, 23 *LAW & HUM. BEHAV.* 353 (1999).

¹⁰ Jennifer Arlen et al., *Endowment Effects Within Corporate Agency Relationships*, 31 *J. LEGAL STUD.* 1 (2004); Benjamin Cook, *Methods in Its Madness: The Endowment Effect in an Analysis of Refugee Burden-Sharing and Proposed Refugee Market*, 19 *GEO. IMMIGR. L.J.* 333 (2004); Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227 (2003) [hereinafter Korobkin, *Endowment Effect*]; James Robert Ward III, *The Endowment Effect and the Empirical Case for Changing the Default Employment Contract from Termination "At-Will" to "For-Cause" Discharge*, 28 *LAW & PSYCHOL. REV.* 205 (2004).

¹¹ Other phenomena include framing effects, affect heuristic, representativeness heuristic, status quo bias, and more. See, e.g. Chris Guthrie, *Framing Frivolous Litigation: A Psychological Theory*, 67 U. CHI. L. REV., 163 (2000); Guthrie, *Prospect Theory*, *supra* note 6; Korobkin, *Status Quo Bias*, *supra* note 6; Jolls & Sunstein, *supra* note 6; Langevoort, *supra* note 6; E. J. McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 *VA. L. REV.* 1341 (1995).

¹² Cognitive biases are distortions and errors in decision-making. Heuristics are essentially cognitive short-cuts. See LEE ROSS & RICHARD NISBETT, *HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT* (1980); Jolls & Sunstein, *supra* note 6.

¹³ Baruch Fischhoff, *Hindsight [not =] Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty*, 1 *J. EXP. PSYCHOL.* 288 (1975) (first describing the effect).

their economic calculation).¹⁴ Each of these deviations from rationality has implications for legal theory designed to predict and shape human behavior, and scholars have celebrated the building of a more accurate model of decision-making.¹⁵

But what if this model, despite its improvement on the law and economics paradigm, overlooks the interaction between economic decision-making and implicit racial biases? One risk of a model that focuses too narrowly on cognitive biases, without considering racial context, is that it might propose legal responses to these cognitive biases that may work to further subordinate already subordinated groups. This Article considers, and empirically tests, behavioral economic phenomena in light of implicit social cognition research. It argues that an undiscovered piece of human “irrational” behavior is that it systematically yields to racial stereotypes, and employs an empirical study to test this argument. The results of the study are mixed, but in some circumstances confirm the hypothesis that racial stereotypes are powerful enough to blunt economic irrationalities, and therefore function as what I call a “SuperBias,” a bias so powerful that it modifies even existing biases. Building on these results, the Article proposes the creation of a stereotype competent model of behavioral law and economics.

Consider a brief example of the way stereotype information may act to overcome the predictably irrational effects of the “hindsight bias.” Research on the hindsight bias shows consistently that people are unable to disregard known outcome information in making judgments of the likelihood of a certain event occurring.¹⁶ Thus, a juror in an attempted murder trial who knows that the victim survived an attack (as jurors would) will be likely to overestimate the likelihood that the victim would survive the attack. And because “intent to kill” is a key element of the crime of attempted murder, jurors who underestimate the likelihood of the victim’s death may similarly underestimate the defendant’s level of intent in striving to cause death. No matter how hard the judge tries to offset the effects of hindsight, jurors will overestimate the chances of the victim’s survival, and therefore may be more likely to acquit the defendant. Now factor in implicit racial bias. In the same hypothetical attempted murder trial, if a young black male perpetrator harms the victim,

¹⁴ Tversky & Kahneman, *supra* note 2.

¹⁵ These scholars have grappled deeply with many of the difficult questions that a new behavioral model brings. *See, e.g.* Jolls & Sunstein, *supra* note 6; Korobkin & Ulen, *supra* note 1; Langevoort, *supra* note 6.

¹⁶ Fischhoff, *supra* note 13.

jurors may be less likely to be influenced by the hindsight information (that the victim survived) because they are more influenced by the stereotype of the perpetrator—that he is an aggressive killer—than the hindsight information.¹⁷ Thus, hindsight bias will result in extra acquittals for white defendants, while racial stereotypes will counter the hindsight bias relating to black defendants. Legal interventions intended to counter hindsight bias could exacerbate the effects.

This Article explores what happens when behavioral law and economics and implicit social cognition collide, and presents an empirical study designed to test the hypothesis that racial stereotypes overpower behavioral economic phenomena. The Article is organized as follows. Section II details behavioral law and economics as well as implicit social cognition. It examines the social science basis of each field and explores the similar cognitive mechanics underlying them.

Section III investigates what happens when race is introduced into economic decision-making and considers how racial stereotypes may specifically affect economic decisions already at risk of irrationality. Research has documented that economic decision-making is often discriminatory; new evidence suggests that these decisions may be predicted by implicit racial bias. The emerging social cognition theory called System Justification Theory helps to explain why people may discriminate as part of an unconscious need to maintain the social and economic status quo. This unconscious need may directly conflict with decision makers' other implicit motivations that drive supposedly race-neutral cognitive errors described by behavioral economics.

Building on these rationale for considering behavioral economics and implicit social cognition together, section IV presents the empirical study I conducted to test the hypothesis that implicit racial stereotypes can overpower economic-based cognitive biases. Participants in the study read information (related to an attempted murder trial) that was designed to trigger both hindsight bias and anchoring effect. The race of the defendant was varied. It was hypothesized that when participants read about a black defendant, both hindsight bias (related to the likelihood of the victim dying) and anchoring effects (relating to minimum jail sentence) would be diminished significantly. The results of the study confirmed the first hypothesis: bucking hindsight bias, mock jurors were significantly more likely to believe that a crime victim would die when shot by a black perpetrator compared to a white perpetrator. It was

¹⁷ This example is based upon the empirical study presented in Section IV. For previous research on stereotypes and the hindsight bias, see Bodenhausen, *supra* note 5.

less clear, however, whether they would adhere to a given anchor when they were asked the minimum sentence for a crime and the crime had been committed by a black male.¹⁸

Section V considers the results of the empirical study in light of behavioral law and economics literature as well as implicit bias scholarship. It proposes that all discussions of behavioral economics must become race competent and provides a research agenda for future empirical study. Section VI concludes.

II. THE SHARED COGNITIVE BASIS OF BEHAVIORAL LAW AND ECONOMICS AND IMPLICIT SOCIAL COGNITION

Both behavioral law and economics and implicit social cognition have revolutionized legal theory by providing behavioral updates that allow scholars to more accurately understand human behavior and decision-making.¹⁹ Behavioral law and economics has modernized legal scholarship by demonstrating that in a variety of situations, human actors make decisions in ways that consistently deviate from what rational economic actors would do.²⁰ Implicit social cognition has refreshed scholarship on inequality in the law by providing scientific evidence that people unconsciously and heavily rely on stereotypes in decision-making.²¹ This section explores the fundamentals of behavioral economics and implicit social cognition and argues that their shared focus on human decision-making, automatic cognitive processes, and working memory necessitates exploring the intersection of the two fields.

¹⁸ See *infra* note 239 and accompanying text.

¹⁹ See, e.g. Anthony G. Greenwald & Linda Hamilton Krieger, *Implicit Bias: Scientific Foundations*, 94 CAL. L. REV. 945, 946 (2006); Kang, *supra* note 4; Linda Hamilton Krieger, *The Content of Our Categories: A Cognitive Bias Approach to Discrimination and Equal Employment Opportunity*, 47 STAN. L. REV. 1161 (1995).

²⁰ Jolls et al., *supra* note 1; BEHAVIORAL LAW AND ECONOMICS, *supra* note 1.

²¹ Kang, *supra* note 4; Levinson, *Forgotten Racial Equality*, *supra* note 4; Linda Hamilton Krieger & Susan T. Fiske, *Behavioral Realism in Employment Discrimination Law: Implicit Bias and Disparate Treatment*, 94 CAL. L. REV. 997 (2006); Jerry Kang & Mahzarin R. Banaji, *Fair Measures: A Behavioral Realist Revision of "Affirmative Action,"* 94 CAL. L. REV. 1063 (2006).

A. *The Contributions and Mechanics of Behavioral Law and Economics*

Behavioral law and economics has led the way in developing a more accurate model of the human mind.²² Prior to its introduction, the dominance of the law and economics model had yet to be balanced by knowledge of the way people think and make decisions. Instead, legal decision-making models assumed that people would always make decisions that are consistent with their rational (profit seeking) self interest.²³ With the development of prospect theory²⁴ by psychologists such as Daniel Kahneman and Amos Tversky, and other research on cognitive biases and heuristics, legal scholars began to wonder whether law and economics' assumptions about human behavior might fail to understand the way people actually make decisions.²⁵ These scholars began a behavioral revolution in legal scholarship that eventually crafted a behavioral roadmap from which exceptions to law and economics "homo economicus" model could be carved.²⁶ The roadmap includes a large number of what economists typically term "irrational" decisions that people make—decisions that deviate from what economics predicts they should do.²⁷

²² See generally Jolls et al., *supra* note 1; Sunstein, *supra* note 1.

²³ See generally Posner, *supra* note 3; HANDBOOK OF LAW AND ECONOMICS, *supra* note 3; Shavell, *supra* note 3.

²⁴ Daniel Kahneman & Amos Tversky, *Subjective Probability: A Judgment of Representativeness*, 3 COGNITIVE PSYCHOL. 430 (1972); Daniel Kahneman & Amos Tversky, *Psychology of Prediction*, *supra* note 2; Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979). See also Daniel Kahneman & Amos Tversky, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207 (1973); Daniel Kahneman & Amos Tversky, *Casual Schemata in Judgments Under Uncertainty: Heuristics and Biases*, 1 PROGRESS IN SOC. PSYCHOL. 49 (Martin Fishbein ed., 1980); Amos Tversky & Daniel Kahneman, *Belief in the Law of Small Numbers*, 76 PSYCHOL. BULL. 105 (1971).

²⁵ Notably, it took more than a decade for legal scholars to react to the groundbreaking findings of Kahneman, Tversky, and others.

²⁶ Jolls, Sunstein and Thaler's 1998 article is often recognized as being one of the groundbreaking articles in this area. See Jolls et al., *supra* note 1. Other early articles were similarly visionary. See, e.g. Rachlinski, *Judging in Hindsight*, *supra* note 8; Korobkin & Ulen, *supra* note 1.

²⁷ Some scholars have described these deviations as being comprised of bounded rationality, bounded self-interest, and bounded willpower. See Jolls et al., *supra* note 1. Jolls and her colleagues describe bounded rationality as the fact that "human cognitive abilities are not infinite. We have limited computational skills and seriously flawed memories." *Id.* at 1477.

Notably, these decisions largely rely on cognitive biases or heuristics, which tend to rapidly and automatically affect the way people process information when making decisions.

The dominance of law and economics began well before the introduction of behavioral insights into legal theory.²⁸ Simply put, law and economics predicted that in all decisions relevant to law, people will act in their economic self interest. A simple economic game called the Ultimatum Game helps explain this principle as well as its limitations.²⁹ In the Ultimatum Game, a person (“the first mover”) is given an amount of money (frequently ten dollars) and paired with a partner (“the second mover”).³⁰ The first mover is told to make an offer to share the ten dollars with the second mover. If the second mover accepts the offer, both parties keep their share of the money.³¹ If the second mover rejects the offer, both parties walk away with nothing. The game merges the notion of economic self interest with psychological reality. Economic theory predicts that the first mover should offer one cent (the least amount possible), because the second mover would be better off with one cent than with nothing (and a rational economic actor would choose a penny over nothing).³² Yet economic theory fails to predict the way ultimatum game participants act. First movers who offer small amounts are overwhelmingly rejected by their second moving partners, indicating that many people would rather get nothing than participate in an unfair allocation of funds.³³ First

²⁸ See, e.g. GARY S. BECKER, *THE ECONOMIC APPROACH TO HUMAN BEHAVIOR* (1976); A. MITCHELL POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* (3d. ed. 2003); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* (7th ed. 2007); SHAVELL, *supra* note 3.

²⁹ G. E. Bolton, *A Comparative Model of Bargaining: Theory and Evidence*, 81 *AM. ECON. REV.* 1096 (1991); W. Güth et al., *An Experimental Analysis of Ultimatum Bargaining*, 3 *J. OF ECON. BEHAV. & ORGANIZATION* 367 (1982); B.J. Ruffle, *More is Better, but Fair is Fair: Tipping in Dictator and Ultimatum Games*, 23 *GAMES AND ECON. BEHAV.* 247 (1998).

³⁰ Werner Guth et al., *An Experimental Analysis of Ultimatum Bargaining*, 3 *J. ECON. BEHAV. & ORGANIZATION* 367 (1982); Jolls et al., *supra* note 1 at 1489; Daniel Kahneman et al., *Fairness and the Assumptions of Economics*, 59 *J. BUS.* S285, S291 (1986).

³¹ For example, if the first mover offers one dollar, and the second mover accepts the offer, the first mover keeps nine dollars and the second mover keeps one dollar.

³² Jolls et al., *supra* note 1, at 1489.

³³ *Id.*

movers can predict this, too, which is why rather than offering a penny, most first movers offer several dollars to the second movers.³⁴

Similar to the first and second movers' behavior in the ultimatum game, people deviate from other economically rational decisions in many ways.³⁵ These deviations often turn out to be systematic, such that in certain types of decisions, people will regularly choose a less economically rational decision over a more rational decision.³⁶ The following subsections explain the mechanics and implications of three behavioral phenomena in which people make decisions in flawed and inefficient ways: the hindsight bias, anchoring effect, and endowment effect.³⁷

The Hindsight Bias. The hindsight bias is the behavioral economic phenomena with the most legal history. This particular bias, discovered by psychologist Boris Fischhoff, holds that when people know outcome information (how a story ends, for example), they won't be able to disregard that information when making predictions about the likelihood that it would occur.³⁸ Imagine, for example, that residents of Washington, D.C, who suffered a small earthquake in early July 2010 (the first in more than seventy years), were asked in September 2010 to estimate the statistical likelihood that an earthquake would hit Washington, D.C. in the fall of 2011. The chances of this occurrence are ridiculously small. Yet one can imagine (and the hindsight bias predicts) that D.C. residents, unable to forget that an earthquake did in fact

³⁴ *Id.* (citing Guth et al, *supra* note 30 at 371-72, 375 tbls. 4-5; Kahneman et al., *supra* note 30 at S291 tbl. 2).

³⁵ See Jolls et al., *supra* note 1; Korobkin & Ulen, *supra* note 1; Sunstein, *supra* note 1. See also Cass R. Sunstein, *What's Available? Social Influences and Behavioral Economics*, 97 NW U. L. REV. 1295 (2003) (examining the role of social forces on behavioral economic phenomena).

³⁶ Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1, 2 (2003); Robin M. Hogarth & Melvin W. Reder, *The Behavioral Foundations of Economic Theory*, 59 J. BUS. S181, S181 (1986); Jolls & Sunstein, *supra* note 6.

³⁷ These effects are well known examples. There are, of course, a large number of cognitive biases and heuristics relevant to behavioral economics, including framing effect, confirmation bias, status quo bias, availability heuristic, representativeness heuristic, optimism bias, overconfidence effect, and more. I do not specifically consider most of these principles in this article.

³⁸ Fischhoff, *supra* note 13.

strike the area, will overestimate their predictions.³⁹ In the legal system, the most popular discussion of hindsight bias is its effect on tort liability decisions.⁴⁰ Because hindsight bias will make the unfortunate outcome in most tort cases seem more inevitable than it actually was, there is concern that hindsight bias will irrationally lead to unjustified tort judgments against defendants.⁴¹

Psychologists have conducted a range of research on why people harbor the hindsight bias. One of the most empirically supported explanations posits that “learning an outcome alters what people believe about the world in ways that make the known outcome seem inevitable.”⁴² A related account explains that this inevitability might be an adaptive feature related to self esteem such that it enables people to “appear intelligent, knowledgeable, or perspicacious.”⁴³

³⁹ For a variety of examples of the hindsight bias in action, see Jeffrey J. Rachlinski, *Judging in Hindsight*, *supra* note 8. See also Kamin & Rachlinski, *supra* note 8.

