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ECONOMICS LANGUAGE AND ASSUMPTIONS: HOW THEORIES CAN BECOME SELF-FULFILLING

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Social science theories can become self-fulfilling by shaping institutional designs and management practices, as well as social norms and expectations about behavior, thereby creating the behavior they predict. They also perpetuate themselves by promulgating language and assumptions that become widely used and accepted. We illustrate these ideas by considering how the language and assumptions of economics shape management practices: theories can "win" in the marketplace for ideas, independent of their empirical validity, to the extent their assumptions and language become taken for granted and normatively valued, therefore creating conditions that make them come "true."

> The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood (Keynes, 1936: 383).

Social science theories really do matter. This is true even though, if assessed by the standards and metrics of the natural sciences, the achievements of the social and behavioral sciences and their impact on society may not appear particularly impressive and their relevance for practice can appear doubtful to both laypersons and scholars (Hambrick, 1994; Scott & Shore, 1979). But social science theories can influence reality in profound ways by influencing how we think about ourselves and how we act.

The concept of self-fulfilling prophecies is the starting point for our discussion about how social science theories, regardless of their truth value—or, as Keynes puts it, "both when they are right and when they are wrong"—can become true by modifying the reality they purport to merely explain. Robert Merton defines a self-fulfilling prophecy as a prediction that "is, in the beginning, a *false* definition of a situation evoking a behavior which makes the originally false conception come *true*" (Merton, 1948: 195). Building on this concept, Anthony Giddens suggests that social science cannot be completely separated from the reality it attempts to explain, because there is a

> mutual interpretive interplay between social science and those whose activities compose its subject matter—a "double hermeneutic". The theories and findings of the social sciences cannot be kept wholly separate from the universe of meaning and action which they are about (Giddens, 1984: xxxiii).

Actors see the world through the lenses of social theories, and social theories are built borrowing actors' categories and meaning.

While these ideas have been debated in philosophy of science (Romanos, 1973) and science studies (Callon, 1998), they have not often been operationalized in ways that facilitate the development of an empirical agenda exploring their consequences. We need a deeper appreciation of the costs and consequences of our scientific endeavors as social scientists and of the processes through which our theories and findings can affect our world. To further understand this process, we identify three mechanisms through which theories can become self-fulfilling: institutional design, social norms, and lan-

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guage. We also discuss two scope conditions—culture and accountability—that may affect the operation of these mechanisms. After briefly describing the three mechanisms in general terms, we focus on the reigning queen of the social sciences—economics—to illustrate how these mechanisms operate and what their consequences are.

INSTITUTIONAL DESIGN

Theories can become self-fulfilling when institutional designs and organizational arrangements—structures, reward systems, measurement practices, selection processes—reflect the explicit or implicit theories of their designers, in the process that transforms "image into reality" (Miller, 1999: 1053; see also Frank, 1988) by changing material organizational conditions and practices. To illustrate this process, Schwartz notes that Skinnerian views about reinforcement (Skinner, 1953) might be true not because of some essential characteristics of human nature but because "the more these institutions [mental hospitals, schools, human workplaces] were structured in keeping with Skinner's theory, the more true that theory would look—no, the more true that theory would *be*" (1997: 22). Managing people through contingent reinforcement could, over time, "change people's motives to engage in the task and the manner in which the tasks are performed" (Schwartz, 1997: 22) in ways consistent with principles of reinforcement.

SOCIAL NORMS

Theories can also become self-fulfilling when, regardless of their initial ability to predict and explain behavior, they become accepted truths and norms that govern behavior. People act and speak as though the theory were true, "because they believe to do otherwise is to violate a powerful descriptive and prescriptive expectation" (Miller, 1999: 1053). Ratner and Miller (2001) found that because people believed in the norm of self-interest, they believed they would be evaluated negatively if they acted on behalf of a cause in which they lacked vested interest or if they acted against their own apparent interest. The authors conclude that "lacking a self-interested account, people may feel they lack both the moral authorization and the psychological cover to act" (Ratner & Miller, 2001: 16), thereby making self-interest a more powerful predictor of behavior simply because people believe that to behave otherwise is illegitimate.

LANGUAGE

Finally, theories can become self-fulfilling because they provide a language for comprehending the world. Language affects what people see, how they see it, and the social categories and descriptors they use to interpret their reality. It shapes what people notice and ignore and what they believe is and is not important (e.g., Pondy, 1978; Weick, 1979). In this sense, reality is socially constructed (Berger & Luckmann, 1966) and language plays an important role in such constructions. As Eccles and Nohria put it, "*The way people talk about the world has everything to do with the way the world is ultimately understood and acted in*" (1992: 29). Theories become self-fulfilling when the language and assumptions they promulgate affect how individuals see and understand themselves and their world.

These three mechanisms by which theories can create a reality that confirms them are not mutually exclusive and, in fact, reinforce each other. This article illustrates each of these mechanisms and provides ideas about how to test for their presence and effects. This framework is not specific to any particular social science, but we focus here on economic theory, given its dominance in academic, political, and management discourse.

SELF-FULFILLING THEORIES: THE CASE OF ECONOMICS

The process of creating both institutional structures and behavioral norms, thereby rendering a theoretical perspective self-fulfilling, is nicely illustrated by the diffusion and widespread adoption of economic assumptions and language. Ghoshal and Moran (1996) argue, for example, that transaction cost economics (e.g., Williamson, 1975) leads many decision makers to create certain institutions and contracts, even though compelling evidence and logic suggest that such arrangements can undermine organizational performance.

