

Cognitive Errors, Individual Differences, and Paternalism

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Legal scholars commonly argue that the widespread presence of cognitive errors in judgment justifies legal intervention to save people from predictable mistakes. Such arguments often fail to account for individual variation in the commission of such errors even though individual variation is probably common. If predictable groups of people avoid making the errors that others commit, then law should account for such differences because those who avoid errors will not benefit from paternalistic interventions and indeed may be harmed by them. The research on individual variation suggests three parameters that might distinguish people who can avoid error: cognitive ability, experience and training, and demographic variables. None of the three predicts good cognitive performance in a reliable fashion, but all three might predict good performance in certain limited circumstances. Thus, legal scholars interested in the application of psychology to law would do well to consider the possibility that an identifiable group will avoid cognitive errors. Indeed, the legal system treats one of these (experience) as important, and marketers actively engage in efforts to determine the relative vulnerability of different groups to cognitive error.

INTRODUCTION

Restricting individual choice in a free society is as perilous as it is essential. Because the aggregation of individual choices directs the production of goods and services, meddling with these choices risks misdirecting the economy. But if collective foolishness governs individual choice, then allowing an unchecked market to direct the economy can also produce an undesirable allocation of resources. The public's schizophrenic perception of government reflects this tension. People expect that government will respect their desires and commonly resent restrictions on choice, but people also expect that government will protect them from market forces that would otherwise exploit their weaknesses. Evidence that people make poor decisions favors restricting individual choice.¹ But what of evidence that decisionmaking skills vary?

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¹ See Colin Camerer, et al, *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism,"* 151 U Pa L Rev 1211, 1212 (2003) ("To the extent that the errors identified by behavioral research lead people not to behave in their own best interests, paternalism may prove useful."); Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism,* 97 Nw U L Rev 1165, 1165 (2003) ("Recognition of the fallibility of human judgment and the research that identifies this fallibility commonly inspire calls for imposing constraints on individual choice."); Christine Jolls, Cass R. Sunstein, and Richard Thaler, *A Behavioral Approach to Law and Economics,* 50 Stan L Rev 1471, 1541 (1998) ("[B]ounded rationality pushes toward a sort of anti-antipaternalism.").

Scholars applying the psychology of judgment and choice to the legal system (that is, scholars in the field called Behavioral Law and Economics, or “BLE”) have largely assumed that consumers share identical cognitive processes and vulnerabilities.² Rarely do BLE scholars seriously consider the implications of a mixture of wisdom and foolishness for legal policy. In the jargon of psychology, legal scholarship adopts a nomothetic approach—treating all people as having identical cognitive abilities. In contrast, reality almost certainly supports an ideographic approach—treating people as having varying cognitive abilities.³ Given the complexity of human cognition and the incredible variation in attitudes, beliefs, intelligence, and experience among consumers, they almost certainly do not commit identical errors. Scholars have nevertheless proceeded under the unexamined assumption that consumers are sufficiently similar that a nomothetic approach is appropriate.

To be sure, no BLE scholar has ever embraced the proposition that all people in all settings commit cognitive error to exactly the same extent.⁴ Indeed, much of the BLE literature discussing the differences between lay and expert assessments of risk depends on the (sometimes misplaced) faith that experts will avoid the cognitive errors that plague laypersons. Similarly, calls to replace juries with judges in civil trials commonly arise from a belief that judges avoid cognitive errors that juries commit.⁵ Others have argued that organizational settings can balance and correct mistakes that different individuals might make,⁶ implicitly recognizing differential abilities. The nomothetic commitment in BLE is limited to the assumption that every member of an identifiable group of people relies on cognitive processes that are sufficiently similar that differences within the group do not undermine policies designed to protect the group from suffering undesirable consequences of faulty decisionmaking. With the no-

² See Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 *Georgetown L J* 67, 69 (2002) (“[B]ehavioral law and economics treats all legal actors in all situations as if they were equally predisposed to commit errors of judgment and choice.”).

³ For a review of the “nomothetic” and “ideographic” approaches within the social sciences, see Peter T. Manicas, *Social Science, History of Philosophy of*, in Edward Craig, ed, 8 *Routledge Encyclopedia of Philosophy* 847 (Routledge 1998).

⁴ See Robert A. Prentice, *Chicago Man, K-T Man, and the Future of Behavioral Law and Economics*, 56 *Vand L Rev* 1663, 1722 (2003) (calling the concern that BLE embraces uniform cognitive error “a giant straw man”).

⁵ See, for example, Cass R. Sunstein, Daniel Kahneman, and David Schkade, *Assessing Punitive Damages (with Notes on Cognition and Valuation in Law)*, 107 *Yale L J* 2071, 2113 (1998) (relying on the cognitive limitations of jurors to conclude that “judges should decide on the appropriate level of punitive damages”).

⁶ See, for example, Rachlinski, 97 *Nw U L Rev* at 1214–19 (cited in note 1); Chip Heath, Richard P. Larrick, and Joshua Klayman, *Cognitive Repairs: How Organizational Practices Can Compensate for Individual Shortcomings*, 20 *Rsrch in Org Beh* 1, 3 (1998).

table exceptions of a critique by Greg Mitchell and an article by Colin Camerer and his coauthors endorsing a soft form of paternalism,⁷ BLE wholly embraces that nomothetic assumption.

This Essay explores the value of an ideographic approach in behavioral law and economics. Part I explores, in three parts, the assumption that individual variation in cognitive style does not exist: first tracing the origin of the assumption; second identifying how the assumption can be tested; third reviewing empirical evidence on the veracity of the assumption. In so doing, this Part considers three possible sources of individual variation: cognitive ability, training and experience, and demographic factors. None provides particularly good candidates for supporting many implications for law of an ideographic approach. Nevertheless, Part II discusses implications of an ideographic approach to cognitive error.

I. THE SIMPLIFYING NOMOTHETIC ASSUMPTION

A. The Nomothetic Roots of Behavioral Law and Economics

Why would proponents of a psychological analysis of law so firmly embrace the assumption that all people share similar cognitive abilities? It is, after all, almost certainly a false assumption. It seems strange that those who use psychology to deride rational choice theory for its adherence to false simplifications would themselves pursue a similar course. As Christine Jolls, Cass Sunstein, and Richard Thaler put it, the point of behavioral law and economics is to bring more accurate assumptions concerning human behavior to law so as to produce, in their words, “law and economics with a higher R-squared.”⁸ BLE’s nomothetic assumption thus seems quite at odds with the field’s underlying goals.