⁴⁰ See, e.g. Hal R. Arkes & Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587 (1994); Kimberly Eberwine, *Hindsight Bias and the Subsequent Remedial Measures Rule: Fixing the Feasibility Exception*, 55 CASE W. RES. L. REV. 633 (2005); Reid Hastie & W. Kip Viscusi, *Juries, Hindsight, and Punitive Damages Awards: Reply to Richard Lempert*, 51 DEPAUL L. REV. 987 (2002); Richard Lempert, *Juries, Hindsight, and Punitive Damage Awards: Failures of a Social Science Case for Change*, 48 DEPAUL L. REV. 867 (1999); Philip G. Peters, *Hindsight Bias and Tort Liability: Avoiding Premature Conclusions*, 31 ARIZ. ST. L.J. 1277 (1999). Hindsight bias has also been discussed in a variety of non-tort related areas. See, e.g. Stephanos Bibas, *The Psychology of Hindsight and After-the-Fact Review of Ineffective Assistance of Counsel*, 2004 UTAH L. REV. 1 (2004); Mitu Gulati et al., *Fraud by Hindsight*, 98 NW. U. L. REV. 773 (2004); Ronald J. Gilson & Reinier Kraakman, *Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 IOWA J. CORP. L. 715 (2003); Gregory N. Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L.J. 1391 (2006); Gregory N. Mandel, *Another Missed Opportunity: The Supreme Court's Failure to Define Nonobviousness or Combat Hindsight Bias in KSR v. Teleflex*, 12 LEWIS & CLARK L. REV. 323 (2008); Adam Powell, *KSR Fallout: Questions of Law Based on Findings of Fact and the Continuing Problem of Hindsight Bias*, 1 HASTINGS SCI. & TECH. L. J. 241 (2004); Jeffrey J. Rachlinski, *Regulating in Foresight Versus Judging Liability in Hindsight: The Case of Tobacco*, 33 GA. L. REV. 813 (1999); Randall W. Roth, *Hindsight Bias and the Curse of Knowledge: Forewarned is Forearmed*, 139 ABA TRUSTS & INVESTMENTS 30 (2010); Jun Wu, *Rewinding Time: Advances in Mitigating Hindsight Bias in Patent Obviousness Analysis*, 97 KY. L. J. 565 (2008).

⁴¹ Rachlinski, *Judging in Hindsight*, *supra* note 8, at 574.

⁴² Jeffrey Rachlinski calls this the “cognitive” theory of hindsight bias. *Id.* at 582.

⁴³ Ulrich Hoffrage & Ralph Hertwig, *Hindsight Bias: A Price Worth Paying for Fast and Frugal Memory*, in SIMPLE HEURISTICS THAT MAKE US SMART 191, 194 (Gerd Gigerenzer et al., eds 1999).

Other explanations of hindsight bias focus on how the reconstructive nature of human memory allows the mind to adapt outcome information into previously different cognitive understandings of a situation.⁴⁴ Perhaps the point of greatest agreement among researchers is that the hindsight bias is automatic and non-conscious. That is, it operates even without the awareness of the person influenced by it.⁴⁵ As with many other cognitive biases, it is this powerful non-conscious reaction that makes the hindsight bias difficult to alter or resist.

Legal scholars have struggled with what to do (or not do) about the hindsight bias. Some areas of law, such as corporate law, recognize the potential danger of hindsight bias and account for it. Under Delaware (and other) corporate law, for example, corporate directors are protected from liability by the business judgment rule.⁴⁶ This rule creates a very high standard for holding a board liable for a bad decision. Rather than allowing shareholders to recover against corporate boards for decisions that turn out to be ill advised (or even stupid), corporate law recognizes that judges and jurors might be unduly influenced by hindsight bias and erroneously grant recovery

⁴⁴ *Id.* at 201. As I have explored elsewhere, there is a strong relationship between memory errors and implicit racial bias. See generally Levinson, *Forgotten Racial Equality*, *supra* note 4. For an overview of the three most prominent models seeking to explain hindsight bias, see Hartmut Blank & Steffan Netsler, *Cognitive Process Models of Hindsight Bias*, 25 SOC. COGNITION 132 (2007).

⁴⁵ See Shari Seidman Diamond, *Illuminations and Shadows from Jury Simulations*, 21 LAW & HUM. BEHAV. 561, 567 (1997) (noting that hindsight bias is “cognitive rather than motivational”). See also Blank & Nestler, *supra* note 44 at 136. According to Blank and Nestler, outcome information “leads to automatic updating of the knowledge base. Specifically, by unconscious associative inference, some of the unknown cue values or cue values pointing in the wrong direction . . . are probabilistically replaced with ‘fitting’ values.” Blank and Nestler describe two of the three leading explanations of hindsight bias as those that consider hindsight bias to be part of an “associative system that operates quickly, automatically, and effortlessly. . . .” The third possible explanation is considered to “involve the conscious application of propositional rules,” but the authors note that automatic processes “may at least partly be involved.” *Id.* at 139.

⁴⁶ *Kamin v. Am. Exp. Co.*, 383 N.Y.S.2d 807 (Sup. Ct. 1976); *Smith v. Van Gorkum*, 488 A.2d 858 (Del. 1985); *Shlensky v. Wrigley*, 237 N.E.2d 776 (Ill. App. 1968). It is interesting to note that the business judgment rule was established before the hindsight bias was officially discovered and named by Fischhoff, *supra* note 13. This fact does not mean, however, that the hindsight bias was irrelevant to the establishment of the rule. Unlike many other biases, hindsight bias is quite intuitive and easy to conceptualize. Consider the popular phrase, for example, “Monday morning quarterback,” which essentially refers to the hindsight bias.

to shareholders.⁴⁷ It thus holds forth a heightened standard under which proof of a negligent decision by the board is insufficient for liability.

Other areas of law have failed or declined to alter standards based on evidence of the hindsight bias. Tort law, for example, does not heighten standards because of the danger of extra liability imposed on defendants.⁴⁸ As Jeffrey Rachlinski argues, however, shifting laws may not always be the best response.⁴⁹ In the case of tort law, although the hindsight bias may essentially shift liability from a negligence standard to a strict liability standard (because even a non-negligent decision will seem negligent in hindsight), so long as the public knows such a shift has occurred, they may take commensurate steps to protect against liability.⁵⁰ Similarly, criminal law has yet to make adjustments for hindsight bias. In the case of attempted murder, for example, the risk remains that defendants will be disproportionately acquitted because the outcome information (that the victim did not die) lessens judgments of the defendant's intent to kill. This example will be considered in more detail in the context of the collision of implicit racial bias and behavioral economics.

The Anchoring Effect. Anchoring effect describes the phenomenon whereby people are influenced by uninformative numbers.⁵¹ When people are asked to make a decision that requires a numerical judgment or estimate, even random numbers presented to those people have been shown to impact their ultimate answers.⁵² A famous study on anchoring effects conducted by Tversky and Kahneman asked study participants whether the percentage of African nations in the United Nations was greater than an arbitrary number

⁴⁷ Rachlinski, *Judging in Hindsight*, *supra* note 8 at 619-23. According to Jolls and colleagues, as well as Rachlinski, patent law also provides some protection against hindsight biasing in that it requires patent courts to look at secondary considerations in determining whether an invention was "nonobvious" at the time of invention. Jolls et al., *supra* note 1 at 1526; Rachlinski, *Judging in Hindsight*, *supra* note 8, at 613-15.

⁴⁸ Rachlinski, *Judging in Hindsight*, *supra* note 8, at 596.

⁴⁹ *Id.* at 597-98.

⁵⁰ *Id.* at 598-600.

⁵¹ Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, *supra* note 2. Anchoring effect is also referred to as "anchoring and adjustment effect."

⁵² *Id.*

(e.g., either 10% or 65%).⁵³ Participants were then asked to estimate the actual percentage. The researchers found that participants were heavily influenced by the anchor information. Participants in the low anchor category estimated that the percentage of African nations in the United Nations was 25%, compared to participants in the high anchor category, who estimated the number at 45%.⁵⁴ As Thomas Mussweiler and his colleagues describe, anchoring effects have been shown to be “a truly ubiquitous phenomenon that has been observed in a broad array of different judgmental domains.”⁵⁵ Hence, anchoring effects have been found not only in frequency estimates, but also in medical decision-making and in legal decision-making.⁵⁶

Anchoring effects are caused by the increased accessibility of information related to an anchor.⁵⁷ When people see an anchor, they first quickly evaluate

⁵³ Participants were aware that the anchors were arbitrary, as they were derived when the participants spun a “wheel of fortune.” The researchers had rigged the results of the “wheel” such that half of the participants would see the low (10%) anchor and half would see the high (65%) anchor. Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124 (1974). The random selection of anchors helps demonstrate that anchoring effects occur even when the anchor values are clearly uninformative or even extreme. Thomas Mussweiler et al., *Overcoming the Inevitable Anchoring Effect: Considering the Opposite Compensates for Selective Accessibility*, 26 PERSONALITY & SOC. PSYCHOL. BULL. 1142, 1143 (2000). In one study by Strack and Mussweiler, participants asked to estimate the age of Mahatma Gandhi were influenced by an unreasonably high anchor value of 140 years. *Id.*, citing F. Strack & Thomas Mussweiler, *Explaining the Enigmatic Anchoring Effect: Mechanisms of Selective Accessibility*, 73 J. PERSONALITY & SOC. PSYCHOL. 437 (1997).

⁵⁴ Tversky & Kahneman, *Judgment Under Uncertainty*, *supra* note 2.

⁵⁵ Mussweiler et al., *supra* note 53, at 1142 (noting that the anchoring effect has “clear practical relevance for many decisions in real-world settings”).

⁵⁶ Noel T. Brewer, *The Influence of Irrelevant Anchors on the Judgments and Choices of Doctors and Patients*, 27 MED. DECISION MAKING 203 (2007); Birte English et al., *Playing Dice with Criminal Sentences: The Influence of Irrelevant Anchors on Experts’ Judicial Decision Making*, 32 PERSONALITY & SOC. PSYCHOL. BULL. 188 (2006) [hereinafter English et al., *Playing Dice*].

⁵⁷ Nicholas Epley & Thomas Gilovich, *The Anchoring-and-Adjustment Heuristic: Why the Adjustments are Insufficient*, 17 PSYCHOL. SCI. 311 (2006). Additional research on anchoring effects have demonstrated that anchors are not just a product of insufficient adjustment, but also of people’s willingness to stop adjusting once their estimates enter a range of plausible responses. *Id.* at 316-17.

whether it might be the correct response.⁵⁸ As part of this process, people rely on their memories to recall instances that might confirm the truth (or prove the untruth) of the anchor.⁵⁹ Once information relating to the response is recalled, people make adjustments to the anchor in order to make a decision. This process of adjusting the anchor to a more correct result leads participants to biased results.⁶⁰ Because people are cognitively focused on comparing the anchor to the truth, rather than simply evaluating the truth without outside influence, they rely too much on information related to the anchor and the anchoring effect (and corresponding lack of sufficient adjustment) asserts itself.⁶¹

Consider, for example, criminal sentences. If people are asked whether the minimum jail sentence for attempted murder is greater or less than two years, they will search their memories for information relating to sentence length. If the idea that sentences for violent crimes are too short is a prevalent one in society, this information may become particularly salient. If, however, people are asked whether the minimum jail sentence is greater or less than 100 years, information in which an overly punitive government cracks down on crime may become salient. When these people are next asked to identify the exact length of the minimum sentence for attempted murder, one could predict that the low (2 year) or high (100 year) anchor they were exposed to will exert influence on their cognitive process and thus on their final judgment.⁶²

In legal scholarship, a significant amount of attention has focused on the power of anchoring effects in the tort litigation context.⁶³ Much of this attention has been empirical in nature and indicates that jurors cannot help but

⁵⁸ *Id.* at 312.

⁵⁹ The importance of memory in anchoring effects raises the issue of whether implicit racial biases in memory processes (including storage and retrieval) may introduce implicit racial biases into anchoring effects. For more on implicit memory biases, see Levinson, *Forgotten Racial Equality*, *supra* note 4.

⁶⁰ Epley & Gilovich, *supra* note 57, at 312.

⁶¹ Strack & Mussweiler, *supra* note 53.

⁶² The effect of even randomly generated sentencing anchors has been confirmed in empirical studies. See Bert English et al., *Playing Dice*, *supra* note 56 (finding that even when prosecutor and judge participants generated anchors randomly by throwing dice, they were still influenced by anchoring effect).

⁶³ See Jennifer K. Robbenolt & Christina A. Studebaker, *Anchoring in the Courtroom: The Effects of Caps on Punitive Damages*, 23 LAW. & HUM. BEHAV. 353, 364 (1999).

be affected by the amounts requested by attorneys.⁶⁴ A project by John Malouff and Nicola Schutte, for example, examined how mock jurors responded to plaintiff's request for damages depending upon whether request was for \$100,000 or \$500,000.⁶⁵ The results of the study showed that the anchors were powerful; although the cases were identical, participants in the \$100,000 group awarded \$90,000 on average while participants in the \$500,000 group awarded \$300,000 on average.⁶⁶ A similar study on anchoring in punitive damages by Jennifer Robbenolt and Christina Studebaker found that mock jurors displayed anchoring effects in response to caps on punitive damages, both in increasing and decreasing award amounts.⁶⁷ Other work on anchoring has focused on the influence of anchoring on settlement decisions. In two studies by Russell Korobkin and Chris Guthrie, the researchers found that mock parties to a litigation would be more likely to settle if the final settlement offer they received was much higher than an original anchor offer.⁶⁸ This finding occurred even though the final offers were identical, highlighting the influence of the original anchor offer. Other legal scholarship has found anchoring effects on mock-juries in criminal sentencing⁶⁹ and has even shown that judges display anchoring effects in making decisions.⁷⁰

⁶⁴ John Malouff & Nicola S. Schutte, *Shaping Juror Attitudes: Effects of Requesting Different Damage Amounts in Personal Injury Trials*, 129 J. OF SOC. PSYCHOL. 491 (1989).

⁶⁵ See *Id.* See also Reid Hastie et al., *Juror Judgments in Civil Cases: Effects of Plaintiff's Requests and Plaintiff's Identity on Punitive Damage Awards*, 23 LAW & HUM BEHAV. 445 (1999) (finding strong anchoring effects in mock juror decisions).

⁶⁶ Malouff & Schutte, *supra* note 64.

⁶⁷ See Robbenolt & Studebaker, *supra* note 9, at 364.

⁶⁸ See Russell Korobkin & Thomas Ulen, *supra* note 1 (citing Russell Korobkin & Chris Guthrie, *Opening Offers and Out of Court Settlement: A Little Moderation Might Not Go a Long Way*, 10 OHIO ST. J. DISP. RES. 1 (1994); Russell Korobkin & Chris Guthrie, *Psychological Barriers to Litigation Settlement: An Experimental Approach*, 93 MICH. L. REV. 107, 139-42 (1994)).

⁶⁹ Englich et al., *Playing Dice*, *supra* note 56. Other empirical studies of anchoring effects have been conducted in related fields. See, e.g. Noel T. Brewer, et al., *The Influence of Irrelevant Anchors on the Judgments and Choices of Doctors and Patients*, 27 MED. DECISION MAKING 203 (2007).