Transaction cost theory may become self-fulfilling and therefore true, because "when peo-

ple act on the basis of ideology, they inadvertently arrange the very conditions that bring reality into correspondence with the ideology" (Schwartz, 1997: 21). The assumptions in transaction cost economics about how people behave become widely accepted as valid descriptors of behavior. These beliefs then become transformed into norms—those "overarching shalts and shalt nots" that govern so much human behavior and are reflected in management practices consistent with those norms. So, if people in a company engage in self-interest seeking with guile (a behavior that proponents of transaction cost economics assume to be prevalent among economic actors) and are rewarded with money and promotions for behaving as they are "supposed to," and if senior executives believe and espouse that human beings are predisposed to act in this way, then people will come to use deceitful cunning to gain personal advantage, regardless of how they behave in other settings.

In this article we go beyond transaction cost theory to show how the behavioral assumptions and language that characterize economics influence theories and expectations about human behavior. These widely espoused and accepted theories, and the language they embody, then influence how people behave individually and the institutions they design as contexts for others' behavior. Individual behavior and institutional designs create a reality that, in turn, reinforces beliefs in the validity of assumptions of economic theories. These assumptions are diffused as normative rules of behavior, rendering the theories true through their effects on the behaviors they are purported to explain.

Our perspective diverges somewhat from most accounts of how and why theories gain acceptance. Contests among theories are typically presumed to be decided by which theories best *explain* the world, not which best *affect* the world and thereby become true as a result of their own influence. But this more commonplace view presumes that objective reality is unaffected by theory itself—that "the truth" can be compared to the predictions of theory and correspondence established. We suggest that this assumption is at least partly flawed, especially as people with strong beliefs travel through time and multiple social contexts. As economist Robert Frank notes, "Our beliefs about human nature help shape human nature itself" (1988: 237). Consequently, theories win when they are widely believed and accepted.

This position is consistent with Kuhn's (1970) conception of paradigm, which emphasizes the importance of theoretical consensus in creating and sustaining a particular theory, not just when, or if, the theory is true. It is also consistent with Murray Davis's argument that great theories in social science attain their status not because they are true but because they are interesting and engage the attention of their audience of experts and practitioners (Davis, 1971).

Our perspective means that understanding how and why management practices develop and persist depends, in part, on explaining how certain assumptions and language come to prevail and how such beliefs and terminology influence behavioral norms and institutional arrangements; it depends, more directly, on how the resulting norms and institutional arrangements affect behavior in organizations and other settings. To limit our scope, we do not consider the important questions of why certain assumptions and language come to dominate discourse and how and why the particular assumptions employed in economics have emerged (Dumont, 1977; Fourcade-Gourinchas, 2004). We take the fact that economic assumptions and language are widely accepted (albeit sometimes in an oversimplified form) as our starting point, and we focus on the consequences of this dominance on the development of management practices and policies.

THE LANGUAGE, ASSUMPTIONS, AND PLACE OF ECONOMICS IN MANAGEMENT

There is little doubt that economics has won the battle for theoretical hegemony in academia and society as a whole and that such dominance becomes stronger every year. This dominance is especially strong in Western countries, particularly the United States, but is spreading rapidly over the globe. Fourcade-Gourinchas (2004) recently reported that nearly every country now offers economics classes in the higher education system and that the number of specialized economics reviews worldwide increased fivefold between 1959 and 1993, from about 500 to over 2,500. In academia, citation patterns show that economics enjoys status and, indeed, dominance. Economic ideas are increasingly promi-

nent in political science (Green & Shapiro, 1994) and law (Posner, 2003), as well as in organization science (Pfeffer, 1997). And economics literature is cited more frequently in other social sciences literature, even as in economics literature itself other social sciences are cited much less frequently (Pieters & Baumgartner, 2002; Baron & Hannan, 1994).

Economists are also very influential in matters of policy making and institutional design. In the United States, for example, the President has the Council of Economic Advisers; there is no corresponding council for any other social science, even though other disciplines are pertinent to such social problems as welfare, work, criminology, and global affairs. Economic ideas were critical in shaping the government response to the Depression of the 1930s and in the neoliberal revolution of the 1980s (Blyth, 2002). Modern microeconomic theory has been used to design auctions, organize markets, guide privatization efforts, and lead the postsocialist transition of Eastern Europe (McMillan, 2003; Milgrom, 2004; Roth, 2002).

What are the fundamental ideas of economics that enjoy increasing dominance in social science discourse? The core ideas of economics—the concepts that are typically engaged in empirical research—are relatively straightforward.[1] Perhaps the most fundamental is the idea of self-interest:

> "The first principle of Economics is that every agent is actuated only by self interest." . . . This view of man has been a persistent one in economic models, and the nature of economic theory seems to have been much influenced by this basic premise (Sen, 1977: 317).

Miller notes that self-interest has been "enthroned . . . as the cardinal human motive" (1999: 1053), while Henrich et al. describe the idea that people are entirely self-interested as a "canonical assumption" (2001: 73) in economics.

Self-interest forms the foundation for other fundamental premises in economics. If people pursue their own interests, it follows that incentives will be essential for obtaining desired behavior from people, which is why economic researchers place so much emphasis on extrinsic incentives (Heath, 1999). If people are relentless in the pursuit of their own self-interest and equally relentless in their lack of concern for others' interests, then conflicts of interest (e.g., between owners and managers and between managers and employees) that constitute the core of agency theory should be ubiquitous. Noreen concludes, "At the heart of agency theory . . . is the assumption that people act unreservedly in their own narrowly defined self-interest" (1988: 359).