The nomothetic foundation of behavioral law and economics represents a methodological commitment that runs to the very roots of the field. The phenomena that BLE scholars frequently discuss (framing, adjustment, and anchoring; the representativeness heuristic; cognitive availability; the hindsight bias; the endowment effect; norms of reciprocity; hyperbolic discounting; and so forth) are usually discussed as if they affect everyone. But this assumption does not arise from BLE itself. Rather, it arises from the fields that originally documented these phenomena: the cognitive psychology of judgment and choice and behavioral economics. Both of these fields rely on a nomo-

⁷ Camerer, et al, 151 U Pa L Rev at 1212 (cited in note 1) (discussing “asymmetric paternalism,” which is paternalism that “creates large benefits for those who make errors, while imposing little or no harm on those who are fully rational”); Mitchell, 91 Georgetown L J at 72 (cited in note 2) (arguing that “the equal incompetence assumption is not faithful to the empirical data on judgment and choice”).

⁸ Jolls, Sunstein, and Thaler, 50 Stan L Rev at 1487 (cited in note 1).

thetic view of human cognition because they, in turn, arose from fields that embrace a nomothetic view.

For its part, the psychology of judgment and choice mimics the methodological approach of psychologists studying memory and perception. Memory researchers are certainly aware that people's mnemonic abilities vary, just as those who study perception know that visual and auditory acuity vary. Nevertheless, the basic cognitive mechanisms underlying the mnemonic and perceptual systems are truly nomothetic. Even people with good memory, for example, find recognition easier than recall and remember words at the beginning and end of word lists better than those words in the middle. Similarly, everyone sees the illusion of apparent motion that is the foundation of the motion picture industry. Given the success of researchers studying memory and perception in identifying universal cognitive processes across people of varying abilities, it only made sense for researchers to pursue a similar nomothetic approach to the psychology of judgment and choice.

Behavioral economics embraced a nomothetic approach for slightly different reasons. The earliest proponents of the field of behavioral economics were well aware of the growing work in psychology and borrowed from it (just as psychologists borrowed back from behavioral economists). But the behavioral economic commitment to nomotheticism arises from another source as well. Early work in behavioral economics had as its goal undermining the assumption of full rationality implicit in rational choice theory. Rational choice theory itself is a nomothetic theory. It assumes everyone engages in the selfish pursuit of his or her own interests at all times. Rational choice allows for variance in knowledge, preferences, and abilities, but the fundamental assumption of rationality does not vary from person to person.

Given the nomothetic commitments of both cognitive psychology and of behavioral economics, it is not surprising that behavioral law and economics incorporates the assumption that people's cognitive abilities do not vary. The nomothetic assumption is not part of BLE because it is necessarily accurate, or even because it is sufficiently accurate so as to constitute a useful simplification. Rather, the nomothetic assumption has been carried along into legal analysis as an unexamined stowaway.

B. Nomothetic versus Ideographic Methodology

To see how the nomothetic assumption functions, consider a typical experiment from the cognitive psychology of judgment and choice. To demonstrate framing effects, Kahneman and Tversky presented two

groups of subjects with a decision about which of two vaccines would be appropriate for combating the onset of an oncoming Asian disease.⁹ One vaccine carries some probability of saving all of the potential victims, while the other vaccine will save some fraction of the potential victims for sure. Half of the subjects read a description of the problem that poses the outcomes as saving lives (the “gain” frame), and the other half of the subjects read a description of the problem that poses the outcomes as losing lives (the “loss” frame). The problem can be accurately described, or framed, either way, but the frame affects the result. When the vaccines present potential gains, 72 percent of the subjects favored the certain outcome of saving some lives, whereas when the vaccines present potential losses, 78 percent of the subjects favored the risky option.

This well-known, often criticized, and widely replicated study illustrates well the nomothetic approach implicit in Kahneman and Tversky’s work.¹⁰ Kahneman and Tversky presented the results as a demonstration of the power of framing in choice, concluding that the results reveal a reversal of preferences between the two decision frames. They assert that the data represent a violation of rational-choice theory’s assumption that preferences are invariant. They further support this claim by reference to numerous studies that replicate their result in different contexts. As Kahneman and Tversky conclude, “The failure of invariance is both pervasive and robust.”¹¹ The conclusion is indisputable, in one sense. An overwhelming majority of subjects prefer the safe option when the choices are described as a gain and the risky option when the choices are described as a loss. Were this a democratic decision, society’s choice would vary with the frame.

The data suggest, however, that a change in frame would not alter the choice of nearly as many subjects in the Asian disease problem as it might seem. Among the subjects in the gain frame, 28 percent chose the riskier option. Presumably, these subjects would have chosen the risky option in the loss frame as well, and it thus seems that 28 percent of the subjects exposed to the Asian disease problem choose the risky option, regardless of the frame. Similarly, the 22 percent of subjects in the loss frame who chose the safe option presumably would have chosen that option in the gain frame as well. Thus, it seems that 22 percent of the subjects exposed to the Asian disease problem choose the safe

⁹ See Daniel Kahneman and Amos Tversky, *Choices, Values, and Frames*, 39 *Am Psych* 341, 343 (1984).

¹⁰ See generally Irwin P. Levin, et al, *A New Look at Framing Effects: Distribution of Effect Sizes, Individual Differences, and Independence of Types of Effects*, 88 *Org Beh & Hum Dec Processes* 411 (2002) (reviewing the literature on framing).

¹¹ Kahneman and Tversky, 39 *Am Psych* at 343 (cited in note 9).

option, regardless of the frame. In effect, half of the subjects (28 percent in the loss frame and 22 percent in the gain frame) were unaffected by frame.¹² A nomothetic researcher might respond that these subjects were indeed influenced by frame, but their preferences were sufficiently strong that the frame did not alter their choice. Figure 1 represents the nomothetic interpretation of the Asian disease problem.

FIGURE 1
Nomothetic interpretation of vaccine problem

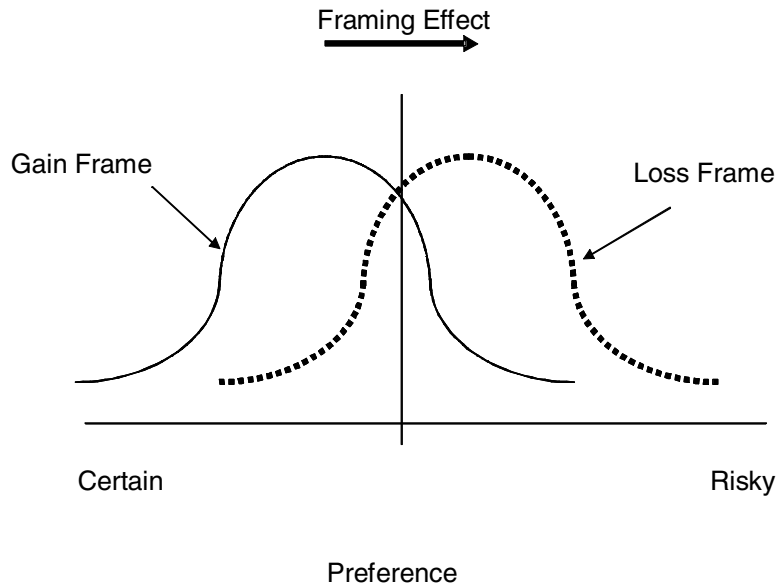


Figure 1 assumes that people's preferences for the two options vary along a continuum, represented by the position on the abscissa. Because the choice is binary, the middle of the graph reflects a cutoff point; people with a preference that falls on the right side of the cutoff prefer the risky option while those people with a preference that falls on the left side of the cutoff prefer the certain option.

