

Conference Overview

How Humans Behave



Implications for Economics and
Economic Policy

Federal Reserve Bank of Boston
48th Economic Conference
June 2003

This conference overview is reprinted from the First Quarter 2004 issue of the *New England Economic Review*. Drafts of the original conference papers and presentations are available on the web site of the Federal Reserve Bank of Boston at www.bos.frb.org/economic/conf/conf48/index.htm

How Humans Behave: Implications for Economics and Economic Policy

In June 2003, the Federal Reserve Bank of Boston held its 48th economic conference, titled “How Humans Behave: Implications for Economics and Economic Policy.” Here we provide an overview of the conference proceedings, co-authored by Richard W. Kopcke, Jane Sneddon Little, and Geoffrey M. B. Tootell.

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The standard models of human behavior in economics, which assume that people are well-informed economic agents striving to maximize a set of consistent preferences, frequently produce patently faulty predictions. Attracted by recent work in behavioral economics, the Boston Federal Reserve Bank gathered economists, behavioral scientists, and policymakers for its forty-eighth economic conference with the expectation that applying insights from psychology and other behavioral disciplines would improve economists’ understanding of how people make decisions as individuals and—more relevant for policymakers—in the aggregate. The ultimate goal was to apply these insights to improve our economic models, our forecasts, and our economic policy decisions.

This overview first discusses the dominant themes to emerge from the meeting—what we learned about how people behave and the implications of these discoveries for economics, macroeconomic policy, and directions for future research. This is followed by a summary of the conference presentations and discussion.

How Humans Behave

Major Themes

One of the major themes to emerge from the conference discussion is that human brains have evolved to solve complex social problems. As a result, people's behavior tends to change as their circumstances change, undermining consistency over time and context. This lack of consistency is not a fault; rather, it is a remarkable defining capacity that allows us to engage in complex social situations. Moreover, as psychologists and neuroscientists agree, although individuals perceive themselves to be unitary creatures, that impression is likely illusory. While the evolved subsystems that make up the human brain do communicate, in many contexts one system or the other tends to dominate. In some circumstances, for instance, emotions and drives can control our "thinking," radically changing our preferences, our taste for risk, the degree of empathy we feel—in effect, profoundly altering our "rationality" and our perception of utility. Somewhat ironically, moreover, it is the unconscious behaviors that are (relatively) predictable. It is consciousness or cognition that introduces the element of unpredictability in human behavior. All told, given the structure of our brain, it is unlikely that humans will behave as if they are consistently maximizing any single utility function. Rather, their utility function will seem to vary with their circumstances.

Implications for Economics

Most conference participants seemed ready to assume that where economics, psychology, and neuroscience meet, they should be in accord. And dismissing the inter-disciplinary discrepancies by arguing that economic agents often behave "as if" they were rational is no longer plausible, given the important prediction failures that result. Thus, economists

face the challenge of using behavioral insights to complicate existing and often useful rational economic models in parsimonious and constructive ways. Although some attendees suggested that perfectly rational models might come to be viewed as a special case providing normative standards, others thought that behavioral economists might simply set general guidelines for the rest of the profession and remain outside the realm of general equilibrium models. A few voiced doubt that psychology, which lacks a unified theory, could serve as a primary foundation for economics. Worse, they wondered whether behavioral findings might actually undermine the general unified theory that makes economics unique among the social sciences.

Although the authors and their discussants presented numerous intriguing examples of nonrational, non-utility-maximizing behavior on the part of individuals and groups, two major themes with implications for economic theory emerged repeatedly—the importance of fairness and the need to rethink the economic concept of utility and welfare. The role of fairness and trust in informal relational contracts is especially crucial for understanding the limits to markets and the roles of relational contracts. And with neural evidence distinguishing four different kinds of utility—anticipated, remembered, choice, and experienced—many presenters seemed prepared to agree that utility and welfare should be based on a mix of experienced and remembered utility or on the preferences of the controlled deliberative system. Further, how we structure our transactions and contracts can affect welfare.

In another theme, several participants noted that behavioral economics has important implications for the Phillips Curve and the NAIRU (the non-accelerating inflation rate of unemployment). In particular, behavioral economics demonstrates that money wage stickiness (as well as sticky real wage aspirations) reflects intrinsic aspects of the human psyche and is, thus, a normal characteristic of labor markets.

Implications for Macroeconomic Policy

Most participants were persuaded that normal people make decisions they regret in predictable ways, that policymakers can often identify "true welfare" from among the competing versions, and that collective actions and institutions sometimes emerge to exploit cognitive mistakes. Thus, the concept of "benign" or "libertarian paternalism" met an enthusi-

astic response—at least in the relatively simple case of proposals designed to increase saving and help individuals better prepare for retirement. By exception, a few participants were not fully persuaded, preferring to alert individuals to inconsistencies and pointing to the harder cases (like developing a taste for great literature) that involve a change in the brain’s ability to experience welfare. In cases where policy actions actually change people’s concept of themselves and the way they experience welfare, measuring regret and welfare becomes problematic.

In addition, many participants agreed that behavioral economics provides a micro-foundation for Keynesian economics and counter-cyclical macro policy and explains the wage rigidities that underlie the Phillips Curve. The idea that the findings of behavioral economics suggest adopting a positive inflation target gained some limited support. In the fiscal area, most agreed that behavioral insights could strengthen the efficacy of policy stimulus.

Future Research

Although the conference papers succeeded in breaking new ground by addressing macro issues not previously covered from a behavioral perspective, opportunities for additional work in this area are almost unlimited. Indeed, the conference participants left the conference clearly yearning for a deeper exploration of the implications of behavioral insights for both macroeconomic theory and macroeconomic policy. For example, participants wanted to know whether behavioral economics indicates that policymakers should put increased emphasis on the behavior of asset prices, why people suffer from money illusion, and whether their difficulty in dealing with inflation suggests the need for price level targeting. Others called for investigating the implications of behavioral findings not yet widely applied in economics—such as issues raised by limited attention spans and by what we know about how people learn and form expectations.

By tradition—and necessity—economics is a behavioral science, and the conference suggested both how far economics has branched from this tradition and some of the potential benefits to be gained from maintaining these roots. Overall, the conference revealed the need to remodel economic man to reflect what we know about the much-to-be-celebrated complexity of human behavior. It also demonstrated the compelling need for additional work in this area.

Keynote Address:

The Blank Slate: The Modern Denial of Human Nature

Steven Pinker, Peter de Florez Professor, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology (currently Johnstone Family Professor of Psychology, Harvard University)

The Boston Fed’s conference began with a wide-ranging keynote address by **Steven Pinker**, who based his remarks on his book, *The Blank Slate: The Modern Denial of Human Nature*. Pinker described how neuroscience contradicts key tenets of widely held philosophical views of human nature and argued that a better understanding of how the mind works, although threatening to some, does not, in fact, endanger equality, progress, responsibility, or purpose. Because theories of human nature define what individuals or societies can achieve with ease, with difficulty, or not at all, these theories affect our values and are closely related to religion. In the Judeo-Christian tradition, for example, individuals are equipped with a modular mind, a moral sense, and free will—despite an inherent tendency to sin—as illustrated by the stories in the Bible. For instance, in Genesis, Adam and Eve *choose* to eat the forbidden fruit in an act of free will. But because no scientifically literate person can believe that the events in Genesis actually occurred, Pinker argued, society has also developed an alternative theory of human nature not rooted in the biblical tradition. According to Pinker, the standard secular theory of human nature in our culture reflects three doctrines—the Blank Slate, the Noble Savage, and the Ghost in the Machine—which he proceeded to review and critique.

John Locke’s appealing concept of the mind as a “white paper, devoid of all character, without any ideas,” until “experience” provides them, has important political and moral implications, Pinker pointed out. This concept undermined the divine right of kings and the institution of slavery, and it remains highly influential in modern intellectual life. For most of the twentieth century, indeed, psychology tried to explain all human behavior in terms of association and conditioning. In this view, man is man because he has (almost) no instincts and is molded almost entirely by what he learns from his culture.

Posed as an alternative to the Hobbesian view of natural man as a warring brute, Rousseau’s Noble Savage has attractive implications. If man is basically

noble, we have no need for repressive government or child rearing practices. Rather we can work toward utopia and simply free children to develop their potential. The concept remains apparent today in our embrace of all things “natural” and the common belief that social problems reflect defects in our institutions rather than the inherent tragedy of the human condition.

The third widely influential doctrine of human nature is associated with Descartes, who argued that “the mind or soul of man is entirely different than the body,” a belief Gilbert Ryle derisively labeled “the Ghost in the Machine.” This dichotomy implied that humans could have a higher purpose, that they could choose their behavior, and that the mind could survive the death of the body. Today, Pinker argued, many people view the biological nature of the mind as incompatible with freedom, dignity, and responsibility. Similarly, some theologians cast the debate about stem cell research in terms of the “ensoulment” of the embryo and when it occurs.

Turning to the fundamental problems with these influential doctrines, Pinker pointed out that cognitive science shows that human learning actually requires concepts for physical objects, causation, quantity, and space; an intuitive psychology to explain others’ behavior; a language instinct; and a decision-making system, in contradiction to the Blank Slate theory. Indeed, evolutionary psychology has documented the existence of a large set of universals in human behavior and language despite huge cross-cultural differences. These universal concepts (over 300 so far) range from aesthetics, affection, and baby talk to status, tak-

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ing turns, and the color white. In addition, evolutionary psychology has shown that many human motives are better understood as enhancing biological outcomes in our ancestral, rather than in our current, environment. For example, our taste for sugar and fat, though harmful now, made sense when these concen-

trated sources of nutrients were in short supply. Other examples of the mismatch between goals that evolution gave us eons ago and goals better suited for today include our taste for revenge and our preference for physically attractive (and thus fertile) mates.

Neuroscience contradicts the Blank Slate concept by finding complex genetic patterning in the brain largely laid out in fetal development. A recent study used magnetic resonance imaging (MRI) to measure the distribution of gray matter in different parts of the cerebral cortex in a sample of individuals and then looked at the correlation of these patterns across selected pairs. In randomly selected pairs, the correlation was close to zero, but in fraternal twins the patterns in vast areas of the cortex were significantly correlated. The correlation was even greater for identical twins. These differences in the distribution of gray matter probably have functional consequences, Pinker suggested. For instance, studies of identical twins raised separately and tested as adults find they are very similar in terms of objective measures of intelligence, personality, and life outcomes (for example, getting divorced or having a criminal record). They even tend to share personal quirks like wearing rubber bands on the wrist. While coincidence may play a role in these outcomes, the correlation is much higher for identical than for fraternal twins. As a result of such studies, behavioral geneticists have developed the first law of behavioral genetics, which states that all behavioral traits are partly, but never completely, inherited.

Behavioral genetics has also sullied the Noble Savage theory by finding evidence that traits like an antagonistic personality or lack of sympathy or conscience are inheritable. Further, evolutionary psychology and anthropology suggest that conflict and violence are ubiquitous, even in pre-state, hunter-gatherer societies. In our own culture as well, social psychologists report that more than 60 percent of women and about three-quarters of men fantasize at least occasionally about killing someone they don’t like.

Finally, Pinker argued, cognitive science thoroughly contradicts the Ghost in the Machine concept by explaining intelligence in mechanistic terms. Thus, beliefs can be viewed as information, thinking as a form of massively parallel analog computation, and emotions as cybernetic feedback and control mechanisms. Neuroscience supports the “Astonishing Hypothesis,” as Francis Crick put it, that all our thoughts, feelings, and experiences are physiological activity in the tissues of the brain. We now know that all forms of thinking and feeling are correlated with patterns of electrical activity in the brain; that the brain

operates according to the laws of chemistry; and that surgery can alter consciousness and personality. We also know that the brain is hugely complex, with a hundred billion neurons connected by a hundred trillion synapses.

But confronted with this evidence, many react like Dostoevsky's Dmitri Karamazov, "It's magnificent,...and yet, I am sorry to lose God." Actually, Pinker asserted, people are sorry to lose the moral values associated with God. Thus, both the Right and the Left have reacted with fear and loathing to the science of human nature. Twenty-five years ago, the Left associated the sociobiology of E.O. Wilson with determinism and the eugenics of Nazi Germany, while the Right abhorred the biological theories for having nothing to say about virtue.

Pinker then asked whether a better understanding of human nature really threatens our moral values and condemns us to inequality, imperfectibility, determinism, and nihilism. He chose to focus on two of those fears, the fear of imperfectibility and the fear of nihilism. In the case of imperfectibility, Pinker noted that even if we have ignoble motives, the complex mind is also equipped with a moral sense, an ability to learn from history, and an executive function to guide behavior. Pointing to the undeniable fact of social progress, Pinker explained that human societies have always displayed sympathy or an ability to take others' interests into account to some degree—at first only within a single family or village, but later within an expanding circle embracing the entire tribe, nation, and species. Moreover, belief in perfectibility can be pernicious because it invites totalitarian human engineering, weakens the case for the checks and balances of constitutional democracy, and distorts human relationships. In the case of parenting, Pinker argued, many families devote enormous effort to molding their children—to little effect, since studies indicate that children are largely shaped by their genes, their local culture, their peer group, and chance, rather than by their parents' actions. Of course, Pinker hastened to add, how you treat your children matters a lot because of your moral responsibility to refrain from abusing, neglecting, or belittling them and because your treatment will affect the quality of your relationship.