The pursuit of self-interest and the resolution of conflicts of interest occur in markets, where voluntary exchanges presumably mediate the conflicting preferences of individual actors. Markets are presumed to be the most efficient way of organizing exchanges, except under certain conditions, such as limited information and the need for the development of specific capital, either human or other (e.g., Williamson, 1975), or when there are externalities, natural monopolies, or other forms of market failure. Market-based exchanges are, however, considered to be the baseline and the natural and best option for organizing activity, to be supplanted only under particular, special conditions. This is because marketlike mechanisms are argued to be more efficient than other mechanisms, such as power and influence processes, kinship and shared group membership, or even moral or ideological principles, for resolving the conflicting claims made by self-interested actors (e.g., Williamson, 1985; Williamson & Ouchi, 1981). Simon notes that even the new institutional economics "retains the centrality of markets and exchanges. All phenomena are to be explained by translating them into . . . market transactions based upon negotiated contracts" (1991: 26). Consequently, markets and the market metaphor pervade economic assumptions and language:

> When economists look at, say, childcare, they think of markets. "Childcare"—which to other people looks like a piece of social control or a set of buildings or a problem for new parents—looks

[1] In the last twenty years, economists have been vigorously debating the role and validity of their behavioral assumptions, primarily in the subdiscipline of behavioral economics. This effort, which started at the periphery of the field, is now receiving increasing attention in the mainstream of the field, and the work of some of the pioneers in this endeavor—Daniel Kahneman and Vernon Smith—was recognized with the Nobel Prize in Economics in 2002. Despite this effort, most of the introductory economics textbooks pay only limited attention to this stream of research, and the large majority of the models presented to the students start with the traditional assumptions of economic theory. In Kahneman's words, "The same assumptions are still in place as the cornerstones of economic analysis" (Kahneman, 2003: 162).

> to economists like a certificate on the New York stock exchange. By the choice of metaphor the economists are driven to identify a demand curve, a supply curve, and a price (McCloskey, 1995: 215).

The pursuit of self-interest in market-mediated exchanges implies competition among social actors as each pursues its interests, often in opposition to the interests of others. One accomplishment of economics, beginning with Adam Smith and continuing through modern theory, is demonstrating how this competition can produce results that are efficient for the allocation of resources and beneficial for society as a whole. The presumption in much economic theory is that, under certain conditions such as competitive markets, the pursuit of self-interest produces socially optimal results. Numerous managers have "borrowed" this assumption, espousing philosophies and establishing systems that pit people and organizational subunits against one another, on the theory that the resulting increase in motivation and the unleashing of competitive forces of natural selection will produce the best both in people and in organizations. James Lincoln, of the famous Lincoln Electric Company (and case), wrote, over fifty years ago, "Competition will mean the disappearance of the lazy and the incompetent. . . . Competition promotes progress" (cited in Berg & Fast, 1975: 3). The General Electric Corporation is famous for a system where the bottom 10 percent are weeded out each year—a system that inevitably puts people in competition with each other.

Such "American-style" philosophies and systems have spread to countries that traditionally have emphasized cooperation and seniority-based rewards. The Japanese restaurant chain Global-Dining pits coworkers against each other: all workers—from top executives down to staff and dishwashers — are rated from best to worst against their peers. Top performers get large bonuses (as much as 150 percent of base salary), and those ranked near the bottom are publicly criticized, demoted, and fired. CEO and founder Kozo Hasegawa says this system is inspired partly by Japanese translations of American management books (Ono, 2001).

These fundamental beliefs about how human beings will behave are used in the design of institutions and management practices, can become reified as social norms, and produce an associated language and terminology that affects behavior. In each of these ways, the assumptions and ideas of economics come to create a world in which the ideas are true because, through their effect on actions and decisions, they produce a world that corresponds to the assumptions and ideas themselves.

HOW ECONOMIC THEORIES BECOME SELF-FULFILLING

At the outset of this article, we enumerated three mechanisms through which theories can become self-fulfilling: (1) the design of management practices and institutional arrangements; (2) the transformation of theoretical assumptions into social norms about behavior; and (3) the language we use, which can shape what we notice (and do not notice) and the categories we use to interpret the world around us. In what follows, we illustrate each of the three mechanisms with examples from economics, and we suggest ways to study this process.

Management Practices and Institutional Arrangements

A theory can become true to the extent that people, acting on its ideas and underlying assumptions, introduce practices, routines, and organizational arrangements that create conditions favoring the predictions made in the theory. Perhaps there is no clearer demonstration of this effect than the case of the Chicago Board Options Exchange (CBOE). In a fascinating historical case study, MacKenzie and Millo (2003) studied the development of the CBOE, which opened in 1973 and quickly became one of the most important financial derivatives exchanges in the world. The same year the CBOE opened, Black and Scholes (1973) and Merton (1973) published what were to become the most influential treatments of option pricing theory, for which the authors were to win the Nobel Prize in Economics. The formula developed in this work expressed the price of an option as a function of observable parameters and of the unobservable volatility of the price of the underlying asset. It is important to note that this formula originally did *not* accurately predict option prices in the CBOE, with deviations of 30 to 40 percent common in the first months of option trading. Yet, as time passed, deviations from the

model diminished substantially so that, for the period August 1976 to August 1978, deviations from the Black-Scholes price were only around 2 percent (Rubinstein, 1985). This success in the theory's predictions of option prices led Ross to characterize option pricing theory as "the most successful theory not only in finance, but in all of economics" (1987: 332).

MacKenzie and Millo (2003) showed that this increasing accuracy resulted because people and organizations acted *as if* the theory were true, which made its predictions *come true*. Interviews with market participants revealed, for example, that traders started to use the theoretical value sheets obtained from the Black-Scholes equation to determine their bids. The model also became increasingly institutionalized in the regulatory framework of the market, in its language, and in its technological infrastructure, especially in the Autoquote system—software launched by the exchange in 1986 that implemented the Black-Scholes formula and provided traders with theoretical prices for all the options being traded. "Financial economics, then, helped create in reality the kind of markets it posited in theory" (MacKenzie & Millo, 2003: 54).