¹² The subjects in the gain frame thus have one of three responses: the 28 percent who choose the risky option; the 22 percent who choose the certain option and would have done so regardless of frame (as evidenced by the data from the loss frame); and the 50 percent who choose the certain option but would have chosen the risky option had they been exposed to the loss frame. The subjects in the loss frame also have one of three responses: the 22 percent who choose the certain option; the 28 percent who choose the risky option and would have done so regardless of frame (as evidenced by the data from the gain frame); and the 50 percent who choose the risky option but would have chosen the certain option had they been exposed to the gain frame.

The bell curves in Figure 1 represent the distribution of preferences among all individuals that the two different decision frames produce. The gain frame produces a distribution of preferences that puts most of the subjects on the left side of the midpoint. Following the nomothetic interpretation of the data, altering the problem to the loss frame uniformly shifts the distribution of preferences. The distribution of preferences in the loss frame lies largely on the right side of the midpoint. The “failure of invariance” to which Tversky and Kahneman refer is thus reflected in a shift in preferences among everyone in the population. Even though the framing effect influences all of the subjects’ preferences, it does not alter everyone’s choice.

Figure 2 represents the ideographic interpretation of the Asian disease problem.

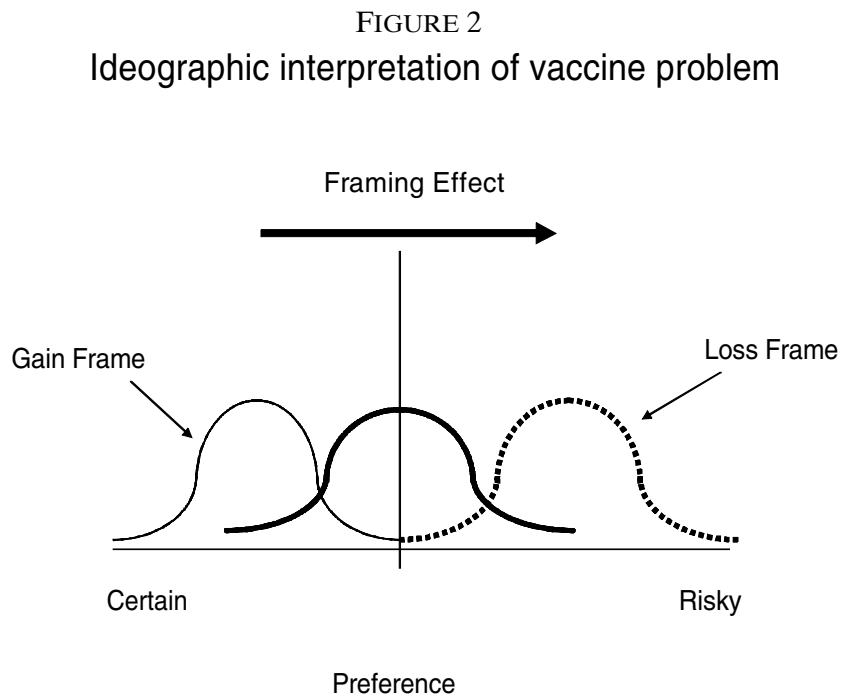


Figure 2 assumes that the decision frame influences some people heavily and some people not at all. The former group attends closely to the frame; when the problem presents losses, they gamble, and when the problem presents gains, they embrace certainty. They vary in terms of the degree to which they like the choice they make, but the framing effect completely determines their choice. The latter group of subjects, by contrast, is completely indifferent to the frame. They have different reactions to the choice, but these reactions do not depend on the frame. The frame has no hold on them.

Summing the distributions of the preferences of the two types would yield a graph that looks exactly like Figure 1. That is to say, it would produce two distributions of responses to the problem—one in the loss frame and one in the gain frame. But Figure 2 suggests that the data mask an important distinction. Half of the subjects resist the cognitive trap that Tversky and Kahneman have laid, and half are so vulnerable to the trap that their vulnerability completely dictates their choice.

The Asian disease study thus does not distinguish between the nomothetic and ideographic models of human cognition. The binary choice that the problem demands is too clumsy. Measuring the strength of the preferences, however, would not help. Such a measure would likely produce something like Figure 1. If the continuous measures dovetail with the binary choice, they would simply confirm that the frames shift preferences. As noted above, a summation of the two types of populations of subjects (those affected by frame and those unaffected by frame) would also produce the distribution in Figure 1. Hence, results consistent with Figure 1 do not indicate whether the subjects can be distinguished into two subtypes.

A within-subjects design (exposing subjects to both frames and simply asking the question twice) also provides no way of distinguishing the two models. In within-subjects studies, 31 percent of the subjects express inconsistent preferences.¹³ As discussed, the between-subjects study suggests that 50 percent of the subjects would switch preferences. The results do not, however, suggest that 69 percent (or even 19 percent) of the subjects are immune from framing effects. Rather, the within-subjects problem presents a different question than the between-subjects problem. The within-subjects design provides more clues to the arbitrary, and potentially misleading, aspects of the decision frame. Some of the subjects identify these clues and respond consistently. These people might well have been influenced by the decision frame had they reviewed only one of the two problems.

Distinguishing between the two approaches requires identifying some ideographic parameter that divides people into those who are affected by frame and those who are not. For example, suppose that those who are highly experienced with making public-health decisions are unaffected by frame. Such experts might each choose different vaccines, but they might be able to ignore the features of the problem that produce the decision's frame. Dividing up the experts and laypersons might reveal that the frame had a decisive effect on lay judgment,

¹³ See Keith E. Stanovich and Richard F. West, *Individual Differences in Framing and Conjunction Effects*, 4 *Thinking & Reasoning* 289, 295 (1998) (reporting that 69.2 percent of the subjects in a within-subjects presentation of the Asian disease problem expressed consistent preferences in the two frames).

but no effect on the judgment of the experts. If so, then the nomothetic model would have to be rejected as failing to recognize an important factor in the decisionmaking process. A policy proposal founded upon data on framing gathered from laypersons but directed towards experts might be misleading.