As for the fear of nihilism, Pinker noted that some people feel that biology strips life of meaning when love, beauty, and morality are simply "figments" of a brain pursuing evolutionary strategies. While many people do not find "passing on your genes" a satisfactory explanation for why we are here, Pinker suggested that this dissatisfaction reflects a confusion between

levels of analysis and time frames. It reflects confusion between what is meaningful to us today at the human level and what matters at the causal or evolutionary level over the millennia. Moreover, even if the process of evolution is amoral and purposeless, that does not mean that the product of evolution, the human brain, is also amoral. In fact, Pinker argued, morality is not just a figment of our imagination. Rather, ethics and morality are inherent to social interactions, as noted by Plato and demonstrated more recently by Hobbes when Calvin, to his later regret, renounced ethics and proclaimed, "Might is right." Understanding that interchangeability of interests underlies social interaction demystifies and strengthens the basis for morality.

Perception, Motivation, and Decision Making: An Overview

Eldar Shafir, Professor of Psychology and Public Affairs, Princeton University

"Context, Conflict, Weights, and Identities:
Some Psychological Aspects of Decision Making"

Discussants

Robert Boyd, Professor of Anthropology, University of California, Los Angeles

Steven R. Quartz, Associate Professor of Philosophy, Computation and Neural Systems Program, California Institute of Technology

Eldar Shafir opened the first session of the conference with an overview of important psychological aspects of decision making. He began by emphasizing

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that psychology provides a "drastically different" picture of human behavior from that which prevails in economics. While economists usually assume that

agents are well informed, that their preferences are well ordered and stable, and that their behavior is controlled, selfish, and calculating, psychological research indicates that people's judgments are biased and their preferences malleable and unstable. Further, people can be impulsive, shortsighted, trusting, and vengeful; they often have mistaken intuitions about their behavior; and they frequently effect outcomes they themselves view as bad.

Briefly reviewing themes from behavioral research related to decision making, Shafir noted that psychological evidence indicates that people care more about gains and losses (of income, say) than about absolute levels and that they are loss averse and, thus, reluctant to change the status quo. Contrary to economists' assumptions about fungibility, moreover, agents use separate mental accounts with different marginal propensities to consume—from current income versus future income or savings, for instance. They fail to disregard sunk costs, fail to consider opportunity costs, and fall prey to money illusion. Supposedly foresighted and consistent, individuals actually have a hard time predicting their future preferences and show higher discount rates for distant than for near-term outcomes, resulting in dynamic inconsistencies. And far from being generally calculating and selfish, people seem to value fairness and procedural justice and to be subject to passing moods and emotions.

Shafir emphasized that one of the major findings of psychological research in the past 50 years has been the importance of "construal." People do not produce predetermined responses to objective experience; rather they analyze, interpret, and (mis)understand stimuli and react to those interpretations. We do not choose between objective states of the world but between our representations of those states. We are forced into that mode because our brains are not built to take alternative construals of the same event and create a canonical representation—although in the realms of language and vision our brains do just that. We understand an active or passive sentence in the same way, for instance, and we see a blackboard as a rectangle no matter the angle from which we view it.

Preferences are not just "revealed," as economists tend to put it; they are constructed and in a way that reflects variable, not constant, considerations. According to Shafir, important among the psychological factors that affect preferences are attempts to reduce decisional conflict, shifts in attribute weights, and shifts in self-image and perspective. For example, when the choice among alternatives is difficult to

make, the decision maker is likely to seek additional options or maintain the status quo. A case in point involves the opportunity to sample and buy jams at the supermarket: The availability of 24 jams increases traffic, but the share of people actually buying falls sharply—from 30 percent for 6 jams to 3 percent for 24 jams. One reason choice can create conflict is that people are not sure how to compare and assign weights to various attributes. Attribute weights are influenced by the way a question is phrased (is one choosing an option because of its pros or rejecting it because of its cons?), by when information becomes available (information sought and awaited acquires more weight), and by whether an agent is making decisions in a setting where attributes can be compared directly. A large music dictionary with 20,000 entries and a torn cover tends to appear more valuable when the evaluator can compare it with a smaller, 10,000-entry dictionary in mint condition. Finally, the changing salience of aspects of an individual's identity—parental self versus social self, say—can affect the individual's choices. For example, when a questionnaire aimed at food bank clients asks a few preliminary questions about family, the respondent is more likely to express interest in opening a savings account than when the introductory questions deal with the individual's social life.

According to Shafir, the most important lesson to draw from this review of preference inconsistency is that the patterns revealed do not reflect shortcuts, mistakes, carelessness, or distraction. People are not flailing around, and their behavior is not erratic or unpredictable. Preferences can be malleable, context dependent, and inconsistent even though decision makers are thoughtful, serious, and engaged. Shafir recommended that we think of decision makers not as faulty economic agents but as fundamentally different creatures from those envisioned by classical analysis. Just as humans are not designed with the navigational abilities of a bumblebee, he noted, we are not designed to make decisions in normatively prescribed ways.

Shafir suggested that the psychological research that he had described has implications for policy and policy-inspired incentives. Because policymakers tend to assume that agents care only about money, all too often incentives lead to pernicious results—as in the case of two-tiered welfare laws adopted (and later abandoned) by many states to keep welfare recipients from moving to high-benefit areas. In concluding, Shafir expressed the hope that a clearer understanding of the implications of psychological evidence on decision making will lead to better economics and better

economic policies—policies that reflect both our Platonic depths and our Orwellian limitations.

In commenting on Shafir’s paper, **Robert Boyd** agreed that the failure of the rational choice model to reflect psychological realities produces mistaken theories and misguided policies. In his work as an anthro-

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pologist, Boyd uses the ultimatum game¹ in cross-cultural settings and often (but not always) finds that people are motivated by the welfare of others, at least in part, and that they care about *how* transactions occur, not just about the outcomes. He also reported that small-scale societies regularly solve complex social dilemmas without coercive institutions.

Having noted discrepancies between the economist’s and the psychologist’s views of decision making, Boyd was not sure how to resolve them. The fact that economics is built around a unitary, mathematically formulated theory widely shared and applied helps to distinguish economics from other social sciences and gives it clarity. He cautioned against “tinkering”—turning *homo economicus* into *homo reciprocans*, for instance—because the experimental evidence is quite variable. For instance, the in-group favoritism found with two groups tends to disappear when there are three. And cross-cultural differences add to the complexity. In many cultures, the ultimatum game elicits reactions like those of U.S. students, but in some cultures people tend to act like *homo economicus*, while in a few, the higher the offer, the more likely the rejection.

In the end, Boyd suggested, the differences in view will be settled empirically, but adopting some constraints could make the process easier. In biology, Boyd noted, the adaptationist approach has proved a useful discipline since brains are not general-purpose problem solvers, as Shafir pointed out. Thus, knowing what problems an organism had to solve during its evolution can tell us a great deal about the data it collects and, most likely, what it does with them. Knowing that solving navigation problems is an essen-

tial survival behavior for the desert ant, for example, suggests a menu of navigational options, which can be tested experimentally. Desert ants, it turns out, use dead reckoning to return home from foraging. By contrast, indigo buntings, which migrate to places they have never been, have built-in star charts.

In a similar vein, economists and psychologists might get good mileage from thinking with Pinker and others in evolutionary/adaptationist terms about the kinds of problems that human brains were required to solve. Humans evolved in small-scale foraging societies, and our brains seem designed to solve social as well as ecological problems. In addition, humans—uniquely—also acquire culturally evolved adaptations. For instance, although European peasants in the Middle Ages could not find their way from town to town, medieval sailors plied the North Sea using dead reckoning while Micronesian sailors relied on stellar navigation. Today, Australian Aborigines have an acute sense of cardinal direction, but the forest people of Central Africa lack the concept almost entirely. While explanations of how cultural adaptation occurs are not yet generally agreed upon, members of the MacArthur Preferences Network have found that, in the ultimatum game, mean offers rise with the role of cooperation in everyday life and with the social complexity of the culture under study.

In concluding, Boyd applauded Shafir’s assumption that where economics and psychology meet, they should tell the same story. He lamented that, in general, the social sciences proceed as if interdisciplinary disagreements do not matter, while in fact, all would benefit by paying more attention to progress in the other disciplines, because there is only one objective reality.

Noting that Eldar Shafir had emphasized that we are different creatures from what economists suppose, **Steven Quartz** raised the possibility that we are also fundamentally different from what our intuition leads us to believe. Our common sense holds that we make decisions as unitary agents, but, as Quartz pointed out, this could be a false impression—a useful illusion that evolution has perpetrated on us. He proposed to use his time to consider what brain science says about whether our behavior stems from a unitary mechanism or from multiple, possibly autonomous, mechanisms.

¹ The “ultimatum game” is a particularly elegant test of the simple rational economic model. Two players are given a sum of money to split. The shares are determined in a simple two-step game. One player begins by offering the other a share. If the second player accepts the offer, they split the money accordingly. If the player rejects the offer, both go away empty-handed.

In fact, cognitive neuroscience suggests that our behavior may be rooted in a number of neural systems that do interact but tend to operate with a high degree of autonomy in many contexts. Using a corporate metaphor, Quartz said that we are a conglomerate of behavioral systems, an evolutionary merger. Lacking an integrated communications system among the different divisions, the local offices often act without much supervision from the home office.

Noting that organisms share a genetic tool kit and that neural reward systems are ubiquitous, Quartz explained that these reward systems play a central role in goal-oriented behavior. Using the bumblebee as an example, he described how the creature's octopamine system (similar to the mid-brain dopamine system in humans) signals information regarding prediction errors. Brains are "prediction machines," Quartz argued, with the differences between certain rewarding outcomes and their prediction serving as a guide to adaptive behavior. Accordingly, while evolution may shape the pattern of rewards an animal seeks, the path from goal to reward can be left undetermined and discoverable through learning.

Quartz then described how in humans the mid-brain dopamine system projects to the dorsolateral prefrontal, premotor, and parietal areas of the cortex, which are structures believed to mediate the representation of goals, and to the orbitofrontal cortex, which is believed to mediate the representation of relative reward values and reward expectations. The prefrontal cortex is implicated in human cognition—especially social cognition, symbolic learning, representation of self, and executive functions. These relatively recent structures add new layers of control to those provided by the dopamine system, which, in turn, remains essential for the development of the prefrontal functions and which evolution has thus conserved. The prefrontal structures are the site of the executive function, the control mechanism that guides and coordinates behavior in a flexible fashion, especially in novel or complex tasks.

Quartz explained that while there is much crosstalk between the mid-brain dopamine system and the prefrontal cortex, which are two key players in human behavior, much of the time one or the other dominates. The mid-brain systems tend to manage our unconscious behavior, but in novel social contexts the pre-frontal cortex may become the locus of control. Indeed, humans' pre-frontal structures seem specialized for social cognition and help us adapt quickly to changing social contexts. But our

penchant for context-dependent behavior undermines the cross-situational consistency demanded by trait models of personality and the inter-temporal consistency assumed in economics. Rather than viewing this inconsistency—or flexibility—as a fault, Quartz suggested we should recognize it as a central human capacity that allows us to engage in complex social life.

In ending, Quartz returned to the question he raised at the start. While navigating different social contexts seems to call on different neural structures—sometimes the ancient ones and sometimes newly evolved innovations, we see ourselves as unitary actors. But the unity of our perception reflects a constructive act by our nervous system. So too, our sense of being a single decision maker may be our nervous system's way of making us feel coherent despite the nature of the disparate systems that generate and govern our behavior.

The Behavioral Challenge to Economics

Colin F. Camerer, Rea A. and Lela G. Axline Professor of Business Economics, California Institute of Technology

"The Behavioral Challenge to Economics: Understanding Normal People"

Discussants

Alan S. Blinder, Professor of Economics, Princeton University

Dan Ariely, Luis Alvarez Renta Professor of Management Science, Massachusetts Institute of Technology

Robert H. Frank, Henrietta Johnson Louis Professor of Management and Professor of Economics, Cornell University

Colin Camerer assessed the importance of the behavioral approach to economics. Economic theory should reflect how people actually think, feel, and behave. Although the rational model is often a good first approximation to how people make economic decisions, human behavior has proven to be far more complicated than the canonical paradigm assumed by economics. The complexity derives from human evolution. The human brain did not evolve simply to maximize the types of problems framed in modern

economic discourse. Camerer asserted that over time the brain has developed into a collection of different modular systems; as such, it does not maximize one

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thing only. The field tests conducted by behavioral economists over the past 23 years have illustrated this fact. However, the purpose of the behavioral approach should not be to uncover anomalies in the rational model, but rather to build new theories that are consistent with these anomalies, thereby enabling better predictions and policy.

Camerer began by discussing several experiments that highlighted these anomalies. For example, in playing the ultimatum game, if the players were strongly rational, the first player would make a minimal offer, and the second player would accept, since a little of something is better than a lot of nothing. In fact, however, one finds that most offers are fairly substantial, since any offer that is “too small” is deemed “unfair” and is almost always rejected. Indeed, it has been shown that a fair offer activates a different part of the brain than an unfair one. Not surprisingly, an unfair offer stimulates the part of the brain associated with negative emotions like disgust or pain. “Unfair” offers also activate the part of the brain known to resolve conflict. Whether the disgust area is more stimulated than the area designed for conflict resolution is closely correlated with the decision on the offer. Different parts of the brain are making decisions about how to react to the stimuli. In this case, the brain is not simply maximizing wealth; rather, complicated notions such as “fairness,” which are deeply dependent on the evolution and structure of the brain, actually determine the decision.