A second example comes from the study of operant conditioning and its application in organizational settings. Operant conditioning is pertinent to economics because, in both perspectives, it is assumed that human behavior is directed primarily by extrinsic rewards. Schwartz, Schuldenfrei, and Lacey (1978) argue that principles of behavior modification were becoming more frequently used in the management of human institutions. They note the consistency in principles and orientation between Taylor's (1911) scientific management and Skinner's (1953) principles of operant conditioning, arguing that the transformation of work as part of the Industrial Revolution, which resulted in much more all-encompassing environments, created conditions well suited to applying the principles of external reinforcement of behavior. And the authors cite the literature on overjustification effects (e.g., Lepper, Greene, & Nisbett, 1973)—the possibility that extrinsic rewards can reduce intrinsic motivation—to illustrate how application of reinforcement principles can change the nature of the work itself.

Considering these two cases helps highlight what sort of data and research would be necessary to demonstrate that economic theories become self-fulfilling because they actually create the conditions that cause them to be true. First, a historical perspective is required. One would want to show that, prior to the development and widespread implementation and acceptance of some theory, the dependent variable of interest was not well explained by the principles of the theory but that, once the theory was institutionalized and implemented, its predictions became more accurate. That is precisely what the study of the CBOE shows, although that study has the advantage that both the theory and the institution are of relatively recent origin, so interviews with actual participants in the option markets, as well as good data on option prices, are available. In the case of the Schwartz et al. (1978) story about operant conditioning, there is a problem, acknowledged by the authors: Taylorism and scientific management predate Skinnerian operant conditioning, so it is difficult to argue that Skinner's principles were used to design the modern factory.

Fortunately, contemporary management is characterized by numerous practices and prescriptions that emerged from consulting firms, as well as from academic writing in economics and other fields. These practices and prescriptions can be reasonably dated by the appearance of books or other written material—management strategies such as reengineering, the war for talent and talent management, executive compensation schemes, downsizing and restructuring, and so forth. One would want to demonstrate that, over time, (1) there was a diffusion of the management theory in question in the literature and discourse, as well as acceptance and implementation of it in organizations (Abrahamson & Fairchild, 1999; Strang & Macy, 2001); (2) practices implied or recommended by the theory were implemented on a larger scale in more settings over time; and (3) implementation of the practices had predictable, observable effects that caused the theory to correspond more closely to observed behavior—the behavior predicted by theory—and that this expected behavior became more common as the theory itself gained acceptance, not before.

Social Norms and Behavior in Organizations

Theories can also become self-fulfilling by describing how people and organizations *ought* to behave, not just how they *do* behave. As we

noted at the outset, the core economic assumption of self-interest is a prediction about how people will behave, but it also serves as a norm that regulates behavior. People may believe they ought to behave in a self-interested way or risk appearing foolish, gullible, or naive (e.g., Miller, 1999).

Self-interest is such a powerful norm that people often account for altruistic acts using instrumental language to "justify" their behavior. Miller and Ratner (1998), for example, demonstrate experimentally that subjects consistently overestimated the power of self-interest to affect the attitudes and behavior of others, even when the subjects' own behavior and attitudes were not primarily affected by self-interest. They also note survey research showing that Americans viewed self-interest as increasingly prevalent—in other words, normal, if not normative—and also a large social problem, in that people did not look out for others as much (see also Wuthnow, 1991).

A growing body of evidence suggests that self-interested behavior is learned behavior, and people learn it by studying economics and business. Marwell and Ames, in a series of twelve experiments, found that "people voluntarily contribute substantial portions of their resources . . . to the provision of a public good" (1981: 307). These experiments consistently contradicted the economic assumption of free riding, with one exception. Economics graduate students were far more likely to free ride than any other group of subjects, contributing only about 20 percent of their resources to the group, compared to the 42 percent contributed by noneconomists (Marwell & Ames, 1981: 306–307).

Cadsby and Maynes (1998) found that economics and business students, compared to nurses, tended to move toward an inefficient free-riding equilibrium in an experiment using a threshold game. In an ultimatum game (e.g., Thaler, 1988), Carter and Irons (1991) found that student subjects who were economics majors tended to keep more of the resources for themselves than students who had declared a noneconomics major and were not enrolled in an economics course. Frank, Gilovich, and Regan (1993) found that economists defected more often in a prisoner's dilemma game and that economics professors were less likely than those from other disciplines to donate to charity. Frank and Schulze (2000) found that economists were more corruptible than others. In their experiment, students in a German university were asked to recommend a plumber for a film club from a set of offers that varied both by the price charged and by the amount the person would receive if the plumber they recommended was selected. Economics students were more likely to recommend a plumber that charged a higher price when they received more money for doing so. There is, then, a large and growing body of literature that suggests that economists and economics students act differently from others. Why?

Miller (1999) proposes that studying economics, with its assumptions about the norm of self-interest, helps people learn what is appropriate behavior, and they respond accordingly. He notes, "The experience of taking a course in microeconomics actually altered students' conceptions of the appropriateness of acting in a self-interested manner, not merely their definition of self interest" (Miller, 1999: 1055). This explanation suggests that many of the experimental results of the tendency of economics students and economists to defect more, cooperate less, and, in general, behave more in accordance with the dictates of self-interest may be mediated by belief in the norm of self-interest and its prevalence. No tests of mediation in any of these studies are reported, but the argument and empirical implication are straightforward: one effect of economics training is to strengthen beliefs in the pervasiveness, appropriateness, and desirability of self-interested behavior, which, in turn, should lead to exhibiting more self-interested behavior.

The norm of self-interest has been studied most frequently. But other norms are also implied by economic theory, and empirical research is needed to understand how and when they influence behavior. For instance, we would expect people who are trained in and believe in economic assumptions to endorse the benefits of competition and to organize activities that fuel competitive dynamics more so than others not trained in economics. We would also expect those more imbued in economics to view marketlike relations and transactions as more desirable both inside and outside organizations, including the governance of the employment relation. We would also expect them to endorse norms that reify conflict of interest and argue for their legitimacy. After all, economic theory implies that conflict of interest is a predictable

consequence of living in a world where people will and ought to pursue their individual interests above all else.