The binary nature of the Asian disease problem makes an ideographic parameter particularly difficult to identify, and can lead to easy misinterpretation. For example, suppose that laypersons exhibit the pattern of data that Kahneman and Tversky originally documented, but that experts all embrace the certain outcome regardless of the frame. Such results could mean that experts are simply trained to embrace the certain outcome, and hence the frame has no effect on them. But such results could also indicate that experts are much more risk averse than laypersons. The distribution of expert preferences might lie so far to the left of the cutoff point that the problem did not provide an adequate test of the impact of framing on experts.

Even if the experts split on their choices, a failure to show a framing effect does not necessarily mean that framing had no effect. Suppose that instead of all selecting the certain option, half of the experts choose the certain option and half choose the uncertain option. This provides solid, but not conclusive, support for the ideographic model. But suppose that experts make more extreme judgments than laypersons. The experts who choose the risky option might be more confident of it in the loss frame than the gain frame and the experts who choose the safe option might be more confident of it in the gain frame than the loss frame. Framing might still have the same effect on experts as laypersons, but still fail to overcome the extreme judgment of the experts and shift preferences. Only the combination of a continuous measure of preferences plus an ideographic parameter would adequately distinguish the models.

This analysis is not unique to framing. Many of the cognitive processes that BLE scholars apply could be similarly assessed. Studies of the hindsight bias, endowment effect, contrast effects, and anchoring all depend upon showing the extensive influence of some factor that is, as a matter of deductive logic, irrelevant to decisionmaking. The studies typically present two conditions and a binary outcome and rarely distinguish between a nomothetic and an ideographic interpretation of any identified difference. In these studies, rational choice theory makes no prediction as to the appropriate decision, other than that the answer people select should not vary by condition. Researchers use slightly different methods to identify phenomena such as overconfidence, representativeness, availability, hyperbolic discounting, and reciprocity. In these studies, rational choice (or deductive logic) dic-

tates a particular answer. Deviations from that answer therefore demonstrate the erroneous influence of the psychological process.

Distinguishing between the two models is somewhat easier in studies in which rational choice implies a correct answer. Although such studies commonly demonstrate that a large percentage of people deviate from the predictions of rational choice theory, some people do get the correct answer in these studies. This fact presents the greatest empirical challenge for the nomothetic model, particularly if the percentage of people who get the correct answer is large. Even in studies in which many people deviate from the predictions of rational choice theory, the identification of a variable that predicts who gets the right answer and who does not provides simple, direct support for the ideographic model.

C. Individual Differences in Cognition

The nomothetic model is a sitting duck. People likely express enormous variation in their abilities to make accurate judgments and any variable that differentiates how people make judgments undermines the nomothetic model. But an identification of an ideographic parameter provides better support for the ideographic approach if the parameter arises from a coherent theory as to how it affects cognitive processes. Absent some theory, a scattershot of variables that sometimes predict who commits errors or interacts with the conditions in a psychological study are apt to be too spurious to be of value to legal analysis. Given the present state of research, the most likely source of sensible theoretical parameters that might affect cognitive processes are: intelligence (or cognitive ability), experience and training, and demographic factors.

1. Variations in cognitive ability.

The most intuitive source of vulnerability to cognitive error is intelligence. Psychologists who study judgment and choice frequently assert that cognitive limitations force people to rely on heuristics, which in turn produce errors in judgment. If so, then people with greater cognitive abilities have less need to rely on simple heuristics and therefore might make fewer errors.¹⁴ Deviations from the principles of deductive logic and rational choice that require the intervention of the legal system might therefore be useful only for those who lack the cognitive capacity to make reasoned decisions.

¹⁴ See Keith E. Stanovich and Richard F. West, *Individual Differences in Reasoning: Implications for the Rationality Debate?*, 23 *Behav & Brain Sci* 645, 648–49 (2000) (examining how aptitude effects individual vulnerability to a variety of cognitive errors).

Psychologists Keith Stanovich and Richard West have provided most of the research relating cognitive ability to cognitive error.¹⁵ Their work suggests that people with greater cognitive ability seem to make fewer mistakes on many kinds of problems that produce straightforward departures from deductive logic. For example, people with greater cognitive ability are less likely to commit the conjunction fallacy (for example, concluding that a severe earthquake in the United States is less likely than an earthquake in California) and are more able to solve complex problems like the Wason card-selection task (which is thought to be related to the confirmation bias—the tendency to seek out only confirmatory evidence in hypothesis testing, even when the presence or absence of disconfirming evidence would be more useful). Lower cognitive capacity thereby implicates a cognitive error that marketers commonly try to trigger. Marketers, particularly of pharmaceuticals, often present confirmatory evidence as to the benefits of their product. For example, pain reliever advertisements routinely feature testimonials by those who consumed an analgesic and reported that their pain disappeared. Such evidence is only half of the story, because it reveals nothing about the relative benefits of the product to other analgesics or to taking nothing. People with greater cognitive ability might be less vulnerable to such efforts.

The data on base rate neglect, however, reveals the relationship between cognitive capacity and cognitive errors to be ambiguous. Smarter people are a little more likely to attend to statistical base rates as opposed to vivid, salient exemplars (for example, using Consumer Reports as opposed to an anecdote by a friend), but only when the base rates identify a causal connection between the information and the category. Intelligence has no effect on performance on problems involving noncausal, or diagnostic, base rates (such as the rare disease problem). The logical structure of Bayesian problems does not depend on whether the evidence is causal or merely diagnostic, and so it is unclear why intelligence should matter in some circumstances but not others.

These results suggest that the influence of cognitive capacity on ability to avoid error will be highly contextual and hard to explain. Stanovich and West have offered a rough account of the mixed evidence on base rates. They argue that when approaching decisionmaking problems that involve base rates, people first try to identify the logical structure, and if they cannot, they follow instincts, which might be misleading. A decisionmaker with greater cognitive abilities is more likely to identify cues embedded within the problem that reveal the deductive structure. Diagnostic, noncausal base rates present an ex-

¹⁵ See *id.*

tremely difficult problem with few internal cues as to the correct resolution, and so greater cognitive capacity is of no help. Determining which problems embed cues that would be useful to smarter people is a messy empirical task. Even if smarter people sometimes avoid mistakes of deductive logic in some settings, policymakers might be unable to identify these settings.