⁷⁰ Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777 (2001); Berte Englich & Thomas Mussweiler, *Sentencing Under Uncertainty: Anchoring in the Courtroom*, 31 J. APPLIED SOC. PSYCHOL. 1535 (2001) (using trial judges as study participants); Birte Englich et al., *The Last Word in Court—A Hidden Disadvantage for the Defense*, 29 LAW &

Commentators have yet to agree on the best way to respond to anchoring effects.⁷¹ One seemingly logical response to anchoring effects would be to minimize either exposure to the anchoring information at all or shift the decision away from the same unit of measurement as the anchor.⁷² For example, Michael Kang has suggested, in the context of punitive damage caps, that one might avoid telling jurors altogether about the punitive damages cap.⁷³ Yet, as critics have asserted, it is difficult to generate examples in which anchors are altogether eliminated; not using anchors risks that jurors will bring in less predictable anchors from other contexts.⁷⁴ Shifting the nature of the decision away from anchor susceptible numbers also has potential for avoiding anchoring effects. For example, if juries are likely to be susceptible to dollar value anchors when making decisions on a scale of dollar values, why not have them make a decision, as Cass Sunstein and colleagues suggest, on a scale of punishment ratings or rankings.⁷⁵ This scale could then be later converted to a dollar scale. Such a response might work if an anchor-proof scale could be

HUMAN BEHAV. 705 (2005). English et al., *Playing Dice*, *supra* note 56. See also Berte English, *Blind or Biased? Justitia's Susceptibility to Anchoring Effects in the Courtroom Based on Given Numerical Representations*, 28 LAW & POL'Y 497 (2006).

⁷¹ In fact, scholars disagree about the way to respond generally to behavior that deviates from economic rationality. See, e.g. Cass R. Sunstein & Richard S. Thaler, *Libertarian Paternalism is not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1159 (2003) (claiming that "libertarian paternalists should attempt to steer people's choices in welfare-promoting directions without eliminating freedom of choice"); Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism,"* 151 U. PA. L. REV. 1211 (2003); Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165 (2003); Mario J. Rizzo & Douglas Glen Whitman, *The Knowledge Problem of New Paternalism*, 2009 BYU L. REV. 905; Gregory Mitchell, *Libertarian Paternalism Is an Oxymoron*, 99 NW. U. L. REV. 1245 (2005).

⁷² Note that with the anchoring effect, hindsight bias, and endowment effect, "debiasing" is nearly impossible, and can sometimes backfire. See BREST & KRIEGER, *supra* note 2, at 272, 276.

⁷³ Michael S. Kang, *Don't Tell Juries About Statutory Damage Caps: The Merits of Nondisclosure*, 66 U. CHI. L. REV. 469 (1999). But see Jennifer K. Robbennolt, *Determining Punitive Damages: Empirical Insights and Implications for Reform*, 50 BUFF. L. REV. 103, n321 (2002) (claiming that jurors might know about the cap anyway, and noting that because jurors' prior knowledge could be subject to misconceptions, "blindfolding the jury may result in even greater variability").

⁷⁴ See Robbennolt, *supra* note 73, at n.321.

⁷⁵ Cass R. Sunstein, Daniel Kahneman & David Schkade, *Assessing Punitive Damages*, 107 YALE L.J. 2071, 2114 (1998).

developed with a meaningful conversion ratio. Yet another response to anchoring involves holding the source of the anchoring responsible for the misleading effects that the anchors generate. Korobkin and Ulen give the example of a sport utility vehicle manufacturer that chooses to advertise its automobiles travelling at excessive speeds on irregular terrain, yet simultaneously warns consumers that the product is not designed for such dangerous driving.⁷⁶ The commentators suggest that because anchoring effect will lead consumers to insufficiently adjust to the anchor, manufacturers who choose to advertise in this way, despite otherwise adequate warnings provided to consumers, might be prohibited from receiving some or all liability protection when injuries arise from similar dangerous use of the automobiles.⁷⁷ Another potential response to anchoring effect consists of doing nothing at all. In the context of facilitating litigation settlements, for example, anchoring tends to increase the likelihood of settlement compared to a more economically efficient bargaining posture. Thus, the settlement example is one in where it might be best to let anchoring function on its own.⁷⁸

The Endowment Effect. The endowment effect explains how people tend to over-value goods they own relative to goods they do not own.⁷⁹ This effect is typically studied by creating a market for study participants and randomly distributing objects for the participants to buy and sell. As studies of the endowment effect consistently show, participants who “own” objects require more to sell the objects than the buying participants are willing to pay.⁸⁰ For example, Knetsch and Sinden gave half of their study participants (the sellers) a lottery ticket for a fifty dollar drawing.⁸¹ They then offered to buy the tickets

⁷⁶ Korobkin & Ulen, *supra* note 1, at 1102.

⁷⁷ *Id.*

⁷⁸ *Id.* at 1101.

⁷⁹ Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. AND ORG. 39 (1980). See also Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325 (1990); Daniel Kahneman et al., *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSP. 193 (1991).

⁸⁰ Russell Korobkin, *Endowment Effect*, *supra* note 10 (calling the endowment effect “undoubtedly the most significant single finding from behavioral economics for legal analysis to date”).

⁸¹ Korobkin, *Endowment Effect*, *supra* note 10, at 1233, (citing Jack L. Knetsch & J. A. Sinden, *Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measures of Value*, 99 Q. J. ECON. 507 (1984)).

from those participants for \$3 and offered to sell identical lottery tickets to the other half of study participants (the buyers) for \$3.⁸² Interestingly, very few of the sellers were willing to sell for \$3, believing the value of the tickets to be more.⁸³ Yet, very few the buyers wanted to buy the tickets for \$3, believing the value of the tickets to be less.⁸⁴ The endowment effect is considered economically irrational because the inflation of perceived worth inhibits the transfer of goods at what might otherwise be a desirable price.

The cause of the endowment effect has been debated, with most social scientists relying on prospect theory and the concept of loss aversion to explain it.⁸⁵ Loss aversion suggests that “gaining an entitlement will be perceived as less significant than losing the same entitlement.”⁸⁶ Thus, people will make greater efforts to avoid parting with owned objects than they will to gain similar un-owned objects. But what explains loss aversion? And are people consciously aware that they are making such economically inefficient decisions? Research here is unclear, but one less controversial finding is that people do not have conscious awareness that the endowment effect is operating on them.⁸⁷ Some commentators point out the endowment effect may be driven by a need to avoid regret.⁸⁸ Other scholars, however, believe that the endowment effect is based on the implicit need to maintain self esteem.⁸⁹ Anthony Greenwald and Mahzarin Banaji, for example, interpret studies relating to the immediacy of the endowment effect as deriving from people’s

⁸² Korobkin, *Endowment Effect*, *supra* note 10.

⁸³ *Id.* at 1233.

⁸⁴ *Id.*

⁸⁵ *Id.* For a broad review of potential causes of the endowment effect, see *Id.* at 1242-55.

⁸⁶ *Id.* at 1250 (citing Leaf Van Boven *et al.*, *Egocentric Empathy Gaps Between Owners and Buyers: Misperceptions of the Endowment Effect*, 79 J. PERSONALITY & SOC. PSYCHOL. 66, 66 (2000); Samuel Issacharoff, *Can There Be a Behavioral Law and Economics?* 51 VAND. L. REV. 1729, 1734-35 (1998); Jolls *et al.*, *supra* note 1 at 1484; Eric van Dijk, & Daan van Knippenberg, *Trading Wine: On the Endowment Effect, Loss Aversion, and the Comparability of Consumer Goods*, 19 J. ECON. PSYCHOL. 485, 486 (1998)).

⁸⁷ Gail Tom *et al.*, *Mere Exposure and the Endowment Effect on Consumer Decision Making*, 141 J. OF PSYCHOL. 117, 118 (2007).

⁸⁸ Brest & Krieger, *supra* note 2, at 427 (citing Chris Guthrie, *Better Settle Than Sorry: The Regret Aversion Theory of Litigation Behavior*, 1999 U. ILL. L. REV. 43).

⁸⁹ Anthony Greenwald & Mahzarin Banaji, *Implicit Social Cognition: Attitudes, Self-Esteem, and Stereotypes*, 102 PSYCHOL. REV. 4, 11 (1995).

need to bolster implicit self esteem.⁹⁰ As soon as participants are given an object, their valuation of the object instantaneously increases.

A study by George Lowenstein and Samuel Issacharoff explains the connection between self esteem and the endowment effect.⁹¹ The researchers tested whether participants' endowed object values would vary based on the self esteem context. Specifically, they investigated whether participants would place higher values on objects (mugs) they earned through exemplary performance compared to objects they earned randomly or through poor performance.⁹² The results of the study showed that participants who believed that they earned their mugs through exemplary performance attributed higher value to the mugs than those who received the other mugs for less exemplary (or random) reasons.⁹³ Thus, a person might unconsciously inflate values of self-related possessions without recognizing that the purpose of the inflation is to maintain a level of implicit confidence and self respect.

In the legal setting, the endowment effect is "relevant to scholars in every legal field."⁹⁴ Russell Korobkin describes a property law example in which the endowment effect is relevant to the way in which the government compensates landowners for takings.⁹⁵ Because the endowment effect causes landowners to overvalue their properties, if the government chooses to bargain with landowners, it would pay a heightened amount due to the inflation generated by the owners' endowment effect.⁹⁶ However, if the government unilaterally chooses a fair market value, it avoids the endowment effect.

⁹⁰ *Id.* at 11.

⁹¹ George Lowenstein & Samuel Issacharoff, *Source Dependence in the Valuation of Objects*, 7 J. BEHAV. DECISION MAKING 157 (1994).

⁹² *Id.*

⁹³ *Id.* The researchers did not specifically test the causes of the effects they found. They did, however, attempt to show that participants did not simply value the mugs highly as either a reflection of enhanced mood, or as a way to keep them as a display for others to witness their successes (known as self-presentation).

⁹⁴ Korobkin, *Endowment Effect*, *supra* note 10, at 1256.

⁹⁵ For a discussion of takings and the endowment effect, see *Id.* at 1263-66.

⁹⁶ *Id.*

Scholars have disagreed about the extent to which the endowment effect should be considered in crafting law and policy responses to irrationality. Much of this discussion has focused on the extent to which legislators should listen to the stated preferences of citizens when it is clear that the endowment effect will connect citizens' preferences with the status quo. Cass Sunstein, for example, argues that, due to the endowment effect's predictable link to supporting the status quo, the government should disregard citizens' stated desires when deciding whether or not to change the law.⁹⁷ Korobkin disagrees, at least partially accepting the premise, but questioning the conclusion: "even if this is true, what should govern policy if not the preferences of the governed?"⁹⁸ Rachlinski and Cynthia Farina suggest somewhat of a middle ground solution.⁹⁹ They acknowledge, like Korobkin, that rules should not ignore citizens, but recommend that they be crafted to at least somewhat reduce the long-term power of endowment effects.¹⁰⁰ For example, legislation might have a sunset period or a mandated occasional legislative review of statutes might reduce the attachment that people give to the status quo.¹⁰¹

The proliferation of behavioral law and economics scholarship has represented a major success in legal scholarship and has markedly improved the accuracy of decision focused legal theory. However, it has not been the only mind-based revolution occurring in legal scholarship.

B. The Mechanics and Contributions of Implicit Social Cognition

After years of discussing how racial bias may be fraught with "unconscious" motives,¹⁰² legal scholars studying inequality were captivated by a social science revolution that began to scientifically confirm some of their

⁹⁷ *Id.* at 1268 (citing Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 J. LEGAL STUD. 217, 234-35 (1993)).

⁹⁸ *Id.*

⁹⁹ Jeffrey J. Rachlinski & Cynthia R. Farina, *Cognitive Psychology and Optimal Government Design*, 87 CORNELL L. J 549, 605-06 (2002).

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² See, e.g. See Charles R. Lawrence III, *The Id, the Ego, and Equal Protection: Reckoning with Unconscious Racism*, 39 STAN. L. REV. 317, 331-36 (1987).

long-held suspicions regarding societal racial bias.¹⁰³ Relying on well tested methodology, social scientists in the field of implicit social cognition developed a variety of ways to test whether people are indeed biased against members of certain groups in ways that often defy their own self-awareness.¹⁰⁴ Although social psychologists had been uncovering the power of racial stereotypes for decades,¹⁰⁵ the new implicit social cognition revolution has

¹⁰³ Kang, *supra* note 4; Linda Hamilton Krieger, *The Content of Our Categories: A Cognitive Bias Approach to Discrimination and Equal Employment Opportunity*, 47 STAN. L. REV. 1161 (1995); Levinson, *Forgotten Racial Equality*, *supra* note 4; Antony Page, *Batson's Blind-Spot: Unconscious Stereotyping and the Peremptory Challenge*, 85 B.U. L. REV. 155 (2005). Many scholars have become excited by the role of implicit bias in employment discrimination suits. See Samuel R. Bagenstos, *The Structural Turn and the Limits of Antidiscrimination Law*, 94 CALIF. L. REV. 1 (2006) [hereinafter Bagenstos, *The Structural Turn*]; Melissa Hart, *Subjective Decisionmaking and Unconscious Discrimination*, 56 ALA. L. REV. 741 (2005); Krieger, *supra* note 1; Ann C. McGinley, ¡Viva La Evolución!: *Recognizing Unconscious Motive in Title VII*, 9 CORNELL J.L. & PUB. POL'Y 415 (2000); Deana A. Pollard, *Unconscious Bias and Self-Critical Analysis: The Case for a Qualified Evidentiary Equal Employment Opportunity Privilege*, 74 WASH. L. REV. 913 (1999); Audrey J. Lee, *Unconscious Bias Theory in Employment Discrimination Litigation*, 40 HARV. C.R.-C.L. L. REV. 481 (2005).

¹⁰⁴ One interesting methodology is the study of “shooter bias.” Shooter bias studies present participants with a video game in which men appear holding either guns or non gun objects. Participants are asked to make “shoot” decisions as quickly as possible when they see a man holding a gun, and make “holster” decisions as quickly as possible when they see a man holding a non-gun object (such as a wallet or cell phone). Each decision is made by pressing a designated button on a computer keyboard. The researchers measure the reaction times and errors of the participants, and consistently find that participants shoot black perpetrators (with guns) faster than white perpetrators and holster their weapons more quickly when they see white bystanders (with wallets or cell phones) than when they see black bystanders. Similarly, they make more shooting errors (shooting bystanders) when they see black bystanders compared to white bystanders. See Joshua Correll et al., *The Police Officer's Dilemma: Using Ethnicity to Disambiguate Potentially Threatening Individuals*, 83 J. PERSONALITY & SOC. PSYCHOL. 1314(2002)[hereinafter Correll et al., *Police Officer's Dilemma*]; Joshua Correll et al., *Across the Thin Blue Line: Police Officers and Racial Bias in the Decision to Shoot*, 92 J. PERSONALITY & SOC. PSYCHOL. 1006 (2007) (studying shooter bias among police officers and finding that although police officers are faster and more accurate than community sample participants, their responses follow the same race-based trends); Joshua Correll et al., *Event-Related Potentials and The Decision to Shoot: The Role of Threat Perception and Cognitive Control*, 42 J. EXPERIMENTAL SOC. PSYCHOL. 120, 122 (2006) (finding that shooter bias is related to the activation of fear in participants' brains).

¹⁰⁵ Allport and Postman conducted a famous study of racial stereotypes in the 1950s. GORDON W. ALLPORT & LEO POSTMAN, *THE PSYCHOLOGY OF RUMOR* 65–68 (1965).

been particularly captivating because it has figured out how to test people's automatic, uncontrolled associations.¹⁰⁶ These are associations for which people possess little conscious awareness.¹⁰⁷ Implicit racial biases, then, may be one way in which racial discrimination continues to be propagated, albeit covertly. Two specific examples of implicit racial bias, priming and implicit associations, exemplify the social scientific revolution, and have been particularly influential in legal scholarship on racial inequality.

Racial Stereotype Priming. Research on the cognitive phenomenon of priming shows how, once activated, racial and other stereotypes can have powerful unconscious effects on how people think and make decisions. Psychologists define priming as “the incidental activation of knowledge structures, such as trait concepts and stereotypes, by the current situational context.”¹⁰⁸ Priming is important in the legal setting because racial stereotypes can be activated in so many ways, and its effects are extremely difficult to

Although the study was originally formulated to test how rumors circulated, it confirmed the powerful effect that racial stereotypes had on memory. Specifically,

participants viewed a picture of passengers on a streetcar (one of whom was Black). In the picture, one White passenger holds a razor blade and the Black passenger is empty-handed. After viewing the picture, participants were then asked to describe the picture to other participants who had not seen the picture. As participants told and retold the story to others, the story changed. After the story had been retold several times, some participants reported that the Black passenger—not the White passenger—held a razor blade. The results of the study (which had originally focused on retelling accuracy) demonstrated a source attribution error—the razor blade possession shifted from one memory source (the White passenger) to another (the Black passenger).

