

VALUING CULTURAL DIFFERENCES IN BEHAVIORAL ECONOMICS

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Behavioral economic research has tended to ignore the role of cultural differences in economic decision-making. The authors suggest that a systematic bias affects existing behavioral economic theory-- cognitive biases are often assumed to be universal. To examine how cultural background informs economic decision-making, and to test framing effects, morality effects, and out-group effects in a cross-cultural study, the authors conducted an experiment in the United States and China. The experiment was designed to test cultural and cognitive effects on a fundamental economic phenomenon-- how people estimate the financial values of objects over time.

Results of the experiment demonstrated dramatic cultural differences in financial value estimations, as well as on the influence of variables such as framing effects. Chinese participants made higher object value estimates than Americans did, even when adjusting for differing national inflation rates. In addition, the results showed that contextual information, such as framing, morality information, and group membership affected judgments of financial values in complex ways, particularly for Chinese participants. The results underscore the importance of understanding the influence of cultural background on economic decision-making. The authors discuss the results in the context of behavioral law and economics, and propose that importing cultural competence into behavioral models can lead to cognitive debiasing, both temporary and permanent.

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INTRODUCTION

Neoclassical economic theory assumes that all people, across nations, cultures, and backgrounds make economic judgments in essentially the same way. In the past three decades, psychological and behavioral economic research have demonstrated that people depart quite frequently and systematically from the neoclassical economic model.¹ This behavioral critique of rational economic choice has been embraced by many disciplines, including by scholars in the field of behavioral law and economics.² Even with the prospering of the behavioral critique of rational economics, however, most researchers (including those advocating for an accurate behavioral model) still adhere to universalistic assumptions. That is, they assume that if a cognitive bias or heuristic will cause deviation from rational economic decision-making, all people will be susceptible to that bias and deviate in their decision-making. As a result, the potential that cultural differences systematically influence economic decision-making has generally been overlooked by economists and behavioralists alike.³

¹ See Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979). 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).

² See Christine Jolls, Cass R. Sunstein, & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 *STAN. L. REV.* 1471 (1998). See also Kim A. Kamin & Jeffrey J. Rachlinski, *Ex Post Ex Ante: Determining Liability in Hindsight*, 19 *LAW & HUM. BEHAV.* 89 (1995); Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 *U. CHI. L. REV.* 571 (1998); Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 *NW. U. L. REV.* 1227 (2003).

³ Although most scholars continue to overlook cultural differences in their behavioral assumptions, a few have called attention to systematic cultural differences in a variety of behavioral assumptions. Projects that linked culture to behavioral economics have included those by Licht and Mitchell. See Amir N. Licht, *The Mother of all Path Dependencies: Toward a Cross-Cultural Theory of Corporate Governance Systems*, 26 *DEL. J. CORP. L.* 147 (2001); Amir N. Licht, *Legal Plug-Ins: Cultural Distance, Cross-Listing, and Corporate Governance Reform*, 22 *BERKELEY J. OF INT'L L.* 195 (2004); Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 *GEO. L.J.* 67 (2002); Gregory Mitchell, *Mapping Evidence Law*, 2003 *MICH. ST. L. REV.* 1065. See also Jeffrey J. Rachlinski, *Cognitive Errors, Individual Differences, and Paternalism*, 73 *CHI. L. REV.* 207 (2006); Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on*

If culture systematically affects economic decision-making, behavioral and financial models should adjust to recognize the importance of culture. Making such an adjustment requires not just treating cultural differences as simple triggers of individual differences⁴ or as biases themselves to be removed through a problem-solution debiasing framework.⁵ Instead, incorporating cultural knowledge requires that culture be recognized both as a cause of diverse decision-making and as a prescriptive tool that can help facilitate behavioral predictions and legal reform efforts. Along these prescriptive lines, consider a biological analogy-- scientists have unearthed new potential cures for disease simply by investigating biological and genetic diversity across cultural groups.⁶ These studies have shown that elements of diversity may contain clues that can be used to understand vulnerabilities in some groups.⁷ Exploring the cultural foundations of fundamental economic decision-making may similarly reveal clues that would assist both economic and financial modeling, as well as debiasing efforts.

This Article critiques a behavioral economics field that has traditionally ignored cultural variation, and argues that cross-cultural learning can teach us not only how to avoid cognitive biases, but also how to build accurate legal and behavioral models. We make two primary claims. First, we argue that behavioral models should recognize the systematic influence of culture on

Risk, 119 HARV. L. REV. 1071 (2006). Kahan and his colleagues' model brings a focus on cultural preferences to decision-making theory. We believe, however, that the cultural preferences discussed by Kahan and his colleagues are distinguishable from the cross-cultural influences on thought that we describe. See *infra* note [77]. Jeffrey J. Rachlinski, *Cognitive Errors, Individual Differences, and Paternalism*, 73 CHI. L. REV. 207 (2006).

⁴ Some recent scholarship in behavioral law and economics recognizes that individual differences play a role in bias susceptibility. See Christine Jolls & Cass R. Sunstein, *Debiasing through Law*, 35 J. LEGAL STUD. 199 (2006). Though they do not specifically discuss cultural differences, Jolls and Sunstein do address how individuals with different bias susceptibilities would be affected by their model.

⁵ Debiasing literature has not suggested that culture may contain debiasing clues. See, e.g. Boris Fischhoff, *Debiasing*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman et al., eds. 1982). For a thorough discussion of debiasing in the law, see Jolls & Sunstein, *supra* note ___ (arguing for debiasing through changes to substantive law). Existing models of debiasing generally make the same universalistic assumptions as behavioral economics.

⁶ See David B. Goldstein & Gianpiero L. Cavalleri, *Understanding Human Diversity*, 437 NATURE, October 27, 2005, at 1241 (discussing how gene variants may be used to better understand potential cures for genetically influenced diseases). Also relevant to discussions of diversity and biological solutions is research indicating that biological diversity may serve to reduce risks of disease. See, e.g. *Biodiversity May Reduce Lyme Disease*, SCIENCE DAILY, June 8, 2000, available at <http://www.sciencedaily.com/releases/2000/06/000608074403.htm> (last visited, April 20, 2006).

⁷ *Id.*

economic decision-making. Second, we propose that cultural knowledge should be an integral part of debiasing solutions. To make these claims, it is first necessary to illustrate that culture does in fact influence economic decisions. We pursued this challenge by employing an empirical study across cultures that tested both financial value estimations and contextual variables common to social psychological discourse. We specifically chose to test financial estimations⁸ because of their fundamental importance to economic analysis. Our results indicate not only that economic decision-making varies systematically across cultures, but also that members of different cultures react to situational variables in divergent ways.⁹

We have organized this Article as follows: In Section II, we review the importance of economic decision-making in today's financial and legal worlds, and situate this importance against a backdrop of globalization with an Asia focus. After establishing the practical economic and theoretical reasons for studying economic decision-making across cultures, we detail the social and cognitive bases of our claims, relying primarily on cultural psychological theory. Cultural psychology has theoretically, and in some cases explicitly, given us reason to think that cultural competency is integral to behavioral models. We then review existing behavioral economic and legal discourse. We point out that although cultural psychology has recently been recognized in a few discussions of legal policy, most scholarship continues to overlook its powerful influences. Furthermore, scholarship in debiasing also overlooks culture as a potential solution tool.

In Section III, we detail our empirical project, from predictions to results. To test our theory that culture influences economic decision-making in a variety of systematic ways, we conducted an empirical investigation of financial value estimations across cultures, and examined how these estimations might be susceptible to a variety of contextual factors. Our results indicate that Americans and Chinese make vastly different fundamental economic assumptions in making financial value estimations. In addition, the results show that contextual variables (such as framing) have different effects based on the participant's culture. These results reinforce the conclusion that culture is an important factor in decision-making. Section IV connects the

⁸ As will become clear in our empirical study, *infra* Section III, when we refer to "financial estimations" we are referring to laypersons' judgments of the actual value of a given object (such as a gold ring). Note that this focus on financial estimations varies slightly with behavioral economic studies that focus more on the utility of an object's value than on the actual value itself. We chose to test financial estimations rather than utility judgments because we believed that value estimations are more fundamental economic judgments, and we desired to begin our empirical investigation by looking at the most fundamental economic measures.

⁹ In addition to our empirical study, we discuss existing cross-cultural research on cognitive biases, *infra* Section II C.

study's results to behavioral economic and legal discourse, and proposes that culture should be incorporated into economic decision-making models. If economic decision-making (and cognitive biases) vary systematically across cultures, then behavioral economic models must either incorporate cultural variables or specifically acknowledge the cultural limitations of those models. Section V proposes the concept of debiasing through cultural competency. We suggest two ways in which cultural competency can help us better understand and solve deviations from rational economic thought: through cultural training and through model building. Section VI offers some concluding thoughts.

II. BEHAVIORAL ECONOMICS IN A DIVERSE AND INTERCONNECTED WORLD

A. *Global Economic Development and Financial Judgments*

Understanding the essence of how people make financial judgments has worldwide significance. For centuries economists, businesspeople, politicians, and scholars have relied on economic and financial assumptions when generating theory, crafting laws and developing policy.¹⁰ Only in the past few decades, however, have psychologists discovered the roles of cognitive forces in economic decision-making.¹¹ These discoveries, embodied by the fields of behavioral economics and behavioral finance,¹² added a human component to models of economic decision-making at a time when the world's business marketplace was rapidly becoming globally interconnected and diverse.¹³ In the years since Kahneman and Tversky unveiled their early findings,¹⁴ behavioral economics has prospered and the world's economy has continued to diversify, with eyes shifting east to China, an emerging economic

¹⁰ See, e.g., ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS (1776).

¹¹ See Kahneman & Tversky, *supra* note [1]; 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).

¹² In this Article, we focus primarily on behavioral economic claims. However, we believe that our claims, and in particular our empirical study's results, apply to behavioral finance as well. For more on behavioral finance, see, e.g., Lawrence A. Cunningham, *Behavioral Finance and Investor Governance*, 59 WASH. & LEE L. REV. 767 (2002); Robert Prentice, *Whither Securities Regulation? Some Behavioral Observations Regarding Proposals for its Future*, 51 DUKE L.J. 1397, 1400 (2001); Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1 (2003).