Much as Miller and his colleagues have done for self-interest, it would be useful to explore how widely these beliefs are shared and whether they are seen as beliefs about what people *ought* to do. Following Goffman's (1971) observation that expectations become visible when they are violated and sanctioned, we believe a key indicator that these are norms rather than just descriptions of behavior would be that people who act contrary to their dictates would be seen as foolhardy and illegitimate.

The point is that the choice of management practices may be explained not just by their efficacy but also by their perceived consistency with the prevailing normative order. Tetlock's work on managerial ideologies suggests one paradigm for studying the means through which such beliefs shape how organizations are managed and designed. Using various managerial scenarios, Tetlock found that "managers of varying political persuasions subscribe to markedly different assumptions about human nature that, in turn, shape their underlying philosophies of governance" (Tetlock, 2000: 320). Differences in beliefs about human nature—that is, subjects' "ideological world view"—resulted in differences in how they reported they would manage people and organizations. To assess managerial choices, respondents reacted to scenarios depicting decision dilemmas, accountability structures, and corporate governance models. The ideological world views of the subjects coalesced in a two-factor structure: authoritarianism and libertarianism. After controlling for employment sector, seniority, income, education, and gender, Tetlock found that both ideological factors were robust predictors of managers' reactions to the scenarios.

To illustrate, libertarian conservatives (who believed strongly in the power of markets, individual self-reliance, and human rationality) were least likely to be disturbed by tradeoffs between making money and harming people. They often took the position that no product is perfectly safe and that markets would punish companies that sold unsafe products. One subject commented, "If people really wanted perfectly safe cars, they'd drive in tanks and accept 10-mile-per-hour speed limits. The hypocrisy . . . is overwhelming" (Tetlock, 2000: 317).

The same scenarios Tetlock used in his research could be used to explore how not just political ideology but also normative beliefs about self-interest, competition, and markets affect people's recommendations and responses to managerial situations and dilemmas. Researchers could also develop other scenarios reflecting economic assumptions to assess if these beliefs are described and acted on as norms. Even more important would be field studies in which the development of management practices and their effects on the beliefs about human nature were explored in a reciprocal fashion. Decisions such as those examined by Tetlock about trading off cost for safety, how much to trust employees, and how closely employees need to be monitored have consequences for organizations that, in turn, are likely to affect how those inside them think about how to manage and what is appropriate behavior.

How Language Produces Self-Fulfilling Behavior

Language is a primary product of social science research (Astley, 1985). The language employed in a scientific field is more than a communication device. It triggers mental imagery and cognitive schemata that drive understanding and behavior (Bicchieri, 1998). The metaphors and other linguistic tropes used in a discipline coalesce into a more or less coherent knowledge structure that shapes how its members and those they influence construe reality. Metaphors create a structural mapping from one conceptual domain to another (Lakoff & Johnson, 1980), and this mechanism enables us to comprehend abstract concepts and perform abstract reasoning. Successful literary metaphors are surprising and unexpected; in contrast, successful scientific metaphors "are to be overused" (Bicchieri, 1988: 113). A successful scientific metaphor is routinely used inside and outside a discipline to refer to real-world phenomena, and it is reified and treated as the real thing (Berger & Luckmann, 1966). The reified language becomes the natural way of talking about the world (Gramm, 1996), assuming a normative and ideological character: "discourse is ideological when the meanings it provides offer understanding about power, difference, and hierarchy that are claimed to be natural, accepted or preferred" (Steinberg, 1999: 745).

We see things in part by how we talk about them and the concepts and constructs we use in our descriptions. As C. Wright Mills (1940) noted long ago, motives are "typical vocabularies," and socialization processes are the mechanism through which these motives are transmitted. "Along with rules and norms of action for various situations, we learn vocabularies of motives appropriate to them. These are the motives we shall use, since they are a part of our language and components of our behavior" (Mills, 1940: 446). Mills argues, "We influence a man by naming his acts or imputing motives to them" (1940: 445). In other words, how we talk about behavior influences that behavior.

The argument is simple. Language evokes certain associations, certain motives, and certain norms. Acting on the basis of that language in ways consistent with those norms and assumptions, we do things that, in turn, will produce behavior on the part of others consistent with our linguistic frame. Language produces a social reality that reinforces and validates the terminology we use.

To make this argument more concrete and see its implication for economic language and social behavior, consider research by Ross and his colleagues. Liberman, Samuels, and Ross (2003), using both American college students and Israeli pilots, explored the effects of reputation (as cooperative or defecting people) versus the language used to describe the game on moves in a prisoner's dilemma game. The same payoff matrix and game was called, in one instance, the Wall Street Game and, in the other, the Community Game. This simple priming using different language produced differences in participants' choice of moves, as well as differences in the moves subjects anticipated from their counterparts. When the game was called the Community Game, "mutual cooperation was the rule. . . and mutual defection was the exception. . . . whereas the opposite was the case in the Wall St. Game" (Liberman et al., 2003: 15). Both participants and those that nominated them did not anticipate the extent to which this simple labeling or naming affected responses, and subjects' responses to the situation were much more strongly predicted by the name of the situation than by the person's presumed likelihood and reputation for being cooperative or defecting.

Kay and Ross (2003) have demonstrated, again using the prisoner's dilemma situation, that even more subtle cooperative or competitive priming could produce effects on both perceptions of the norms for the game and subjects' own willingness to cooperate or defect. Because research in these studies and in other prisoner's dilemma experiments shows that, in multiplay games, subjects respond to what their counterparts do, the self-fulfilling nature of the language is clear: subjects primed to defect or compete are more likely to do so and, therefore, will be more likely to induce a comparable response in their counterpart, validating their initial impressions of the competitive nature of the situation and the untrustworthiness of their counterpart. Conversely, subjects primed, through the naming of the game, to cooperate will elicit more cooperative responses from their counterparts, again validating their initial beliefs about the nature of the situation and the person they are playing with.