Are results like these simply anomalies, or do they indicate a much greater problem with the fundamental assumption about human behavior in the canonical economic model? Camerer pointed to two lines of defense for the rational model. The first is the “as if” defense. The models are fine as long as people act the way the models predict, as long as they act “as if” the

assumptions were valid. Camerer highlighted several problems with this defense. First, of course, there are substantial puzzles that the basic economic model cannot explain. For example, mental accounting produces different marginal propensities to consume from different categories of wealth. Long spells of involuntary unemployment and the apparent stickiness of wages and prices have yet to be understood. Capital markets appear to violate many of the tenets of market efficiency. These problems are large enough that they make the rational model, like perfect competition and perfect information, a nice construct for teaching basic concepts but often a lousy model for predicting outcomes and behavior in the real world.

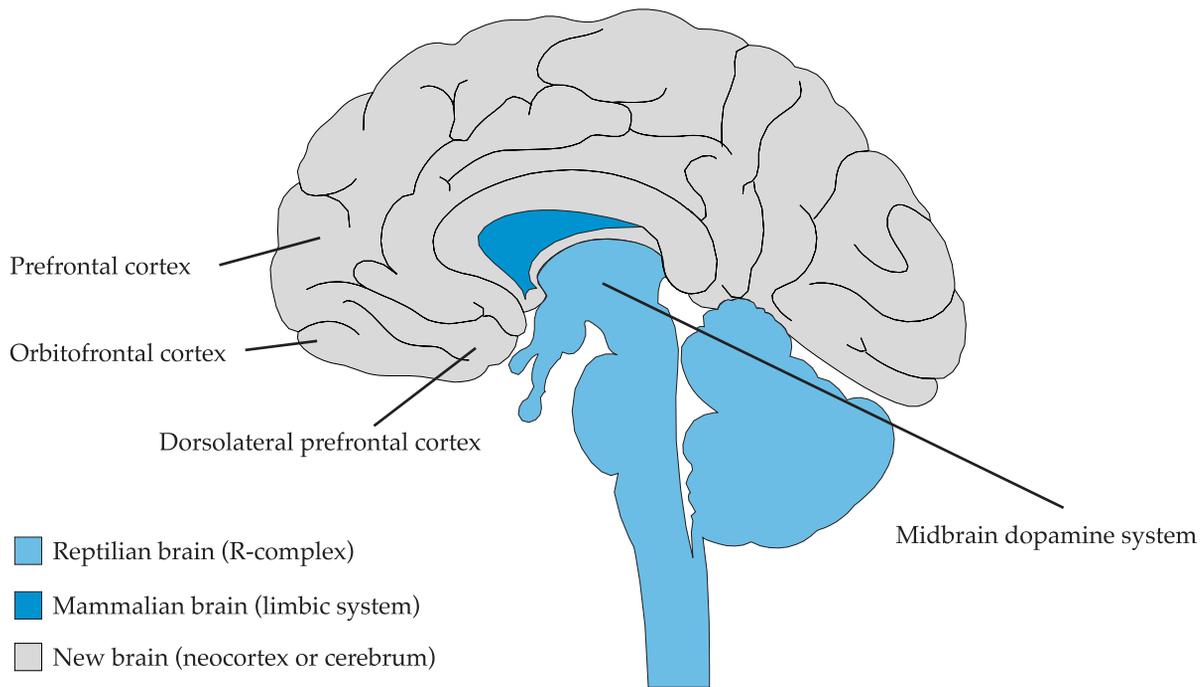
Camerer argued that there is often another, appropriately subconscious, line of defense—that economic theory should serve as a normative guide. People *should* make economic decisions the way that they are modeled in the paradigm. Of course, the way people in this model “should” behave looks a lot like the way professors of economics *do* behave. Economists projecting their tastes and skills onto the rest of the public are, as Camerer pointed out, engaging in a form of “projection bias” that results in poor predictions of actual behavior.

Camerer then went on to outline several “hot topics” in the behavioral field. First, field tests still offer fertile ground for productive research. Although these experiments motivated much of the early behavioral work, the ability of these tests to sharply define and distinguish the predictions of the rational model from those of the behavioral approach continues to make them extremely valuable to researchers.

Camerer also believes a more thorough investigation of self-awareness would be fruitful. Camerer asserted that the idea of self-awareness is closely related to the “homunculus fallacy”—the notion that the brain has “executive control.” In fact, self-awareness is surprisingly limited. Our explanations for our behavior are often rationalizations rather than accurate descriptions of actual motivation. One example can be seen in “split brain” patients—patients whose two hemispheres of the brain cannot communicate with each other. In tests conducted on these patients, the language side of the brain often incorrectly rationalizes unknown actions initiated by the other side of the brain. Camerer emphasized that “the human brain is like a monkey brain with a press secretary.” It is *not* the case that humans are significantly more self-aware than apes, but we are great at pretending we are. The lack of self-awareness throws into question the idea that there is a simple executive maximizing a simple

Human Brain

The diagram depicts areas of the brain mentioned by two speakers at the behavioral economics conference. Steven Quartz spoke of the midbrain dopamine system and various areas of the cortex. George Loewenstein referred to the brain as having three evolutionary parts: the reptilian brain, the mammalian brain, and the neocortex. According to a theory developed by Paul MacLean, former director of the National Institute of Mental Health, these three parts developed successively in this order as the human species evolved. Subsequent modifications suggest that the relationship among these parts is more subtle than originally conceived, but the general idea remains that lower, more primitive areas of the brain mediate more basic behaviors, while “newer” structures mediate higher cognition.



function. As Camerer said, the brain is an “evolved (and developed, and socialized) collection of modular systems, which interact to produce behavior. As a result, it is unlikely that this brain would maximize any single function, like a utility function, over health-work-leisure-money tradeoffs.” Put another way, the brain is far too complicated to single-mindedly pursue one task. Studying the biology of the brain is, therefore, essential to understanding human behavior, even human economic behavior.

Endogenous institutions and “missing psychology” are two other hot areas for future research. Exploring how we structure institutions to help us deal with, or take advantage of, our inherent biases would be useful for policy. With respect to “missing

psychology”, so far, behavioral economics has incorporated as alternatives to the rational model only those psychological ideas that fit well with economists’ theories. There are central concepts in psychology that do not fit as easily into economists’ tests of rationality but may be just as important, or more so, in explaining some economic behavior.

Crucial to the contribution that behavioral economics can provide to policy formulation is a discussion of welfare. Camerer outlined several different types of utility—anticipated utility, the utility revealed by the individual’s actual choice, the utility derived while consuming those choices, and finally, the remembered utility. These utilities often do not coincide, and they are often associated with different parts

of the brain. For example, what we want may not be what we wind up enjoying. We may remember the enjoyment of something differently than we experienced it. The structure of the brain may dictate these differences. Although it is difficult to argue which utility is most important, there may be a role for policy in helping to maximize one rather than another. For example, society often tries to help addicts reduce their anticipatory utility of drugs in order to maximize their long-run experiential utility.

Camerer concluded that the rational model is only a limited case of the more general behavioral one. However, behavioral models in economics are only beginning to mature. Yet, to assess accurately the welfare effects of various economic policies or structures requires a solution to the more general model.

Alan Blinder opened the discussion of Camerer's paper by admitting that although he is not a card-carrying behavioral economist, he certainly is a behavioral sympathizer. Blinder agreed with the importance of Camerer's stated goal for behavioral economics—to understand *normal* people. Economists and normal people often disagree. As an example, Blinder discussed an informal experiment he had conducted. Blinder asked economists and non-economists whether there should be two lines in a crowded cafeteria at lunchtime; a long line with lower prices and a shorter line with higher prices. All economists said yes, and all non-economists said no. Blinder wonders which group is right and which group is normal.

In this case, Blinder thinks the economists got it right—there should be a higher-priced line. Adding an option so that people who value their time more highly can purchase faster service by paying a premium would improve social welfare. On the other hand, since there are more non-economists than economists in this world, the economists are not normal. In this case, although economists are not normal, they may be right. In other cases, economists are probably neither normal nor right. The example Blinder gave illustrates the fallacy that welfare is non-decreasing in the number of choices. Most economists would agree that increasing the number of options can only improve welfare. Recent experiments on this issue have convinced behavioral economists to disagree. By increasing the number of similar options, one only makes the decision more difficult, leaving the individual actually worse off. Here, economists are neither right nor normal.

That aside, Blinder mentioned several problems that behavioral economists must address more effectively: Does the Darwinism of the marketplace remove these behavioral anomalies? Are nonrational reactions

more likely to occur when making decisions in circumstances that are rarely encountered? And, finally, is the rational model really normative, rather than positive? The point may be not that firms *do* set marginal revenue equal to marginal cost, or that people *do* desire the option for the higher-priced line, but rather that they *should*.

Dan Ariely agreed that psychology would be key to understanding economic behavior. However, he remained skeptical that economics could begin to use

The lack of a unified theory in psychology and the low probability that one will come along any time soon make it impossible for economics to truly incorporate psychology into its basic paradigm.

psychology as a key building block. The lack of a unified theory in psychology and the low probability that one will come along any time soon make it impossible for economics to truly incorporate psychology into its basic paradigm. Although there are some psychological ideas that economics can easily incorporate, such as hyperbolic discounting, other elements are almost impossible to include. Twain provides a good example of such a trait. The fence painting that Tom Sawyer interpreted as work, and thus required pay or coercion to perform, was interpreted by the other kids as pleasure once Sawyer redefined the context of the exercise. The importance of context and human knowledge transfer will always make economics a poor predictor of human behavior.

So where does that leave the dismal science? Ariely commented that he foresees two different paths in economics for some time to come—one relying on the traditional rational paradigm and the other on the behavioral model. On the other hand, policy has always played an important role in economics, and policy should be an empirical field. Thus, economics will always have to deal with behavioral issues. But while psychology is important to economics and to policy, economics will never be able to fully embrace psychology. Therefore, policy should not be the domain of economics alone, but also of psychology.

Robert Frank also found the paper interesting. He thought an important distinction should be made between different types of deviation from the rational choice paradigm—deviation with regret and deviation without regret. This distinction is similar to the one Blinder made between two types of situation in which the average person and economists disagreed—situations in which the economist was right, and situations in which the normal person was. Frank points out that many cases of deviation highlighted by behavioral economists fall into the first type, deviation with regret. When the nonrational behavior is pointed out, most people willingly change their behavior.

Deviation without regret is different. In the ultimatum game it is not a mistake to reject a 99 to 1 offer. People think that seeing the look on the face of the greedy bastard who offered such a trifling sum is worth giving up the dollar. The distinction is important because the policy implications of the two types of deviations differ. Correcting cases of deviation with regret, though a bit paternalistic, is important. Attempting to alter deviation without regret could produce significant losses in welfare.

Labor Market Behavior

Truman F. Bewley, Alfred Cowles Professor of Economics, Yale University

“Labor Market Behavior”

Discussants

Katharine G. Abraham, Professor of Survey Methodology and Affiliate Professor of Economics, Joint Program of Survey Methodology, University of Maryland

Raphael Di Tella, Associate Professor, Graduate School of Business, Harvard University

Almost all economists would agree that the current analysis of the labor market needs more thorough psychological and sociological foundations. The results from **Truman Bewley’s** recent surveys of employers emphasized this point. At the conference, Bewley continued his examination of the labor market, emphasizing potential psychological explanations for his empirical findings. The failure of economics to provide a good theory of common labor market phenomena, such as layoffs rather than falling wages in recessions, prompted Bewley to go to the source. In a stroke

of common sense, he simply asked employers why they did what they did when demand was low. In his conference paper, Bewley examined possible psychological explanations for many of the answers he received.

Bewley began by distinguishing between behaviors that are “rational” and predicted by traditional theory, and actions that do not fit the traditional economic model. According to Bewley, people behave rationally when they act to fulfill their desires using all available information and without making errors in logic. Testing for rationality presents several problems. For example, Bewley emphasized that if we infer a person’s objectives from his behavior, then all behavior will be defined as rational. Someone who believes he is Napoleon obviously wants to be Napoleon and thus is defined as acting rationally according to this approach. Like many other participants at the conference, Bewley believes rationality is more likely to be operative in simple decisions that satisfy basic desires than in more complicated situations. Rationality may be less apparent when the situation is more complex. And although most models of the labor market are predicated on individuals and firms maximizing utility in addressing simple problems concerning income and leisure for the worker and profits to the firm, discussions with employers have led Bewley to believe that this paradigm is far too simplistic to describe the labor market accurately. Labor market decisions are precisely the sort of complex problem where rationality is less relevant.

A basic understanding of the structure of the labor market is required to understand the role that psychology may play in important labor market phenomena. Broadly, the labor market is divided into two basic sectors, Bewley suggested. Jobs in the primary sector are full time, long duration, and include on-the-job training that makes turnover costly. Jobs in the secondary sector are the opposite—often part time, short duration, requiring little training, and characterized by frequent turnover. Primary sector workers tend to be more serious about their current job and more closely tied to the organizations for which they work, while secondary sector workers have much less attachment to their current employer. The labor market can also be divided into internal and external markets. The internal labor market consists of a firm’s rules and pay structures, while the external market represents the market forces imposing limits on the internal structure.

Bewley asserted that the internal market is more important for workers in the primary sector and that

this importance allows psychological factors to play a greater role in outcomes in the primary market than in the secondary market. Primary sector workers, with their long job duration and strong identification with the firm, are less constrained by the external market. Workers in the secondary market have a much weaker attachment to the firm, making the external market a more important determinant of outcomes in that sector. Thus, the internal pay structure for primary sector workers can be quite firm-specific. And how these internal rules are formulated can be a complicated convolution of notions of fairness, group dynamics, and the firm's history—to mention just a few factors. Since these notions and their interactions are fuzzy, the solutions can differ significantly by firm.