¹³ See SMART GLOBALIZATION: DESIGNING GLOBAL STRATEGIES, CREATING GLOBAL NETWORKS (Anil K. Gupta & D. Eleanor Westney, eds., 2003); Theodore Levitt, *The Globalization of Markets*, HARVARD BUS. REV., May 01, 1983 (providing a provocative perspective on globalization). See also Nanette S. Levinson & Minoru Asahi, *Cross-National Strategic Alliances and Interorganizational Learning*, 24 ORGANIZATIONAL DYNAMICS 50 (1995)

¹⁴ See Kahneman & Tversky, *supra* note [1]; Kahneman & Tversky, *supra* note [11]; Tversky & Kahneman, *supra* note [11].

force.¹⁵ Yet, despite the simultaneous emergence of behavioral economics and economic globalization with an East Asian focus, economists, psychologists, and legal scholars have only begun to explore how cultural forces affect financial decision-making in systematic and predictable ways. Such an exploration reveals not only that people make economic judgments and financial estimations in systematically different ways across cultural groups, but also that understanding cultural differences themselves may help debiasing efforts.

B. Cognitive Deviations from Economic Rationality

The history of behavioral economics has illuminated fascinating deviations from utility theory, but its theories are rarely tested in a cross-cultural setting. Notwithstanding its culturally universal assumptions, “prospect theory” has been widely accepted as a behavioral-based alternative to expected utility theory.¹⁶ Prospect theory, and behavioral economics more generally, explain why decision-makers systematically deviate from economically rational models.¹⁷ For example, the endowment effect illustrates that the perceived value of an object increases when a person owns it.¹⁸ Tversky and Kahneman also found that losses are considered by people to be more important than equivalent gains.¹⁹ They explained that losses loom bigger than gains psychologically because they seem more powerful, more likely to take place, and appear more significant in affecting the future.²⁰

Another economic bias, the money illusion effect, shows that people tend to focus more on nominal values than real values.²¹ For instance, people

¹⁵ See, e.g. CHINA’S CENTURY: THE AWAKENING OF THE NEXT ECONOMIC POWERHOUSE (Laurence J. Brahm ed., 2001); ODED SHENKAR, THE CHINESE CENTURY : THE RISING CHINESE ECONOMY AND ITS IMPACT ON THE GLOBAL ECONOMY, THE BALANCE OF POWER, AND YOUR JOB (2005); James Kynge, *A Tireless Powerhouse in the Region: Trade in China*, FIN. TIMES (U.K. ed.), Oct. 16, 2001; *China, Coming Out*, THE ECONOMIST, Mar. 23, 2006.

¹⁶ See, e.g. REID HASTIE & ROBYN M. DAWES, RATIONAL CHOICE IN AN UNCERTAIN WORLD (2001); BEHAVIORAL LAW AND ECONOMICS (C. Sunstein, ed. 2000); Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115 (2003).

¹⁷ See Kahneman & Tversky, *supra* note ___. See also Jolls et al, *supra* note ___.

¹⁸ Kahneman & Tversky, *supra* note ___. See also Korobkin, *supra* note ___; Jennifer Arlen et al., *Endowment Effects Within Corporate Agency Relationships*, 31 J. LEGAL STUD. 1 (2002).

¹⁹ Amos Tversky & Daniel Kahneman, *The Framing of Decisions and The Psychology of Choice*, 211 SCI. 453 (1981).

²⁰ *Id.* See also Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CALIF. L. REV. 627 (1996).

²¹ See Eldar Shafir et al., *Money Illusion*, 112 Q. J. ECON. 341 (1997). See also Michael Pereira, *Risk Management for the Age of Information*, 9 FORDHAM J. CORP. FIN. L.

react more favorably to a 2% salary raise in times of 4% inflation than to a 2% salary cut in times of no inflation, even when they are aware of all relevant information. A study of this effect was conducted by Raghurir and Srivastava,²² who tested how people understand and mentally calculate the economic basis of currency exchange and value.²³ They found that, consistent with the money illusion effect, people's spending behavior is a function of the relationship between the face value (nominal value) of the foreign currency and their home currency. This is true, they hypothesized, because an individual forms an initial judgment by anchoring on a more salient and easy to use attribute, such as the face value of the currency, and then adjusts that initial judgment to reflect other remaining attributes.²⁴

Legal scholars have done well to incorporate a vast array of psychological factors into legal fields that are heavily influenced by economic models.²⁵ These proponents of behavioral economics have recognized that neoclassical economic models of legal efficiency fail to accurately predict human behavior.²⁶ As a result, over the past decade, commentators have critiqued a wide spectrum of legal rules.²⁷ This work has had a broad impact on legal scholarship.²⁸ Influential works have emerged from some of the nation's top legal minds, including in the areas of contract law²⁹, tort law³⁰,

715 (2003) (reviewing ROBERT J. SHILLER, *THE NEW FINANCIAL ORDER: RISK IN THE 21ST CENTURY* (2003)).

²² Priya Raghurir & Joydeep Srivastava, *Effect of Face Value on Monetary Valuation in Foreign Currencies*, 29 J. CONSUMER RES. 335 (2002).

²³ *Id.*

²⁴ *Id.* See also Brian Wansink et al., *An Anchoring and Adjustment Model of Purchase Quantity Decisions*, 35 J. MARKETING RES. 71 (1998).

²⁵ See Jolls et al, *supra* note __; BEHAVIORAL LAW AND ECONOMICS, *supra* note __.

²⁶ See *id.* See also Donald Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499 (1998); Dan Simon, *A Third View of the Black Box: Coherence in Legal Decision Making*, 71 U. CHI. L. REV. 511 (2004).

²⁷ See Langevoort, *supra* note __.

²⁸ See Cass R. Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115 (1999); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000).

²⁹ See Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211 (1995); Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998); Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203 (2003); Oren Bar-Gill & Omri Ben-Shahar, *Threatening an 'Irrational' Breach of Contract*, 11 SUP. CT. ECON. REV. 143 (2004); Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. LEGAL STUD. 203 (1997); Linda Babcock et al., *Biased Judgments of Fairness in Bargaining*, 85 AM. ECON. REV. 1337 (1995); Linda Babcock & Greg Pogarsky, *Damage Caps and Settlement: A Behavioral Approach*, 28 J. LEGAL STUD. 341 (1999).

property law³¹, criminal law³², corporate and securities law³³, discrimination law³⁴, and punitive damages³⁵, among others. These works typically critique a substantive legal area's economic assumptions by describing a more accurate understanding of human behavior. Other influential works begin not with a broad legal area but with a cognitive bias, and work from there, pointing out its influence on either a specific topic or a range of legal topics. These works have

³⁰ See Eric A. Posner, *Probability Errors: Some Positive and Normative Implications for Tort and Contract Law*, 11 SUP. CT. ECON. REV. 125 (2004); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 NYU. L. REV. 630 (1999); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420 (1999); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: A Response to Market Manipulation*, 6 ROGER WILLIAMS U. L. REV. 259 (2000).

³¹ See Jeffrey Rachlinski & Forest Jourden, *Remedies and the Psychology of Ownership*, 51 VAND. L. REV. 1541 (1998); Daphna Lewinsohn-Zamir, *The Choice between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEXAS L. REV. 219 (2001); Avishalom Tor & Dotan Oliar, *Incentives to Create Under a "Lifetime-Plus-Years" Copyright Duration: Lessons from a Behavioral Economic Analysis for Eldred v. Ashcroft*, 36 LOY. L.A. L. REV. 437 (2002)(focusing on intellectual property analysis).

³² See Alon Harel & Uzi Segal, *Criminal Law and Behavioral Law and Economics: Observations on the Neglected Role of Uncertainty in Detering Crime*, 1 AM. L. & ECON. REV. 276 (1999); Ehud Guttel, *Overcorrection*, 93 GEO. L.J. 241 (2004); Tom Baker et al., *The Virtues of Uncertainty in Law: An Experimental Approach*, 89 IOWA L. REV. 443 (2004).

³³ See Kent Greenfield, *Using Behavioral Economics to Show the Power and Efficiency of Corporate Law as a Regulatory Tool*, 35 U.C. DAVIS L. REV. 581 (2002); Donald C. Langevoort, *Organized Illusions: A Behavioral theory of Why Corporations Misdlead Stock Market Investors (and Cause Other Social Harms)*, 146 U. PENN. L. REV. 101 (1997); Reza Dibadj, *Reconceiving the Firm*, 26 CARDOZO L. REV. 1459 (2005); Marleen A. O'Connor, *The Enron Board: The Perils of Groupthink*, 71 U. CIN L. REV. 1233 (2003); Donald C. Langevoort, *The Human Nature of Corporate Boards: Law, Norms and the Unintended Consequences of Independence and Accountability*, 89 GEO L. J. 797 (2001); Robert A. Prentice, *Whither Securities Regulation? Some Behavioral Observations Regarding Proposals for Its Future*, 51 DUKE L.J. 1397 (2002); Stephen M. Bainbridge & G. Mitu Gulati, *How Do Judges Maximize? (The Same Way Everybody Else Does - Boundedly): Rules of Thumb In Securities Fraud Opinions*, 51 EMORY L.J. 83 (2002); Robert A. Prentice, *The Case of the Irrational Auditor: A Behavioral Insight into Securities Fraud Litigation*, 95 NW. U. L. REV. 133 (2000); Stephen J. Choi & A.C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1 (2003).

³⁴ See Cass Sunstein & Christine Jolls, *The Law of Implicit Bias*, (unpublished manuscript, Available at SSRN: <http://ssrn.com/abstract=897553>); See also Jerry Kang, *Trojan Horses of Race*, 118 HARV. L. REV. 1489 (2005)(focusing on research in social cognition rather than behavioral economics).