The research by Ross and his colleagues, along with the large body of literature on situational construal they summarize, suggests the importance of language in affecting behavior, judgments about others, and beliefs about what the appropriate behaviors are in a given situation. Barley and Kunda (1992) have traced the rise and decline of rational versus normative language of managerial control over time. The importance of language and priming suggests that the study of language should be expanded from the consideration of the rational versus normative dimension to a broader spectrum of linguistic primes that can trigger competitive behavior, beliefs in the efficacy of markets, and individual self-interest. While Barley and Kunda explore what seemed to account for the rise and decline of language over time, we suggest that it would also be informative to trace how the rise and decline of a particular language affect the adoption and abandonment of management practices that would be ideologically consistent, or inconsistent, with that dominant language.

WHEN DO THEORIES BECOME SELF-FULFILLING?

Up to this point, we have made the argument about the self-fulfilling nature of economic theory in general and universal terms. But we recognize that not all individuals, even in a given organization or society, are homogeneous with respect to their norms and beliefs about eco-

nomic assumptions. Furthermore, behavior is not always consistent with values and attitudes. So the question arises as to when the processes we have described are most likely to operate.

With respect to the first issue, we would expect that cultural differences across countries, organizations, and groups would significantly affect the diffusion of economics language and assumptions, influencing the pace of adoption and their transformation into behavioral norms. Different cultures have been mapped on a number of critical dimensions, some of which seem critical for understanding when economics language and assumptions are more likely to become self-fulfilling. For instance, societies characterized by high individualism (Hofstede, 1980) should be more receptive to the diffusion of economics assumptions than societies characterized by high levels of collectivism. Markus and Kitayama (1991) suggest that people in some cultures—namely, Western cultures—hold an independent construal of the self, whereas people in non-Western cultures hold an interdependent construal of the self. When the self is defined as a self-contained entity and each person is conceived of as autonomous and independent from others, the assumptions and language of self-interest, competition, and incentives can thrive. In a culture that stresses interdependence among people and where the self is defined *in relation to* other people, however, the assumptions of economics become more problematic and the language harder to comprehend, and diffusion, thus, should be slower. To illustrate, the notion of self-interest, which is foundational to all other economic assumptions, loses much of its significance if we cannot clearly identify stable boundaries between different persons. In cultures with an interdependent construal of the self, these boundaries fluctuate across situations and time, making the idea of self-interest quite confusing.

We are suggesting that economics and other social sciences engage in a process of cultural articulation with existing accepted norms (Wuthnow, 1989). To successfully diffuse in a society or an organization, the assumptions and language of economics need to resonate with at least some of the existing norms. Over time, these assumptions contribute to the definition of the norms themselves, but in the early stages of diffusion, consistency with some aspects of the local culture seems critical. Nevertheless, as the example of the Japanese restaurant chain Global-Dining shows, national cultures are not impermeable to the introduction of new cultural norms, particularly when they are embedded, and somewhat obscured, in management practices and in the language of economics (Ono, 2001).

Therefore, despite cultural differences and different rates of acceptance, we would also expect to find that, over time, the language and assumptions of economics are indeed diffusing globally. As contemporary nation states "derive from worldwide models constructed and propagated through global cultural and associational processes" (Meyer, Boli, Thomas, & Ramirez, 1997: 144), contemporary organizations all over the world are increasingly characterized by practices that embody the dominant behavioral assumptions of economics and its language, creating the conditions for the operation of the self-fulfilling process described in this article at a global level.

Accountability is another important variable or condition for explaining when economic assumptions and language would be mustered and would be most likely to influence behavior and institutional designs. Accountability is "the implicit or explicit expectation that one may be called on to justify one's beliefs, feelings, and actions to others" (Lerner & Tetlock, 1999: 255), and it varies considerably even among industries, companies, and people embedded in the same national cultures.

As pressure for accountability increases, it activates a wide range of coping strategies in decision makers who become "intuitive politicians" and choose their options with the goal of establishing or preserving a social identity (Tetlock, 2002). While the burgeoning literature on accountability in social psychology has explored many different coping strategies (see Lerner & Tetlock, 1999, for a comprehensive review), for the argument we are developing here, accountability provides a critical contingency, because it creates pressures on the actors to adopt legitimate behaviors, such as those normatively sanctioned by economic theory. For instance, experiments conducted on MBA students showed that, under accountability pressure, students were more likely to adopt the decision rule of writing off sunk costs—a rule that 84 percent of them were aware of but that most of them did

not activate without accountability pressure (Simonson & Nye, 1992; Simonson & Staw, 1992).

In a series of experiments on self-interest, Ratner and Miller (2001) found evidence consistent with this argument on the effects of accountability. After showing that people feel less comfortable acting on their attitudes toward social causes in which they lack a clear vested interest, these researchers explored whether nonvested individuals would feel more comfortable showing their support in anonymous ways than in a more public form. After reading about a National Institutes of Health proposed budget cut on research on a gastrointestinal disease that affects only people of their own sex (in the vested condition) or only people of the opposite sex (in the nonvested condition), participants were asked to indicate their attitudes in relation to the proposal, and they were then provided with a list of possible actions they could do to help a local group protest the funding cut. They could (1) sign a petition, (2) write a statement of opinion about the proposal, and (3) complete an anonymous five-item survey concerning their attitudes toward the funding cut. While 100 percent of the participants completed the survey, 94 percent of the vested versus 78 percent of the nonvested participants signed the petition. This difference cannot be explained by a difference in time and effort required, since signing the petition actually required less time and effort than completing the survey, but it can be explained by the discomfort of publicly showing support for a cause in which they did not have a personal interest.