Furthermore, greater cognitive capacity seems to produce greater overconfidence in judgment. Theoretically, this makes some sense because of the way that the cognitive mechanism underlying overconfidence operates. After making a judgment, people generally try to justify their judgment. Reasons that the judgment might be wrong seem to fade after the choice has been made. It is thus a faulty decisionmaking style that produces overconfidence. People with better memory, or who can process information more quickly, will be better able to marshal support for their beliefs. Even as greater cognitive capacity allows people to identify clues to the logical structures of some problems, it promotes too much faith in one's abilities. Having intelligence is not the same as having the wisdom to recognize that one's greater abilities have been put in the service of a defective decisionmaking style.

Other cognitive phenomena are likely unaffected by cognitive capacity. Although some evidence suggests that greater cognitive capacity immunizes people against framing effects, the evidence is all from within-subjects experimental designs.¹⁶ In the within-subjects design, people with greater cognitive capacity are better able to identify the similarities of the two versions. In between-subjects designs it is unclear how cognitive capacity would be helpful. In the examples that illustrate framing effects, no correct decision can be identified; the certain outcome is usually as defensible a choice as the uncertain outcome. The effect arises from two aspects of risky decisions. First, just as people are more sensitive to changes in physical properties of the world (illumination, sound, smell), so too are people more sensitive to changes in wealth or risk. Second, losses trigger different associations than gains. Because cognitive limitations do not produce framing effects, cognitive abilities should not correlate with the expression of framing effects.¹⁷

¹⁶ Stanovich and West, 4 *Thinking & Reasoning* at 295–96 (cited in note 13) (noting that the subjects who gave consistent responses in the Asian disease problem had higher SAT scores, where the study was conducted with a within-subjects design).

¹⁷ But see Andrew F. Simon, N.S. Fagley, and Jennifer Hallern, *Decision Framing: Moderating Effects of Individual Differences and Cognitive Processing*, 17 *J Behav Dec Making* 77, 88 (2004) (demonstrating that those who have high measures of “need for cognition” and have high mathematical abilities show no framing effects).

Cognitive ability is thus no panacea for avoiding cognitive errors. Smart people seem to have greater ability to identify cues to the underlying structure of some logical problems, but they remain vulnerable to errors. The positive correlation between intelligence and overconfidence also suggests that smart people are even more vulnerable to cognitive errors outside the lab because they will be less aware of the need to be cautious in trusting their own judgment. Cognitive capacity also seems completely irrelevant to other cognitive phenomena. Given the erratic nature of the limited protection from cognitive error that cognitive capacity provides, it presents a poor basis for legal policy.

2. Variations in training or education.

People can be taught to make better decisions. Research on judgment and choice has always included a large number of studies devoted to identifying “debiasing” techniques or ways of avoiding bad judgment. Self-serving biases can be eliminated by forcing individuals to identify the weaknesses in their own arguments.¹⁸ Imagining that alternative outcomes could have occurred and identifying explanations for how these outcomes might have occurred can reduce the hindsight bias and related phenomena.¹⁹ Highly invasive strategies such as drawing out “fault trees” or identifying and assigning probabilities to causal pathways can sharpen probability estimates.²⁰ Overconfidence can likewise be overcome by thinking about the problem in a frequentist (for example, seven out of ten) rather than a subjective (for example, 70 percent) probability format.²¹

Learning a debiasing strategy is, however, not sufficient to ensure that people will make good judgments. Training people to use a debiasing technique is not enough unless people learn when to rely on these techniques. Indeed, research on experienced decisionmakers provides numerous instances in which experienced professionals exhibit a range of vulnerability to cognitive errors. Studies of accountants, lawyers, judges, real estate brokers, securities analysts, mental health professionals, and

¹⁸ See, for example, Linda Babcock, George Loewenstein, and Samuel Issacharoff, *Creating Convergence: Debiasing Biased Litigants*, 22 L & Soc Inquiry 913, 913–20 (1997) (describing debiasing procedures against self-serving biases).

¹⁹ See, for example, Paul Slovic and Baruch Fischhoff, *On the Psychology of Experimental Surprises*, 3 J Exp Psych: Hum Perception & Performance 544, 548 (1977) (showing how the hindsight bias can be removed or limited).

²⁰ See, for example, Baruch Fischhoff, Paul Slovic, and Sarah Lichtenstein, *Fault Trees: Sensitivity of Estimated Failure Probabilities to Problem Representation*, 4 J Exp Psych: Hum Perception & Performance 330, 332 (1978) (describing experiments that demonstrate how fault trees can help to assess probabilities).

²¹ See, for example, Gerd Gigerenzer, *How to Make Cognitive Illusions Disappear: Beyond “Heuristics and Biases,”* 2 Eur Rev Soc Psych 83, 89 (1991).

futures traders have revealed them all to be vulnerable to committing cognitive errors, even on questions well within the domain of their expertise.²² Thus, experience and training, by themselves, do not constitute an ideographic parameter that insulates people from cognitive error. But certain kinds of experience and training might produce people who avoid cognitive errors in judgment. Meteorologists, for example, give well-calibrated estimates for the likelihood of rain and snow.²³ A recent study of insurance claims adjusters also finds them to be able to avoid framing effects.²⁴

Experience does not uniformly produce unbiased decisionmaking. The cost of cognitive errors is often low, or hard to identify. Lawyers who are influenced by framing effects in evaluating settlement offers, for example, often will give their clients advice that will hurt the clients, but might further the goals of the attorney. Specifically, if defense attorneys, with clients who face losses, give risk-seeking advice about settlement, then the client will spend more on billable hours than if the advice is risk neutral. Although one might expect the market to drive out errors among experienced participants (or drive out participants who make errors), the marketplace for professional services is apt to be quite inefficient at doing so. The feedback necessary for individuals to identify mistakes is often lacking. Continuing with the example of attorneys and settling civil litigation, they almost always settle cases, thereby only rarely getting a true indication of how a judge or jury would have decided the case. Because attorneys rarely get feedback, it is hard to see how market forces would drive erroneous judgment out of the profession.

Training is also an unreliable means of avoiding cognitive errors in judgment. In most professions, people are trained in the jargon and skill necessary to understand the profession, but are not necessarily given training specifically in making the kind of decisions that members of the profession have to make. Thus, even though some psychologists have argued that certain types of reasoning can be taught quickly and easily,²⁵ such training is extremely rare. Generalized training that allows people to avoid a wide range of cognitive errors also seems unavailable. One study of the effects of graduate-level training in various

²² See Chris Guthrie, Jeffrey J. Rachlinski, and Andrew J. Wistrich, *Inside the Judicial Mind*, 86 *Cornell L Rev* 777, 782–83 (2001) (summarizing this literature).

²³ See Allan H. Murphy and Robert L. Winkler, *Probability Forecasting in Meteorology*, 79 *J Am Stat Assn* 489, 494–95 (1984).