³⁵ See PUNITIVE DAMAGES: HOW JURIES DECIDE (Cass R. Sunstein et al., eds. 2002); Cass R. Sunstein et al., *Assessing Punitive Damages (with Notes on Cognition and Valuation in Law)*, 107 YALE L. J. 2071 (1998); W. Kip Viscusi, *The Challenge of Punitive Damages Mathematics*, 30 J. LEGAL STUD. 313 (2001).

included projects covering the hindsight bias³⁶, the endowment effect³⁷, framing effects³⁸, the overconfidence effect³⁹ and others⁴⁰.

Though behavioral economic research has tested the influence of a large number of situational and contextual influences on decision-making, there still remain other documented influences on thought that have generally been overlooked in the context of financial decision-making. These influences not only may affect financial decision-making, but are likely to fluctuate in importance across cultures. For example, the in-group/out-group bias shows how people tend to give the benefit to members of their own group.⁴¹ Though this bias has been applied considerably in the legal context⁴², its effects on traditional economic judgments (such as the financial value of objects) have not been tested.

Another bias-like mechanism is the effect of morality information on decision-making. This effect, as demonstrated by the principle of “culpable causation”, indicates that people are more likely to attribute the cause of an action to a low moral actor compared to a high moral actor.⁴³ Alicke showed, for example, that Americans are more likely to attribute causal blame for a car accident to drug dealing drivers (compared to good husband drivers), even when the morality of the drivers was unrelated to the accident.⁴⁴ Though

³⁶ See Rachlinski, *supra* note ___. Ronald J. Gilson & Reinier Kraakman, *Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 IOWA J. CORP. L. 715 (2003). Philip G. Peters, Jr., *Hindsight Bias and Tort Liability: Avoiding Premature Conclusions*, 31 ARIZ. ST. L.J. 1277 (1999); Hal R. Arkes & Cindy A. Schipani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587 (1994).

³⁷ See Korobkin *supra* note ___; Arlen et al., *supra* note ___.

³⁸ See Chris Guthrie, *Framing Frivolous Litigation: A Psychological Theory*, 67 U. CHI. L. REV. 163 (2000); Edward J. McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 VA. L. REV. 1341 (1995); Edward A. Zelinsky, *Do Tax Expenditures Create Framing Effects? Volunteer Firefighters, Property Tax Exemptions, and the Paradox of Tax Expenditure Analysis*, 24 VA. TAX REV. 797 (2005).

³⁹ See Donald C. Langevoort, *Taking Myths Seriously: An Essay for Lawyers*, 74 CHI.-KENT L. REV. 1569 (2000); Troy A. Paredes, *Too Much Pay, Too Much Deference: Behavioral Corporate Finance, CEOs, and Corporate Governance*, 32 FLA ST. U. L. REV. 673 (2005)(discussing overconfidence effects on CEO's).

⁴⁰ See April M. Perry, Comment: *Guilt by Saturation: Media Liability for Third-Party Violence and the Availability Heuristic*, 97 Nw. U. L. Rev. 1045 (2003).

⁴¹ Marilynn B. Brewer, *In-Group Bias in the Minimal Intergroup Situation: A Cognitive-Motivational Analysis*, 86 PSYCHOL. BULL. 307 (1979).

⁴² See Anthony Page, *Batson's Blind Spot: Unconscious Stereotyping and the Peremptory Challenge*, 85 B.U. L. REV. 155 (2005); Tristin K. Green, *Work Culture and Discrimination*, 93 CAL. L. REV. 623 (2005).

⁴³ Mark D. Alicke, *Culpable Causation*, 63 J. PERSONALITY & SOC. PSYCHOL. 368 (1992).

⁴⁴ *Id.*

culpable causation is well documented and has also been incorporated into legal scholarship,⁴⁵ it has been generally overlooked in the financial arena, perhaps due to a perceived incompatibility between morality and economic decisions.

Due to their influence on causal attributions and responsibility judgments, however, one might hypothesize that out-group bias and morality effects could similarly affect the way people judge the financial value of objects. For example, a person might estimate the financial value of an object differently based on whether the possessor of the object is an in-group or out-group member (even when objective anchors are held constant). In addition, because these effects have been shown to vary across cultures,⁴⁶ they might serve to illustrate how financial estimates are made differently across cultures.

C. Cultural Psychology and Biases across Cultures

Despite the great strides psychologists and behavioral economists have taken in identifying deviations from rational economic thought, scholars often fail to investigate whether cross-cultural differences could illustrate that deviations from rational economic thought are less than universal. Because most of the evidence on human rationality (or irrationality) is based on theories and evidence developed by Western scholars, assumptions generated by these scholars may themselves be affected by culturally guided assumptions about human minds, desires and rationality.

Cultural psychology, the study of how culture affects the way people think, has recently challenged many previously universalistic assumptions regarding human behavior.⁴⁷ For instance, the fundamental attribution error had previously been assumed to be a universal bias. However, mounting cross-cultural psychological evidence suggests that the fundamental attribution error may be more an effect of American individualist tendencies than a universal phenomenon.⁴⁸ Recent studies by Nisbett, Peng, and their colleagues have

⁴⁵ See Neal R. Feigenson, *Accidents as Melodrama*, 43 N.Y.L. SCH. L. REV. 741 (1999-2000); Justin D. Levinson & Kaiping Peng, *Different Torts for Different Cohorts: A Cultural Psychological Critique of Tort Law's Actual Cause and Foreseeability Inquiries*, 13 SO. CAL. INTERDISC. L.J. 195 (2004).

⁴⁶ See Justin D. Levinson & Kaiping Peng, *Collective Causal Inquiries: How Culture-Specific Theories of Agency Affect Culpable Causation and Legal Judgments* (unpublished manuscript, on file with author, 2006)(empirically examining culpable causation across culture in legal scenarios).

⁴⁷ Richard A. Shweder, *Cultural Psychology - What Is It*, in CULTURAL PSYCHOLOGY (James W. Stigler et al. eds., 1990).

⁴⁸ See Joan G. Miller, *Culture and the Development of Everyday Social Explanation*, 46 J. PERSONALITY & SOC. PSYCHOL. 961 (1984). See also Michael Morris & Kaiping Peng, *Culture and Cause: American and Chinese Attributions for Social and Physical Events*, 67 J. PERSONALITY & SOC. PSYCHOL. 949 (1994).

revealed significant cognitive differences between individuals from East Asia and people of Western European cultural descent, typically in the United States.⁴⁹ These scholars have attempted to categorize the cognitive differences found in those cultural regions as either 'analytic' or 'holistic.'⁵⁰ Many studies have shown that, relative to one another, Americans tend to focus on the dispositions of objects (using 'analytic' cognitive patterns that might derive from Greek philosophy) while Chinese tend to focus on contextual background (using 'holistic' patterns that might derive from Chinese philosophy) in reasoning processes and making judgments.⁵¹

Though cultural psychologists have concerned themselves more with cognitive theories of culture than economic judgments, their work can be (and sometimes has been) applied to a behavioral economic framework. Here, we briefly review some of the fundamental biases and heuristics in behavioral economic literature, and describe how these biases function across Eastern and Western cultures. In most cases, sufficient work has been done so that we can report limited results indicating how these biases systematically operate across cultures. Our review illustrates not only that culture influences economic decision-making and cognitive biases, but also that it forms a complex framework from which one can meaningfully analyze economic decision-making. It also demonstrates that many more studies need to be conducted.

Risk tolerance preferences emerge as one clear source of cultural differences. In a series of studies, Weber and Hsee examined cultural differences in risk preference (e.g., choosing between a smaller sure gain versus a larger but more risky gain).⁵² They found that Chinese were more risk seeking than Americans.⁵³ However, this difference was found to be specific to the financial domain.⁵⁴ In the social domain, the pattern was reversed.⁵⁵

⁴⁹ See Li-Jun Ji et al, *Culture, Change, and Prediction*, 12 PSYCHOL. SCI. 450 (2001); RICHARD E. NISBETT, *THE GEOGRAPHY OF THOUGHT: HOW ASIANS AND WESTERNERS THINK DIFFERENTLY...AND WHY* (2003); Richard E. Nisbett & Takahiko Masuda, *Culture and Point of View*, 100 PROC. NAT'L ACAD. SCI. U.S. 11163 (2003); Richard E. Nisbett et al., *Culture and Systems of Thought: Holistic Versus Analytic Cognition*, 108 PSYCHOL. REV. 291 (2001).

⁵⁰ See Nisbett, et al., *supra* note ___.

⁵¹ See Kaiping Peng & Richard E. Nisbett, *Culture, Dialectics, and Reasoning About Contradiction*, 54 AM. PSYCHOLOGIST 741 (1999). See also Kaiping Peng et al, *Naïve Dialecticism and the Tao of Chinese Thought*, in *THE HANDBOOK OF INDIGENOUS AND CULTURAL PSYCHOLOGY* 247 (U. Kim et al. eds., 2006).

⁵² Elke U. Weber & Christopher K. Hsee, *Models and Mosaics: Investigation of Cultural Differences in Risk Perception and Risk Preference*. 6 PSYCHONOMIC BULL. & REV. 611 (1999). See also Christopher K. Hsee & Elke U. Weber, *Cross-National Differences in Risk Preferences and Lay Predictions for the Differences*. 12 J. BEHAV. DECISION MAKING 165 (1999).

⁵³ *Id.*

⁵⁴ In the financial domain, participants were asked to choose between two options

Chinese were found to be less risk seeking. Congruent cultural differences also emerged when the authors analyzed the risk seeking (or risk avoiding) advice implied in Chinese and American proverbs, suggesting deep cultural roots in risk preference.⁵⁶

Two studies conducted by psychologists in China challenge the cultural universality of framing effects and tend to indicate that framing effects operate in complex ways across cultures. Xiao Tian Wang found that Chinese were not affected by the framing in traditional Tversky and Kahneman paradigms, but when the numbers used in the study were increased to larger figures, Chinese started to demonstrate framing effects.⁵⁷ In another study, Ming Wang and her colleagues tested framing effects in six different risk judgments in the US and China.⁵⁸ Results indicated that framing effects persisted across cultures, but that in five of the six risk judgment scenarios, effects were stronger for Americans than for Chinese. Wang and her colleagues explained these results by referencing different societal beliefs about risk management. Psychologists have yet to test how framing effects operate across cultures in non-risk domains, such as financial value estimations. Societal beliefs about risk management, however, would not likely translate to financial judgments when risk is not an issue.