Levinson, *Forgotten Racial Equality*, *supra* note 4, at 381.

¹⁰⁶ See, e.g. Anthony G. Greenwald et al., *Measuring Individual Differences in Implicit Cognition: The Implicit Association Test*, 74 J. PERSONALITY & SOC. PSYCHOL. 1464, 1467 (1998) [hereinafter Greenwald et al., *Measuring Individual Differences*]. See also Correll, *Police Officer's Dilemma*, *supra* note 104 (testing reaction time and error rates in decisions to “shoot” perpetrators in a video-game like test); Anthony Greenwald & Linda Hamilton Krieger, *supra* note 19, at 948-52.

¹⁰⁷ There is some debate among psychologists over how much, if any, conscious awareness people have over their automatic, implicit cognitions. See, e.g. Russell H. Fazio & Michael A. Olson, *Implicit Measures in Social Cognition Research: Their Meanings and Use*, 54 ANN. REV. PSYCHOL. 297, 303 (2003).

¹⁰⁸ John A. Bargh et al., *Automaticity of Social Behavior: Direct Effects of Trait Construct and Stereotype Activation on Action*, 71 J. PERSONALITY. & SOC. PSYCHOL. 230, 230 (1996).

track. Yet studies both outside and inside the legal context demonstrate the power of activating racial stereotypes on decision-making.

Racial and ethnic stereotypes can be activated easily. A study by Daniel Gilbert and Gregory Hixon demonstrated that simply seeing a person from a stereotyped group can activate related stereotypes related to that group. Participants were asked to complete a videotaped word fragment task that was presented by a research assistant holding cue cards.¹⁰⁹ Half of the participants watched a video in which the research assistant was Asian, and half watched a video in which the research assistant was Caucasian.¹¹⁰ In each condition, the research assistant held the cards containing fragments that could be completed with either neutral words or with words stereotypic of Asians.¹¹¹ For each fragment, participants completed as many words as possible in fifteen seconds. The researchers found that simply seeing an Asian research assistant activated participants' ethnic stereotypes.¹¹² Participants who saw an Asian research assistant completed more stereotype-consistent words than participants who saw a Caucasian assistant.¹¹³

Once primed, racial stereotypes can wreak havoc on decision-making. Laurie Rudman and Matthew Lee examined whether the activation of specific racial stereotypes (e.g. black aggression) can affect a person's decision-making.¹¹⁴ In the study, the researchers primed the participants by playing either pop music or rap music.¹¹⁵ They hypothesized first, that simply hearing rap music would activate participants' racial stereotypes, and second that these

¹⁰⁹ Daniel T. Gilbert & J. Gregory Hixon, *The Trouble of Thinking: Activation and Application of Stereotypic Beliefs*, 60 J. PERSONALITY & SOC. PSYCHOL. 509 (1991). As Gilbert and Hixon point out, "[s]tereotypes are forms of information and, as such, are thought to be stored in memory in a dormant state until they are activated for use." *Id.* at 509.

¹¹⁰ *Id.* at 510.

¹¹¹ For example, participants saw the fragments: "RI_E", "POLI_E," "S_OR_T," and "S_Y."

¹¹² *Id.* at 511.

¹¹³ For example, they wrote: RICE, POLITE, SHORT, AND SHY.

¹¹⁴ Laurie A. Rudman & Matthew R. Lee, *Implicit and Explicit Consequences of Exposure to Violent and Misogynous Rap Music*, 5 GROUP PROCESSES & INTERGROUP REL. 133, 138-39 (2002). On average, participants listened to the music for thirteen minutes.

¹¹⁵ Participants were led to believe that they were participating in a marketing study. *Id.* at 135.

primed stereotypes would cause people to make more negative judgments about a black person.¹¹⁶ The results of the study confirmed these predictions. Participants who listened to the rap music not only had their stereotypes activated, but also rated a black person's behavior as less intelligent and more hostile.¹¹⁷ It should be noted that asking participants about their own prejudices did not predict their judgments of the black person, a finding that supports the theory that stereotypes can affect decision making even absent a person's endorsement or awareness.¹¹⁸

Empirical legal scholarship on priming has found it to be similarly problematic.¹¹⁹ Levinson and Danielle Young, for example, found that simply changing the skin tone of a perpetrator in a security camera photo affected the way participants judged ambiguous trial evidence.¹²⁰ In a different study that tested a unique sample of actual trial judges, Jeffrey Rachlinski and his colleagues found that subliminally priming judge participants affected their decisions, and that such decisions were predicted by implicit biases.¹²¹ And in yet another study of priming and racial bias in the legal system, Young, Levinson and Scott Sinnett found that presumption of innocence jury instructions primed mock jurors' attention for black faces.¹²² These studies exemplify the impact that studies of implicit bias can hold for a legal understanding of inequality. Priming research, however, has been overshadowed in popularity by a ground-breaking measure called the Implicit Association Test.

¹¹⁶ *Id.*

¹¹⁷ This result was compared to participants who read about and rated a white person.

¹¹⁸ *Id.* at 145.

¹¹⁹ See, e.g. Justin D. Levinson, *Suppressing the Expression of Community Values in Juries: How "Legal Priming" Systematically Alters the Way People Think*, 73 U. CIN. L. REV. 1059 (2005) (finding that simply informing study participants that they were jurors in a criminal trial caused them to make harsher behavioral and mental state attributions of out-group members).

¹²⁰ Justin D. Levinson & Danielle Young, *Different Shades of Bias: Skin Tone, Implicit Racial Bias, and Judgments of Ambiguous Evidence*, 112 W. VA. L. REV. 307 (2010). Participants who were primed with a photo of a darker skin perpetrator later judged ambiguous evidence as tending to indicate more guilt compared to participants who saw a photo of a lighter skinned perpetrator.

¹²¹ Danielle Young, Justin D. Levinson & Scott Sinnett, *Presumption of Innocence Instructions Biases Jurors* (2011) (unpublished manuscript) (on file with author).

¹²² *Id.* at 9-10.

The Implicit Association Test. The development of the Implicit Association Test (IAT) revolutionized the way the world looked at and understood implicit bias.¹²³ Perhaps because its web accessibility allows people to test (and attempt to overcome) their biases first hand, the IAT has served as a compelling and sometimes controversial symbol of implicit bias.¹²⁴ The IAT:

pairs an attitude object (such as a racial group) with an evaluative dimension (good or bad) and tests how response accuracy and speed indicate implicit and automatic attitudes and stereotypes. Participants sit at a computer and are asked to pair an attitude object (for example, black or white, man or woman; fat or thin) with either an evaluative dimension (for example, good or bad) or an attribute dimension (for example, home or career, science or arts) by pressing a response key as quickly as they can. For example, in one task, participants are told to quickly pair together pictures of African-American faces with positive words from the evaluative dimension. In a second task, participants are obliged to pair African-American faces with negative words. The difference in the speed at which the participants can perform the two tasks is interpreted as the strength of the attitude (or in the case of attributes, the strength of the stereotype). For example, if participants perform the first task faster than the second task, they are showing implicitly positive attitudes toward blacks. Similarly, if they perform tasks

¹²³ Greenwald et al., *Measuring Individual Differences*, *supra* note 106; Mahzarin R. Banaji, *Implicit Attitudes Can Be Measured*, in *THE NATURE OF REMEMBERING: ESSAYS IN HONOR OF ROBERT G. CROWDER* 123 (Henry L. Roediger III et al. eds., 2001).

¹²⁴ The debate surrounding the IAT has focused on a wide range of issues, including the meaning of reaction times (as well as the scoring those reaction times) to issues of predictive validity. See Bagenstos, “*Science*” and Antidiscrimination Law, *supra* note 4 ; Adam Benforado & Jon Hanson, *Legal Academic Backlash: The Response of Legal Theorists to Situationist Insights*, 57 EMORY L.J. 1087 (2008); Gregory Mitchell & Philip E. Tetlock, *Facts Do Matter: A Reply to Bagenstos*, 37 HOFSTRA L. REV. 737 (2009); Gregory Mitchell & Philip E. Tetlock, *Antidiscrimination Law and the Perils of Mindreading*, 67 OHIO ST. L.J. 1023, 1028, 1032–33 (2006); Kristin A. Lane et al., *Implicit Social Cognition and Law*, 3 ANN. REV. L. & SOC. SCI. 427 (2007).

that oblige categorizing women with home faster than career, they are showing implicit sex stereotyping.¹²⁵

Nilanjana Dasgupta and Anthony Greenwald explain the way the IATs is interpreted: “When highly associated targets and attributes share the same response key, participants tend to classify them quickly and easily, whereas when weakly associated targets and attributes share the same response key, participants tend to classify them more slowly and with greater difficulty.”¹²⁶ Laurie Rudman and Richard Ashmore similarly describe the IAT’s methodology as relying on “well-practiced associations between objects and attributes.”¹²⁷

The IAT has become a particularly forceful symbol of implicit bias for legal scholars.¹²⁸ There are two primary reasons for the compelling nature of

¹²⁵ Justin D. Levinson et al., *Implicit Racial Bias: A Social Science Overview* 8, in *IMPLICIT RACIAL BIAS ACROSS THE LAW* (Justin D. Levinson & Robert J. Smith, eds. forthcoming, 2011).

¹²⁶ Nilanjana Dasgupta & Anthony G. Greenwald, *On the Malleability of Automatic Attitudes: Combating Automatic Prejudice with Images of Admired and Disliked Individuals*, 81 *J. PERSONALITY & SOC. PSYCHOL.* 800, 803 (2001).

¹²⁷ Laurie A. Rudman & Richard D. Ashmore, *Discrimination and the Implicit Association Test*, 10 *GROUP PROCESSES & INTERGROUP REL.* 359 (2007).

¹²⁸ Numerous scholars have discussed implicit bias and the IAT. *See, e.g.* Richard Delgado & Jean Stefancic, *Four Observations About Hate Speech*, 44 *WAKE FOREST L. REV.* 353, 365–66 (2009) (suggesting that hate speech may lead to implicit bias); Alex Geisinger, *Rethinking Profiling: A Cognitive Model of Bias and Its Legal Implications*, 86 *OR. L. REV.* 657, 658 (2007) (claiming that racial profiling relies on cognitive processes that harbor implicit biases); Tristin K. Green & Alexandra Kalev, *Discrimination-Reducing Measures at the Relational Level*, 59 *HASTINGS L.J.* 1435 (2008) (considering the relational aspects of implicit bias in the workplace); Jonathan Kahn, *Race, Genes, and Justice: A Call to Reform the Presentation of Forensic DNA Evidence in Criminal Trials*, 74 *BROOK. L. REV.* 325, 373 (2008) (discussing the results of IATs and stating, “To the extent that such implicit race bias might already be present among average jurors, injecting race into the presentation of forensic DNA evidence presents a significant danger of tainting the proceedings with unfair prejudice.”); Cynthia Lee, *The Gay Panic Defense*, 42 *U.C. DAVIS L. REV.* 471, 479 (2008) (discussing implicit bias in the context of sexual orientation bias); Avital Mentovich & John T. Jost, *The Ideological “Id”? System Justification and the Unconscious Perpetuation of Inequality*, 40 *CONN. L. REV.* 1095 (2008) (considering Charles Lawrence’s 1987 article on unconscious racism, *supra* note 102, in an updated scientific perspective); Michael B. Mushlin & Naomi Roslyn Galtz, *Getting Real About Race and Prisoner Rights*, 36 *FORDHAM URB. L.J.* 27, 42–46 (2009) (discussing implicit bias in the context of prisoners’ rights); Rigel C. Oliveri, *Between a Rock and a Hard Place: Landlords, Latinos, Anti-Illegal Immigrant Ordinances, and Housing Discrimination*, 62 *VAND. L. REV.* 55, 74–77 (2009) (predicting that implicit bias leads to housing discrimination against illegal immigrants); Gregory S. Parks & Quinetta M.

the measure. First, research has shown consistently that people's implicit biases frequently diverge from their self reported attitudes, a phenomenon known as dissociation.¹²⁹ Thus, people who view themselves as having favorable attitudes towards certain groups may be surprised to learn that this explicit favorability is not reflected in that person's implicit cognitions.

Second, the IATs popularity among scholars as a symbol of inequality may be traced to its success in predicting the way people make decisions. That is, the simple methodology of the IAT has shown how implicit bias leads to important real world consequences, ranging from doctor's medical treatment decisions to human resource officers' decisions whether or not to offer an interview to a job candidate.¹³⁰ For example, medical researchers found that when asked to diagnose and treat a hypothetical patient (who was pictured as either black or white), emergency room doctors in Boston and Atlanta relied on their implicit racial biases.¹³¹ Doctors who showed more bias in the black-white IATs were more likely to offer a preferred heart treatment to a white patient than a black patient.¹³² Similarly striking research emerged in Sweden, where Dan-Olof Rooth replied to hundreds of job postings by submitting resumes that differed only in the ethnicity revealed by the applicant's name.¹³³ Rooth measured which resumes elicited invitations to interview, and

Roberson, *Michelle Obama: A Contemporary Analysis of Race and Gender Discrimination through the Lens of Title VII*, 20 HASTINGS WOMEN'S L.J. 3 (2009) (considering race- and gender-based implicit bias in politics and in the workplace); Gregory S. Parks & Shayne E. Jones, "Nigger": A Critical Race Realist Analysis of the N-Word Within Hate Crimes Law, 98 J. CRIM. L. & CRIMINOLOGY 1305 (2008); Robert G. Schwemm, *Why Do Landlords Still Discriminate (And What Can Be Done About It)?*, 40 J. MARSHALL L. REV. 455, 507 (2007) (noting that implicit bias may affect housing rentals more than employment decisions).

¹²⁹ See Fazio and Olson, *supra* note 107, at 303; Jerry Kang, *supra* note 4, at 1513. See also Laurie A. Rudman, *Social Justice in Our Minds, Homes, and Society: The Nature, Causes, and Consequences of Implicit Bias*, 17 SOC. JUST. RES. 129, 133 (2004).

¹³⁰ See Siri Carpenter, *Buried Prejudice*, 2008 SCI. AM. MIND 32.

¹³¹ Alexander R. Green et al., *Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients*, 22 J. GEN. INTERNAL MED. 1231 (2007).

¹³² *Id.*

¹³³ Dan-Olof Rooth, *Implicit Discrimination in Hiring: Real World Evidence* (Inst. for the Study of Labor, Discussion Paper No. 2764, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=984432).

subsequently tracked down the individual human resources officers responsible for making the interviewing decisions. Without knowing the true purpose the study, the human resources officers completed an IAT. The researcher was able to measure the relationship between the officers' IAT scores and their previous decisions of whether or not to interview a candidate.¹³⁴ He found that the greater the human resources officers' implicit bias, the more likely those officers were to extend an interview to a non-Arab candidate. Other studies, including a meta-analysis of over 100 IATs, confirm that implicit bias on the IAT indeed predicts the way people make decisions in the real world.¹³⁵

Few IATs have been conducted in the legal setting, but the ones that have tend to prove that implicit racial biases are powerful and have broad effects.¹³⁶ A study by Levinson, Young, and Huajian Cai, for example, tested implicit associations relating to the presumption of innocence and found that people hold implicit associations between black and guilty.¹³⁷ Using an IAT created specifically to examine the implicit connections of the presumption of innocence, as well as a traditional IAT measuring implicit racial attitudes, the researchers also showed that IAT scores predicted the way in which participants evaluated ambiguous trial evidence.¹³⁸

The research from implicit social cognition has shown repeatedly that when stereotypes are activated, concerning consequences often follow. If, for example, racial stereotypes are powerful enough to affect hiring decisions, medical treatment judgments, and inequality in legal decision-making, then perhaps it would not be surprising if they were similarly strong enough to overpower behavioral economic principles. Yet it is not only the power of

¹³⁴ *Id.* at 11.