The labor market issue that has dominated the macroeconomic debate over the past 70 years is the cyclical unemployment. Why don't wages fall sufficiently to remove the excess supply of labor when the economy weakens? Modern versions of classical theory suggest that when real wages decline, employment falls. People quit work as the returns to leisure relative to work rise. The problem is that quits actually decline, rather than increase, during recessions. Given these empirical problems with classical theory, many other explanations have been explored. Keynes offered perhaps the most famous alternative explanation—that nominal wages are sticky downward. Thus, when demand declines, nominal and real wages are less able to fall to offset the excess supply of labor. Although many economic models have incorporated this assumption in various ways, and it has found support in the data, evidence on why it occurs has been thin. Bewley's surveys shed light on why this rigidity may occur, and the answer may be embedded in psychology. In fact, Bewley's answer is somewhat surprising even to many Keynesians.

Although most explanations of wage rigidity have emphasized the psychology of the worker (focusing, for example, on the worker's loss or risk aversion), Bewley finds that it may be the psychology of the managers that matters. Workers suggest they may be willing to accept wage cuts in a recession, but employers are hesitant to give such reductions a try. Apparently, employers fear that a wage cut will hurt morale, and ultimately, productivity. Bewley believes the evidence on the correlation between the *level* of wages and productivity is weak. He postulates that workers "habituate" to higher wages; thus, they come to believe that a higher wage is deserved and fail to increase their effort. However, employers believe, and they may be correct, that *changes* in wages may affect

productivity. Bewley's evidence suggests that wage cuts and declines in morale might affect productivity, but not productivity as traditionally measured. Workers may react to wage cuts by decreasing "extra-role performance and organizational citizenship." Helping other workers, making self-initiated improvements, enforcing rules, and working without supervision are all reduced as morale declines. Workers react this way even if demand does decline temporarily. For this reason, firms tend to count on layoffs rather than wage cuts to decrease the wage bill.

Bewley believes firms may have little choice in the matter. As demand falls, the firm must either increase demand by lowering prices or decrease output. In the short run, lower wages decrease labor costs by only a small amount. Furthermore, the demand for goods, especially during recessions, increases very little in response to price cuts. By exception, there is evidence that firms facing a high elasticity of demand are apt to cut wages. But for all the others, layoffs appear to be the solution. And surveys of employers support this conclusion. Still, the predominant reason given for layoffs is not that wage cuts would have little effect on the excess supply of the firm's product, but rather that employers fear that wage cuts would hurt the morale of the remaining workers and that the most productive workers would leave.

A related issue in the economics of the labor market concerns the optimal level of the real wage. A corollary of the efficiency-wage hypothesis, the no-shirking theory, holds that the real wage is higher than its full-employment value because productivity depends positively on the real wage and the unemployment rate if and only if layoffs are performance based, providing incentive for employees to work hard to keep their jobs. The employers Bewley surveyed expressed doubts about this hypothesis. Managers are quite clear that threats decrease, rather than increase, productivity. Threats work with selfish people, but they fail with workers who identify with the firm and believe fairness dictates reciprocity on the firm's part. Habituation also reduces the positive effects of the higher level of wages.

Crucial to all of these issues is why people work at all. The simple economic notion that work produces disutility and, thus, must be compensated, misses several important points. People enjoy the social aspect of work as well as the sense of accomplishment they derive from their production. In fact, Bewley emphasized, up to a point, most people actually prefer spending time at work rather than in leisure. Only at the margin, after workers spend a significant amount

of time at work, is disutility actually associated with an extra hour of work. Thus, social concerns, like fairness, identification, and reciprocity are very important in the workplace. Failing to understand these social and personal benefits will result in decidedly faulty predictions about the labor-firm relationship.

Bewley concluded by suggesting that the important psychological phenomena that affect the workplace fall into three categories. First are phenomena that concern how people deal with change; these include loss aversion, habituation, and denial. The second category concerns group behavior and includes such psychological factors as fairness, reciprocity, empathy, and identification with the institution. Finally, individual psychological factors, such as mood, are important to the labor-firm relationship. Economics must confront the same difficulties faced by psychology itself: How do we model an individual's reaction to groups and institutions? How do we model people's aversion to change in their environment? These are not motivations that produce the simple predictions we get in economics, and it is unlikely that a simple general theory about these motivations will be found. Just as the biology of the body is not an optimal design for the current environment and could not be predicted by a general theory, so are the motivations of consumers and workers the difficult-to-predict result of interactions among complex and dynamic forces evolving over time.

Katharine Abraham concurred that it is important to view workers as social beings who care about more than just their remuneration. She was struck by the weight modern economic theory gives to the idea that people care only about themselves and their monetary rewards. She suggested that certain economics faculties, along with all car salesmen, are the only groups she has encountered who may actually approach work this way. She agreed with Bewley that most people derive benefits from the work itself, not just the pay. She was struck by the extent to which modern theory views managers as extracting productivity from workers rather than seeing productivity as being derived from workers' internalization of the firm's and the group's objectives.

Bewley devoted considerable time to attempting to explain why firms cut workers rather than wages when demand declines. A standard explanation is that wage cuts would be viewed as "unfair" and would probably result in the loss of the most productive workers. Abraham pointed out that a fruitful area for future research might be exploring what determines perceptions of what is "fair." Not only might this affect

exactly how pay schemes are structured, and thus adjusted—for example, by awarding bonuses more frequently—but it might illuminate the nature of the labor contract as a whole. One approach would be to examine how the definition of fairness varies across countries; in Europe, for example, a decline in demand is initially met with more work sharing and hours adjustments than in the U.S. Somehow, this response is viewed as fair and acceptable in Europe but not in the United States.

Abraham expressed some concern with putting too much value on surveys of managers. These employers may actually be wrong about how their employees feel. Bewley's surveys may explain why employers act the way they do, but they may not be an accurate representation of workers' desires. Respondents may also be providing answers that reflect what they think they should say, rather than what is actually true. What surveys do, however, is provide empirical data that can be used to validate or refute testable hypotheses, and they should be treated that way.

Rafael Di Tella felt Bewley's paper was compelling for those who already believed in the importance of behavioral assumptions but was less so for readers who did not. In a sense, this comment concurred with Abraham's final point. Only testing of the assertions will actually convince skeptics that they are correct. Di Tella provided an example of such a test. Di Tella informally tested Bewley's assertion that pay information is less likely to be shared by secondary workers than by primary-sector workers because of their higher turnover. Di Tella did a quick experiment with results that suggested that untenured faculty members, with higher turnover, actually share pay information more frequently than tenured members.

Di Tella also emphasized several problems with survey responses. Answers often change significantly with only slight differences in the wording of the question. People often say what they want to be true rather than what *is* true—"strategic bias." Respondents often provide answers when they really don't know—"information bias." Finally, respondents often alter their answers to conform to social norms—"social desirability bias." As a result, Di Tella concluded that collecting more objective data would be fruitful.

Di Tella emphasized a related point: How is the skeptic to weigh the importance of the psychological motivations highlighted in Bewley's paper? Which of the following is most important: loss aversion, habituation, or ideas of fairness? Di Tella claims that recent work on happiness can actually test the importance of

some of these motivations. For example, he tested for loss aversion by examining the effect of losses and gains in income on subjective assessments of happiness and the results showed evidence of loss aversion. Di Tella believes similar tests may help to convince skeptics of the validity of the behavioral approach.

In conclusion, Di Tella observed that although Bewley's work has had an important impact on behavioral economics, it still has a ways to go to convince the mainstream of economics. The survey methods used require some cardinality; thus, measurement issues are important. As a result, more quantification is required, Di Tella asserted. In that way, the economic as well as the statistical importance of behavioral effects can be measured. One way to accomplish this task may be through the current work on happiness.

Emotions in Economics

George Loewenstein, Professor of Social and Decision Sciences, Carnegie Mellon University
"Emotions in Economics"

In his dinner address, **George Loewenstein** reminded the audience that we find many cases of "massive prediction failure" in economics, cases in which our dynamic models fail to explain the data. Affect—which includes drive states like hunger and thirst as well as emotion—can help us to understand these inconsistencies, he argued. As an example, he noted that the discounted utility model of intertemporal choice suggests that some people are *always* impatient and others are *always* far-sighted, while in fact individuals are wildly inconsistent. They invest in their careers, for instance, while simultaneously smoking or getting involved in a scandal. Further, much of the variation in individual discount rates appears to reflect the influence of emotions or drives like anger, frustration, and arousal, which tend to shorten time horizons. Avoiding the wrong risks (driving instead of flying), helping the wrong victim (a single Iraqi child in Britain versus many wounded soldiers in Iraq), and exhibiting problems with self-control (overeating, addiction) provide other examples of prediction failure (or irrelevance) where affect plays a role.

In Adam Smith's day, Loewenstein noted, economists were intensely interested in affect or "passion." Adam Smith himself viewed behavior as a conflict between the (controlling) passions and the Impartial

Spectator, an internalized Other who tells us how we should behave. This view, Loewenstein pointed out, bears a strong resemblance to today's dual process theory in psychology. But when the neo-classical economists arrived with utility maximization, they wanted to mathematize economics and, while they talked a great deal about passion, they believed it too unpredictable to include in their models.

Modern psychology shows that affect is actually highly regular and that it is cognition that introduces unpredictability into behavior.

However, in a complete reversal, modern psychology shows that affect is actually highly regular and that it is cognition that introduces unpredictability into behavior. Unconscious behaviors generally occur in fully predictable patterns unless consciousness overrides them. As a result, humans are less predictable than rats.

The neoclassical economists also ignored passion in their models because they thought it was unknowable. But in another inversion, modern psychologists and neuroscientists know considerably more about affect than about cognitive information processing—in part, Loewenstein explained, because we share our emotional brains with other animals while our prefrontal cortex is different. Moreover, many experimental methods, like electrical brain stimulation and single neuron measurement, are used only with animals, although we can also study the effect of brain lesions and accidents in humans, and we now have brain imaging and behavioral studies.

Much of what we have learned from this research that is relevant to economics can be distilled into three principles, Loewenstein suggested:

- (1) Affective reactions usually happen first, while cognitive interpretations come second;
- (2) Affect has the capacity to turn us into virtually different people;
- (3) We tend to underestimate the impact of affect, especially when we try to predict our future or explain our past behavior.

Elaborating on the first point, that affect comes first, Loewenstein described the brain as divided into

three parts: the reptilian brain or brain stem; the mammalian brain; and the cortex. The reptilian brain is responsible for survival responses like fight or flight, while the mammalian brain is responsible for more complicated affect. Together, they comprise the affective brain. Evolving later but leaving the previous systems largely unchanged and intact, came the neocortex. Further, and arguably unlike other animals, humans have an additional unit known as the prefrontal cortex, which neuroscientists are beginning to believe integrates sensory information, memories, affective experiences, and so on to form goals and plans. The prefrontal cortex is a deliberative system that operates on different principles from the rest of the brain, and it closely resembles *homo economicus*, Loewenstein suggested.

In addition to “thinking,” the prefrontal cortex can override feeling and contribute to deliberation. Loewenstein cited an experiment in which subjects whose prefrontal cortex was preoccupied with memorizing digits chose cake (rather than fruit salad) significantly more often than subjects whose prefrontal cortex was operating fairly freely. In another experiment, students who deliberately weighed the pros and cons in choosing a poster were less happy with the poster weeks later than students who made their choice more instinctively. But affect can also distort how we process information, engendering wishful thinking and self-serving biases. Loewenstein quoted Tom Gilovich as noting that if we want to believe something we say, “Can I believe it?” and if we don’t want to believe it, we say, “Must I believe it?”

Loewenstein then reviewed an array of experiments to illustrate his second principle, that affect can turn us into virtually different people. He showed, for example, that sadness and disgust alter in a predictable way the average price at which people are willing to buy or sell an object. Sadness lowers the selling price but raises the buying price while disgust lowers both the buying and the selling price. Similarly, frustration (in the form of an unopened bag of candy) makes people impatient, changing their intertemporal choices. Affect can also alter people’s taste for risk and their empathy with others. We are wired, Loewenstein said, to be caring towards identified people but surprisingly uncaring towards statistical people. Simply identifying a victim by number significantly increases the donations directed to that victim.

Finally, Loewenstein drew on another set of studies to show that we tend to underestimate the influence of affect on ourselves and on others. For instance, it is easier to imagine what it is like to be thirsty when one

is thirsty than when one is not. And it is hard to estimate in advance the fear one will actually experience when faced with the immediate prospect of telling a joke to a large group of peers. It is also hard to predict how others will react to prospective hunger, fear, curiosity, or pain—or how you or others will remember these states. Luckily in the case of pain, memories seem to be short; the more time that has elapsed, the less money we require to re-experience a known pain.

Having animated his themes, Loewenstein restated his primary message—affect matters. It influences behavior, it changes us profoundly, and we tend to underestimate its impact. Nevertheless, from neuroscientists to insurance salesmen, and now, even to economists, people are increasingly recognizing the importance of drive states. This new understanding may help us strengthen both micro and macro policies. It may improve corporate ethics training by demonstrating the unexpected power of emotions like greed and rationalization, for instance. And it may help us understand better the macro impact of the anger and fear triggered by events like 9/11 and SARS.