A counter-intuitive cultural difference between Eastern and Western people is Asian overconfidence in probability judgments. Wright and Phillips carried out the first cross-cultural comparison between Chinese and British participants on probability judgments,⁵⁹ and found that the British had a greater tendency to view the world in terms of uncertainty than did Hong Kong Chinese. British people were more likely to ascribe different degrees of uncertainty to events, and could then express the uncertainty as a numerical probability in response to general knowledge questions. Chinese, on the other hand, were more likely to make extreme probability estimations (e.g., "100%" or "no chance").⁶⁰ These findings have been confirmed by more recent experiments undertaken in the United States, Japan, China, and other Asian

involving financial instruments such as lottery tickets or shares of stock. *Id.*

⁵⁵ In the social domain, participants were asked to choose between two options involving social relationships, such as meeting new friends. *Id.*

⁵⁶ *Id.* Hsee and Weber also found that the cultural differences in the financial domain were mediated by the larger size and better quality of the Chinese participants' social networks. It should also be noted that the cultural differences were found to result from different perceptions of the riskiness of the choices, not from different risk-value tradeoffs.

⁵⁷ Xiao Tian Wang, *Framing Effects: Dynamics and Task Domains*, 68(2) ORGANIZATIONAL BEHAV. AND HUM. DECISION PROCESSES 145 (1996).

⁵⁸ Ming Wang et al., *Culture, Dialectics and The Effect of Framing*, Paper Presented at the International Congress of Psychology in Beijing (2004).

⁵⁹ George N. Wright & Lawrence D. Phillips, *Cultural Variation in Probabilistic Thinking: Alternative Ways of Dealing with Uncertainty*, 15 INT'L J. PSYCHOL. 239 (1980).

⁶⁰ *Id.*

countries.⁶¹ Yates and his colleagues suggested that Chinese participants' overconfidence may arise from the fact that Chinese usually generate fewer counter-arguments in making judgments.⁶²

Carnevale theorized that the endowment effect⁶³ may not influence people from collectivistic cultures because of their emphasis on group ownership rather than on individual ownership.⁶⁴ Applying the cultural psychological theory of individualism and collectivism,⁶⁵ Carnevale studied how adjusting an ownership variable (e.g. presenting property as either individually or group-owned) affected judgments in individualistic and collectivistic individuals.⁶⁶ He found that collectivist people displayed a "group endowment effect," but not the traditional (individual) endowment effect. These results indicate that endowment effects are culturally sensitive. However, it is important to note that Carnevale's study was conducted solely on Americans that were classified as individualistic or collectivistic. The study did not actually test the endowment effect across cultures. We will discuss such a possibility in the context of debiasing, *infra* Section V.

Three cross-cultural studies have compared how hindsight bias functions across Far Eastern and Western cultures, revealing mixed results. Heine and Lehman found that Japanese and Canadians exhibited similar hindsight biases under some instructions, but that Canadians showed a marginally more pronounced bias than Japanese under other instructions.⁶⁷ The researchers observed that while both cultures in their study exhibited some hindsight bias, Canadians demonstrated stronger effects than Japanese when they were presented with self-enhancing memory opportunities.⁶⁸

⁶¹ J. Frank Yates, et al., *General Knowledge Overconfidence: Cross-national Variations, Response Style, and "Reality"*. 70 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 87 (1997); J. Frank Yates et al., *Beliefs About Overconfidence, Including its Cross-National Variation*. 65 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 138 (1996).

⁶² *Id.* Such a culture-specific characteristic may have roots in Chinese educational practices. In Chinese classrooms, teachers do not encourage questions or criticisms of textbooks and lectures, whereas the development of critical thinking is central to the ideology of American education.

⁶³ See Richard Thaler, *Towards a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. & ORGANIZATION 39 (1980); W. Michael Hanemann, *Willingness to Pay and Willingness to Accept: How Much Can They Differ?* 81(3) AM. ECON. REV. 635 (1991).

⁶⁴ Peter J. Carnevale, *Property, Culture, and Negotiation*, in NEGOTIATION AS A SOCIAL PROCESS (R. Kramer & D. M. Messick, eds., 1995).

⁶⁵ See HARRY C. TRIANDIS, INDIVIDUALISM AND COLLECTIVISM (1995); Tahira M. Probst et al., *Cultural Values in Intergroup and Single-Group Social Dilemmas*. 77 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 171 (1999).

⁶⁶ *Id.*

⁶⁷ Steven J. Heine & Darrin R. Lehman, *Hindsight Bias: A Cross-Cultural Analysis*, 35 JAPANESE J. EXPERIMENTAL SOC. PSYCHOL. 317 (1996).

⁶⁸ *Id.*

A study done by Choi and Nisbett, however, cuts in the opposite direction from Heine and Lehman's findings. Choi and Nisbett found that East Asians are less likely than Americans to experience surprise, and will therefore display more hindsight bias.⁶⁹ Pohl and colleagues tested hindsight bias globally using internet participants from Asia, Australia, Europe, and North America.⁷⁰ Their study revealed hindsight bias of varying degrees across samples. German and Dutch participants, however, demonstrated no hindsight bias whatsoever.⁷¹

Taken together, cross-cultural studies have frequently shown that cultural differences emerge in complex, yet systematic ways. Our analysis of their findings also shows, however, that existing cross cultural findings have still only scratched the surface of developing a competent cross-cultural model of decision-making. Nonetheless, the importance of understanding cultural influences on thought emerges as a clear theme for those who want to create accurate decision-making models.

D. Cultural Psychology in Legal Discourse

Cultural psychology's emergence has only recently begun to appear in legal scholarship. Licht and Mitchell were among the first commentators to discuss cultural psychology generally in the context of behavioral law and economics, each sounding a caution to legal scholars that cognitive assumptions are not stable.⁷² Levinson, Peng and Wang critiqued certain fundamental aspects of contract formation, and argued that Western models of contract may not be appropriate for diverse understandings of contractual interactions.⁷³ Levinson and Peng applied specific cultural psychological principles to substantive legal inquiries, and analyzed how culture influences decision-making in judgments of causation and foreseeability.⁷⁴ Levinson tested mental state attributions across cultures and found that such attributions vary across cultures in ways that do not match legal assumptions.⁷⁵ Rachlinski

⁶⁹ Incheol Choi & Richard E. Nisbett, *Cultural Psychology of Surprise: Holistic Theories and Recognition of Contradiction*, 79 J. PERSONALITY & SOC. PSYCHOL. 890 (2000).

⁷⁰ Rudiger Pohl et al., *Hindsight Bias Around the World*, 49 J. EXPERIMENTAL PSYCHOL. 270 (2002).

⁷¹ *Id.*

⁷² See Licht, *Legal Plug-Ins*, *supra* note __; Licht, *The Mother of all Path Dependencies*, *supra* note __; Mitchell, *Perfect Rationality*, *supra* note __. Mitchell's discussion of cultural psychology included consideration of overconfidence effects across culture. See also Mitchell, *Mapping Evidence Law*, *supra* note __.

⁷³ Justin D. Levinson, Kaiping Peng & Lei Wang, *Let's Make a Deal: Understanding the Cultural Psychological Basis of Contract Formation* (2003) (unpublished manuscript, on file with the authors).

⁷⁴ Levinson & Peng, *supra* note __.

⁷⁵ Justin D. Levinson, *Mentally Misguided: How State of Mind Inquiries Ignore*

acknowledged the importance of cultural differences while discussing legal paternalism and intervention relating to cognitive biases, citing research indicating that people from certain collectivist cultures are more willing to take risky gambles.⁷⁶ Though legal scholars have begun to understand the importance of cultural psychology in the law, and cultural differences have recently entered discussions of risk preferences,⁷⁷ behavioral economists and legal scholars have yet to sufficiently incorporate cultural differences into economic and financial decision-making models.⁷⁸

E. Predictions Connecting Cultural Psychology and Behavioral Economics: Studying Financial Estimates of Object Values

In applying cultural psychological theory to economic judgments, one might expect that cross-cultural differences would manifest in the ways people

Psychological Reality and Overlook Cultural Differences, 49 HOW. L. J. 601 (2005)(arguing for culturally competent legal rules).

⁷⁶ Jeffrey J. Rachlinski, *supra* note __, citing Elke U. Weber & Christopher Hsee, *Cross-Cultural Differences in Risk Perception, but Cross-Cultural Similarities in Attitudes Towards Perceived Risk*, 44 MGMT. SCI. 1205, 1208 (1998).

⁷⁷ Kahan et al., *supra* note __. Kahan and his colleagues use a concept that they call “cultural cognition” to critique Cass Sunstein’s book, focusing primarily on cultural preferences and their influences on risk perception. “Cultural cognition,” as used by Kahan and his colleagues, is distinguishable from the psychological field of “culture and cognition.” See Cass R. Sunstein, *Misfearing: A Reply*, 119 *Harv. L. Rev.* 1110 (2006)(responding to this critique). Sunstein argues that Kahan and his colleagues’ “cultural cognition” model “is largely a result of bounded rationality, not an alternative to it.” Whether or not Sunstein’s criticism of Kahan and his colleagues’ model of “cultural cognition” is correct, we do not believe that such a criticism would apply to our model, which rests on more traditional conceptions of “culture and cognition” from the field of cultural psychology. We do not argue that cultural psychology provides us with an alternative to bounded rationality. Instead, we argue that it should inform bounded rationality and offer solutions to it. For more on the cultural psychological field of “culture and cognition,” a sub-field of cultural psychology, see Richard E. Nisbett & Ara Norenzayan, *Culture and Cognition*, in STEVENS’ HANDBOOK OF EXPERIMENTAL PSYCHOLOGY: COGNITION 561 (D. L. Medin ed., 3rd ed. 2001); Richard E. Nisbett et al., *supra* note __; Kaiping Peng, Daniel R. Ames & Eric Knowles, *Culture and Human Inference*, in HANDBOOK OF CULTURE AND PSYCHOLOGY 245 (D. Matsumoto ed., 2001). Culture and cognition projects have grown in cultural psychology over the past decade, including the establishment of a culture and cognition program at the University of Michigan (and elsewhere).