²⁴ Jeffrey J. Rachlinski and Chris Guthrie, *Heuristics and Biases Among Expert Negotiators* (on file with author).

²⁵ See generally Peter Sedlmeier and Gerd Gigerenzer, *Teaching Bayesian Reasoning in Less Than Two Hours*, 130 *J Exp Psych* 380 (2001).

disciplines revealed that medical training and training in the hard sciences conferred no immunity to common errors of statistical reasoning.²⁶ Although training in social sciences (and ironically in law) improves reasoning, the benefits appear to be quite limited. Even when training and experience improve judgment, the improvement might be exceptionally context specific. One study of insurance executives showed that although they demonstrated some resistance to the conjunction fallacy, the resistance depended upon direct experience with a precise context.²⁷ Thus, reinsurance executives resisted the conjunction fallacy when estimating the likelihood that the United States would be hit by a damaging hurricane (an event with which they had tremendous experience), but fell prey to the error when estimating the likelihood that the United States would be hit by a devastating terrorist attack (the study was conducted before 9/11). Insurance executives studied more than a year after 9/11 displayed the opposite pattern, presumably because they lacked experience with hurricanes, but had given enormous thought to the experience of 9/11. Even though the structure of the logical error is identical in all four parts of the study, the ability to avoid the conjunction fallacy depended upon having had direct experience with the risk. The results do not show a general ability to avoid the error.

The task-specific nature of the effects of training and experience make it unlikely that these variables represent an ideographic parameter that would easily mark those who are immune from cognitive error. Successful debiasing procedures are incredibly invasive and often only partly successful: good feedback is rare, overconfidence hides the awareness that debiasing is necessary, biases are often costless and sometimes even economically beneficial, and debiasing strategies seem highly context specific.

3. Demographic factors.

Easily identifiable demographic parameters, such as race, sex, and age might all correlate with cognitive error. Large differences in cognitive vulnerabilities along race or gender lines would have significant implications for legal analysis. Marketers would be able to target these subgroups and policymakers would have to consider carefully how to address these differences. Demographic differences in cognitive ability

²⁶ Darrin R. Lehman, Richard O. Lempert, and Richard E. Nisbett, *The Effects of Graduate Training on Reasoning: Formal Discipline and Thinking About Everyday-Life Events*, 43 *Am Psych* 431, 440 (1988).

²⁷ See generally Rachlinski and Guthrie, *Heuristics and Biases Among Expert Negotiators* (cited in note 24).

are also among the most highly studied and highly contested areas of social science inquiry. But, as noted above, variations in cognitive ability do not readily translate into differential vulnerability to cognitive errors. Studies of differential vulnerability to cognitive error by demographic factors are extremely rare.

The research on sex differences in judgment is typical of the state of scholarship. Several studies suggest that women make more risk-averse choices than men.²⁸ Although these results suggest that men and women view risk differently, they do not indicate a differential susceptibility to cognitive error. In reference to Figures 1 and 2, gender might give some indication as to where on the continuum an individual falls, but does not help distinguish the two different models that the figures represent.

The research on cultural differences resembles the research on sex differences. The research indicates that people from collectivist cultures are more willing to undertake risky gambles.²⁹ Researchers believe this tendency results because people from collectivist cultures have a strong norm of sharing benefits and risks, thereby allowing them to behave in a fashion that more closely approximates risk neutrality. As with gender, however, even though people from different cultures express different risk preferences, they do not necessarily express any real differential vulnerability to cognitive error.

Research on collectivist versus individualist cultures has produced some limited evidence of differential vulnerability to cognitive errors. Whereas people in Western, individualistic cultures excessively attribute human behavior to stable personality traits—a phenomenon known as the fundamental attribution error—people from more collectivist societies largely avoid this error.³⁰ Self-esteem among people from collectivist cultures is also more closely bound up with group, rather than individual, achievement. Collectivism is no panacea for good judgment, however. Curiously, people from collectivist cultures exhibit greater overconfidence in judgment.³¹

²⁸ See Vickie L. Bajtelsmit, Alexandra Bernasek, and Nancy A. Jianakoplos, *Gender Differences in Defined Contribution Pension Decisions*, 8 *Fin Serv Rev* 1, 1 (1999); Renate Schubert, et al, *Financial Decision-Making: Are Women Really More Risk-Averse?*, 89 *Am Econ Rev Papers & Proceedings* 381, 384–85 (1999).

²⁹ Elke U. Weber and Christopher Hsee, *Cross-Cultural Differences in Risk Perception, but Cross-Cultural Similarities in Attitudes Towards Perceived Risk*, 44 *Mgmt Sci* 1205, 1208 (1998).

³⁰ Michael W. Morris and Kaiping Peng, *Culture and Cause: American and Chinese Attributions for Social and Physical Events*, 67 *J Personality & Soc Psych* 949, 961 (1994) (discussing a study showing that American subjects tended to view social circumstances as products of personal disposition, whereas Chinese subjects tended to see them as the result of situational factors).

³¹ See J. Frank Yates, Ju-Whei Lee, and Julie G. Bush, *General Knowledge Overconfidence: Cross-National Variations, Response Style, and "Reality,"* 70 *Org Beh & Hum Dec Processes* 87, 92 (1997) (reviewing evidence of greater overconfidence among Asians).

Taken together, this research suggests that people from different cultures have different risk preferences. Further research in the United States echoes this conclusion. People in the United States who are white and male tend to be less concerned about environmental risks than people who are black and female.³² The groups are reversed on other kinds of risks, such as those posed by abortions, thereby suggesting that deeper cultural beliefs underlie these differences. These demographic variations do not correspond to differential vulnerability to cognitive error, at least not without knowing which groups are over- or underreacting to risk (or whether they truly face different risks). Still, these results represent significant individual variation that might be of importance to law and policy. People who believe they face more serious risks are apt to demand different programs from the government, behave differently as jurors (or judges), and respond differently to legal rules governing the allocation of risk. Furthermore, marketers might be able to take advantage of differential risk preferences. Advertising and marketing strategies that concern risky behavior (including financial decisions) commonly are directed carefully at specific demographic segments.