More empirical research is needed both to gather more evidence on the two scope conditions of the theory and to identify other factors that might play a role in the process. A thorough exploration of these moderating factors is beyond the scope of this paper, but we do believe it is an essential issue to tackle in future research.

EFFECTS OF ECONOMICS LANGUAGE AND ASSUMPTIONS ON MANAGERIAL PRACTICES

When discussing the normative belief in both self-interest and the power of extrinsic incentives, we noted that although people may not hold selfish attitudes and may not act selfishly, they do expect other people to be selfish (Miller & Ratner, 1998) and to be motivated by extrinsic incentives (Heath, 1999). When actors design management practices and institutional arrangements, they necessarily embed their assumptions about human nature in what they design. Therefore, it is hardly surprising that even if people do not act selfishly, they will design institutions under the assumptions that *others* will be narrowly self-interested and only motivated by extrinsic incentives. These arrangements then produce the very behavior they assume, becoming self-fulfilling and institutionalized as a consequence.

We illustrate this argument by considering two important managerial practices: the increasing reliance on contingent, extrinsic incentives and the evolution of the employment relationship to a more marketlike character, complete with less stability, more turnover, and more frequent downsizing. Note that this discussion is not a test of the ideas but simply an illustration of both their plausibility and their potential importance for understanding the emergence of certain features of organizational life, even in the presence of evidence suggesting such features may not be beneficial for people or the organizations that are using them.

As we noted, economists see markets as a desirable way of resolving competition and conflicts among self-interested parties, and there has certainly been an increase in the marketlike aspects of the employment relationship. For instance, Cappelli (1999), among others, has documented the substantial growth in temporary and contingent employment and the increasing use of outside contracting and contract labor. He portrays this trend as the internalization of the *market* inside companies: "Pressures from the labor market are now the important forces shaping the nature of the [employment] relationship" (Cappelli, 1999: 3). Feldman notes that, between 1973 and 1992, the "employability model of employment" (2000: 170) grew in prominence. This is a model "in which individuals and organizations act as independent free agents pursuing their self interests" (2000: 170)—a conceptualization quite consistent with economic logic.

Layoffs have also increased and, more important, changed in character. In the past, layoffs were the last option that many managers used when confronted by recessions and plummeting firm performance, but since the early 1980s, firms have started proactively using this practice to decrease costs. Osterman (1999), compar-

ing *Wall Street Journal* articles on layoff announcements in 1972 and 1994, found that while in 1972 the large majority of layoffs were justified by the poor economic results of the firm, in 1994 the majority of them were justified by the anticipation of future competition or structural change.

How and why have downsizing and other changes that import market mechanisms inside companies become a rationalized institutional myth (Budros, 1997; Meyer & Rowan, 1977)? One explanation could be the increasing emphasis on shareholder value as the ultimate measure of a firm's performance. The ideology of shareholder value brought the financial community, first, and the managerial community, later, to consider stockholders to be the most important constituency and to reject the claims of other stakeholders (Fligstein, 2001). But because the evidence shows that downsizing, for instance, does *not* increase shareholder returns (e.g., Cascio, 1993; Lee, 1997), shareholder preeminence is not the most convincing explanation for the emphasis on more marketlike relations between companies and their people.

Another explanation for the increasing prevalence and legitimacy of downsizing and other forms of workforce flexibility is the striking consistency between the assumptions behind downsizing and other forms of employment externalization and economic assumptions and language. So, externalizing employment by relying on outside contractors transforms exchanges based on considerations of internal equity, social attachment, and other attributes of internal labor markets into market-based transactions. Downsizing is consistent with the idea that employment is "at will" and both employer and employee are free to terminate the relationship at any time, and that the employment relationship is an arm's-length transaction based on market conditions. The image of the firm as a "community" or a "family," or even as a coalition of stakeholders, that was more prevalent in employment relationships in the United States in the immediate post World War II period has been replaced with a "market" metaphor, in which an employee is merely a commodity that can be acquired, dismissed, or even traded, for instance, in mergers and acquisitions, with little consideration for anything except presumed corporate profitability and shareholder wealth.

Policies and practices that create marketlike relationships between employers and employees have predictable consequences that are self-reinforcing: just as companies feel no particular social obligation or moral tie to their employees, employees, now told to look out for themselves, do precisely that (e.g., Hirsch, 1987; Scully, 2000). The observations of decreased employee loyalty and trust (e.g., Princeton Survey Research Associates, 1994), as well as increases in turnover and decreasing job tenure, that have been seen in the recent past are a logical consequence of building marketlike ties between people and their employers. In a market, one is expected to continually seek the highest and best price for one's product—in this instance, one's labor—and to move without compunction when someone offers a better deal. An article in *Fortune* magazine advises employees to do just that: "The new paradigm requires that every worker—whether just getting started or nearing retirement—continuously reassess where he stands occupationally and financially and be prepared to change direction as need or opportunity beckons" (Richman, 1995).

As employees become increasingly mobile and pursue their own objectives, managers believe they owe people little except employability—the idea of giving them work that prepares them for their next job. Trust and commitment are reciprocal. It is hard to think of situations in which one side trusts and the other doesn't, at least over some reasonable period of time, or a circumstance in which one party would be committed to a relationship where the other side would not. Consequently, organizations seeking flexibility and a more marketlike relationship with their people have produced employees who behave as free agents and see themselves in a marketlike relationship with their employers. Companies have responded, in turn, by presuming that people will leave and not be loyal, so they introduce practices to accommodate work to these expectations. In this way, management practices truly do become self-fulfilling, as they produce the very attitudes and behaviors that make the practices necessary and justified.