¹³⁵ Anthony Greenwald et al., *Understanding and Using the Implicit Association Test: III. Meta Analysis of Predictive Validity*, 97 J. PERSONALITY & SOC. PSYCHOL. 17 (2009).

¹³⁶ See, e.g. Theodore Eisenberg & Sheri Lynn Johnson, *Implicit Racial Attitudes of Death Penalty Lawyers*, 53 DEPAUL L. REV. 1539, 1542 (2004) (finding implicit racial bias among capital defense attorneys); Jerry Kang et al., *Are Ideal Litigators White? Measuring the Myth of Colorblindness*, 7 J. EMPIRICAL LEG. STUD. 886 (2010) (finding that implicit stereotypes about the ethnicity of successful litigators predicted judgments of litigator performance); Jeffrey J. Rachlinski et al., *Does Unconscious Bias Affect Trial Judges?*, 84 NOTRE DAME L. REV. 1195 (2009) (finding that judges possess implicit biases favoring whites over blacks, and these biases sometimes predicted judge's decisions).

¹³⁷ Justin D. Levinson et al., *Guilty by Implicit Racial Bias: The Guilty/ Not Guilty Implicit Association Test*, 8 OHIO ST. J. CRIM. L. 187 (2010).

¹³⁸ *Id.* at 206.

implicit racial stereotypes that might lead them to trump behavioral economic principles. It is also the underlying cognitive similarities between implicit racial biases and behavioral economic principles.

C. Sibling Relationship: The Similarities of Behavioral Economics and Implicit Social Cognition

Legal scholars have tended to analyze implicit social cognition and behavioral economics separately, and most scholars writing in these areas have focused on one, but not both fields.¹³⁹ Yet, a select few commentators have recognized that the fields hold more similarities than differences. Christine Jolls and Cass Sunstein, for example, have noted that there are fundamental reasons for considering them together.¹⁴⁰ Jolls posits: “[a]lthough implicit racial or other group-based bias is not conventionally grouped with other forms of bounded rationality within behavioral economics, the fit may be more natural than has typically been supposed. Such implicit bias may often result from the way in which the characteristic of race or other group membership operates as a sort of ‘heuristic’ – a form of mental short-cut.”¹⁴¹ The

¹³⁹ Christine Jolls and Jeffrey Rachlinski are two scholars who have written extensively in behavioral law and economics, but have also considered the effects of implicit racial bias. *See, e.g.* Christine Jolls, *Antidiscrimination Law’s Effects on Implicit Bias*, in BEHAVIORAL ANALYSES OF WORKPLACE DISCRIMINATION 69 (Mitu Gulati & M. Yelnosky, eds. 2007); Christine Jolls & Cass R. Sunstein, *Debiasing Through Law* 35 J. LEGAL STUD. 199 (2006); Christine Jolls & Cass R. Sunstein, *supra* note 6; Jolls et al., *supra* note 1; Rachlinski, *Judging in Hindsight*, *supra* note 8; Rachlinski et al., *supra* note 138; Andrew J. Wistrich et al., *Can Judges Ignore Inadmissible Information: The Difficulty of Deliberately Disregarding*, 153 U. PA. L. REV. 1251 (2005). My research has primarily focused on implicit bias, but has also included discussions of cognitive biases and behavioral law and economics. *See, e.g.* Justin D. Levinson, *Mentally Misguided: How State of Mind Inquiries Ignore Psychological Reality and Overlook Cultural Differences*, 49 HOW. L.J. 1 (2005); Justin D. Levinson, *Culture, Cognitions, and Legal Decision-Making*, in HANDBOOK OF MOTIVATION AND COGNITION ACROSS CULTURES 423–39 (R. Sorrentino & S. Tamaguchi eds., 2008); Justin D. Levinson & Kaiping Peng, *Different Torts for Different Cohorts: A Cultural Psychological Critique of Tort Law’s Actual Cause and Foreseeability Inquiries*, 13 S. CAL. INTERDISC. L.J. 195, 195 (2004) (highlighting cultural differences in cognitive biases); Justin D. Levinson & Kaiping Peng, *Valuing Cultural Differences in Behavioral Economics*, 4 ICFAI J. BEHAV. FIN. 32 (2007).

¹⁴⁰ Jolls & Sunstein, *supra* note 6.

¹⁴¹ Jolls, Behavioral Law and Economics (2006) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=959177). Jolls and Sunstein add: “legal responses to implicit bias are illuminatingly analyzed in terms that bring such bias in direct

suggestion that implicit bias be analyzed as a separate heuristic within behavioral economics is progressive because it recognizes the cognitive interconnectedness of the fields. However, it overlooks the fact that implicit racial bias likely does not merely function as an independent bias. Rather, it may play a key interactive role in blunting or modifying other behavioral economic phenomena in every situation in which race is a factor.¹⁴²

As Jolls and Sunstein suggest, research from the mind sciences shows that the cognitive mechanisms underlying implicit bias and behavioral economics are quite similar, a finding that would at minimum support an investigation of what happens when the two collide.¹⁴³ This similarity derives from a few key facts relating to the ways in which both fields operate in analogous situational and cognitive domains. First, and most importantly, they share automaticity as a core feature. As Jolls and Sunstein note: “implicit bias—like many of the heuristics and biases emphasized elsewhere—tends to have an automatic character.”¹⁴⁴ Recall, for example, that a hallmark of hindsight bias, like implicit racial bias, is that it is automatic and non-conscious.¹⁴⁵ When outcome information is introduced, the human mind immediately reacts by revising the way the perceiver processes information about the past. In this sense, hindsight bias’ automaticity resembles racial priming, which operates with similar speed and efficiency. When a racial stereotype becomes primed, it quickly begins to exert a strong influence over the way in which people perceive subsequent situations.¹⁴⁶

Second, both fields lean upon aspects of the human memory in decision-making. Recall that anchoring effects rely partially on the human memory in

contact with cognitive psychology and behavioral economics.” Jolls & Sunstein, *supra* note 6, at 973.

¹⁴² The investigation of implicit bias’ effects on behavioral economic phenomena should not be limited to just implicit racial bias. In fact, all stereotypes, including but not limited to gender, ethnic, religion, sexual orientation, weight, and age, have the potential to modify behavioral economic phenomena.

¹⁴³ Jolls & Sunstein, *supra* note 6, at 973-75.

¹⁴⁴ *Id.* at 973.

¹⁴⁵ See *supra* note 106-107 and accompanying text.

¹⁴⁶ See *supra* note 108-118 and accompanying text. Perhaps the biggest difference between the phenomena of hindsight bias and racial stereotype priming is that hindsight bias focuses on a specific situation for which outcome is known and priming focuses on the effect of a prime on a network of related decisions.

determining how far to adjust to an anchor.¹⁴⁷ As Epley and Gilovich note, anchoring effects are produced by “enhanced accessibility of anchor-consistent information.”¹⁴⁸ When a perceiver is exposed to an anchor, the mind immediately begins working to determine how far to adjust in order to reach the truth. The cognitive bias arises when the anchor elicits a heavier load of anchor consistent information from the memory than is actually representative for the relevant query.¹⁴⁹ The perceiver therefore relies too heavily on the anchor and fails to adjust adequately.¹⁵⁰ A similar phenomenon based on recall bias in the human memory occurs with implicit racial bias.¹⁵¹ Specifically, during deliberations of a trial in which racial stereotypes are present, information processing problems begin to arise.¹⁵² Although the juror’s mind attempts to perfectly retrieve the information from trial, as with the anchoring effect the mind cannot help but retrieve biased information. A study by Levinson found, for example, that mock jurors remember and misremember facts from a criminal assault case in ways consistent with racial stereotypes of black aggression.¹⁵³ As Levinson noted, these “memory errors are pervasive, meaningful, and hard to correct.”¹⁵⁴ Thus, the human memory becomes compromised in the presence of racial stereotypes much as anchor consistent information clouds adjustment efforts.

Third, the two fields rely on similar motivating factors that drive the cognitive errors themselves. The endowment effect, for example, is driven by various factors related to loss aversion, a key motivator of which is the perceiver’s implicit need for self esteem.¹⁵⁵ When presented with an opportunity to sell an item that the perceiver possesses, the implicit need for self esteem exerts itself by increasing the perceived value of the item.

¹⁴⁷ See *supra* note 59 and accompanying text.

¹⁴⁸ Epley & Gilovich, *supra* note 57, at 312.

¹⁴⁹ *Id.* at 311-12.

¹⁵⁰ *Id.* at 312.

¹⁵¹ See generally *Id.*

¹⁵² *Id.* at 373-81.

¹⁵³ *Id.* at 398-404.

¹⁵⁴ *Id.* at 406.

¹⁵⁵ See *supra* note 91 and accompanying text.

Similarly, hindsight bias has been explained with regard to the perceiver's need to increase self esteem. But what connects implicit racial bias to implicit self esteem? As Section III introduces, System Justification Theory has hypothesized, among other things, that higher status group members' desire to oppose equality is related to increased self esteem.¹⁵⁶ In both fields, then, people's irrational or biased decisions can be traced at least partially to their need to maintain self esteem.

The underlying similarities between behavioral economic and implicit bias are therefore salient. It should not be surprising, then, if similar situations can trigger their automatic biasing effects. Yet scholars have yet to consider what happens when behavioral economic principles and racial stereotypes collide. Perhaps one explanation is that scholars have tended to overlook implicit bias when considering how and why economic discrimination functions. The next Section considers this possibility, and presents a theoretical approach that can explain why implicit bias must be considered in all economic decision-making contexts.

III. ECONOMIC INEQUALITY AND THE IMPLICIT NEED TO SUBORDINATE

As Section II demonstrated, the underlying similarities of behavioral economics and implicit social cognition necessitate an investigation of what happens when the two fields collide. Beyond these similarities, however, it is possible to add theoretical depth in predicting how implicit racial biases might disrupt economic biases in decision-making. This Section considers the possibility that implicit bias may disrupt economic efficiency and interfere with behavioral economic phenomena because people act on an unconscious need to maintain the social and economic status quo. Research suggests that this unconscious need, which may lead to the subordination of already disadvantaged groups, may exist as a way to maintain implicit self-esteem for members of well positioned groups. As a result, the behavioral economic deviations from rationality displayed by individual actors may yield to more powerful socio-hierarchical needs that not only function as part of the self (as behavioral economic principles do in maintaining implicit self esteem, for example), but also as part of a linked collective (albeit unconscious) effort to maintain social dominance.

Empirical studies have long demonstrated that people tend to discriminate against out-group members in real world economic decision-making domains,

¹⁵⁶ System Justification Theory is discussed *infra* Section IIIA.

ranging from pricing of automobiles, to taxicab tipping, to the setting of bail in criminal trials. Similarly, in the economic laboratory setting, “game” studies, such as trust games¹⁵⁷ and dictator games¹⁵⁸ show that when people interact with members of out-groups, they shift resources away from out-group members.¹⁵⁹ But why? First, like with other cognitive biases, economics has a difficult time explaining this; economic racial discrimination is irrational. Second, although some commentators have explained economically discriminatory behavior as resulting from people’s conscious and intentional desire to discriminate, economic discrimination may be better explained through an implicit bias lens. That is, people may make economically discriminatory decisions because of an implicit need to maintain economic and social hierarchies by reinforcing the status quo. Such an implicit need could be capable of producing a powerful economic bias that wreaks discriminatory havoc.

The contention that people harbor an implicit need to maintain racial and economic hierarchies is partially supported by System Justification Theory, which explains why people discriminate in a manner that tends to perpetuate the status quo.¹⁶⁰ System Justification Theory shows that discrimination has

¹⁵⁷ Trust games are those in which a participant is given a certain amount of money and is given the chance to either keep that amount of money, or alternatively, transfer the money (times a some multiple, usually 2 or 3) to a partner. The partner then has the choice of giving some of the money back to the participant.

¹⁵⁸ Dictator games are similar to ultimatum games, except that the partner, or second mover, has no opportunity to allocate money. Thus, the only decision made is the initial decision of the participant.

¹⁵⁹ See, e.g. Catherine C. Eckel & Rick K. Wilson, *Conditional Trust: Sex, Race and Facial Expressions in a Trust Game* (2002), (unpublished manuscript), available at http://www.ruf.rice.edu/~rkw/RKW_FOLDER/PC_2002_RKW.pdf; Catherine C. Eckel & Ragan Petrie, *Face Value*, AM. ECON. REV. (forthcoming 2011). These studies are discussed *infra* notes 201-214 and accompanying text.

¹⁶⁰ Gary Blasi & John T. Jost, *System Justification Theory and Research: Implications for Law, Legal Advocacy, and Social Justice*, 94 CALIF. L. REV. 1119 (2006). Avital Mentovich & John T. Jost, *The Ideological “ID”? System Justification and the Unconscious Perpetuation of Inequality*, 40 CONN. L. REV. 1095 (2008); John T. Jost et al., *A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo*, 6 POL. PSYCHOL. 881, 912 (2004) [hereinafter Jost et al., *A Decade of System Justification Theory*]; Laurie A. Rudman et al., *Minority Members’ Implicit Attitudes: Automatic Ingroup Bias as a Function of Group Status*, 20 SOC. COGNITION 294, 294 (2002); John T. Jost et al., *Non-Conscious Forms of System Justification: Implicit and Behavioral Preferences for Higher Status Groups*, 38 J. EXPERIMENTAL SOC. PSYCHOL. 586, 593 (2002); John T. Jost et al., *Social*

both conscious and unconscious roots, and that decision making may be occurring as an implicit status quo maintenance tool.¹⁶¹ In proposing that implicit racial bias functions to disrupt economic activity, rational or irrational, in discriminatory ways, this section first explains System Justification Theory and empirical studies that confirm how it functions. It then presents studies documenting a range of continued economic discrimination, and notes that commentators have tended to rely largely on conscious factors to explain this discrimination. It next uses the studies as a basis to consider how implicit racial bias may trump behavioral economic phenomena, and sets the stage for Section IV's empirical study by revisiting specific economic-based cognitive biases in light of a SuperBias.

A. System Justification Theory and Status Quo Maintenance

System Justification Theory (SJT) posits that, despite people's (self reported) explicit preferences, they sometimes act automatically and unconsciously to maintain a structure of social order.¹⁶² Specifically, SJT posits that people act to subordinate low-status groups because, among other things, maintaining social and racial hierarchies strengthens high-status group members' self esteem and helps them create a "rationalization of the status quo."¹⁶³ As this section will show, SJT (and implicit bias generally) can interfere both with economic rationality and with the economical "irrationality" characterized by behavioral economics. In addition, SJT offers evidence that explains why even members of low-status groups may unconsciously act against their own self interest by choosing to accept (implicitly, at least) some aspects of the discrimination and failing to oppose

Inequality and the Reduction of Ideological Dissonance on Behalf of the System: Evidence of Enhanced System Justification Among the Disadvantaged, 33 EUR. J. SOC. PSYCHOL. 13(2003); Aaron C. Kay & John T. Jost, *Complementary Justice: Effects of "Poor but Happy" and "Poor But Honest" Stereotype Exemplars on System Justification and Implicit Activation of the Justice Motive*, 85 J. PERSONALITY & SOC. PSYCHOL. 823 (2003).

¹⁶¹ Jost et al., *A Decade of System Justification Theory*, *supra* note 160, at 888.

¹⁶² Portions of this paragraph, including footnotes are largely a verbatim description of System Justification Theory presented in Levinson, *Forgotten Racial Equality*, *supra* note 4 at 362-63. See Jost et al., *A Decade of System Justification Theory*, *supra* note 160, at 912. System Justification Theory evidence shows, for example, that many members of minority groups harbor negative stereotypes about their own groups. *Id.* at 884. For a discussion of System Justification Theory in law and social justice, see Gary Blasi & John T. Jost, *System Justification Theory and Research: Implications for Legal Advocacy and Social Justice*, 94 CAL. L. REV. 1119, 1144-62 (2006).