⁷⁸ Although the authors argue for a culturally competent model of behavioral economics, we do not believe that cultural psychologists have nothing to learn from economists. In fact, much of the previous work in cultural psychology has simply focused on people’s reactions to laboratory cognitive tasks. Rather than continue to focus on the laboratory setting, cultural psychologists should test the role of cultural differences in meaningful aspects of everyday behavior, in which individuals enact their culturally-influenced cognitive styles. Risk analysis is one area where studies have begun to bridge laboratory and everyday reality. See Rachlinski *supra* note __.

estimate the financial value of objects. More specifically, because Americans have been shown to be more object focused than East Asians (as illustrated by the fundamental attribution error), it would be reasonable to predict that Americans will be less sensitive to contextual or situational information provided about an object's surroundings, and will be more likely to make financial judgments based upon assumed intrinsic object values. On the other hand, because Chinese have been shown to be more situation focused than Americans, one might expect that they would judge the financial value of an object in a manner more consistent with contextual cues. As a result, one could predict that two cross-cultural effects would emerge in a cross-cultural study of financial value estimation. First, Chinese would be more sensitive than Americans to the economic and social context of the objects. Specifically, when the financial value of an object is being measured over time, Chinese would be more likely to incorporate social and economic factors into value estimations during the time period being referenced. Second, Chinese would be more sensitive than Americans to independent variables that manipulate aspects of context or situation (such as framing the object as lost or found, or varying the morality of a person that possesses an object).

We tested these questions in China and the US as part of a study of financial value estimations.⁷⁹ Specifically, we tested the following variables, each with respect to financial value estimations: (1) cultural differences; (2) framing effects and loss aversion; (3) morality effects; and (4) out-group bias. Based on systematic psychological differences in cognitive orientations between Americans and Chinese, and because of the changing economic conditions in the US and China during the reference period of the study, we made the following predictions:

Hypothesis 1: Chinese will make different value estimations than Americans, a result consistent both with differing styles of judgment as well as with the dramatic socioeconomic changes in China over the past twenty years; and

Hypothesis 2: Chinese value estimations will be more affected by

⁷⁹ In addition to their differing cultural psychological profiles, these locations also represent two of the most interesting economic regions in the world. The US maintains a position as an economic power. In China, the economic landscape has undergone substantial change as it has moved from a socialist planned economy to a capitalist market economy. During that time, which began in 1978, China has enjoyed phenomenal growth and inflation. Since 1985, Chinese average annual inflation rates have been around 9.13% with two periods of double digits inflation growth from 1987-1990 and 1993-1995 (figures from Chinese National Bureau of Statistics). During the same time period, the average annual inflation rates in the US have been relative stable, averaging 4.1% from 1985 to 2004 (figures from NASA), when this study was conducted.

experimental manipulations to situational variables, given Chinese people's higher level of holistic cognitions. Hence, Chinese people will show stronger framing (lose/find) effects, in-group vs out-group differences in value estimation, and stronger morality information effects than Americans.

III. THE EMPIRICAL STUDY- VALUE ESTIMATION ACROSS CULTURES

A. Methods

Participants. Two hundred thirty one Chinese participants participated in the study. The average age for Chinese participants was 27.68 years old. Three hundred eighty four Americans participated in the study. One hundred forty three of these American participants were Caucasian and one hundred eighty five were Asian-American. Fifty six other Americans participated, but only seventeen listed their ethnicity. The average age for Caucasian Americans was 21.59 years old. The average age for Asian Americans was 20.39 old. No significant differences emerged between Caucasian and Asian-American responses.

Materials. Participants were asked to judge the financial value of four objects (a gold ring, an antique chair, commemorative coins, and a municipal bond) when a value approximately 20 years prior had been given. By examining judgments of financial values of objects, we could simultaneously evaluate cognitive understandings of economic principles (such as inflation and return on investment) and test how situational factors (such as cognitive biases) may influence fundamental economic decision-making across cultures. The independent variables we tested included: (1) culture (Chinese v. American) (2) frame (losing v. finding the object), (3) morality information about the actors (drug dealer, nurse, philanthropist, burglar), and (4) group identity (in-group and out-group membership), hence a 2 X 2 X 2 X 2 design. Depending upon the independent variable condition, participants read variations of the following stories:

Lisa, a prostitute, was walking along the beach when she found a gold ring in the sand. Unbeknownst to Lisa, the ring had been purchased in 1985. According to World Jeweler, an international jewelry appraisal publication, the ring was worth 100 Dollars at the time it was purchased.

Jason, a social worker from your home town, recently moved to a new apartment. When unpacking, he found an antique chair that was accidentally delivered to his house along with his belongings. There is no tracking label or other identification information on the chair's packaging, and the moving company tells him to keep the chair. Jason

does not know how much the chair is worth. However, an old issue of Antique Magazine indicates that the chair was worth 350 Dollars in 1985.

Glenn is a scientist who works for an illegal organization that designs the illegal synthetic drug 'ice'. Recently, Glenn moved into a new apartment. When he was looking at the top of his closet for a place to store his extra belongings, he found a municipal bond that was purchased for 200 dollars in 1985. The bond has not yet matured. The bond does not have a name endorsed on it, so that anyone can keep it or cash it.

David is a drug dealer. He was recently walking in the park when he sat down on a bench to make a phone call. Looking down, he noticed an envelope partially covered in dirt. Opening the envelope, David found that the envelope contained rare commemorative coins. David does not know how much the coins are worth. David doesn't know it, but in 1985 a collectibles auction house valued the coins at 500 Dollars.

Participants in the "low moral" condition read stories about all low moral actors. For example, instead of reading about Jason, a social worker, participants read about Jason, a burglar. Participants in the "high moral" condition read stories about all good moral actors. For example, instead of reading about Glenn, a scientist for an illegal drug manufacturer, participants read about Glenn, an AIDS researcher. For the framing condition, half of the participants read stories about actors who found objects of value, such as in each of the examples above. The other half of participants read stories about actors who lost the exact same objects of value. For example, participants in the "low-moral lose" condition read the following story about David:

David is a drug dealer. He was recently walking in the park when he sat down on a bench to make a phone call. As he sat down, an envelope containing rare commemorative coins slipped out of his pant pocket and onto the ground. David had received the coins from a friend, but he did not know how much they were worth. David doesn't know it, but in 1985 a collectibles auction house valued the coins at 500 Dollars.

As a result, the only difference between the "lose" framed condition and "find" framed condition was the perspective presented. The 1985 financial anchor was identical.

Materials were created in English with consideration for cross-

cultural understanding of the concepts. The 1985 financial anchor values were given to Americans in US Dollars and to Chinese in Chinese currency (RMB). The survey was translated into Mandarin Chinese by a bilingual research associate and back translated into English by a bilingual research assistant. Resolution of translation discrepancies was made by group consensus of the authors and translators.

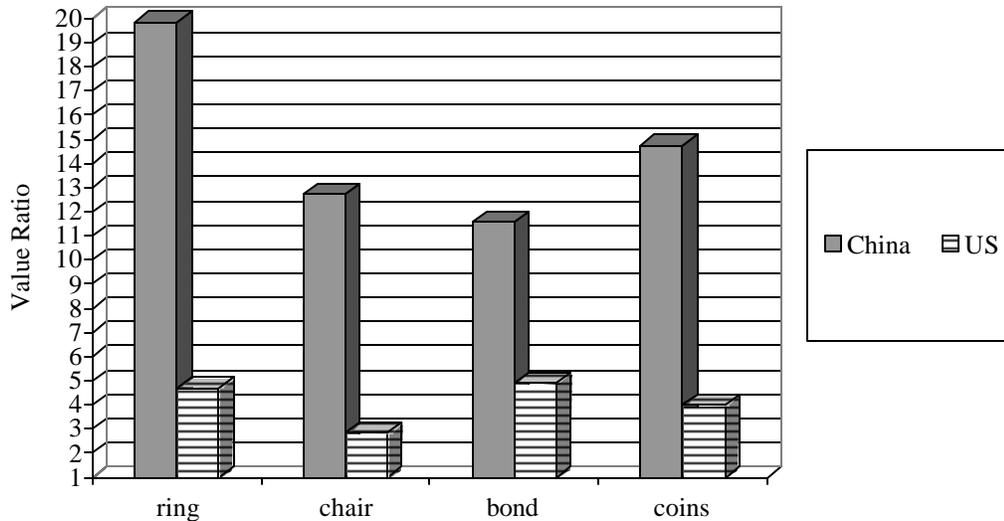
The dependent variable measured financial estimates of object values.⁸⁰ Participants were given the following written instruction: "Please give your best estimate of how much the coins are worth today. Do not give a range. Only give an exact amount." In order to work with comparable value estimates, we converted raw dependent variable value estimation scores into a summary index that presents the ratio of value increase from the objects' anchor value in 1985. For example, a person that estimated the ring's value to be \$1,000 (recall that the ring's value in 1985 was \$100) was converted to a 10.0 ratio, indicating that the current value of the item was estimated as 10 times greater than the 1985 value.

Procedures. We administered the questionnaires to students in China and the US. American participants at a major public university participated as part of a psychology course credit requirement. Chinese participants were recruited through the psychology department at a major public university in Beijing. Participants in China were each paid a small amount to participate.

B. Results

Cultural Differences in Value Estimations. The results show that Chinese estimated values of all four objects higher than Americans. Figure 1 illustrates the substantial cultural differences in people's estimates of value for all four objects, and shows the mean value estimate ratios for each of the four objects, displayed by country.

⁸⁰ Other dependent variable measures included judgments of property ownership. See Justin D. Levinson & Kaiping Peng, *Owning Up to Cognitive Biases: Extraneous Variables, Culture, and Property Ownership Judgments* (unpublished manuscript, 2006, on file with authors).