Organizations

Robert S. Gibbons, Sloan Distinguished Professor of Organizational Economics and Strategy, Massachusetts Institute of Technology

“How Organizations Behave: Towards Implications for Economics and Economic Policy”

Discussants

Tom R. Tyler, University Professor of Psychology, New York University

Duncan J. Watts, Associate Professor of Sociology, Columbia University

During the last three decades, economists have begun to study more actively both the internal structure of organizations and the theory of the firm. The former pursuit examines the internal functioning of organizations; the latter, the boundaries of organizations and the relationships among them. **Robert Gibbons** observed that both of these lines of research correspond to more established work in sociology, which finds that informal structures and parochial interests in organizations often limit and counter the organizations’ intended objectives and that relational

contracts are important in defining the nature of organizations, as well as the interactions among them.

In this session, Gibbons began by discussing the convergence between the research of economists and sociologists in these two fields. He closed by considering two questions: Do humans behave differently in organizations than they would otherwise? And, are activities—such as the allocation of resources—conducted any differently within organizations than they would be otherwise?

Gibbons observed that organizational economics is raising interesting questions. These range from the fundamental—what are organizations? what is management? how do we manage relationships?—to the more complex—how do organizations affect behavior? how does a managed economy differ from a market economy?

Gibbons argued that Ronald Coase's famous statement that firms exist where they perform better than markets implies that "the firms we observe will be less efficient than the markets we observe, even though the firms we observe will be more efficient than the markets they replaced." At the margin, the difficulty of conducting transactions within the confines of a firm will match that of conducting them in markets. The marginal firm will be no more efficient than competing market arrangements, and the transactions conducted in the average firm will likely be much less efficient than those conducted in the average market. Organizations, therefore, typically will not be models of efficiency, and serious economic models of firms must entail behaviors that include the violation of rules, unimplemented decisions, subverted inspections, the pursuit of parochial interests, wasted investment, subjective decisions by management, and undermined missions. Firms themselves can be vulnerable to the same conditions that disturb markets.

In discussing the theory of the firm, Gibbons focused on the role of the firm in enforcing relational contracts. This aspect corresponds most closely with sociological evidence about the boundary of the firm and its relationships with others across this boundary. In opening this topic, Gibbons cited previous work that found that "superior organizational performance typically cannot be achieved simply by optimizing the available formal instruments—such as incentive plans, job definitions, reporting relationships, resource-allocation processes, and formal contracts between firms." Relational contracts (subjective agreements) play important roles in shaping activities within firms, and managers need not only work with these contracts but also choose formal structures that facilitate these contracts.

As an illustration of the importance of relational contracts, Gibbons cited the case of an owner of a resource and a user. The resource could be a specific product, intellectual property, labor skills, or any kind of asset. The owner of the resource, an organization, would like to obtain as much of the surplus from its resource as possible. If the owner could offer the services of its resource to competing users, then it could extract as much surplus as the competition among the users would allow. If competitive uses for the resource were absent, then the user could extract more of the surplus by offering a lower price for its services. In order to maximize its surplus, the owner will cultivate both alternative applications for its resource and its relationship (for example, via customer services) with its user so that the user is willing to increase his bid. These activities are inefficient, because the total surplus to be shared between the owner and the user would be greater in their absence.

The user could buy the owner in order to eliminate the threat of any inefficient activities that the owner might pursue. But then, the new owner could extract the maximum surplus from the former owner, which in the case of one firm acquiring another, could harm the employees and managers of the supplier. Gibbons notes that a formal resolution of these problems can create other problems. Moreover, formal contracts are incomplete inasmuch as they do not recognize how relationships might adapt to unforeseen events.

In recurring transactions, relational contracts—wherein both the owner and user understand that the owner stands ready to make adaptations to meet the user's needs, and the user will pay reasonable consideration for this service—can overcome some of the problems with formal contracts. These relational contracts must be self-enforcing—the value of reputation exceeds the value of renegeing. The value of renegeing depends on who owns the resource. If the user owns the services of the resource, the "owner" is an employee or division of the user. The employer could encourage good work from the division through bonuses, promotions, capital allocations, etc., but might renege. If the user does not own the services of the resource, the user might encourage good work by agreeing to a generous price, but the owner might supply an inferior product. The resolution of this dilemma depends on which of these threats and its consequences is most important. Ownership of the services of the asset is formalized in a contract that is an instrument for reinforcing the most efficient action, the best relational contract.

Organizations are more than the aggregation of the behaviors of the people that constitute them. Accordingly, organizational economics challenges us to seek the behavioral regularities that arise in these settings, such as the possibility that external motivation might supersede internal motivation. Some settings might even warrant new models of behavior. These matters require more study.

A person's identity might depend on his relationships within an organization. A person might make decisions according to his perception of consequences of the decision or his perception of propriety. His choice might depend on his circumstances, and his identity may depend on this choice. Organizations might be understood through their corporate culture or as the interactions of the many small groups that occupy its people every day.

Also, economic models of relational contracts—so important for understanding organizations—do not describe how organizations approach their solutions. Prevailing theory studies equilibria but does not describe how organizations are built, managed, or changed. We lack compelling models for the building of trust, managing of medium-scale adaptation, or leading of large-scale change.

We lack compelling models for the building of trust, managing of medium-scale adaptation, or leading of large-scale change.

Knowing what organizations do and how they influence people's behavior is important for understanding whether, and if so how, the economy might respond to various economic policies, both public and private. Our understanding of both questions is embryonic. To understand how an organizational economy differs from a market economy, we will need a better understanding of how organizational structures directly influence economic decisions and how they influence the behaviors of decision makers.

Although organizations are everywhere, Gibbons restricted his discussion to firms. Among the many activities that a firm conducts are the following: allocating capital, employing people, interacting with other organizations, and managing their internal affairs. Two broad questions are pertinent to these activities: How

much of the allocation of capital and labor resources takes place internally versus externally? And, with respect to the process of resource allocation, whether internal or external, which resource allocations are "managed," rather than accomplished through the price system? Gibbons reported that these questions remain largely unanswered. Organizational economics does not yet define management, much less offer a theoretical understanding of managers and their purpose.

Gibbons cited the results of surveys of the emerging theory and evidence on allocating capital and employing people. A transaction accomplished inside a firm might differ from one outside a firm for at least three reasons. First, the boundary of the firm depends on the difficulty of making transactions in the market. Accordingly, transactions within firms are solving different problems than transactions outside firms. Second, despite this difference, the governance structure of a firm might well affect the conduct of transactions. Finally, if firms were to socialize their employees to adopt new identities and new behaviors, then the conduct of transactions within firms would differ from that outside firms for behavioral reasons.

Tom Tyler, in commenting on Gibbons's paper, welcomed the growing interest among economists in studying the internal dynamics of firms and the relationships among firms. Tyler recognized both the importance of relational contracts within organizations and the difficulty of enforcing them. The temptation of immediate payoff might cause people to abandon contracts at the expense of their reputations. How do we design organizations to encourage people to honor these contracts despite this temptation? To approach this question, Tyler appealed to two lines of research in social psychology: group-based identity and internal motivations.

The design of organizations can reinforce relational contracts. A common group identity fosters cooperation among people in the absence of rewards or punishments, so aligning the interests of groups with the

A common group identity fosters cooperation among people in the absence of rewards and punishments.

goals of relational contracts tends to reinforce those contracts. Social identity theory contends that people focus

on groups rather than themselves and that they can adopt a competitive attitude toward other groups. Those within a group tend to merge their identities with the group identity, blurring the distinction between their individual self-interest and that of the group. This merger is accomplished easily, and it has strong consequences. Even when people are arbitrarily assigned to groups having few interests in common, they adopt strategies of competing as groups. This merging of interests can even apply across groups. When people in different subgroups strongly identify with a common superordinate group, they place the interests of the greater group above their own interests or those of their subgroup. Studies of people's behavior at work also find that people in groups are more likely to observe the rules of the group and achieve higher performance and are less likely to quit than people working individually.

If people feel that their identities are secure within a group, they are more willing to identify with the group. Organizations can foster this security by providing people with the resources they desire, favorable and fair rewards, and the status they seek. Membership affords people self-esteem and feelings of well-being when they feel the group is managed according to fair procedures, people are respected within the group, and the group itself is respected.

People are influenced by the rewards and punishments that accompany their actions. In particular, people value their reputations and the willingness of others to trust them in the future. People also feel a responsibility to support their group. This ethical or moral motive might not coincide with their personal self-interest. Organizations foster commitments which can reinforce their members' adherence to their relational contracts through the ethical climate created by their decisions, policies, and procedures.

*Where economists see incentives,
sociologists can see institutions.*

Where economists see incentives, sociologists can see institutions, **Duncan Watts** noted in responding to Gibbons's paper. Organizations represent the rules of the game, operating according to accepted conventions, even if the results are not always efficient and fair. Although economic and sociological sciences agree that incentive structures influence actions, they

differ in the units they consider—individuals versus organizations—and in the determinants of behavior—utility maximization versus inertia and historical dependency. They also differ in their perception of *capability*. In economics, information is well defined and objectives are clear; in real organizations, decision makers, coping with ambiguity, are frequently unsure about their knowledge and their objectives.

Not only are firms uncertain about which tasks are required of them, but they are also uncertain about how they should be accomplishing any task and what their criteria for success should be. People begin with a general notion of their objectives and then refine them as they interact with others. As a result, the true ambiguity of the firm is that the design of its mission evolves in a decentralized manner as it attempts to accomplish the mission. When the environment of a firm changes sufficiently rapidly, the same people who are accomplishing its day-to-day production must continually revisit its mission, redesign its tasks, and reallocate its resources. Consequently, people are uncertain about both their roles in distributed problem solving and the scope of their information.

This ambiguity necessitates communication, and successful organizations are networks of information processors that handle large volumes of data efficiently without overloading individuals. Within a flexible network, workers specialize in processing information for production; managers, in processing information for coordinating the organization's resources. Because hierarchical organizations distribute the burden of coordinating information very unevenly, they will almost certainly fail in rapidly-changing environments. Remedies entail allowing communication among various groups of individuals, depending on the circumstances. In multiscale organizations, most horizontal communication occurs within the upper levels of management, although there is also a significant amount that occurs at lower levels as well. Such organizations are fairly robust, coping well with congestion, avoiding disconnections, and adapting flexibly to changing demands. For example, the formal and informal networks that had developed among the people in the neighborhood around the World Trade Center enabled almost all firms to return to business within a week of 9/11, a feat that amazed even their own executives. Within networks, capabilities can be more important than incentives, robustness can be more important than efficiency, informal links can play critical roles, ambiguity demands distributed coordination, and distributed coordination can be more important than distributed processing.

Saving

Cass R. Sunstein, Karl N. Llewellyn Distinguished Professor, Law School and Department of Political Science, University of Chicago

Richard H. Thaler, Robert P. Gwinn Professor of Behavioral Science and Economics, Graduate School of Business, University of Chicago

“Libertarian Paternalism is Not an Oxymoron”

Discussants

Alicia H. Munnell, Director, Center for Retirement Research, Boston College

Drazen Prelec, Professor of Management Science, Sloan School of Management, Massachusetts Institute of Technology

Antonio Rangel, Assistant Professor of Economics, Stanford University

Research in behavioral economics and cognitive psychology finds that people can make bad decisions, harming their welfare, because their preferences are often poorly formed and their choices depend strongly on variable factors that can make a big difference: their starting point, the way alternatives are framed for their consideration, and default rules that apply if they take no action. Consequently, both legal and organizational rules greatly influence people’s decisions, as was stressed by **Richard Thaler** in presenting a paper coauthored with **Cass Sunstein**. In their paper, Thaler and Sunstein contend that once we (1) recognize the influence of legal and organizational rules on people’s decisions, (2) understand the responsibility that this influence confers on our public and private institutions, and (3) admit that a form of paternalism cannot be avoided, then we accept the need to design rules that encourage people to make the best possible choices on their own behalf. The implication of this, the authors say, is twofold: Rules should be designed to maximize the benefits relative to the cost of outcomes, and results from psychology should provide guidelines to indicate when and how people can make the best decisions for themselves.

For three decades, research has questioned the rationality of people’s decisions. For example, people frequently exhibit a bias favoring the status quo: The existing arrangements, whether they are set by private or public institutions, tend to prevail, even when peo-

ple have the ability to alter these arrangements. Although institutions may set their rules to encourage people to do what they would have done in the absence of those rules, sometimes people lack stable or consistent preferences or are strongly influenced by the rules.

When employees first become eligible to participate in their employers’ tax-deferred 401(k) saving plans featuring a matching contribution from the employer, most eventually do participate, but enrollments occur much sooner if the default specifies an automatic contribution rather than no contribution. Although it is paternalistic to have the enrollment be automatic, such a default steers employees toward decisions that will improve their welfare, Sunstein and Thaler argue.

States’ rules with respect to mandatory auto insurance also exhibit the influence of defaults. In New Jersey, the default sets a low premium with no right to sue, and policyholders have the option to purchase the right to sue. In Pennsylvania, the default sets a high premium with the right to sue, and policyholders have the option to reduce their premium by forgoing the ability to sue. In New Jersey and Pennsylvania, 80 percent and 75 percent of policyholders, respectively, have accepted the default policy—a substantial difference, as there is no reason to think the citizens of the two states have such different preferences in this matter.

Starting points strongly influence people’s decisions, evidence that people’s values depend on their circumstances.