¹⁶³ Jost et al., *A Decade of System Justification Theory*, *supra* note 160, at 888.

regimes that would improve the status quo. Specifically, as Jon Jost and his colleagues explain, “research repeatedly shows that low-income groups are scarcely more likely than high-income groups to support [policies that would help] them.”¹⁶⁴

Studies by SJT researchers have begun to shed light on a psychological reason underlying why high status groups choose to oppose economic and racial equality. Jon Jost and E.P. Thompson tested the relationship between opposition to equality and self related measures, including self esteem and neuroticism.¹⁶⁵ The researchers hypothesized that the more members of high status social groups (i.e. European Americans) opposed equality (thus reinforcing their own dominance), the higher their self esteem (and the lesser their neuroticism) would be.¹⁶⁶ Their study of several hundred participants confirmed this hypothesis.¹⁶⁷ The more that European American participants opposed equality, the greater their self-esteem was.¹⁶⁸ Similarly, the more the European American participants opposed equality, the less their neuroticism was.¹⁶⁹ This result shows that people may continue to perpetuate inequality (and continued racial and economic subordination) as psychological self enhancement (seeking higher self esteem and lower neuroticism), much as

¹⁶⁴ *Id.* at 884.

¹⁶⁵ Jon T. Jost & Eric P. Thompson, *Group-Based Dominance and Opposition to Equality as Independent Predictors of Self-Esteem, Ethnocentrism, and Social Policy Attitudes among African Americans and European Americans*, 36 J. EXP. SOC. PSYCHOL. 209 (2000). The researchers measured opposition to equality using half of the Social Dominance Orientation Scale developed by Felicia Pratto and her colleagues. Felicia Pratto et al., *Social Dominance Orientation: A Personality Variable Predicting Social and Political Attitudes*, 67 J. PERSONALITY & SOC. PSYCHOL. 741, 742 (1994). For example, participants were asked to rate their agreement with the following statements: “Increased social equality would be a good thing,” and “[w]e would have fewer problems if we treated different groups more equally.” Jost & Thompson, *supra* note 165, at 216. For more on Social Dominance Orientation, see Levinson, *Forgotten Racial Equality*, *supra* note 4 at 361-62; JIM SIDANIUS & FELICIA PRATTO, *SOCIAL DOMINANCE: AN INTERGROUP THEORY OF SOCIAL HIERARCHY AND OPPRESSION* (1999) (for a discussion on social dominance theory).

¹⁶⁶ Jost & Thompson, *supra* note 165, at 213.

¹⁶⁷ *Id.* at 217-18.

¹⁶⁸ *Id.* at 229.

¹⁶⁹ *Id.*

people display the hindsight bias and endowment effect for a similar psychological reason.

SJT also shows how the powerful cognitive forces underlying high status groups' opposition to equality may fail to be countered by equal and opposite resistance by members of low status groups.¹⁷⁰ In a study investigating how the desire to maintain social order may influence implicit attitudes, Laurie Rudman and her colleagues examined how less favored minority group members may actually implicitly (versus explicitly) support own-group subordination.¹⁷¹ They found that members of less-favored minority groups (such as overweight people and poor people) implicitly preferred more favored minority groups (such as Asians and Jews) to their own groups, but that these preferences only operated implicitly.¹⁷² The results indicated that the lower the cultural status of the group, the more likely the members of that group would demonstrate "automatic ingroup devaluation."¹⁷³ This research suggests that although people may act or speak out (explicitly) to reject social ordering of preferred groups, they may also possess implicit motivation to maintain social and cultural hierarchies, even when it means disfavoring their own group. This implicit motivation to maintain hierarchies may result in biased economic decision-making by consumers and service providers alike.

B. Implicit Bias Leads to Economic Discrimination

Within the context of economic discrimination, implicit bias scholarship predicts that conscious and unconscious psychological factors will combine to perpetuate inequality. Several examples of documented economic discrimination, both in the real world and the laboratory, help demonstrate how implicit bias, amplified by people's implicit need to maintain the social and racial status quo, may be functioning in hidden yet powerful ways that skew a variety of economic decisions.

Discrimination in Real World Studies. Studies of real world discrimination provide one domain in which racial stereotypes may overpower economic rationality. Several studies of economic decision-making have shown the ways

¹⁷⁰ Laurie A. Rudman et al., *Minority Members' Implicit Attitudes: Automatic Ingroup Bias as a Function of Group Status*, 20 SOC. COGNITION 294, 294 (2002).

¹⁷¹ *Id.*

¹⁷² *Id.* at 312.

¹⁷³ *Id.*

racial disparities may be propagated. In one such study,¹⁷⁴ Ian Ayres and Peter Siegelman sent pairs of trained “testers” to negotiate the purchase of a car at over two hundred randomly selected car dealerships in the Chicago area.¹⁷⁵ The testers were trained to bargain uniformly, such that the only meaningful difference between the testers was designed to be their race, gender, or both.¹⁷⁶ Once a dealership was selected randomly, the researchers assigned a pair of testers to that dealership.¹⁷⁷ The researchers measured the first offer made by the dealer as well as the subsequent offers made by the dealers during the course of negotiations.¹⁷⁸ Ayers and Siegelman found significant discrimination in the bargaining process. Car dealers made more favorable offers to white men and made worse offers to black women, white women and black men.¹⁷⁹ In particular, dealers tended to demand the highest prices of black men, averaging about one thousand dollars per vehicle more than white men.¹⁸⁰

Researchers have found similar results in other economic domains, such as in the employment sector. In a real world study of hiring decisions, Marianne Bertrand and Sendhil Mullainathan responded to job postings in Boston and Atlanta using resumes they created.¹⁸¹ The fictitious resumes contained candidate biographies with varying levels of experience, with some given “White sounding names” (e.g. Emily, Greg) and others given “African

¹⁷⁴ IAN AYRES, PERVERSIVE PREJUDICE (2001).

¹⁷⁵ *Id.* at 19.

¹⁷⁶ The researchers attempted to minimize other potential confounds. For example, all testers were approximately the same age, had attained the same level of education, dressed similarly, and indicated that they could self finance the automobile purchase. *Id.* at 26.

The particular testers were selected randomly. *Id.* at 23. The testers included white males, black males, white females, or black females. For each dealership selected, two testers were sent, one of which was always a white male. The order in which the testers went to the dealership was determined randomly. *Id.* at 24.

¹⁷⁸ *Id.* at 26.

¹⁷⁹ *Id.*

¹⁸⁰ *Id.* at 32. Black males were asked to pay \$962 more than white males on initial offers and \$1,133 more on final offers, compared to white males.

¹⁸¹ Marianne Bertrand & Sendhil Mullainathan, *Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination*, 94 AM. ECON. REV. 991, 992 (2004).

American sounding names” (e.g. Lakeisha, Jamal).¹⁸² When they measured the number of phone calls employers made offering interviews to the job “candidates,” the researchers found that employers were more likely to call candidates with white sounding names than candidates with black sounding names.¹⁸³ Furthermore, when accounting for both experience level and the candidate names, they found that having a white sounding name was equivalent to an additional eight years of experience.¹⁸⁴

In another study targeted directly at measuring economic discrimination in the legal system, Ayres and Joel Waldfogel examined whether discrimination against blacks operated in judges’ bail setting practices.¹⁸⁵ Previous research in this area had indicated that judges indeed required higher bail for black defendants, but in those studies it could not entirely be ruled out that the black defendants could have been a higher flight risk.¹⁸⁶ As a result, the researchers looked at a unique data set, bail bonds fees, to resolve the issue of flight risk.¹⁸⁷ Because bail bonds fees are set specifically as a percentage of the chance of flight risk, and because the bail bonds industry functions well enough to be considered a market that conveys information, it became possible to compare whether judges’ bail amounts for white and black defendants (driven by their assumptions of flight risk) are similar to the actual bail bonds fees (similarly driven by an analysis of flight risk). Ayers and Waldfogel found that black defendants were indeed given higher bail amounts for the same crimes as white defendants, yet were charged significantly less by bail bondsman.¹⁸⁸ The researchers contended that such a finding indicates that judges are erroneously setting bail too high for black males, far in excess of actual flight risk.¹⁸⁹

¹⁸² *Id.*

¹⁸³ *Id.*

¹⁸⁴ *Id.* at 998.

¹⁸⁵ AYRES, *supra* note 174.

¹⁸⁶ Ayres and Waldfogel reminded readers that the purpose of the bail amount is to set it “at the smallest amount that will ‘reasonably assure the appearance of the arrested person in court.’” *Id.* at 235 (citing CONN. GEN. STAT. ANN. §§ 54-64a (West 1985 & West Supp. 1993)).

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

Ayres and his colleagues' later studied whether economic discrimination similarly manifests in an everyday form—how much taxi riders tip their drivers.¹⁹⁰ One main difference between studying tipping and studying bargaining for the purchase of a new car, for example, is that in auto sales negotiations, the service provider has the most control, whereas in a taxi, the customer makes the decision to tip.¹⁹¹ Finding discrimination, therefore, would indicate that economic discrimination is not limited to corporate style discrimination. To measure tipping on a large scale, the researchers asked twelve taxi drivers in New Haven, Connecticut to keep a detailed log of their fares and tips over a two month period.¹⁹² Six of the drivers were black, four were white, and two were non-white minorities.¹⁹³ When the tips were tallied, the researchers found that customers tipped white drivers over sixty percent more than they tipped black drivers or other minority drivers.¹⁹⁴ Furthermore, the researchers found that black drivers were 80% more likely to be “stiffed” (given no tip at all) than white drivers.¹⁹⁵

Considering the compelling results of the studies outlined, it could be hypothesized that implicit racial bias, supported by people's implicit need to maintain the social and racial status quo, might be driving the studies' findings. Although the studies' methods did not leave room to test this hypothesis empirically, other researchers have begun to use similar methods to measure whether economic discrimination may be predicted by implicit biases. In a real world study on hiring discrimination, for example, Dan-Olof Rooth sent resumes in response to real job postings and measured the number of job interviews given to fictitious candidates with either Arab-Muslim or Caucasian-Swedish sounding names.¹⁹⁶ This study built on the previous work

¹⁹⁰ Ian Ayres et al., *To Insure Prejudice: Racial Disparities in Taxicab Tipping*, 114 YALE L.J. 1613 (2005).

¹⁹¹ *Id.* at 1619.

¹⁹² *Id.* at 1623. Every time a driver completed a fare, that driver was instructed to complete a survey regarding that fare. Drivers were paid one dollar for every survey they completed. *Id.* at 1624.

¹⁹³ *Id.* at 1623.

¹⁹⁴ *Id.* at 1627. Specifically, the white drivers were tipped 61 percent more than black drivers and 64 percent more than the other minority drivers. *Id.*

¹⁹⁵ *Id.* at 1628. The other minority drivers were even more likely to be “stiffed” (131% more likely). *Id.*

¹⁹⁶ See Rooth, *supra* note 133.

of Bertrand and Mullainathan by measuring not just interview invitations by employers, but also by testing the role of implicit bias in making these decisions. To that end, he tracked down the actual human resources officers who had invited (or not invited) candidates to interview for jobs and convinced them to take a series of IATs.¹⁹⁷ The results of the study confirmed that implicit bias predicted the HR officers' decisions. Those who harbored more implicit bias were less likely to call candidates with Arab-Muslim sounding names.¹⁹⁸ Jens Agerstrom and Rooth conducted a similar study relating to obese and non-obese job candidates.¹⁹⁹ Using photographs submitted with resumes, the researchers tested how HR officers would react to obese job candidates. They found first, that the HR officers discriminated against the obese candidates and, just as in Rooth's previous study, this discrimination was predicted by the HR officers' implicit biases.²⁰⁰ Although these studies do not conclusively prove that the discrimination shown by Ayres and others was driven by implicit racial bias, it certainly raises that possibility by showing that implicit bias can indeed affect real world economic decision-making.

Discrimination in the Laboratory. Economic game studies, which are heavily relied upon in crafting economic theory and are widely used in behavioral economics, have similarly revealed interesting race-based differences in economic decision-making, but have rarely investigated the role of implicit bias.²⁰¹ In one such study, Catherine Eckel and Rick Wilson employed a "Trust Game" in which they examined how study participants' economic trust would be affected by race, among other factors. Participants were given ten dollars²⁰² that they could either keep or "loan" to their counterpart, who was profiled and pictured on their computer screen.²⁰³ If the participants "loaned" the money to their counterpart, the money would be

¹⁹⁷ The participants were not aware of the purpose of the research project, and were paid for their participation.

¹⁹⁸ *Id.* at 16.

¹⁹⁹ Jens Agerstrom & Dan-Olof Rooth, *The Role of Automatic Obesity Stereotypes in Real Hiring Discrimination*, 96 J. APPLIED PSYCHOL. 790 (2011).

²⁰⁰ *Id.* at 796-97.

²⁰¹ It should be noted that of the thousands of published studies on economic games, it is extremely rare to find studies examining resource allocation and race, ethnicity, or gender.

²⁰² Eckel & Wilson, *supra* note 159. Dollars in the experiment could be converted to actual US dollars at the rate of two experimental dollars to one US dollar.

²⁰³ *Id.*

doubled and their counterpart would decide how to divide it between the two of them. Interestingly, 82.9% of the participants loaned the money when they had a white counterpart, but only 57.1% loaned the money to an African American counterpart.²⁰⁴

A later trust game conducted by Eckel and Ragan Petrie gave participants the opportunity to see a photo of their trust game partner.²⁰⁵ The study, just as in the previous experiment, afforded participants the opportunity to send money to a partner (in this case, sending one “token” turned that one token into three tokens), who would in turn be able to keep some of the tokens and send some back.²⁰⁶ The results of the study showed that when white participants played the trust game with a black partner, they sent only 3.6 game tokens (of ten possible) to their partner, whereas when paired with a white partner, they sent 5.5 tokens.²⁰⁷ Black participants did not give more to black partners, and in fact gave more tokens to white partners, although this trend was not statistically significant.²⁰⁸ The researchers also found that white responders returned more tokens to generous white senders than to generous black senders.²⁰⁹

Another type of economic game, a “dictator game,”²¹⁰ conducted by Christina Fong and Erzo Luttmer, tested whether people’s charitable giving would be predicted by their perceptions of the race of the charity’s beneficiaries (as well as the worthiness of the beneficiaries).²¹¹ One thousand

²⁰⁴ Due to the small number of trials in which participants were asked to lend to African American counterparts, this result was of marginal statistical significance. *Id.* at 10.

²⁰⁵ Eckel & Petrie, *supra* note 159. Participants had to “pay” a small amount of their token wealth in order to see the photo. Thus, the researchers accrued data for participants who saw a photo of their partner and participants who did not see a photo of their partner. It should be noted that the researchers employed the study at a racially diverse university with approximately 54.8% black participants and 26.2% white participants. *Id.* at 4.

²⁰⁶ *Id.* at 3-4.

²⁰⁷ *Id.* at 7. This result was reported to be statistically significant.

²⁰⁸ *Id.*

²⁰⁹ *Id.* at 10.

²¹⁰ The “dictator game” is described *supra* note 158.