Figure 1: Cultural Differences in Object Value Estimation Ratios

For the ring, Chinese estimations were 19.95 times the 1985 value while American estimations were only 4.70 times the 1985 value, $F(1, 577) = 9.02$, $p < .01$. For the antique chair, Chinese estimations were 12.02 times the 1985 value while American estimations were only 2.83 times the 1985 value, $F(1, 576) = 32.80$, $p < .001$. For the bond, Chinese estimations were 11.55 times the 1985 value while American estimations were only 4.90 times the 1985 value, $F(1, 575) = 20.61$, $p < .001$. For the coins, Chinese estimations were 14.74 times the 1985 value while American estimations were only 3.99 times the 1985 value, $F(1, 574) = 36.51$, $p < .001$. We also combined each participant's estimations across the four stories and generated a combined index for each participant. We ran a $2 \times 2 \times 2 \times 2$ Multivariate Analysis on this combined index and found main effects for culture such that Chinese made significantly higher value estimations than Americans, $F(1, 578) = 39.57$, $p < .001$.

Table 1 displays the 1985 value anchors given to participants, as well as the inflation adjusted amounts⁸¹ and the raw American and Chinese value judgments for each of the four objects. When value judgments were adjusted for inflation in the two countries, the results indicated that, generally, Chinese still made higher value estimations than Americans, for

⁸¹ To calculate the inflation adjusted values, we used the Consumer Price Index (CPI) for the US as provided by the National Aeronautics and Space Administration. For China, we used CPI figures as reported by the Chinese National Bureau of Statistics.

the chair, $T(575) = 3.528$, $p < .001$, and for the coins $T(573) = 3.421$, $p = .001$, and marginally for the ring, $T(576) = 1.82$, $p = .071$.⁸² The difference between inflation adjusted value estimations for the bond was not significant, a result that will be discussed below. For example, for the value of the coins, Americans estimated an inflation-adjusted value of 2.28 times the 1985 value. Chinese estimated an inflation-adjusted value of 4.72 times the 1985 value. These results indicate that, even taking into account the vastly different inflation rates, Chinese generally perceived more appreciation in the value of the objects than Americans. Table 2 displays the mean value ratios as scored by participants, as well as the inflation adjusted value ratios taking into account inflation in the two countries.

Table 1

Values Estimations by Country

	Values (1985)	CPI Adjusted Values (2004)		Value Estimations (2004)	
		<i>U.S.</i>	<i>China</i>	<i>U.S.</i>	<i>China</i>
Ring	100	175.60	321.31	469.97	1994.70
Chair	350	614.60	1093.08	991.93	4206.27
Bond	200	351.20	624.61	982.35	2310.92
Coin	500	878.00	1561.54	2002.38	7371.79

Table 2

Value Estimation Ratios (1985-2004) by Country

	Value Judgment Ratios		Ratios Adjusted for Inflation	
	<i>U.S.</i>	<i>China</i>	<i>U.S.</i>	<i>China</i>
Ring	4.70	19.95	2.68	6.21
Chair	2.83	12.02	1.61	3.85
Bond	4.90	11.55	2.80	3.70
Coin	3.99	14.75	2.28	4.72

⁸² For these t-tests, equal variances were not assumed.

Table 3 shows the value estimations in terms of annual percentage increase assumed from 1985 to 2004. These results raise two interesting points. First, they indicate that participants' assumptions regarding object appreciation outpaced inflation, but did so in a somewhat modest way. Second, these results highlight how big the mean differences were between American and Chinese estimates. For example, Americans estimated that the chair value increased by an average of under 6% per year. Chinese estimated that the chair value increased by an average of 14.81% per year. Americans estimated that the ring value increased by an average of 8.98%. Chinese estimated that the ring value increased by an average of 16.12% per year. See Table 3 and Figure 2.

Table 3

Average Annual Assumed Percentage Appreciation by Country⁸³

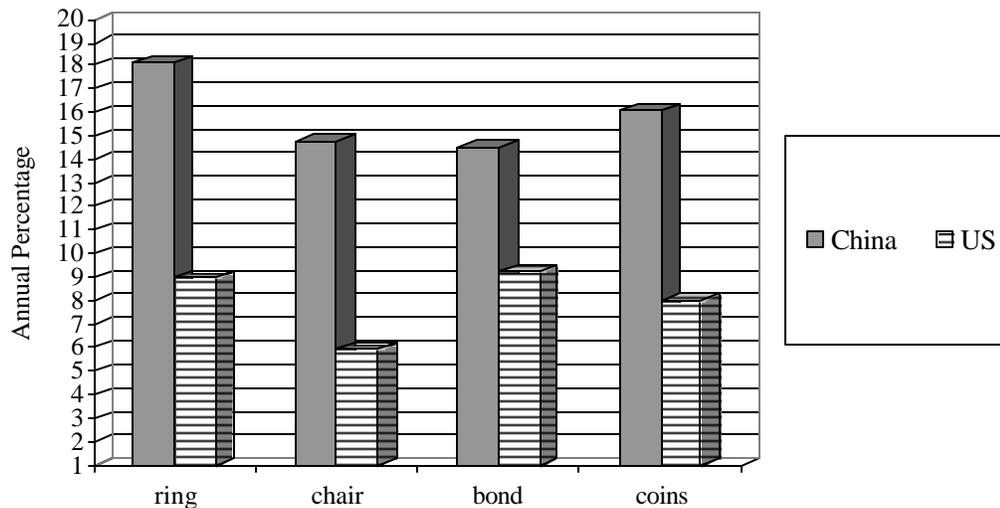
	<i>U.S.</i>	<i>China</i>
Ring	8.98	18.09
Chair	5.96	14.81
Bond	9.25	14.56
Coin	8.01	16.12

There were some notable differences in value estimations between the objects. Out of the four objects possible, Americans judged the bond as the highest appreciating object since 1985. Chinese, however, judged the bond as the lowest appreciating object, perhaps indicating systematic cultural differences in the types of objects that are perceived as gaining the most value over time (which may have cross-cultural implications in expected investment return). This phenomenon may explain the failure to find significant differences between Americans and Chinese on the inflation adjusted bond scores. It is interesting to note that in both countries, bonds are government-issued securities, while the other objects are not. Other

⁸³ We calculated this assumed appreciation rate using the following formula: Final value = Base value $\times (1 + X)^{n-1}$, where Base value refers to the object value in 1985; Final value refers to the object value in 2004; X refers to assumed annual percentage of appreciation; N is 19 (from 1985 to 2004).

than with respect to bonds, Americans and Chinese agreed upon which objects appreciated the most. Both Americans and Chinese believed that the gold ring appreciated more than the coins, which in turn appreciated more than the antique chair. See Table 2.

Figure 2: Assumed Annual Percentage of Appreciation by Country

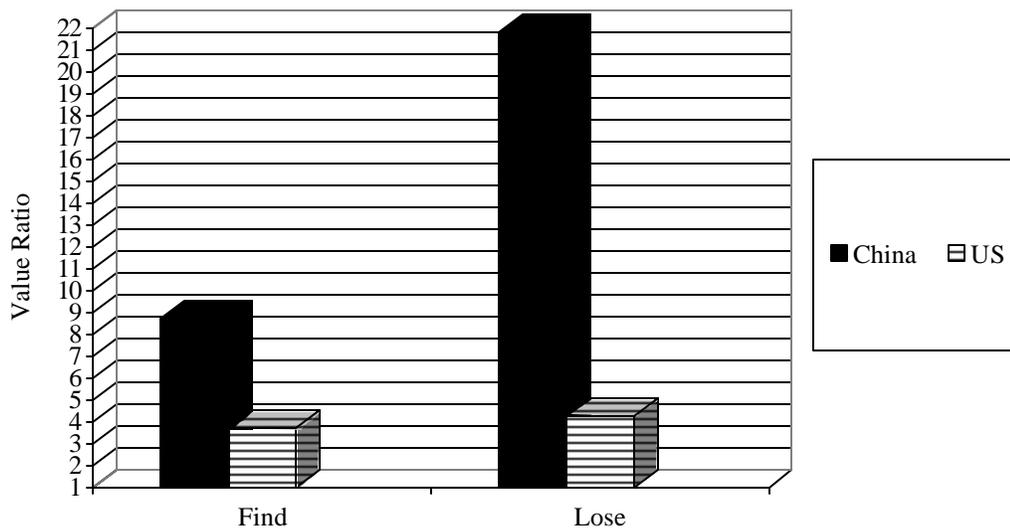


Other Independent Variable Effects. A MANOVA was conducted on the composite index to test main effects and interaction effects of all of the independent variables. In addition to the main effect for culture, the results showed a main effect for the frame (lose/find) variable, such that participants who read about a person losing an item scored the item as more valuable ($m = 13.14$) than participants who read about a person finding the identical item ($m = 6.18$), $F(1,578) = 14.56$, $p < .001$. See Figure 3. This main effect is consistent with prospect theory in that losses loom larger than gains. However, because this study tested intrinsic financial values (by asking the value of the object), rather than the perceived utility, our results indicate that prospect theory's effects might in part derive from assumptions regarding intrinsic value rather than utility. There were no main effects for the morality and in-group/out-group variables, though interaction effects did emerge.

The MANOVA on the composite index indicated a significant interaction effect for the culture and framing (lose/find) variables. This interaction effect appeared to demonstrate that much of the framing main

effects can be explained by an interaction with the culture variable, $F(1, 578) = 12.19, p = .001$. This interaction effect appeared to indicate that Chinese value estimations varied greatly based on the framing variable ($m_{\text{lose}} = 21.84; m_{\text{find}} = 8.70$), while American value estimations only varied slightly based on the framing variable ($m_{\text{lose}} = 4.25; m_{\text{find}} = 3.67$). Figure 3 shows the interaction effect between culture and the framing variable. Interestingly, these results show that Chinese display framing and loss aversion patterns that are more consistent with prospect theory than American responses.