Anchors or starting points strongly influence people’s decisions, evidence that people’s values depend on their circumstances. This point is illustrated by surveys of people’s willingness to pay a sum of money to reduce risks or threats in situations in which an initial price is adjusted upward or downward until it is accepted. These surveys show that the final price rises with the arbitrary initial price. When people are uncertain, starting points can have a large influence on their decisions.

The framing of alternatives also affects decisions. For example, when people (including doctors) who are

considering a risky medical procedure are told that 90 percent survive five years, they are far more likely to accept the procedure than when they are told that 10 percent do not survive five years. Because framing affects people's behavior, providing more information cannot remedy matters, unless the information is presented in a fully neutral fashion. In some cases, additional information only increases people's anxiety and confusion, thereby reducing their welfare.

Sunstein and Thaler contend that the making of rules inevitably entails paternalism, because the rules must contain defaults, starting points, and framing, all of which influence people's choices. The paternalism inherent in rulemaking might also be used to encourage people to move in directions that they say they prefer. Insofar as this paternalism steers people's choices in welfare-promoting directions without eliminating freedom of choice, it can be desirable even to people who value freedom of choice. The authors coined the term "libertarian paternalism" to describe this approach to rule making and argued that the term is not an oxymoron. For example, in the case of 401(k) plans, employees might be enrolled automatically, with a right to drop out only after completing a waiting period and consulting with an adviser. The Save More Tomorrow plan, proposed by Thaler and Benartzi,² also invites workers to enroll in a program that increases their contribution to the saving plan with each pay increase. In the first company to adopt the plan, very few who enrolled dropped the program, and those who remained increased their saving rates dramatically.

Other examples of libertarian paternalism appear in labor and employment law and in regulations for consumer protection. The Age Discrimination in Employment Act allows employees to waive their rights at the time of retirement, but erects substantial hurdles for the filing of insufficiently informed waivers. The Model Employment and Termination Act gives employees the right to be discharged only for cause, a right that employers and employees can

Examples of Default Bias

401(k) Enrollment	
<i>Default structure</i>	<i>Initial enrollment</i>
Automatic enrollment unless employee opts out	86 percent
Nonautomatic enrollment, employee must opt in	49 percent
Auto Insurance^a	
<i>Default structure</i>	<i>Accept default</i>
New Jersey – low premium, no right to sue	80 percent
Pennsylvania – high premium, right to sue	75 percent
Organ Donation^a	
<i>Default structure</i>	<i>Organ donor share</i>
Presumed consent nation, person must opt out	90 percent
Non-presumed consent nation, person must opt in	< 20 percent
Pension Annuities^b	
<i>Default structure</i>	<i>Joint-and-survivor annuity option</i>
Pre-1974, no default	48 percent
Post-1974, joint-and-survivor annuity	62 percent

^a From Sunstein, Cass R. and Richard H. Thaler. "Libertarian Paternalism is Not an Oxymoron."

^b From Munnell, Alicia H. "A Non-Libertarian Paternalist's Reaction to 'Libertarian Paternalism is Not an Oxymoron.'"

waive if the employer agrees to provide a severance payment if an employee is discharged not for cause. This act respects freedom of choice although it places a substantial limitation on the waiver. The Federal Trade Commission in 1972 mandated a three-day cooling-off period for door-to-door sales in order to allow consumers to rescind hasty decisions.

Sunstein and Thaler advocate that, if feasible, institutions should choose their rules using a cost-benefit analysis. In the case of automatic enrollment in a 401(k) plan, some will join who otherwise would not have. Some of these participants will benefit; others, especially those who urgently need the funds for other purposes, will not. A cost-benefit analysis might compare these gains and losses. By allowing people to refuse automatic enrollment, the costs of the plan might be minimized. The choice of saving rate is more difficult. Setting it too low might encourage too little saving.

When cost-benefit analysis is too difficult, rules of thumb might serve. Default rules might be set to minimize the number of people who opt out of the arrangements. The degree of choice a plan offers its participants might depend on the degree to which: (1) employees have informed preferences (a multiplicity of options is less likely to overwhelm the well-

² Richard H. Thaler and Schlomo Benartzi, forthcoming. "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving." *Journal of Political Economy*.

informed), (2) employees can link their options to their preferences (a substantial range of alternative investments is too difficult for most to assess), (3) preferences vary among employees (it is appropriate to offer more options where preferences vary the most), and (4) people value choice.

Alicia Munnell concurred that people's choices too often fail to serve them well. She offered the example of males' opting for a single-life payout from their defined-benefit pension plans, leaving their surviving wives with no income. In 1974 and 1984, ERISA and the Retirement Equity Act made the joint-and-survivor annuity the default and required the spouse's notarized signature in order to reject this option. This change in the default rule increased the proportion of pensions paid as joint-and-survivor annuities. In another example, companies that paid their matching contributions to employees' 401(k) plans in company stock tended to induce their employees to invest a greater proportion of their own contributions in company stock as well, perhaps acting on their companies' apparent endorsement of that investment.

Munnell noted that 401(k) plans often require employees to make many decisions—whether to join, how much to contribute, how to invest, when to rebalance, whether to roll over when changing jobs, how to use the money in retirement—leading some to make serious mistakes. Automatic enrollment solves one of these problems, but only partially, because the automatic contribution rates are usually lower than those selected by other participants. Moreover, employees tend not to change the default contribution and investment options. She noted that experimental evidence suggests that offering too many choices can bring cognitive overload, confusing people and leading to poor choices.

Accordingly, Munnell suggested that all employees be enrolled automatically, contributions be set to maximize the employer match, the portfolios of 30-year-olds be allocated 70 percent to equities and be rebalanced automatically as they age, investments in company stock be restricted, lump-sum distributions be rolled over automatically, and retirement benefits be paid automatically as joint-and-survivor indexed annuities.

Although libertarian paternalism has its merits, it cannot be applied universally, Munnell maintained, especially for programs that provide basic services or protection. In the case of social security, which provides a minimal "safety net," people should not be permitted the opportunity to opt out. People with higher incomes would choose not to participate, there-

by depleting the funds available to subsidize pensions for people with lower incomes. More important, if younger workers opt out, rashly deciding they value consumption today more than consumption tomorrow, then they are likely to become a burden for others in their retirement.

Munnell noted that Sunstein and Thaler's paper seems to treat the authority that imposes rules as if it were an entity that emerges from the heavens and imposes restraints, whereas, in fact, the paternalist is often the representative of the people and is enacting the will of the people. In this light, libertarian paternalism might serve as a bridge between the libertarian interests on the right and New Deal traditionalists on the left, thereby helping to rebuild a national consensus for social and economic policies.

In his discussion of their paper, **Drazen Prelec** pointed out that Sunstein and Thaler made three claims. (1) Libertarian paternalism is possible: We can guide behavior without restricting choice. (2) It is inevitable: There is no neutral language for presenting information. (3) It is desirable: We know how to remedy people's mistakes. Prelec expressed some doubt as to whether the Save More Tomorrow plan represents libertarian paternalism or a creative new design for a financial product. In any case, it is an example of how behavioral economics is being applied in designing private and public policies. Prelec stated his belief that the application of psychology to economics might take two courses. One would be to develop new models of economic behavior, which have yet to emerge. The second would be to develop general principles for designing rules, procedures, and products that would then be tailored for specific applications: The Save More Tomorrow plan is an example of such an application. In Prelec's judgment, behavioral economics could evolve much like game theory, providing guiding principles rather than general equilibrium models.

Prelec wondered whether paternalistic and libertarian methods can be reconciled. Libertarianism celebrates individuals' taking responsibility for their decisions with full awareness of their choices. On the other hand, the removal of full responsibility and the disguising of choice are among the hallmarks of paternalism. Eventually, libertarian paternalism must face this conflict—for instance, when we consider how transparent paternalistic motives and techniques should be. This is especially important, because evidence showing that people lack well-informed preferences often comes from experiments lacking this transparency. We are not yet able to judge the consequences of transparency. We also have yet to resolve what responsibili-

ties the planning entity must bear for its decisions and for the consequences of relieving people of taking at least some of the responsibility for their choices.

Prelec illustrated how the desire to avoid responsibility can affect the psychology of prices. For economists, people want prices to be as low as possible. Psychologists recognize other considerations, however. Imagine two dinners. One features excellent company and wonderful food at a very high price. The second is exactly as the first, except the experience is free. In the second case, the enjoyment of the experience decays gradually. In the first, however, the enjoyment plunges, and there is a loss of satisfaction as the moment of paying the bill approaches, and we realize the consequences of our action. This moral tax on consumption is similar to our paying twice for the satisfaction: The first payment is the opportunity cost we incur, and the second is the degrading of our experience as we become aware of this cost. Prelec proposed that we create institutions that avoid this unnecessary tax. We can prepay for consumption—for example, by investing in durables or buying rather than renting a tuxedo. We can purchase a buffer currency—frequent flyer miles, casino chips. We can join fixed-fee plans—phone service. We can also provide public goods—parks, medical services. Finally, we can pass the responsibility to someone else—giving each other expensive gifts.

People want to enjoy consumption as if it were free; they want to retain flexibility and tailor costs to usage; and they want to preserve accountability and self-control. Because these design principles cannot be reconciled, one solution would allow a super paternalistic planner who would give us what we want without our having to choose.

Behavioral public economics provides a useful way to evaluate policies like the Save More Tomorrow plan, **Antonio Rangel** argued. Because people can make inferior choices, behavioral economics might try to understand the psychological mechanisms and situations that produce these mistakes, and then design policies that in conjunction with these psychological mechanisms produce better results. In simpler cases, like those discussed by Sunstein and Thaler, changes in government policy might be easy to evaluate. In more difficult cases, such as reforming Social Security and thereby changing outcomes, it is more difficult to judge whether welfare increases.

Rangel suggested that remedying inadequate saving is an example of an easy problem for public policy. In this case, people appreciate that they are making mistakes and are aware of the right course of action.

This problem is easy to solve because we can use people's reported preferences as our welfare measure for evaluating policies. If people say they want to save more, then a policy that increases saving is superior to one that does not.

Even in these easy cases, difficulties can arise in assessing people's preferences accurately. We might need to poll more than once to avoid mistakes. We might need to make sure that people's moods are suitable for eliciting the appropriate judgments. We might need to be flexible in asking questions, so that if people begin to reveal inconsistencies in their responses, we can ask subsequent questions to force them to confront these inconsistencies.

Consequently, rather than making judgments on people's behalf when we encounter inconsistencies, we might endeavor to resolve the inconsistencies by

*If people are making mistakes,
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presenting the information in other ways. If people are making mistakes, it could simply be that our procedure for presenting information and eliciting responses needs to be improved, Rangel pointed out.

Cases of medium difficulty arise with regard to activities that will improve our welfare, but only after we are forced to become familiar with their benefits. Examples include reading great literature or exercise programs. The brain does not make the right choices initially because it does not have the right model of how it, itself, will change in response to these choices. In these cases, we cannot expect to achieve consistency in responses before, during, and after implementing the action. By engaging in the activity, we are changing the brain's ability to experience welfare.

Cases of the greatest difficulty arise when people are happy the way they are and do not want to change. In the case of psychopaths, for instance, treatment might actually reduce their welfare by enabling them to feel guilt, so that their actions no longer provide the former satisfaction. Suppose people align their interests according to those of their friends and family, and

these interests correspond poorly to their skills. By encouraging them to change their crowds, we do not necessarily improve their welfare; instead, we change their identities and, correspondingly, the way their brains experience welfare. In these cases, there is no stable sense of self and, thus, in contrast to the previous cases, there is no consistent procedure for eliciting responses that can produce a measure of welfare.

Implications for Macroeconomic Policy

*Daniel Benjamin, Economics Department,
Harvard University*

*David I. Laibson, Professor of Economics,
Harvard University*

*“Good Policies for Bad Governments: Behavioral
Political Economy”*

Discussants

*Laurence M. Ball, Professor of Economics,
Johns Hopkins University*

*The Honorable Donald L. Kohn, Board of Governors of the
Federal Reserve System*

*Janet L. Yellen, Eugene E. and Catherine M. Trefethen
Professor of Business Administration, Haas School
of Business, University of California, Berkeley*

Moderator

*Henry J. Aaron, Bruce and Virginia MacLaury Senior
Fellow, Economics Program, Brookings Institution*

Daniel Benjamin and David Laibson, joint presenters, argued that behavioral economics has a great deal to say about the design of policies—good and bad—and the institutions that set them. As examples, they proposed five policy interventions that they support—interventions they believe would encourage better economic results overall without being coercive. Throughout the discussion they urged a cautious approach to such policies since, in a behavioral world, governments are capable of much mischief as well as much good. They also drew behavioral lessons for policy evaluation and for forecasting.

Benjamin and Laibson began by noting that until recently behavioral economics has focused on private

agents and their propensity to make “bad” decisions, decisions that they themselves acknowledge run counter to their self-interest. These “bad” choices stem from bounded rationality, slow learning, framing issues, and a lack of self-control. But noting consumer heterogeneity, Benjamin and Laibson warned that the behavioral literature may have focused too narrowly on striking anomalies without asking, say, how frequently sensible rules of thumb actually lead to bad decisions. Moreover, free markets can help protect us from some mistakes although, of course, many markets are not free. Finally, before presenting their case for “benign paternalism,” the authors also warned that governments are not necessarily either rational or benign. Thus, their powers should be limited.

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With these caveats, Benjamin and Laibson argued that benign paternalism meets the criteria for good behavioral policy because it encourages desirable behavior without preventing consumers from choosing for themselves. It creates a bit of “behavioral friction” when consumers are uncertain or procrastinate. The approach seeks to encourage better choices on average by introducing small hurdles to counterproductive behaviors—closing the chip window in gambling casinos at midnight to discourage all-night binges, for example. As long as the hurdles remain small (and nearly costless), consumers with a strong preference retain freedom of choice, and black markets and organized crime are unlikely to become big problems.