Individual variations in vulnerability to cognitive errors in smaller groups might also be common. Although researchers in judgment and choice often do not study social behavior, imitation of trusted peers is one of the most common responses to uncertain situations. People who are uncertain about how to assess the complexities of such choices as how to finance the purchase of an automobile (lease or buy), the choice of a health-care plan (HMO or PPO), or whether to take social security benefits early are apt to rely heavily on the choices made by trusted others. One might describe this in terms of an imitation heuristic. Such a heuristic might leave whole communities vulnerable to certain kinds of cognitive mistakes. Indeed, marketers target particular communities for costly financing schemes such as rent-to-own or tax rebate advances in large measure because some communities seem willing to embrace such schemes. Choices about flood insurance likewise are more sensitive to social contagion effects than to rational perception of actual risk (or even to informational campaigns or subsidies).³³

³² See Dan Kahan, et al, *Gender, Race and Risk Perceptions: The Influence of Cultural Status Anxiety* (Yale Law School Public Law Working Paper No 86, Apr 2005), online at <http://ssrn.com/abstract=723762> (visited Jan 2, 2006) (reviewing this literature).

³³ See Jacob Gersen, *Strategy and Cognition: Regulating Catastrophic Risk* 156–57, unpublished PhD dissertation, The University of Chicago (2001) (“[A]s informational conditions grow increasingly favorable to the formation of cascades, the variability of risk management decisions should and does in fact decrease.”).

4. Conclusion.

Supporters of the nomothetic model face real challenges from the evidence of individual variation in vulnerability to cognitive error. It is clear that individual variations exist. Nevertheless, for the purposes of law and policy, the nomothetic model might well be sufficiently accurate that it should be accepted as a reasonable approximation. The circumstances in which intelligence, experience, and training improve judgment seem too unpredictable to represent a solid foundation for policymaking. Ironically, this is much the same argument that is often made by devoted proponents of rational choice theory in response to evidence of cognitive errors in judgment—that they are erratic, undetectable, and sufficiently small that they can be neglected. Demographic factors, however, might represent a notable exception, even though most of the data suggest that they correlate to different underlying preferences and not differential vulnerability to cognitive error.

II. IMPLICATIONS OF THE IDEOGRAPHIC MODEL FOR LAW

Given the difficulties of identifying a specific ideographic parameter upon which the law can rely, it is a little easier to see why BLE has retained its nomothetic roots. Nevertheless, BLE must be open to the possibility that a useful ideographic parameter will emerge from messy data that now exist. Cultural factors and gender, in fact, seem likely candidates, given that these are easy-to-identify parameters on which psychologists have found some variations in cognitive style. Furthermore, both the legal system and marketers sometimes embrace ideographic models of judgment and choice. BLE is ill-equipped to assess either marketers or the legal system unless it develops some basic ideographic approach.

Replacing the nomothetic assumption with an ideographic model of cognitive errors has two basic implications for law. First, it alters several common arguments that cognitive psychology supports paternalism somewhat. The presence of significant individual variation in vulnerability suggests that the law needs to attend more closely to individual variations in cognitive style, and perhaps craft legal rules that sort individuals more carefully. Second, it casts new light on how marketers behave and casts suspicion on marketing practices that are designed to play on the cognitive errors of individuals.

A. The Costs of Paternalism

The most common use of cognitive psychology in legal scholarship is to support paternalistic legal interventions. It stands to reason that if individuals make predictable cognitive errors, then they can be protected from the consequences of these errors. Such arguments

have been made to support an expansion of strict liability in tort, more aggressive use of the unconscionability doctrine in contract law, tighter restrictions on the marketing of securities, mandatory health and safety rules in the workplace, the imposition of nonwaivable (or difficult to waive) contract terms, and greater restrictions on access to credit (among others). Inevitably, paternalism comes at a price. It creates costly enforcement regimes and imposes choices on people who, even holding the influence of cognitive error aside, would prefer an alternative to what the law mandates.

Take the framing problem as an example. Suppose that the study had presented an individual choice about a treatment, rather than a collective one such as that of a public-health official concerning a vaccine. The treatment choices could have involved years of life added for sure or a probability of more years or no years. Suppose also that unbiased officials believed that most people would be better off with the certain treatment, although some could sensibly prefer the risky treatment. In effect, the “correct” distribution of choice might reflect the distribution of the gain frame in Figure 1. But further suppose that people often see the choice from the perspective of losses. Most choose the risky treatment, even though an unbiased observer would conclude that most should prefer the safe treatment. Framing can be blamed for the mistaken choice, rather than a true reflection of unbiased preferences. Hence, public-health officials might consider refusing to allow anyone to choose the risky treatment. Because most unbiased patients would choose the safe treatment, this mandate might improve social welfare. Under the mandate only one-quarter of patients get the “wrong” treatment, while under the loss frame, fully half of the patients choose the wrong treatment.

The ideographic model does not change this analysis—at least not without more detail. If Figure 2 accurately depicts how the choice is being made, then the mandate still has the same effect. Absent the mandate, half of the patients are immune from framing and they choose treatments appropriate for them. The other half are affected heavily by framing (more so than in the nomothetic model) and half of them choose the wrong option, solely because of the frame. These people can be saved from their unwise choice by the mandate, but only by imposing the wrong choice on the quarter of patients who properly choose the risky treatment and who are not affected by frame.

The ideographic approach raises the possibility that those who are not being affected by frame can be identified and offered free reign to select their own treatment options. If the ideographic parameter that marks them can be easily observed, then there is little reason to impose the wrong choice on those who are immune from the cognitive error. Examples of sorting methods like this in law are rare. Secu-

rities regulation includes a few examples in which “qualified” investors are offered choices that others are not. Tort law contains a few examples involving experienced parties who assume risk. The law of unconscionability in contract also gives weight to the experience of the contracting party.

Even though the law thus seems to recognize that ideographic parameters should be used to limit paternalistic inclinations, the law relies on the wrong variables. The key ideographic parameter that law relies upon is experience. Those who have experience with an activity are said to assume the risks of the activity—those with experience in an industry are thought to be less vulnerable to unconscionable contractual terms. As noted above, however, experience is an unreliable indicator of good judgment. The common law has seized upon an intuitive, but unreliable, ideographic factor.

Arguably, an ideographic model supports weak paternalism in which the law does not prohibit choice, but alters the context in which people make decisions. In the framing example, the dominant solution would perhaps entail inducing everyone to see the problem from a gains perspective (assuming the risk aversion it induces to be sensible). Altering the default rule would be one way of accomplishing this. Under the nomothetic model, such a change eliminates the unwanted influence of framing that induces half of the patients to make the risky choice when they should make the certain choice. Under the ideographic model, all of those affected by the frame switch to the safe choice and those who are not affected are, well, not affected. This is the analysis that leads Camerer and his colleagues to embrace this soft form of paternalism.³⁴ It makes no one worse off and some number better off. To the extent that switching the default rule is costly, this cost is needlessly imposed on those who are not vulnerable to the cognitive error.