Figure 3: Framing Effects in Value Estimations



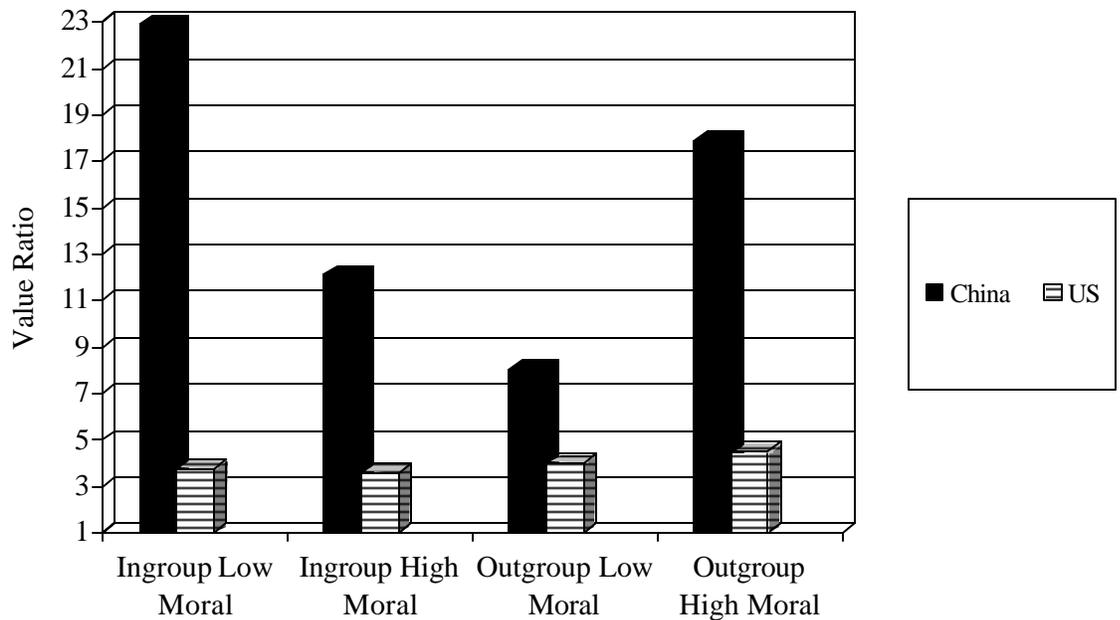
There was also a significant two way interaction for the in-group/out-group variable and morality variable, $F(1, 578) = 8.70, p < .01$. This interaction effect appeared to show that participants scored object values as highest for low-moral in-group members ($m = 13.31$) and lowest for low-moral out-group members ($m = 6.07$).

This interaction effect can be better explained by reference to two three way interactions: group X morality X frame, and group X morality X culture. The group X morality X frame effect on the composite index, $F(1, 578) = 8.58, p < .01$, suggested that the above two way interaction between group membership and morality was more salient for the loss condition than for the find condition. In-group low moral actors and out-group high moral

actors who lost the objects received the highest value estimations. These results seem to suggest that people make value estimations based upon monetarily irrelevant information, including socially sensitive categories such as group membership.

The three way interaction of group X morality X culture on the composite index, $F(1, 573) = 7.62, p < .01$, appeared to indicate that while US participant responses only varied slightly across morality and group, Chinese participant responses judged financial values much differently based on group and morality. Chinese participants scored the highest values as those of low moral in-group members ($m = 22.90$). The lowest values were of low moral out-group members ($m = 8.00$). High moral out-group members ($m = 17.85$) and high moral in-group members ($m = 12.11$) received value scores in the middle. Figure 4 shows the three way interaction of group X morality X culture and illustrates the large variance in Chinese value scores based on group and morality. Once again, these results suggest not only that financial values can be very susceptible to seemingly irrelevant information, but also that Chinese are more sensitive than Americans to contextual information and variables. See Figure 4.

Figure 4: Out-Group Effects, Morality Information, and Cultural Differences



IV. DISCUSSION OF EMPIRICAL RESULTS: BRIDGING BEHAVIORAL ECONOMICS AND CULTURAL PSYCHOLOGY

The primary objectives of our empirical study were to examine cultural differences and the influence of (both relevant and irrelevant) contextual factors on people's financial values estimates. The study demonstrated that there are dramatic cultural differences in the ways that people make financial estimates. In general, Chinese estimated object values as much higher than Americans and did so by a large margin. Initially, these results might appear to be consistent with economic conditions—China has witnessed more inflation than America over the past twenty years. Yet even adjusting for the uneven inflation rates did not explain our results. Chinese still assumed higher object appreciation than Americans did. The reason for this fundamental difference in value estimations is initially unclear. One possibility is that Chinese responses more accurately reflect Chinese financial conditions than the published inflation rates in China. However, such a possibility is difficult to account for and measure.

Consistent with psychological theory proposing models of East Asian holistic rationality, our findings also show that Chinese people were more sensitive to our behavioral experimental manipulations. Contextual information, such as framing effects, an actor's morality, and group membership affected participants' estimates of financial value, particularly for Chinese. Group membership and morality information have long been implicitly assumed by economists to be irrelevant to the financial values of given objects. However, this study found that such experimental manipulations do affect value estimates, and that the strength and persistence of these effects on financial value estimates depends upon the cultural background of the people making financial judgments.

The fact that financial value estimations are susceptible to contextual variation, such as framing effects, group membership and morality information implies that value estimations are not solely guided by the intrinsic value of the property combined with economic conditions. Instead, our results indicate that financial value estimations are a function of four factors: the perceived intrinsic value of the objects, the social and situational characteristics of the object possessor, the culture of the perceiver, and contextual factors (such as socioeconomic conditions or supply and demand). In order to understand the value of objects, one has to understand all four components. This holistic approach is perhaps most relevant for understanding the value estimations of East Asians. In fact, such a holistic model of economic rationality is consistent with cultural

psychological theories of East Asian epistemologies.

While we do suggest that a universalistic approach to financial principles would be better guided by reference to cultural variation, we are not suggesting that the basic principles of behavioral finance and behavioral economics are wrong. Rather, the results of this study show that certain elements of prospect theory are valid. For instance, the frame (lose/find) variable showed that framing effects and loss aversion operate in value estimations. People valued objects framed as lost to be more valuable than objects framed as found. Still, the cultural difference existed there as well. Chinese made much higher estimations for objects lost than objects found, particularly when the people who lost the objects were low moral out-group members.

Understanding how individuals estimate the financial value of given objects is relevant to the basic assumptions of modern behavioral, social, and economic sciences. Few previous studies have examined individuals' financial value estimating behavior across cultural groups and situational conditions. This study found that cultures differ in their value estimations, as well as their tendency to take social and contextual information into account when making those estimations. These cultural differences may lead to real life economic and business implications-- in international business transactions, in understanding economic incentives and self interest, in corporate strategic planning, in evaluating asset portfolios and investments, and in legal decision-making.

Like the economic sciences that it embraces, scholarship in behavioral law and economics should embrace culture as an important variable in decision-making. Though previous studies have begun to suggest that cultural variation must be understood as a systematic influence in decision-making,⁸⁴ most behavioral economic scholarship continues to assume that deviations from expected utility are systematic. But as our results have demonstrated, all people do not deviate from expected utility in the same way. Scholarship in behavioral law and economics thus sits at an interesting crossroads. It properly embraces the role of humanity and human thought in the law and it actively seeks to improve models of law by adding an understanding of the way people think. But it fails to recognize that the human understanding it embraces is at best a Western-only human understanding.⁸⁵

⁸⁴ See Licht, *supra* note __; Mitchell, *supra* note __; Levinson & Peng, *supra* note __; Levinson, *supra* note __; Rachlinski, *supra* note __.

⁸⁵ It may, however, be a Western human understanding that ignores not just international differences, but even the cultural diversity within Western societies. Such cultural diversity, within an increasingly diverse United States for example, would be better reflected with a culturally competent model of behavioral economics.

V: DEBIASING THROUGH CULTURAL COMPETENCY

Beyond its descriptive promise for building accurate behavioral models, cultural psychological knowledge holds promise for debiasing efforts. There are two ways in which understanding cultural psychological influences on decision-making can improve legal reform efforts: through cultural training and through model building.

Cultural Training. One straightforward way to harness culture's debiasing potential is to develop methods of cross-cultural training-- exposing and immersing people into known cultural environments.⁸⁶ Every human grows up inside a cultural environment that is loaded with culture-specific assumptions,⁸⁷ worldviews,⁸⁸ modes of psychological functioning,⁸⁹ modes of reasoning,⁹⁰ patterns of judgment and decision making,⁹¹ implicit theories of the self and the world,⁹² and more. A debiasing cultural training program would immerse debiasing candidates in cultural systems selected to leverage cultural knowledge and broaden cultural awareness of cognitive and decision alternatives. Though cultural training has not been suggested as a debiasing tool in behavioral economics, the concept of cultural training is not new to the law. Cultural training programs of different sorts have been proposed by commentators in a variety of legal arenas, including legal counseling,⁹³ racial

⁸⁶ Cross-cultural training programs are quite common to areas outside of the law, and have flourished recently in the international business community. A basic web search reveals scores of companies marketing themselves as cultural training programs, including "culturalsavvy.com" (which "offers a variety of customizable training programs and workshops," www.culturalsavvy.com, last visited 4/22/06) and "culturesmartconsulting.com," (which "offers face to face international management skills training, cross cultural training, diversity and change management, international business briefings, language training, cross cultural profiling....," www.culturesmartconsulting.com, last visited 4/22/06).

⁸⁷ C. STRAUSS & N. QUINN, *A COGNITIVE THEORY OF CULTURAL MEANING* (1997).

⁸⁸ DAN SPERBER, *THE EPIDEMIOLOGY OF BELIEFS: THE SOCIAL PSYCHOLOGICAL STUDY OF WIDESPREAD BELIEFS* (1990).

⁸⁹ GEERT HOFSTEDE, *CULTURE'S CONSEQUENCES: INTERNATIONAL DIFFERENCES IN WORK-RELATED VALUES* (1980); PETER B. SMITH & MICHAEL H. BOND, *SOCIAL PSYCHOLOGY ACROSS CULTURES* (1999); TRIANDIS, *supra* note __.