²¹¹ Christina M. Fong & Erzo F. P. Luttmer, *Do Fairness and Race Matter in Generosity? Evidence from a Nationally Representative Charity Experiment*, J. PUBLIC ECON. (forthcoming, 2011).

adult participants were told that there was a 10% chance that they would receive one hundred dollars and were asked whether they would give some of that money, if they won it, to a described charity.²¹² The charity was then described and the participants saw photos of the beneficiaries of the charity's services.²¹³ The researchers found that when white participants saw photos of black beneficiaries, these participants rated the beneficiaries as less worthy; this decreased worthiness predicted a decrease in the amount that the participants agreed to give to the charity.²¹⁴

These studies demonstrate that economic discrimination is real, and that it occurs in a variety of real world and laboratory settings. But they did not investigate whether the discriminatory economic allocations were connected to people's implicit need to maintain the social and racial status quo. One study, however, directly tested whether implicit racial bias predicts economic discrimination in a game-like setting. In this experiment, Laurie Rudman and Richard Ashmore informed student participants that economic conditions made it necessary to make budget cuts to student organizations, and asked the students to make specific recommendations.²¹⁵ They then separately measured those participants' implicit biases.²¹⁶ The study showed that the more implicit bias the students harbored toward a group (e.g. Jews, blacks, or Asians), the more likely those students were to cut the budgets of related student organizations.²¹⁷ This study shows that implicit racial bias predicts the way resources may be allocated, and did so in a way that conflicted with participants self reported attitudes (participants, when asked explicitly, did not purport to harbor bias towards Jews, blacks, or Asians). It could be predicted,

²¹² *Id.* at 5-7.

²¹³ *Id.*

²¹⁴ *Id.* at 21. Interestingly, the race of the beneficiaries alone did not affect participant judgments. Instead, the race affects were caused by decreased ratings of worthiness of pictured black beneficiaries. According to the researchers, this finding "is consistent with [the] argument that 'racially biased social cognition,' rather than a taste for discrimination, accounts for racial inequality. [The] findings are also consistent with prior research showing that racially biased attitudes regarding welfare for the poor are driven by whites' beliefs that blacks are morally unworthy of support – e.g., that blacks are lazy and that they abuse welfare." *Id.* at 6, (citing G. LOURY, *THE ANATOMY OF RACIAL INEQUALITY* (2002); M. GILENS, *WHY AMERICANS HATE WELFARE* (1999)).

²¹⁵ Rudman & Ashmore, *supra* note 127.

²¹⁶ *Id.* at 364-65.

²¹⁷ *Id.* at 367-68.

then, that the economic discrimination found by Eckel and others might be driven by implicit racial bias.

Despite this prediction, scholars have largely explained the discriminatory results of the economic studies by assuming that people hold conscious reasons for their discriminatory behavior. For example, Ayres and his colleagues noted, in the taxicab tipping study, “the higher propensity of passengers to stiff black drivers seems more consistent with a theory of conscious decisionmaking.”²¹⁸ Rachel Moran similarly relies on conscious factors to explain Ayres’ automobile bargaining results, but explains the discrimination somewhat differently: “Dealers expect White men to know more and bargain harder As a result, the higher prices offered to women, whether Black or White, reflect statistical discrimination, a belief that they are easy marks for generating extra profit. By contrast, the notably higher price demanded from Black men is based on both statistical discrimination (the belief that this is a sucker) and consequential animus (a desire to keep the sucker in his place).”²¹⁹ Thus, Moran’s description relies on a combination of statistical discrimination (in which people discriminate to make a profit) and racial animus to explain the results.

However, there is little evidence that such systematic bias can only be accounted for by referencing people’s conscious decisions. Although conscious discrimination undoubtedly exists and can affect all kinds of decision-making, it is unlikely that either statistical discrimination or race based animus explains all of the racial disparities revealed by the studies.²²⁰ As the reported research shows, the more likely scenario is that implicit racial bias, amplified by System Justification Theory, causes people to take economic action that perpetuates existing hierarchies. Framed in a SJT lens, then, this section next examines how implicit racial bias could potentially interfere with specific behavioral economic principles in certain situations.

²¹⁸ Ayres et al., *supra* note 190, at 1617. Ayres and his colleagues explain further: “This does not mean that passengers were consciously stiffing based upon the cab driver’s race, but it does suggest that conscious decisionmaking of some kind was at work.”

²¹⁹ Rachel Moran, *Whatever Happened to Racism?*, 79 ST. JOHN’S L. REV. 899 (2005). Moran recognizes many of the negative consequences of this type of economic justification: “The racial disparities that result are considered unintended rather than malicious, a byproduct of the predominance of same-race families, friendships, and neighborhoods.” *Id.* at 905.

²²⁰ For example, Ayres and his colleagues did note that riders’ propensity to “round” up their tips more frequently to white drivers was likely “unconscious” in nature.

C. The Collision: Overpowering Behavioral Economic Phenomena

Implicit racial bias, amplified by SJT, has the potential to interfere with behavioral economic phenomena in racially stereotyped ways. Consider the endowment effect, for example. If someone receives a lottery ticket worth five dollars, it might take ten or more dollars to buy the ticket from that person.²²¹ The person's need to receive close to ten dollars serves an important self-related function that overpowers the economic function of rationally increasing actual wealth. Thus, people will forego money so long as there is sufficient psychological (plus economic) value associated with possessing an item. In the case of the lottery ticket, the psychological value attached to it is largely due to the holder's artificially inflated estimate that the ticket will end up a winner. The artificial inflation itself, however, is due to the possessor's largely unconscious need to feel better about the situation.

The SuperBias Endowment Effect. But what happens to the endowment effect when, as in the real world, race, ethnicity, class, gender, and other factors become part of the economic mix? From an economic perspective, if the lottery ticket owner is offered eight dollars for the ticket worth five dollars, the owner should take the deal. The racial identity of the offering party is clearly irrelevant. Yet if owners accept eight dollar offers from in-group members (say, a European American male) and reject identical offers from out-group members (say, an African American male), how would we explain that decision? Would we, as Ayres' studies have been constructed, believe that conscious animus towards African American males drives us to intentionally demand more before shifting resources to them? Perhaps, but SJT allows us to consider that the endowment effect becomes malleable because, on top of the baseline implicit need to feel better about the situation, there are other implicit cognitive demands (which economists would similarly deem "irrational") on the ticket owner.

These additional implicit needs are similarly inconsistent with economic self interest, but are instead consistent with SJT: first, securing a greater amount of wealth from an out-group member (if, indeed the out-group member chooses to buy at such a high price) serves to shift economic resources only in a windfall economic situation, and second, transferring assets only at above market prices to lower status group members helps bolster the self esteem of the higher status group. Neither of these SJT consistent rationales would hold true if the transaction occurred at the five dollar economic value of the ticket.

²²¹ The real numbers supported by endowment effect are not so "round." For detailed results of a similar lottery ticket study, see Knetsh & Sinden, *supra* note 81.

If a transaction occurs at ten dollars, for example, the ticket has shifted hands, but at a steep cost to the buyer (an economic loss of five dollars). In this situation, it is indeed irrational for the individual to hold out for such a high price, but the collective entity (European American males in such a market) benefits (in terms of status quo maintenance, at least) from the individual's seemingly irrational decision. Thus, the seller's irrationality, presumed by the endowment effect to be part of implicit self esteem maintenance, has added racial status quo maintenance as a new esteem-related goal, and perhaps has done so even without the seller's conscious awareness.

Similarly, the heightened race-based irrationality of the transaction may have been exacerbated by the "buyer's" unconscious complicity. If, as Rudman and colleagues' study demonstrates, lower status members also harbor implicit needs to maintain the hierarchy of the status quo, the buyer's seemingly irrational decision to spend so much could similarly be explained. Thus, a racially irrational transaction occurs because of the power of implicit bias (and system justification) on both buyers and sellers.

The economic discrimination found in Ayres and Siegelman's study of automobile pricing could be in part due to what happens when endowment effect meets implicit racial bias. Consider why a car salesperson would choose to ask, for example, \$1,000 more from black male compared to white male shoppers. Although Ayers and colleagues gave several possibilities for this result, one additional possibility could be related to implicit racial bias and the endowment effect. Car dealerships act as owners of the cars. In a typical situation, due to the compelling business reasons that would require familiarity with the value of their fleet, one would not expect that car dealers would subjectively overvalue the worth of their cars. But endowment effect would certainly make this a possibility, as in the case of a used car market, for example. In the classic car bargaining scenario, car dealers' endowment effect, if any, would be countered by consistently lower purchaser offers, offers that would reflect close to the true market value of the cars. Thus, if the dealers wanted to sell cars, more often than not they would have to accept an offer closer to the true economic value of the car. Their business would fail, otherwise.

So why might things be different in the case of black buyers? As SJT and the above discussion suggest, dealers may have dual implicit needs that arise and trump the original endowment effect: first, the implicit need to maintain the racial status quo, and second, the need to maintain self esteem. In formulating a first offer price, and again as negotiations proceed, dealers possessing these powerful implicit needs will find it harder to adjust to market

offers. Moreover, market factors may play a role. To the extent that many or even most dealers ask for more money from black buyers, then the buyers' reaction to the artificially inflated market may not allow for a successful bargaining session that would result in a purchase price that is equal to the true economic value. Instead, the artificially high prices may cause black buyers to have to purchase the cars at higher prices. Although technology presumably helps all buyers obtain competitive prices in today's information filled marketplace, it is still possible that price disparities will result.

The SuperBias Anchoring Effect. Like the endowment effect, other behavioral economic phenomena may similarly yield to an implicit need to maintain the social and racial status quo. The anchoring effect, for example, has been shown to affect jurors' judgments of damages.²²² When jurors are exposed to irrationally high requests for damages, they are unable to fully disregard the anchor when they determine damages.²²³ Beginning at the high anchor and adjusting downwards, the jurors finally select a number when the dollar value in their mind comports with legitimate examples or memories they can retrieve. But is such an adjustment possible without bias when race becomes introduced? Here, resulting biases are likely magnified not so much by SJT as by the effect of racial stereotypes.

Imagine that a pedestrian brings suit after being injured by faulty machinery while walking past a construction site. If the victim-plaintiff is white, a juror's mental search in response to a high anchor proposed by counsel may proceed differently than if the victim-plaintiff is black. Specifically, when considering potential damages in response to the high anchor proposed, the juror's mental search will yield more cognitive "hits". This result can be explained because it is common for a black male to be stereotyped as poor and lazy.²²⁴ So long as the jurors are aware of this stereotype, even if they do not consciously embrace it, their downwards adjustment to the plaintiff's high anchor may continue for the black plaintiff long after they would have settled on a reasonable adjustment for an otherwise

²²² See Tor, *supra* note 1, at 252-53.

²²³ *Id.* at 252, citing EDIE GREENE & BRIAN H. BORNSTEIN, DETERMINING DAMAGES: THE PSYCHOLOGY OF JURY AWARDS 152-54 (2003).

²²⁴ Results of the black-white stereotype IAT consistently show that people associate black with traits such as lazy as hostile, and whites with traits such as ambitious and calm. See, e.g. Rudman & Ashmore, *supra* note 127 at 365; Brian Nosek et al., *Harvesting Implicit Group Attitudes and Beliefs from a Demonstration Website*, 6 GROUP DYNAMICS 101, 102 (2002) (reporting results from six hundred thousand IATs on the popular online website, including significant Black-White IAT results).

identical white plaintiff. In the case of low anchors (offered by the defense attorney), it will conversely be easier for the jurors to find a cognitive representation closer to the low anchor when the plaintiff is black. Note that with the anchoring effect, system justification theory is operating in a softer form than with the endowment effect. Here, simply embracing the contents of one's own mind (which contain stereotypic representations of reality) allows for a black plaintiff to be harmed through implicit racial bias in anchoring effect.

Racial stereotype influenced anchoring could also help to explain documented racial disparities. The economic bias found in Ayres and Waldfoegel's study of bail setting, for example, could be due to racial stereotype affects on anchoring. Assuming, *arguendo*, that prosecutor requests for bail are equal for defendants in similar situations, bail discrepancies might be traced to judges' failure to adjust anchors sufficiently. For example, judges may make stereotype influenced judgments of flight risk that can corrupt the anchoring adjustment process. To the extent that judges hold (even implicit or unconscious) stereotypes of black male defendants as being non-trustworthy and immoral, stereotype-consistent memories will prove more accessible than if the same defendants were white. Thus, in making a particular bail setting decision, a judge may have an easier time recalling an analogous black male who was a genuine flight risk than an analogous white male who was a flight risk. Such memory-driven stereotypes could account for the real-world bail setting discrepancies found by Ayres and Waldfoegel.

The SuperBias Hindsight Bias. As described in Section II, hindsight bias describes the phenomenon whereby people overestimate the likelihood that an event would occur when they already know the outcome of that event. Hindsight bias occurs largely because of self-esteem reasons. Essentially, people's need to believe that they are wise (and, given relevant information, would be able to predict the outcome of an event) causes them to revise history such that they can claim to "know it all along."

But how does people's implicit need to feel wise compare with people's implicit need to maintain the social and racial status quo? It is quite possible that a psychological need to enhance the in-group and maintain the status quo might overpower the temporary need to feel wise. After all, status quo maintenance is potentially a more economically important and longer-term proposition than is the implicit need to feel wise. Imagine a situation, for example, in which people are asked to identify the likelihood that a victim who was shot in the stomach would have died. In the situation in which the victim has indeed died from the gunshot wound, one would not expect to see any

hindsight bias differences based on the perpetrator's race. After all, the hindsight information of the victim dying from the wound is consistent with the stereotype of an aggressive killer inflicting a mortal wound. Yet, in the situation in which the victim survives, the simple fact that people stereotype blacks as aggressive killers could lead to an altered evaluation in one of these situations. One could predict that the aggressive stereotype of the perpetrator would lead people to partially forget the real outcome (the victim lived) and overstate the victim's chances of dying.

A 1990 study by Galen Bodenhausen examined what happens when the hindsight bias meets stereotypes.²²⁵ Participants in the study read one of two descriptions of a crime, either an alleged sexual assault by a high school teacher of a student, or a violent assault.²²⁶ For the violent assault, participants read about an alleged assailant named either Robert Garner or Roberto Garcia. For the sexual assault, participants read about a male teacher sexually assaulting either a male student or female student.²²⁷ Thus, regardless of the case they read, participants either read about a crime committed by a stereotyped offender (e.g. Hispanic for one; homosexual for the other) or a non-stereotyped offender (Caucasian for one; heterosexual for the other). At the end of the crime descriptions, participants were told that the defendant was either found guilty or not guilty. Thus, they were given information that should trigger hindsight bias if later asked to provide their personal estimation of whether the defendant was guilty or not. When participants were later asked whether the defendant should be convicted for the crime, Bodenhausen found that the participants displayed the expected hindsight bias when non-stereotyped offenders were described, or in cases in which the defendants had been found guilty. But in cases in which stereotyped defendants had been found not guilty, participants did not display the hindsight bias and instead predicted that the defendant would be found guilty. Thus, the study showed that crime related stereotypes of perpetrators overpowered hindsight bias. In light of its fascinating findings, it is somewhat surprising that the study has not been replicated or modified in a modern racial climate, which many claim to be significantly different than in 1990.²²⁸ Similarly, researchers have not

²²⁵ See Bodenhausen, *supra* note 5.

²²⁶ *Id.* at 1115.

²²⁷ *Id.*

²²⁸ See Mario L. Barnes et al., *A Post-race Equal Protection?* 98 GEO. L.J. 967 (2010); Camille A. Nelson, *Racial Paradox and Eclipse: Obama as a Balm for What Ails Us*, 86 DENV. U. L. REV. 743 (2009); Charles J. Ogletree, Jr. & Johanna Wald, *After Shirley Sherrod, We All Need to Slow Down and Listen*, WASH. POST, July 25, 2010,

examined what happens when other behavioral economic phenomena clash with racial stereotypes.²²⁹

Building on the several theoretical reasons for exploring the intersection of behavioral economic principles and implicit racial bias, as well on as Bodenhausen's 1990 study, I conducted an empirical study designed to test what happens when racial stereotypes and behavioral economics collide.