In a similar fashion, there has been growth in the use of contingent pay and an increasing emphasis on financial incentives at all levels in organizations (e.g., Useem, 1986; Wood, 1996), promulgated, in part, by compensation consulting companies (e.g., Kay, 1998). The belief in the

importance of incentives—an idea that comes directly from the economic assumptions of self-interested behavior—has, logically, resulted in an emphasis on individual pay for performance, or what has come to be called "merit-based" pay. Under an individual pay-for-performance plan, differences in performance are reflected in differences in salaries among employees, resulting in increased pay dispersion. In spite of the belief in the beneficial effects of individual pay for performance and, consequently, more unequal pay based on that performance, the existing evidence suggests that more pay dispersion can often reduce job satisfaction, disrupt social relationships in the workplace, decrease performance both in academia (Pfeffer & Langton, 1993) and in professional baseball teams (Bloom, 1999), decrease quality (Cowherd & Levine, 1992), and increase turnover (Pfeffer & Davis-Blake, 1992).

Again, however, there are feedback processes that cause an emphasis on pay and extrinsic incentives to create attitudes and behavior that make emphasizing pay essential for motivating and directing behavior. That is because emphasizing pay actually makes pay more important to employees. One of the lessons from a study of the Toyota plant in Georgetown, Kentucky, is that what people value at work and what motivates them are not exogenous but endogenously created by what the organization *does* (Besser, 1995). Motives are learned and are influenced not just from others and from society in general but perhaps most powerfully from those in the immediate situation (Salancik & Pfeffer, 1978). Therefore, what organizations do in terms of reward practices comes to determine what people want and expect from their jobs, once again creating a cycle of behavior that makes the use of incentives, once begun, more and more necessary to continue to motivate and direct behavior.

CONCLUSIONS

We ought to know more about when and how social science theories affect the world of practice (e.g., Barley, Meyer, & Gash, 1988). In exploring this issue, however, we need to remember the insight of Beyer and Trice (1982), in their review of empirical studies of the use of social science research. They conclude that, to understand how and why the social sciences influence practice, we need to uncover both "subtle as well as obvious cases of use" (Beyer & Trice, 1982: 615).

Here we have described how the dominant assumptions, language, and ideas of economics can exercise a subtle but powerful influence on behavior, including behavior in organizations, through the formation of beliefs and norms about behavior that affect what people do and how they design institutions and management practices. While our analysis has focused mostly on economics, this discipline is obviously not the only social science that can potentially produce theories that become self-fulfilling.

For instance, Herrnstein and Murray's (1994) conception of intelligence as a reasonably fixed individual trait "can have effects on the culture's self-understanding that make it true" (Schwartz, 1997: 23). Dweck and Leggett's (1988) research on implicit theories of intelligence shows how lay conceptions of ability and intelligence shape behavior. Regardless of initial ability, children who believed in fixed intelligence focused on how well or badly they performed, focused on managing impressions that others formed of their performance, rather than on trying to learn how to improve future performance from setbacks and successes, and were prone to learned helplessness. Children who believed their level of intelligence was fixed tended to avoid difficult tasks and failed to persist when faced with setbacks, and this was the case even for those with high levels of ability. After all, what is the point of trying harder if doing so can't make you smarter and, therefore, able to perform better?

In contrast, children who believed that intelligence is malleable were more likely to engage in "mastery-oriented" behaviors, and they focused on doing things that increased their competencies, were less likely to avoid difficult tasks, and were more persistent in the face of adversity. In this instance, one's theory about intelligence produced behaviors that would tend to confirm that initial theory. The point is that we should also look for the possibility of self-fulfilling feedback loops in theories of behavior other than economics.

Although we have cited a number of studies relevant to and supportive of our argument, much empirical work remains to be done. We suggest two avenues of research that could pro-

vide complementary insights on the nuances of how theories become self-fulfilling: historical and experimental studies.

Rich historical research on the archeology or origin of management practices is needed to understand the longitudinal process of transforming theories into management practices, as well as the factors that have led designers and adopters to choose some practices over others. As an example of this style of work, scholars in the history of technology have studied the design and diffusion of technologies, exploring the agenda and ideology of the designers (Noble, 1984). In a small but extremely interesting stream of work, researchers have studied how entire markets are created (Callon, 1998; MacKenzie & Millo, 2003; Reddy, 1985) and have examined the construction of industries (Granovetter & McGuire, 1998). More work in this vein is needed on management practices to better specify the relationship between social science and practice.

Also, more experimental work is needed on the mechanisms of language and accountability and their role in triggering certain assumptions and beliefs about behavior. Moreover, given that ours is essentially a cultural argument, we would expect our theory to be more powerful in countries where the discourse of neoclassic economics is dominant, and would expect the effects to be stronger for people who have been acculturated in this discourse (i.e., MBAs, economics majors, professional managers). We would expect to find different results in countries where the dominant version of economics is not imbued in the principles of the neoclassic orthodoxy. The experiments of Frank et al. (1993) provide some suggestive evidence. They compared the effect of two different types of economics classes: a class in microeconomics taught by a neoclassical economist and one taught by an institutional economist. The students in the institutional economist's class did not exhibit the same increase in self-interested behavior found in the neoclassical economist's class.

Perhaps the most important implication of this paper is that theories become dominant when their language is widely and mindlessly used and their assumptions become accepted and normatively valued, regardless of their empirical validity. This is the case whether the language and assumptions are problematic and harmful (Ghoshal & Moran, 1996) or beneficial. As long as the language and assumptions are widely shared and frequently used, the theory will come to determine what people do and how they think about and design the social and organizational world. If this line of argument is correct, then social science theory and the language and assumptions of such theory matter a great deal. When theories produce self-fulfilling beliefs, societies, organizations, and leaders can become trapped in unproductive or harmful cycles of behavior that are almost impossible to change. Inconsistent evidence is unlikely to emerge because people don't try, or even contemplate, acting in any manner that clashes with accepted truths.

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