To illustrate possible contributions of behavioral economics in the policy realm, Benjamin and Laibson offered five proposals:

- First, in order to encourage saving, they recommended that the government require all large firms to offer a 401(k)-style program that routinely deducts funds from employees’ pay and deposits

the funds in their chosen saving plan. The firms might also be required to set the deductions in accord with an age-specific saving rate set by the government as the default or they might need to require staff to make an active decision about enrollment within a given time span. The authors based this recommendation on research showing that default settings, deadlines, and automatic saving accelerators like that in Benartzi and Thaler's Save More Tomorrow plan have a huge and constructive impact on saving behavior.

- Benjamin and Laibson's second proposal reflects the problem that, even post-Enron, employees hold far too much of their retirement money in their own company's stock and seem unaware of the wide range in mutual fund management fees that can eat into the return on their savings. To address these issues, the authors suggested a default policy that would sweep own-company stock holdings above a specified ceiling into other assets once a year unless the employee opted out. In addition, mutual funds would be required to report their management fees prominently in prospectuses, quarterly reports, and advertising. Benjamin and Laibson also favored creating a Financial Advisor General—akin to the Surgeon General—to broadcast advice related to consumers' financial health.
- In their third proposal, the authors suggested privatizing Social Security in hopes of reframing the issue of this country's huge federal deficits and inadequate savings. They make this proposal conditional upon steps also being taken to encourage private saving. Because public discussion of the federal deficit almost always treats the budget as a single unified account including the off-budget Social Security surplus, Benjamin and Laibson suggested that privatizing Social Security would make it harder to ignore the actual size of our fiscal problem and would thus encourage national saving. As they pointed out, it would be hard for politicians to treat the Social Security surplus as government revenue if Social Security funds were deposited in private accounts. Since privatizing Social Security might encourage public saving but would do little to spur private saving and would leave many financially unsophisticated households vulnerable, Benjamin and Laibson recommended that the government mandate appropriate saving rates and specify permitted asset classes—a rather strong form of benign paternalism. But without these restrictions, the authors concluded, privatizing Social Security would be “bad policy.”

- In proposal four, Benjamin and Laibson discussed applying behavioral insights to fiscal policy in order to achieve the most effective stimulus. Tax cuts should increase *spending* accounts, they suggested, because such assets tend to be owned by people with relatively high marginal propensities to consume compared with, the owners of say, savings accounts. Such tax cuts should produce a stream of income rather than a (larger) lump sum transfer, which might be saved, and they should be temporary because Ricardian equivalence tends not to hold. Finally, they should be framed as a windfall—possibly taking the form of retail coupons with an expiration date. While tax cuts should naturally be focused on households facing the greatest liquidity constraints, Benjamin and Laibson pointed out that most households are likely to be somewhat liquidity constrained according to hyperbolic discounting models. Hyperbolic households either spend any liquid wealth they get or they invest it in illiquid assets as a disciplinary device. The authors noted that an ideal behavioral tax cut looks much like traditional Keynesian proposals.
- In their fifth and final proposal, Benjamin and Laibson advocated that the monetary authority target a positive rate of inflation to “grease the wheels” of the labor market. The rationale for this recommendation is that workers and firms suffer from money illusion and that, with nominal loss aversion, a decline in nominal wages hurts morale. The authors noted that, empirically, the distribution of nominal wage increases looks like a truncated bell curve with the missing observations piled up at zero, while the distribution of real wage changes shows no such pattern. Benjamin and Laibson concluded that efforts to avoid nominal wage declines tend to increase costly job separations and unemployment. But a modest inflation target—3 percent, say—would allow most firms to avoid cutting nominal wages (without reducing employment) most of the time.

Turning to policy evaluation, Benjamin and Laibson noted that decision makers should distinguish between the short- and long-run effects of a policy because people tend to be slow learners. Take, for example, the question of whether 401(k) plans increase saving. Perhaps 401(k)s simply shift saving at first, but later, as less sophisticated agents learn about the plans, they may begin to raise saving.

Although academic economists generally hold forecasting in low esteem and have largely abandoned it, Benjamin and Laibson view forecasting as one of the

most useful applications of macroeconomics. To improve the accuracy of economic forecasts, the authors suggested taking households' reports of their intentions and expectations more seriously, and they cited evidence that consumer confidence data can help analysts predict cyclical turning points, in particular. Because behavioral research suggests that more focused questions improve the predictability of agents' actions, Benjamin and Laibson also recommended revamping the rather broad questions currently used in the Michigan and Conference Board surveys.

While emphasizing that benign paternalist policies that weakly channel behavior without limiting consumer choice can have a dramatic impact, the authors concluded by urging healthy skepticism toward all behaviorally based proposals. With social scientists and policymakers showing self-serving biases and with unintended consequences hard to foresee, Benjamin and Laibson recommended that the government run small scale experiments of all behavioral proposals, including their own, before adopting them on a widespread basis.

As an old-fashioned, applied macro-economist but behavioral sympathizer, **Larry Ball** found the concept of benign paternalism totally new and quite attractive. He also agreed with numbers one, two, and four of Benjamin and Laibson's five specific proposals and could not imagine why setting defaults at the right level could be harmful—indeed, it might do some good. So, he concluded, let's call in the social planner and implement these ideas.

However, in the case of privatizing Social Security, Ball decided that Benjamin and Laibson had the behavioral argument backwards. While Benjamin and Laibson advocate privatizing Social Security to clarify our public policy choices, Ball stated his belief that the political appeal of privatization comes from the possibility of obscuring the trade-offs we actually face. In fact, demographic trends require that some generation must pay more taxes or receive fewer benefits than it would like. The political problem is deciding who is going to lose how much. Privatization advocates use fuzzy math to try to convince people that some impossible win/win solution exists. To clarify the situation, Ball asserted, we should make it illegal to discuss privatizing Social Security and focus, instead, on who is going to pay.

In the case of Benjamin and Laibson's proposal for a positive inflation target, Ball pointed out that while the concept of downward nominal wage rigidity seems plausible, the empirical evidence for this idea is not very strong. Moreover, even when it does occur,

the efficiency losses and effects on employment are not very big. Thus, Ball's major criticism of Benjamin and Laibson's paper is that they selectively cite the studies most supportive of nominal wage rigidity.

Ball then described some recent applications of behavioral concepts to applied macro issues. One example involves the foundations of the Phillips Curve or why an unemployment/inflation trade-off exists. A problem with much of the recent theoretical literature, Ball pointed out, is that it implies that people are so forward looking that when the Fed tightens policy, they expect inflation to fall and actual inflation to jump down costlessly. But in the real world, as Jeff Fuhrer and others have observed, inflation moves very sluggishly in response to policy. Thus, a better foundation for the Phillips Curve may be the behavioral "Sticky Information Model" (Ball, Mankiw, and Reis 2003³), which generates inertia in inflation by assuming that busy, inattentive people gather information only occasionally. Behavioral ideas also help to explain why the NAIRU appears to have fallen in the 1990s. In a neo-classical world, real wages quickly reflect any pick up in productivity growth. But in a behavioral world, real wage aspirations adjust slowly to accelerating productivity growth, allowing a favorable shift in the Phillips Curve.

Ball ended by raising two additional questions about monetary issues that might prove amenable to behavioral insights. First, why does everyone, economists and policymakers included, dislike inflation? In a neo-classical framework, it is not very hard to distinguish between real and nominal developments, but in the real world people don't seem to make these relatively easy calculations. Perhaps we have a hard time distinguishing the nominal from the real because of the way we process information, Ball suggested. This difficulty suggests that a price level target may be preferable to an inflation target, leading to Ball's second question: How does a change in policy regime affect expectations? In the long run, a price level target might be better than an inflation target, but only if people do *not* expect inflation to persist. How long would it take them to adjust to a new regime? Ball hoped that behavioral research on learning might help provide an answer.

Donald Kohn confessed to reading Benjamin and Laibson's paper as a member of the Federal Open

³ "Monetary Policy for Inattentive Economies." NBER working paper 9491. (as discussed in Mankiw, N. Gregory and Ricardo Reis. 2002. "Sticky Information versus Sticky Prices: A Proposal to Replace the New Keynesian Phillips Curve." *Quarterly Journal of Economics*. v117(4): 1295–1328.)

Market Committee, looking for an exploration of the implications of behavioral economics for monetary policy in particular. Since Benjamin and Laibson did not choose to travel far down that road, Governor Kohn used his discussion to raise questions about the wider application of behavioral insights to monetary policy in order to identify additional areas for fruitful research.

Governor Kohn raised the issue of nonrational behaviors by private agents and wondered what such behaviors imply for how aggressive monetary policy should be and whether the central bank should pay special attention to asset prices. If investors focus on current (low) interest rates or (rising) asset prices, and, ignoring reversion to the mean, assume inappropriately that recent trends will continue, a serious misallocation of resources is likely to result. In that case, forceful counter-cyclical monetary policy may encourage investments that would not make sense at equilibrium interest rates. If these distortions are important, policymakers may want to keep the policy rate relatively close to its natural rate even if that means a more gradual return to desirable growth and inflation trends. On the other hand, slow learning may underscore the importance of keeping inflation and inflation expectations close to the authority's long-run target because a shift in expectations could be costly to reverse. Further, if the behaviors described by Benjamin and Laibson worsen the tendency for asset prices to overshoot long-run fundamentals, aggravating resource misallocation, should monetary policy put more emphasis on asset prices than it does currently? While the very question made Kohn uncomfortable, given his belief that policymakers should limit consideration of asset prices to their impact on the macro forecast, he admitted that finding that human behaviors lead to large, systematic distortions in asset prices might increase their weight in the mix of policy considerations.

Kohn next addressed the implications of behavioral economics for price stability. Although Benjamin and Laibson had argued that resistance to nominal wage cuts stemming from money illusion and loss aversion suggests an inflation target far enough above zero to enable employers to reduce real wages, Kohn finds the evidence on this issue less than compelling. He cited work by Wascher and Fallick⁴ showing that the recent period of very low inflation has led to surprisingly little distortion in the distribution of wage changes. Apparently, wage freezes and productivity gains have allowed employers to avoid nominal wage cuts and achieve reasonable wage growth over time. Instead, Kohn posited that money illusion might actually call for true price stability since the public appears

to have a strong aversion to inflation, perhaps because it greatly complicates their saving and investment decisions. Kohn concluded that avoiding a possible constraint on the central bank's ability to decrease real interest rates provides the main argument for keeping steady-state inflation above zero. Still, he suggested that rethinking the preferred steady state pace of inflation from a behavioral perspective might be useful.

Kohn's third question focused on the need to put more weight on nonrationality in forecasting. He noted that Board staff already pay close attention to consumer surveys, particularly after one-time shocks like 9/11, but find that they add little to standard spending determinants over the longer run. Moreover, policy discussions often cover possible behavioral responses and explanations. Indeed, whenever economic trends deviate from expectation, policymakers tend to attribute the anomalies to psychological explanations—to the point that Kohn wonders whether they are simply relabeling their ignorance. "Can behavioral economics narrow our ignorance and provide a more systematic understanding of economic dynamics?" he asked. While the Board's large econometric models already allow a variety of mechanisms for learning and expectations formation, Kohn suggested that it could be important to have a better understanding of how starting points, recent history, the size of changes, and hyperbolic discounting may impart nonlinearities and asymmetries to economic responses.

Turning to nonrational behavior by policymakers, Kohn asked first about the implications for the design of the monetary authority. Because politicians recognize their temptation to stress short-term results, they have increasingly created independent but accountable central banks with long-term goals. Kohn wondered, however, whether focusing accountability on long-run goals like price stability risked shortchanging important short-term goals like stabilizing output. He also noted that the possibility of nonrational behavior by policymakers strengthens the rationale for vesting responsibility for monetary policy in a committee. But some committees, like the Federal Open Market Committee, are consensual while others, like the Monetary Policy Committee in the United Kingdom, stress individual accountability. Does organizational theory have anything helpful to say about the design of these bodies? Finally, Governor Kohn wondered what behavioral economics implies about the actual

⁴ Fallick, Bruce, Michael Lettau, and William Wascher. "Downward Nominal Wage Rigidity in the United States." International Wage Flexibility Project. Presented at the annual meeting of the Allied Social Sciences Association. January 2003.

conduct of monetary policy. Does bounded rationality in policymakers suggest gradualism or would timid policy only lead to destabilizing imbalances? Does bounded rationality call for reliance on policy rules, or are policymaker errors most likely to affect the forecasts used in applying such rules?

Governor Kohn concluded that the application of behavioral research to monetary policy issues of most

The study of why people do what they do has the potential to improve the conduct of policy—at least marginally.

interest has been limited to date but that the study of why people do what they do has the potential to improve the conduct of policy—at least marginally. Having noted promising areas for future research, he looked forward to reaping additional gains from applying behavioral insights to monetary issues.

Janet Yellen began by agreeing with Benjamin and Laibson's main arguments that: (1) behavioral economics provides a rationale for a range of welfare-improving interventions and (2) the biases and self-interest of policymakers generally suggest a limited form of paternalism. But Yellen also saw some need for interventions that go beyond the benign.