IV. THE EMPIRICAL STUDY

In order to test the collision of racial stereotypes and economic-based cognitive biases, I designed and conducted an empirical study. This Section reports on the details of study, including the research methods, study materials, and results. The study was based on a criminal trial vignette that simultaneously exposed participants to cues that would be expected to trigger both hindsight bias and anchoring effects. In addition to the behavioral economic cues, the race of the defendant was varied, such that half of the trials described an African American defendant and the other half described a Caucasian defendant. Based upon the similar cognitive mechanisms underlying behavioral economics and implicit racial bias, as well as the powerful nature of aggressive black male racial stereotypes, I hypothesized that when the defendant was Caucasian, participants would display the expected hindsight bias and anchoring effects; and when the defendant was

<http://www.washingtonpost.com/wp-dyn/content/article/2010/07/23/AR2010072304583.html>; Kathleen Schmidt & Brian A. Nosek, *Implicit (and Explicit) Racial Attitudes Barely Changed During Barack Obama's Presidential Campaign and Early Presidency*, 46 J. EXPERIMENTAL SOC. PSYCHOL. 308 (2010) (showing psychological evidence that President Obama's rise to the presidency did little to change implicit racial bias). In addition, it would be important to test this phenomenon for a hindsight measure other than guilty/ not guilty, as it is conceivable that the participants' judgments were skewed by their beliefs that juries might be biased.

²²⁹ The SuperBias discussions discussed in the text regarding anchoring effects, endowment effect, and status quo bias would be good places to start. Other behavioral economic phenomena, though not discussed at length here, would similarly make good targets for empirical study. The phenomenon of loss aversion generally, exemplified by framing effects, for example, might yield interesting results. Framing effects refers to the concept that people place more value on items that are lost rather than found. Applying implicit bias and SJT to framing effects could reveal that higher status group members will be more averse to losing things when it ends up in hands of subordinated group.

African American, participants would display diminished or otherwise altered cognitive biases.²³⁰

A. *Methods and Materials*

Participants were 217 undergraduate students at a major research university who participated for extra credit. The mean participant age was 20.48 years. Fifty nine percent of the participants were female. There was considerable ethnic diversity among the participants. Thirty-nine percent of the participants identified themselves as Asian or Asian-American,²³¹ twenty-four percent of the participants identified themselves as Caucasian, four percent identified themselves as Pacific Islander, seven percent identified themselves as Native Hawaiian, three percent identified themselves as Latino/Hispanic, and ten percent identified themselves as “other.”²³²

Participants were told to imagine that they were jurors in a criminal trial. They then read the following description of the case.²³³

Tyronne, a 23 year old African American man, first encountered James, a 30 year old plumber, when they accidentally bumped elbows in a crowded bar. In the accident, James spilled beer onto Tyronne’s shirt and shorts. Tyronne was visibly angry but the encounter ended when a bar employee took him by the arm and led him away. As Tyronne walked away with the bar employee, James smiled at Tyronne and chuckled. An hour after leaving the bar, Tyronne and a friend spotted James outside a local diner. They approached James slowly, and Tyronne said: “Why did you bump into me back there?” James said nothing and just looked down. Tyronne and his friend moved closer to James and Tyronne repeated his question. James said: “You don’t handle your liquor too well. Get out of my face.” Without hesitating, Tyronne then punched James in the face. James fell back. He then turned around, took a couple steps away from Tyronne, and appeared to

²³⁰ See Bodenhausen, *supra* note 5.

²³¹ Of these participants, thirty-eight identified themselves as Japanese American, seventeen identified themselves as Chinese American, and seven identified themselves as Korean American. Fifteen marked “other” Asian American, which included Filipino.

²³² Some participants did not report their ethnicity.

²³³ The vignette was a modified version of the fact pattern used by Levinson, *Forgotten Racial Equality*, *supra* note 4.

reach for something in his pocket. Tyronne quickly grabbed his gun, and just as James turned around, Tyronne shot him once in the stomach. James immediately fell to the ground. Tyronne and his friend then walked away quickly and quietly.

When the police and ambulance arrived 15 minutes later, James was barely alive. He was pronounced dead upon arriving at the hospital.

An eyewitness description of Tyronne led police to arrest him two hours later. The gun was found in a dumpster outside of his apartment. The prosecution has charged Tyronne with murder.

B. Measures

The case information allowed for three variables to be tested: hindsight, anchor, and race of perpetrator. The study was designed as a “between-subjects” study, such that participants in different conditions read a different version of the study.²³⁴ The hindsight and race experimental conditions were varied in the text of the case, while the anchoring experimental condition was varied in the questions posed after the case.

Hindsight condition. In the hindsight condition, half of the participants (those in the “died condition”) read that James was “pronounced dead upon arriving at the hospital.” The other half (those in the “survived condition”) read that “[a]fter a two hour surgical procedure, his condition improved and he was expected to survive.” Hindsight bias would predict that participants in the “died condition” (those who read about a victim that died from the gunshot wound), when asked how likely it was that the victim’s injuries would result in death, would be more likely than participants in the “survived condition” to estimate that the gunshot would be fatal.

Anchoring condition. Anchoring was varied in the questions following the case. The anchor was set by asking the participants to complete following question: “In the state of Hawaii, the minimum jail sentence for attempted murder²³⁵ is shorter/longer (circle one) than __ years.” Half of the participants were asked whether the sentence is shorter/longer than 10 years (the “short

²³⁴ Thus there were eight different possible versions that participants could receive.

²³⁵ To maintain consistency, participants in the “died condition” were asked about the minimum jail sentence for murder rather than attempted murder.

anchor”), and half were asked whether the sentence is shorter/longer than 25 years (the “long anchor”). The participants were then asked “how long do you think the minimum jail sentence is for attempted murder?”²³⁶ The science underlying anchoring effects would predict that, because they would selectively retrieve memories related to the length of the anchor, participants in the “short anchor” condition would select a shorter minimum jail sentence compared to participants in the “long anchor” condition. In addition to being asked about the law’s minimum jail sentence, participants were asked how long they thought the minimum jail sentence should be.

Race condition. Finally, for the race condition, half of the participants read about William, who was identified as a Caucasian man, and the other half read about Tyrone, who was identified as an African American man. This condition was designed so that the interaction of hindsight bias, anchoring effects and racial stereotypes could be explored.

C. Results

Results were calculated using the statistical method of ANOVA.²³⁷

Hindsight Bias. The results confirmed that hindsight bias affected participants’ estimates of the mandatory minimum jail sentence. As expected, participants in the “died condition” were more likely to believe that the victim would die of the gunshot wound (estimating the likelihood at 76.4%) than participants in the “survived condition” (estimating the likelihood at 65.5%), $F(1, 204) = 16.958$, $p < .001$. This result confirms that hindsight bias operates in legal decision-making²³⁸ and, in particular, indicates that participants were unable to disregard the outcome information that had been provided.

Anchoring Affect. The results confirmed that anchoring effects influenced participants’ judgments of minimum sentences for murder and attempted murder. As predicted, participants in the short anchor condition believed that the minimum sentences were shorter than participants in the long anchor condition, $F(1, 202) = 39.385$, $p < .001$. Specifically, participants given a 10 year anchor estimated that the minimum sentence was 11.4 years, and

²³⁶ Here again, participants in the “died condition” were asked about the minimum jail sentence for murder.

²³⁷ An ANOVA is a statistical analysis that tests the variance of participant responses.

²³⁸ Other empirical studies have found hindsight bias in legal decision-making. See, e.g. Kamin & Rachlinski, *supra* note 8.

participants given a 25 year anchor estimated that the minimum sentence was 19.1 years.

Race Effects on Hindsight Bias. As predicted, racial stereotypes served to blunt the hindsight bias. Participants in the white perpetrator condition displayed a stronger hindsight bias than participants in the black perpetrator condition, $F(1, 204) = 2.75, p < .05$.²³⁹ Stated simply, when there was a black perpetrator and a victim who survived, participants displayed significantly less hindsight bias compared to when there was a white perpetrator. Participants who read about a black perpetrator estimated that the victim was 68.3% likely to die after a similar attack, while participants who read about a white perpetrator estimated that the victim was 62.7% likely to die. There were lesser differences between participants in the black perpetrator condition and the white perpetrator condition when in the “died condition,” likely because in this condition there was no conflict between the outcome (death) and racial stereotypes of black aggression.²⁴⁰ Overall, participants in the white perpetrator condition displayed significant hindsight bias, $F(1, 103) = 18.1, p < .001$, while participants in the black perpetrator condition displayed lesser, marginally significant, hindsight bias, $F(1, 98) = 2.79, p = .097$.

Race Effects on Anchoring. Racial stereotypes also appeared to somewhat blunt anchoring effects, but the effect was not of statistical significance. It was hypothesized that, in the high anchor condition (in which participants were given a 25 year anchor), participants reading about a black perpetrator would display weaker anchoring effects due to race-relevant stereotypes relating to weak criminal sanctions. Displaying a trend in the predicted direction, for participants in the high anchor condition, those who read about a black perpetrator believed that the average sentence for the crime was 17.78 years, whereas those who read about a white perpetrator believed that the average sentence for the crime was 20.45 years.²⁴¹ This difference in the numbers did not reach statistical significance. $F(1, 202) = 0.96, p > .10$. Stated simply, participants who read about a black perpetrator appeared to believe the mandatory sentence was shorter when given a long anchor.

²³⁹ A one-tailed p test was conducted because the specific directionality of the interaction, that the hindsight bias would be lessened in the attempted murder case, was being tested.

²⁴⁰ See Graph 1, *infra* Appendix A. These results are consistent with the results in Bodenhausen’s study. See Bodenhausen, *supra* note 5, at 1117.

²⁴¹ See Graph 2, *infra* Appendix A.

D. Limitations

The study was designed as an initial investigation into what happens when racial stereotypes and cognitive biases collide. There were several limitations of the study that should be addressed in future research. First, the participant pool was limited to university students taking psychology courses. The study participants may not have therefore been representative of a broader population. Although a broad population is not crucial for initial studies seeking to identify a psychological phenomenon, it becomes more important as the phenomenon is retested and confirmed. Second, the study tested how racial cues in a stereotype consistent setting would interact with a cognitive bias. Yet, because it was not confirmed that the study activated implicit racial stereotypes, it cannot be known whether the study tested implicit racial bias specifically, rather than stereotype-consistent racial cues that were operating explicitly. Future studies should therefore specifically test whether implicit racial biases were operating. In addition, future studies should build on this study by expanding the phenomena that were tested. As described in Section III, the endowment effect would be a perfect candidate for a laboratory type economic game featuring game partners from varying racial groups.

V. AN IMPLICIT BIAS MODEL OF BEHAVIORAL ECONOMICS: FUTURE DIRECTIONS AND LEGAL RESPONSES

The results of the empirical study support the contention that racial stereotypes may trump or otherwise alter behavioral economic principles in certain circumstances. Two primary areas of consideration arise in the study's aftermath. First, behavioral economic scholarship, and the behavioral model itself, must be reconsidered in light of racial stereotypes. And second, a detailed empirical research agenda is needed in order to confirm how racial stereotypes function across a range of cognitive biases.

A. Developing A Stereotype Competent Behavioral Economic Model

Behavioral law and economics scholars should begin considering how to build a stereotype competent model of behavioral law and economics. Specifically, a stereotype competent model must consider that, in addition to the implicit needs that drive traditional cognitive biases, people have an implicit need to maintain the status quo, and therefore deviations from rational economic decision-making may move in a direction that continues this subordination. To date, however, scholars have been almost solely concerned simply with how human minds irrationally stray from economically beneficial decisions. But if these minds do so in a predictably biased way whenever

stereotypes are present, then a new model, coupled with new potential solutions, must be explored. This exploration requires recognizing that very few economic transactions occur in the absence of stereotypes. Although race may not be an issue in all economic decisions, if one factors in gender, age, disability, sexual preference, obesity, and religion, among others, and the stereotypes and implicit needs that come with these categories, it becomes clear that existing models require major updating. Such an updating would involve considering changes in what scholars have considered descriptive, prescriptive, and normative implications of behavioral economics.²⁴² A brief look ahead, then, at the way a SuperBias would change the proposed responses to behavioral economics, would be warranted.

A major question legal scholars will have to debate is the role of paternalism in reducing the race-skewed effects of behavioral economic principles. Scholars have had a difficult time agreeing upon how much intervention, if any, is desirable to facilitate the proper level of economic behavior. A leading school of thought in this area, libertarian paternalism, holds that the law should implement careful interventions that improve economic outcomes but still allow for choice.²⁴³ It must be considered whether solutions that re-frame choices, for example, will ameliorate or perhaps exacerbate the race based effects of certain behavioral economic principles. If anchors, frames, hindsight, or other effects are skewed in a racially unequal direction, then will existing proposed remedies such as hiding anchors, changing frames, or the like improve the problem or exacerbate it? And will new remedies, perhaps those borrowed from “debiasing” studies in implicit social cognition,²⁴⁴ provide additional avenues for an exploration of how to respond to irrationality? It is likely that some potential responses will improve the problem, while others will make it worse. The empirical answer to this question must therefore be pursued.

B. An Empirical Future Research Agenda

In addition to a reexamination of the behavioral economic model, a robust research program must continue to investigate the ways in which racial

²⁴² For more on these concepts, see Jolls et al., *supra* note 1.

²⁴³ See Sunstein & Thaler, *supra* note 71.

²⁴⁴ For more on debiasing, see e.g., Kang, *supra* note 4, at 1580; Kang & Banaji, *supra* note 4, at 1101–08; Levinson, *Forgotten Racial Equality*, *supra* note 4 at 406-17; Page, *supra* note 103, at 239.

stereotypes modify or otherwise change behavioral economic findings. The success of behavioral law and economics has largely been built upon powerful and consistent empirical findings. This expansion of behavioral knowledge should be no different. Backed by research funding, this effort should systematically examine what happens when racial stereotypes are present in a range of economic situations. Here, I offer a basic suggestion for future empirical research that would provide a logical starting point.

Studying the endowment effect in racial context would be a straightforward endeavor. Researchers can specifically investigate whether endowment effects are strengthened when other market players are racial (or other) minorities, leading to maintenance of the social and racial status quo. In order to conduct such a study, researchers could either simulate a trading market or they could conduct a live trading market and follow it with implicit association tests. In a simulated trading market, participants could be brought to a laboratory in small groups, seated at computers, and given (endowed) or not given certain objects, and asked to make an offer to sell or buy the object to or from a hypothetical partner. The partner would be pictured on the computer screen, such that the partner's race could be varied by the researchers using photographs that have been pre-tested for stereotypicality and attractiveness (or using face morphing software that is designed to avoid non-race differences in the faces). Researchers could then measure the strength of the endowment effect. It could be hypothesized that white participants will display stronger endowment effects when they are asked to transfer their endowed objects to non-white partners. Researchers could then give participants IATs in order to test whether implicit bias predicts these race-based economic decisions. Another variation on the same, computer based study would be to avoid specifically showing participants photos of their partners, but to prime their partner's race subliminally. Studies have shown that study participants may guard against bias in their responses when they suspect a race-focused purpose of a study, and other projects have found that subliminal priming avoids this guarding.²⁴⁵ Researchers should therefore consider using both explicit racial priming through photographs as well as implicit subliminal priming methods.

VI. CONCLUSION

Legal scholarship is in the midst of a sophisticated and fruitful updating of its model of human decision-making. Recent decades have brought vast

²⁴⁵ See Rachlinski et al, *supra* note 136 (finding that implicit bias predicted judges' discriminatory decisions when race was primed subliminally, but not when it was explicitly presented).

improvements to legal theory that have begun to recognize the true and complex nature of the human mind. Yet for all the successes of this updating, it has not been perfect. In the same way that other areas of scholarship have overlooked the role of race, culture and inequality, behavioral economics has done the same. It has assumed that even behavioral deviations from rationality are connected to a drive for individual self-enhancement and improvement that overlooks the role of powerful cultural and social forces on the human mind. Fortunately, implicit social cognition research has separately brought to light many of the effects of these powerful forces. This inequality focused mind science has sent a powerful message to scholars concerned about racial justice. Yet the same message has been missed even by those who understand its sophisticated empirical research and statistical methods. With the embracing of a race-competent model of behavioral law and economics, scholars will be taking a major step in bringing an accurate and fair model of decision-making to the law.