B. Targeted Marketing

The ideographic model casts a new light on the behavior of marketers. Although efforts by marketers to segregate consumers can have legitimate and socially useful ends, the ideographic model also suggests that marketing might be designed to identify consumers who are vulnerable to committing cognitive errors.

Legal scholars who rely on psychology have largely argued that marketing has socially undesirable properties. Led largely by Jon Hanson, many legal scholars contend that marketing represents an effort to

³⁴ Camerer, et al, 151 U Pa L Rev at 1212 (cited in note 1).

dupe consumers into ignoring undesirable aspects of products.³⁵ According to this work, marketing targets cognitive vulnerabilities. The theory has conceptual and pragmatic problems,³⁶ but is appealing in its simplicity. Marketers face a bewildering array of cognitive biases in consumers that point in many directions, but marketers need not sort them out. All they need to do is tinker with their advertising until they sell more product. In Professor Hanson's view, this will occur when the marketing hits upon a strategy that hides dangers that the product poses. Marketers thus need not understand the psychological research in order to take advantage of cognitive vulnerabilities in consumers.³⁷

Hanson's model is basically nomothetic, but an ideographic approach provides another dimension supporting his argument. Marketers need not truly understand whether the cognitive vulnerabilities that sell their products affect all or some of their potential customers, although they should be sensitive to the variations in consumer cognition. Observable ideographic parameters that mark highly vulnerable individuals can help marketers direct their campaigns. Just as they need not understand the basic cognitive mechanisms that induce consumers to misunderstand the risks of products, they need not understand the theoretical underpinnings of why certain individuals are vulnerable to cognitive errors while others are not. All that marketers need do is monitor the demographics of who is exposed to their advertisements and who buys their products.

Efforts to exploit the cognitive vulnerabilities of certain subgroups of consumers differ in character from other efforts to segregate markets through price discrimination. Price discrimination usually consists of an effort to identify consumers who value a product more highly than other consumers. Identifying cognitive vulnerabilities, however, consists of an effort to find consumers who probably should not engage in the transaction and induce them to do so by exploiting cognitive errors that they are apt to make. As one example, a recent article by Jonathan Klick argues that many industries use standard-form con-

³⁵ Jon D. Hanson and Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 NYU L Rev 630, 637 (1999) (“[Manufacturers] will attempt to elicit lower than accurate perceptions of risk rather than accurate ones.”); Jon D. Hanson and Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 Harv L Rev 1420, 1425–27 (1999) (“[M]anufacturers have every incentive to utilize cognitive biases to lower consumer appreciation of product risks.”).

³⁶ See James A. Henderson, Jr., and Jeffrey J. Rachlinski, *Product-Related Risk and Cognitive Biases: The Shortcomings of Enterprise Liability*, 6 Roger Williams U L Rev 213, 229–44 (2000).

³⁷ See Douglas A. Kysar, *Kids & Cul-de-Sacs: Census 2000 and the Reproduction of Consumer Culture*, 87 Cornell L Rev 853, 875–87 (2002) (discussing how marketers try to segregate consumers).

tracts as a way of price discriminating.³⁸ He contends that those consumers most interested in the terms covered by the forms negotiate these terms, while most consumers (who could not care less) do not. However plausible this story,³⁹ it is not clear whether the small minority of consumers are really those who value variations from the boilerplate more than the rest or whether those consumers are just the minority who are not affected by cognitive errors that plague the rest of the population. Similarly, the variations in the financing of home appliances in different communities might well reflect cognitive vulnerabilities, rather than fixed preferences or variations in creditworthiness of people in the communities.

Standard-form contracts represent one of the three basic mechanisms industries can use to segregate cognitively savvy consumers from those who commit errors in judgment. Even in a market in which most consumers suffer from cognitive errors, industry will still compete for a small number of cognitively savvy consumers, thereby disciplining the whole market. But if this small group can be separated, then they can exploit the cognitive weaknesses of the mass of consumers. For example, industries can offer a standardized agreement containing terms that most consumers would dislike and accept only because of cognitive vulnerabilities. A small number of consumers who do not suffer from errors might refuse to deal with the businesses that offer such terms, or they might simply raise questions about the terms. This act identifies them as cognitively savvy and the business simply offers them more generous terms. Evidence that businesses will later change their boilerplate might thus demonstrate an effort to segregate those who make cognitive errors from those who do not.

The other basic mechanism to segregate consumers is to find low-cost ways to make offers to large numbers of consumers—offers that would be attractive only to those who make cognitive errors. This mechanism is best illustrated by spammers. The marginal cost of spam per offer is nearly zero, so spammers generally make offers that deliberately take advantage of people's weaknesses and fears. Get-rich-quick schemes, genital enlargement, cheap pharmaceuticals and the like are the bread and butter of spammers. If a spammer hits upon just the right cognitive formula to entice a small percentage of the population, their efforts will pay dividends. Widespread, low-cost advertisements can ferret out and exploit those who fall prey to cognitive errors.

³⁸ Jonathan Klick, *The Microfoundations of Standard Form Contracts: Price Discrimination vs. Behavioral Bias*, 32 Fla St U L Rev 555, 558 (2005).

³⁹ But see Russell Korobkin, *Possibility and Plausibility in Law and Economics*, 32 Fla St U L Rev 781, 785 (2005) (suggesting that it is implausible).

Finally, marketers might simply be able to identify groups that are vulnerable to their messages and target these groups. Discovering that rent-to-own plans or same-day tax rebates are popular among specific demographic groups allows marketers to spend their advertising efforts directly on those who might be vulnerable to the message.

To be sure, all three mechanisms have benign explanations. Providing better contract terms to the small number of people who ask questions might be efficient price discrimination; widespread marketing campaigns are appropriate for products of broad appeal; and segregated marketing targets advertising dollars on those who may have sensible reasons for being more interested in the product offered than others. But all three campaigns can also be explained easily by efforts to sell a product or service precisely to people who, if they were fully rational, would not purchase it.

Price discrimination might well be a benign, or even socially useful aspect of the economy. But the ideographic model suggests that it might instead constitute evidence of efforts to exploit cognitive vulnerability. The difficulty of distinguishing sensible price discrimination from cognitive exploitation might make regulatory intervention to curtail segmented marketing strategies challenging, or even unwise. An ideographic perspective might, at least, cast suspicion on segmented marketing efforts.

CONCLUSION

Distinguishing between the nomothetic and ideographic models of cognitive error is methodologically challenging. Evidence that identifies clear ideographic parameters that identify cognitive vulnerability is sufficiently rare that it is not surprising that most legal scholars who consume psychological research have embraced the nomothetic model. Still, an ideographic model is apt to be superior in some circumstances. Marketers will identify ideographic parameters, even if lawmakers do not. Individual differences in cognitive error cannot be wholly ignored.