⁹⁰ DOROTHY HOLLAND & NAOMI QUINN, *CULTURAL MODELS IN LANGUAGE AND THOUGHT* (1987); STEPHEN STICH, *THE FRAGMENTATION OF REASON* (1990).

⁹¹ Nisbett et al., *supra* note __; J. F. Yates & J. Lee, *Chinese Decision-Making*, in *THE HANDBOOK OF CHINESE PSYCHOLOGY* (Michael H. Bond, ed. 1996).

⁹² Carol S. Dweck et al., *Implicit Theories and Their Role in Judgments and Reactions: A World from Two Perspectives*, 6 *PSYCHOL. INQUIRY* 267 (1995); Kaiping Peng et al., *Culture and Human Inference: Perspectives from Three Traditions*, in *HANDBOOK OF CULTURE AND PSYCHOLOGY* 243 (D. Masumoto, ed., 2001).

⁹³ Michelle S. Jacobs, *People from the Footnotes: The Missing Element in Client-Centered Counseling*, 27 *GOLDEN GATE L. REV.* 345 (1997); (focusing on client-centered counseling training).

discrimination,⁹⁴ juvenile justice,⁹⁵ and others.⁹⁶

Though debiasing by culture has not been attempted in behavioral economics, recent research indicates that people shift their cognitive orientations when immersed temporarily in another culture. This change in cultural cognitive orientation occurred during an international exchange when a group of American lawyers traveled to China for four weeks. During their visit, they were taught by Chinese scholars, lived with Chinese counterparts and discussed Chinese legal issues with Chinese lawyers. Before and after the cultural immersion, Wang and his colleagues tested cognitive cultural orientations using a measure of individualism and collectivism designed by Triandis⁹⁷ and a measure of dialectical thinking designed by Rodgers, Peng and their colleagues.⁹⁸ Results suggested that many of the Americans became at least temporarily more collectivistic in their values and cognitive orientations.⁹⁹

The results of the China immersion project offer hope that cross-cultural knowledge of cognitive patterns can be used to debias. For example, suppose that we want to temporarily debias the endowment effect in a group of Americans.¹⁰⁰ Our review of cognitive biases across cultures, *supra* Section IIC, described how the endowment effect may depend upon a person's or culture's sense of individual or group ownership.¹⁰¹ This research by Carnevale is our first debiasing clue—that ownership expectations, a phenomenon upon which the endowment effect is dependent, are different across individuals with different cultural orientations.¹⁰²

Our next debiasing clue comes from Markus and Kitayama,¹⁰³ who

⁹⁴ Joe Feagin et al., *The Many Costs of Discrimination: The Case of Middle-Class African Americans*, 34 IND. L. REV. 1313 n123 (2001) (citing a variety of works that have called for cultural training in order to reduce racial bias by psychotherapists).

⁹⁵ Brent Pattison, *Minority Youth in Juvenile Correctional Facilities: Culture Differences and the Right to Treatment*, 16 LAW & INEQ. J. 573 (1998) (discussing cultural competence and "cultural awareness training" in juvenile correctional facilities).

⁹⁶ Ramon N. Valle, *Ethics, Ethnicity, and Dementia: A "Culture-Fair" Approach to Bioethical Advocacy in Dementing Illness*, 35 GA. L. REV. 465, 482-83 (2001)(discussing cultural competence and training in the context of bioethics).

⁹⁷ TRIANDIS, *supra* note __.

⁹⁸ Julie Rodgers et al., *Dialectical Self and Psychological Well-Being*. 30 PERSONALITY & SOC. PSYCHOL. BULL. 1416 (2004).

⁹⁹ Frank Wang, Laura Young & Kaiping Peng, *Teaching Cultures*, (manuscript under preparation at Kenneth Wang School of Law, Suzhou University (2006)).

¹⁰⁰ Published reports have indicated only limited success in debiasing the endowment effect. Arlen and her colleagues, however, reported success in eliminating the endowment effect simply by changing corporate agency orientations. Arlen et. al, *supra* note __. See also Jolls & Sunstein, *supra* note __ for a discussion of Arlen and her colleagues' findings.

¹⁰¹ Carnevale, *supra* note __.

¹⁰² The results from our own research also show this difference in ownership expectations. See Levinson & Peng, *supra* note __.

¹⁰³ Hazel R. Markus & Shinobu Kitayama, *Culture and Self: Implications for*

suggested that American self concepts tend to be independent while East Asian self concepts tend to be interdependent. According to Markus and Kitayama, American independence “requires construing oneself as an individual whose behaviour is organized and made meaningful primarily by reference to one’s own internal repertoire of thoughts, feelings and action, rather than by reference to the thoughts, feelings and actions of others.”¹⁰⁴ In contrast, East Asian interdependence entails “seeing oneself as part of an encompassing social relationship and recognizing that one’s behaviour is determined, contingent on, and, to a large extent organized by what the actor perceives to be the thoughts, feelings, and actions of others in the relationship.”¹⁰⁵

Based on this fundamental cultural difference, one can predict that for members of independent cultures, an individual’s self concept will be defined by both internal traits and external expressions (such as possessions, styles, and unique behaviors).¹⁰⁶ Possession of personal property could thus become an important measure of self-worth. Given individualist societies’ tendencies to encourage individual’s self-enhancement,¹⁰⁷ one can understand the (unconscious) psychological desire to inflate the value of one’s possessions. On the other hand, if the self is defined in relation to others (as it is in Asian cultures), possessions would be more likely to be viewed as part of group relations, and thus the value of personal property would not be directly diagnostic of one’s self worth. Such is the precise rationale behind Carnevale’s group endowment effect.¹⁰⁸ If a brief cultural immersion can change Americans’ cognitive cultural orientation to be more like Asian interdependent selves, as it did in Wang and his colleagues’ experiment in China¹⁰⁹, then the endowment effect can similarly be debiased.¹¹⁰

Model Building and Legal Debiasing. Imagine a behavioral model so accurate that it could not only identify all cognitive biases, but also could explain why they function in certain cultural groups but not others. This model

Cognition, Emotion and Motivation, 98 PSYCHOL. REV. 224 (1991).

¹⁰⁴ *Id.* at 226.

¹⁰⁵ *Id.* at 227.

¹⁰⁶ *See id.*

¹⁰⁷ Steven J. Heine et al., *Is There a Universal Need for Positive Self-Regard?* 106 PSYCHOL. REV. 766 (1999).

¹⁰⁸ The group endowment effect might also serve as another explanation of Arlen et al.’s successful debiasing research project, because shifting a person’s domain or cognitive reference from an individual possession to corporate possession is analogous to individual versus group property. *See* Arlen et al., *supra* note ___. For more on the effect of cognitive reference points in legal-decision making, see 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)(arguing that placing citizens on juries alters their cognitive reference points and therefore changes their decision-making).

¹⁰⁹ *See* Wang et al., *supra* note ___.

¹¹⁰ The authors are in the process of testing this proposition.

could give behavioral and legal scholars a pan-universal understanding of human behavior,¹¹¹ an understanding that will allow focus more on the interaction between law and behavior than on correcting cognitive biases. In a world with such a model, debiasing would not be needed because biases could be avoided, embraced, combined, changed, or perhaps even disappear through cultural transcendence. The ultimate debiasing tool, then, is not temporary cultural training but an accurate, complete and culturally adept behavioral model of human decision-making.

Not surprisingly, developing a complete behavioral model is a massive task. Nonetheless, treating cultural variation as statistical noise will ensure the continuation of current gaps in behavioral knowledge-- knowledge that could tell us something useful about humanity, and therefore about law. As we have demonstrated in this Article, cultural differences are not noise but meaningful information that can help us develop more precise behavioral models that are representative of human populations.¹¹² In fact, examining cultural variation in biases can ultimately lead to an understanding of the origins as well as the cognitive functions of the biases. Temporary debiasing measures, on the other hand, tend to focus researchers' efforts more on tasks as repetitive solutions¹¹³ than on understanding the bias itself. Once researchers can understand why all people do not display the same biases, solutions begin to arise. It is not difficult to learn under such a cross-cultural model: in every cross-cultural study of a bias, there are a limited number of possible cultural variations.¹¹⁴ In each case, we learn about the bias. Cross-cultural work will therefore enable us not only to understand biases themselves, but will allow us to explore other cognitive limitations, discover novel behavioral phenomena, and develop a culturally competent model of humanity.

¹¹¹ The universality in our pan-universal model is not the same universality that we have been criticizing—the assumption that all cultures think in the same way. We use the term to describe shared characteristics of the human species as a whole. Our belief in a potentially pan-universal model is based on the fact that there are similar universal laws in a variety of related disciplines. For example, in biology there are well-established pan-species primary needs (such as eating, drinking, sleeping) even though their fulfillment is achieved in very different ways in different species. In anthropology there are universal customs (such as tool making). In behavioral legal scholarship, it is therefore plausible to assume that we will also uncover pan-universal patterns of human behavior, even though there will likely be wide variation across cultures in the ways in which these universal patterns are developed, displayed, and deployed.

¹¹² For other discussions of solutions through cultural knowledge, see Levinson & Peng, *supra* note __ at 225; Levinson, *supra* note __ at 28.

¹¹³ With such repetitive solutions, researchers always face the possibility that the debiasing measure will no longer work.

¹¹⁴ There are three: (1) one culture shows bias and the other does not; (2) both cultures show different degrees of the bias; and (3) both cultures show the bias.

VI: CONCLUSION: A CULTURAL SOLUTION?

Culture should be embraced as an important factor in models of economic decision-making. Across a variety of cognitive domains, and as demonstrated by our own study, people make economic decisions in vastly different ways based upon their culture, the frame, as well as situational information provided. At the least, these findings indicate that culture must be embraced as an important variable in behavioral economic models. Yet we believe that the importance of cultural understanding goes beyond simply generating models of deviation from rational economic behavior. Incorporating cultural competence into behavioral economics can provide clues that will help legal scholars not just understand human cognitions more fully, but also help them conceptualize the law's prescriptive response to cognitive biases. After all, if cultural diversity can potentially solve genetically caused challenges¹¹⁵, perhaps it can help solve behavioral ones.

¹¹⁵ See NATURE, *supra* note __.