While implicit in Benjamin and Laibson, Yellen wanted to make explicit her view that behavioral economics provides a needed intellectual foundation for Keynesian economics and stabilization policy. For

Behavioral economics provides a needed intellectual foundation for Keynesian economics and stabilization policy.

decades, she noted, economists viewing sluggish wage and price adjustment as implausible have attacked the Keynesian conclusion that market economies may

exhibit pronounced cycles absent active macro policy. A major contribution of behavioral economics, she argued, is demonstrating that money wage stickiness is a generalized characteristic of labor markets, "reflecting deep aspects of the human psyche, not implausible *ad hocery*." Since Milton Friedman, economists have questioned policymakers' ability to improve economic performance. Although Yellen remains concerned about the efficacy of fiscal policy given that politicians do suffer from present bias, she believes that institutional arrangements allow independent and technically competent central banks to take the long view and improve macro outcomes.

Turning to Benjamin and Laibson's individual proposals, Yellen supported their suggestions for encouraging saving and regulating asset allocation, and she applauded the authors' summary of the behavioral lessons for designing effective fiscal stimulus. She noted, however, that Benjamin and Laibson did not discuss the implications of behavioral economics for a key issue in monetary policy—how best to react to possible bubbles in asset prices. Given the costs of tightening monetary policy, Yellen wondered whether policymakers might design benign interventions to curb trading and mitigate irrational exuberance.

Yellen also agreed with Benjamin and Laibson's call for a low but positive inflation target. She pointed out that behavioral economics implies that the Phillips Curve may not be vertical when inflation and productivity growth are low. In such circumstances, an excessively low inflation target could result in needlessly high long-run unemployment. Benjamin and Laibson discussed how inflation can help if workers are loath to accept and firms are loath to impose, a cut in money wages when productivity growth is low and a significant fraction of employers need to cut real wages.

But, Yellen noted, Akerlof, Dickens, and Perry have explored another behavioral phenomenon that may lead to a tradeoff between inflation and unemployment at low levels of inflation. As Shiller and Bewley have found, employees fail to see the connection between wage and price changes and generally view wage increases as a reward for good performance, while inflation is viewed as a separate factor that may affect wellbeing. Thus, it takes a smaller real wage gain to produce the same level of morale as inflation rises—until inflation gets high enough to attract notice. Akerlof, Dickens, and Perry explore the idea that money illusion can enhance welfare by creating an opportunity to drive unemployment below the NAIRU. When labor and product markets are perfectly competitive, the NAIRU is a social optimum. But

with monopolistic competition, output and employment fall short of optimum levels when the economy operates at the NAIRU. By implication, a well-chosen inflation target may make workers happier with lower real wage gains, allowing the economy to expand fast enough to eat into the underutilization of resources resulting from monopolistic competition.

Behavioral economics also helps to explain why the Phillips Curve seems to have shifted in a favorable direction in the 1990s, Yellen pointed out. As Ball and others have noted, changes in productivity growth may affect the NAIRU if real wage aspirations are sticky. An increase in productivity growth, as seen in the 1990s, makes it easier for employers to meet historic real wage norms, lowering the inflation-safe unemployment rate, Yellen suggested.

Yellen ended by strongly disagreeing with Benjamin and Laibson's proposal to privatize Social Security, a successful intervention that has reduced poverty among the elderly by forcing people to save more than they would choose and to take their retirement income as an indexed annuity. Privatizing

Social Security would clearly expose individuals to greater risk and higher administrative costs even if asset choices were restricted. And while Benjamin and Laibson made their proposal in order to increase national saving, Yellen was dubious. The on-budget deficit does not reveal the huge imbalances that will occur beyond the ten-year budget window, she noted, nor does it indicate the amount by which taxes would have to rise (spending to fall) to stabilize the ratio of debt to GDP at its present level. Thus, Yellen pointed out, privatizing Social Security would be a big price to pay for a slightly improved measure of the federal government's fiscal situation. Moreover, Yellen argued, while the public does understand that the country faces major fiscal problems, those issues are not driving voting behavior. Privatization can only increase national saving if it involves higher taxes or lower government spending, but proposals requiring such pain have not been well received. Yellen voiced the suspicion that it will be the financial markets—not the electorate—that force greater discipline on national saving.

The following pages present a survey administered to conference attendees. Participating in the survey provided attendees an opportunity to observe firsthand—both as subjects and as analysts—the extent to which human behavior accords with their implicit or explicit models of behavior.

Behavioral Survey of Conference Attendees

The second day began with Eldar Shafir and Richard Thaler presenting results of a survey of conference attendees taken the previous day. At the request of the conference organizers, Shafir, Thaler, and Shane Frederick had developed a survey designed to demonstrate to the audience that while they may think of themselves as entirely rational, in fact, they respond for the most part just as irrationally as other subjects do. The participants' responses were little different from those of the "inexperienced" students who often serve as psychologists' subjects.

1. Take the bet?

Would you accept a bet with a 50% chance to win \$1050 and a 50% chance to lose \$1000?

Responses: Yes No
 5 43

Thaler's comments:

Thanks to Matthew Rabin, we have a one-item test of expected utility theory, and this is it. Five of you said, yes, you would take the game; 43 said no. That means we have at most five expected utility maximizers. Well, let me give you the second half. How many of you would take the following gamble. Flip a coin. If you lose, you lose \$10,000. If you win, you get half of Bill Gates's wealth. I won't go through the proof, but basically what Rabin has said is that if you turn down the \$1,050/\$1,000 gamble, and you're an expected utility maximizer, then you also have to reject the second gamble I gave you, which no one will reject. So, we have at most five expected utility maximizers, and my guess is that we can probably fool them too.

2. Roadway design

The Department of Transportation is deciding between two different roadway designs near a large American city. These are associated with different types of auto accidents, and, consequently, with different rates of serious injuries and minor injuries.

A "serious injury" is one that requires hospitalization for more than a week and typically includes broken bones or internal damage.

A "minor injury" is one that requires hospitalization for less than a week and typically includes bruises, sprains, or lacerations.

Version I.

In the blank below, please enter the number of minor injuries that would make Design A and Design B equally good, all things considered.

Design A: Serious Injuries = 11 Minor Injuries = _____
Design B: Serious Injuries = 15 Minor Injuries = 16

Responses: Average Range Sample Size
 37.91 20 – 75 22

Version II.

Design A: Serious Injuries = 11 Minor Injuries = _____
Design B: Serious Injuries = 15 Minor Injuries = 1600

Responses: Average Range Sample Size
 2,044.95 1,604 – 3,200 19

Shafir's comments:

The thing we want to show you here is that people use simple contextual cues, relatively mindlessly, relatively superficially, to come up with responses, and you can easily manipulate the responses by changing the cues.

You might not have taken an extremely long time to do this exercise, but this is not a very important excuse, because a lot of important decisions in the world are done in a sort of quick survey around the table.

Each one of you received either the first version or the second. In both cases, the serious injuries are 15 and 11, and the minor injuries are 16, and you have to fill in the missing blank; or 1600, and you have to fill in the missing blank. Notice that whether it's 16 or 1600 just depends on what roads you have and shouldn't change anything.

Typically, people use superficial cues. They say "15 to 11 is around 140%," so they often adjust accordingly, multiplying the number of minor injuries—16 in this example—by about 140%. (Of course, some people just offer an arbitrary estimate; this accounts for the range of responses and for the fact that the average response is not equal to 140% of 16.) But the problem with this method is that it yields an exchange rate between minor to major injuries that is wildly inconsistent. Your responses show that people who got the top version think, on average, that the exchange rate that measures the cost of one additional minor injury per major injury saved is 5.5 to 1 (that is, $(37.91-16)/(15-11)$); while those who got the bottom version think it's 111 to 1 (that is, $(2044.95-1600)/(15-11)$). So, there is a significant difference.

3. Job equivalency

Suppose you are considering two jobs, which are similar, and both pay \$70,000 a year. They differ, however, in the number of paid vacation days provided each year, and the size of the substantial Christmas bonus offered. Please complete the missing score so that the two jobs are equally attractive to you.

Version I.

	Vacation Days	Christmas Bonus
Job A:	16	\$ _____
Job B:	20	\$70,000

Responses:	<u>Average</u>	<u>Range</u>	<u>Sample Size</u>
	\$83,465.38	\$72,000 – \$150,000	26

Version II.

	Vacation Days	Christmas Bonus
Job A:	16	\$ _____
Job B:	20	\$ 700

Responses:	<u>Average</u>	<u>Range</u>	<u>Sample Size</u>
	\$2,156.12	\$ 825 – \$4,700	26

Shafir's comments:

This is where you're asked to fill in the missing Christmas bonus, so as to render the two jobs equally attractive. Again, notice the two versions: One is \$70,000; one is \$700. Now, some of you will not take long to point out that there is a wealth effect in a sense, because the top group gets about \$140,000 a year, and the bottom group gets about \$70,000, so that could explain some of it. We do have a third version which takes care of that by substituting "annual salary" for "Christmas bonus." Our data from our other subjects show that their responses are exactly the same, so that's not a problem. And since you have so far replicated exactly everything they've done, I'm pretty confident you would have given us the same results here too.

Notice that the evaluation of vacation days in terms of money is significantly different between the two groups. In Version I, one foregone vacation day is worth \$3,366 (that is, $(\$83,465.38 - \$70,000)/(20-16)$), while in Version II it's worth only \$364 (that is, $(\$2,156.12 - \$700)/(20-16)$). It's a big difference, just as a function of the cues presented to you and the relatively mindless matching procedure.

4. Predicted bids

Version I.

Imagine that a signed first edition of Walt Whitman's "Leaves of Grass" is being offered at a local charity.

What would be your maximum bid? _____

Now, name someone at this meeting (you can choose someone whom you think you know fairly well).

Person's name: _____

What do you think would be this person's maximum bid? _____

Responses:

Correlation of own bid with predicted other
0.78

Correlation of own bid with actual other
0.18

Version II.

Now, imagine that a large box of designer truffles is being offered at the charity.

What would be your maximum bid? _____

Now, name someone at this meeting (you can choose the same or another person).

Person's name: _____

What do you think would be this person's maximum bid? _____

Responses:

Correlation of own bid with predicted other
0.72

Correlation of own bid with actual other
0.13

Shafir's comments:

There is a very common issue in psychology known as the false consensus effect. It basically goes like this. If I ask you about something—an opinion, an attitude, an evaluation—about which you know very little, and I ask you to estimate how Jeff is going to evaluate it, or how Bob is going to evaluate it, since you don't know, it's not crazy to use your own view as a guide. You have an n of 1, you have yourself, and you use that to make a prediction. But this gives a false consensus effect. People perceive the world as much more likely to be like them than it is, in fact. This is a very strong effect, and you get it in many places.

Here is what we did in the case of the autographed book. We asked you about this hypothetical, signed, first-edition volume of Walt Whitman. We asked you about your maximum bid, and we'll call this "own bid." You were asked to name somebody in the room and predict what they would bid. We'll call that the "predicted other." And then we went to the questionnaires and, in all the cases we could, we matched your predicted other with that other's actual bid. We'll call that the "actual other." Obviously, we lost a lot of questionnaires, because not everybody handed them in.

Here is what happened. The correlation between your own bid and the predicted other is 0.78. The correlation between the predicted other and the actual other is 0.18. So, people have a little bit of a sense of what their buddies are going to do. (Obviously, people typically chose people they knew.) But it's way less compelling than their initial sentiment indicates. They think they know their friends much better than they do, and this is a version of the false consensus effect.

We did the same thing with the chocolates, very similar, 0.72 and 0.13. Again, notice you're condemned to make a judgment that's very hard, and when you do that, it's probably done by using your own evidence; not crazy, but bound to give you a false consensus feeling.

5. Number game

The rules:

- No communication between players.
- Each player must guess an integer between 0 and 100.
- The winner is the person whose guess is closest to $2/3$ of the average guess.

Example: Three players submit guesses of 25, 50, and 75.

Average = 50; $2/3(50) = 33.3$;

The player who submitted 25 would win.

Please submit your guess: _____

Responses:	<u>Average</u>	<u>Range</u>	<u>Sample Size</u>	<u>2/3 of Average</u>
	17.6	0 – 60	52	11.8

Shafir's comments:

You were supposed to guess a number between zero and 100, and the winner is going to be the person who gets closest to two-thirds of the average guess. That was the task. Now, how do you think about this game? One thing you can do is not think at all. You say, "Look, this is complicated, I'll pick at random"; then the average will be at 50. You can be a little more sophisticated and say, "Look, the average participant is not very thoughtful. He'll pick at random. This means the average will be about 50; he'll say 33 ($2/3$ of 50)." Then, you'll say, "I will do even better; I will assume that participants will see what this is all about and will guess 33; so, I'll guess 22 ($2/3$ of 33)...Aha! I'll do 15 ($2/3$ of 22)." You can see where this is going. In fact, the only place to end—economic equilibrium—is zero or one, depending on whether you interpreted that you have to guess a whole number or not.

Now, what happens here? Those who guess zero or one, what are they doing? What's the chance you will be correct if your guess is zero? Zero. Now, those who guess zero and one are quite sophisticated about mathematics and economics, but they really need to brush up on their human behavior—which is what this weekend is about. You solved an optimization problem, but you really missed what you need to do to think about this crowd, not those in economics textbooks, but those who had breakfast today, and what the chances are of getting an average of zero.

And so, what you're really doing here is forecasting something quite different, and you can think of this as a metaphor for policy. What you need to do is not to find the right solution in some optimization sense, but to find the solution that will be right, in light of the fact that you are surrounded by somewhat misguided, or weird, or unusual, or different agents.



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