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## **On the Foundations of Social Science Research\***

*Abstract:* Is it possible that all of the social sciences could employ a common methodology? If so, what would it be? This article addresses these questions. It takes off from James Coleman's recent book, *The Foundations of Social Theory*. Coleman's social theory is built on the postulate that individuals are rational actors, the same postulate that most of modern economics is built upon. This article critiques the use of this postulate in economics, and thus questions whether it is a useful building block for the methodological foundations of social science research. It proposes an adaptive view of human behavior as an alternative in which preferences are conditioned by past experience. The work of Joseph Schumpeter is discussed as an exemplar of the methodology advocated here.

James Coleman's *Foundations of Social Theory* attempts, as the title implies, to lay out a theoretical foundation, not just for sociology but for the entire social sciences. The richness of the theoretical apparatus is illustrated by numerous applications throughout the book. Slavery, drug addiction, voting and stock market panics are but four of the literally dozens of important social questions discussed. Moreover, Coleman interweaves many concepts like norms, externalities, free-riding and power in insightful and often novel ways. The book is most impressive. In this essay I shall not take up the details of Coleman's analysis. Instead, I address the fundamental methodological issues posed by the book - how can we best analyze social behavior? By social behavior I mean both the behavior of the individual in a social context, and social interaction.

In Coleman's theory individuals are rational actors. When analyzing interactions of individuals, Coleman typically resorts to models in which equilibria are assumed to exist (e.g., prisoners' dilemmas, market processes). Thus, Coleman propounds a theoretical structure that formally resembles that commonly employed by economists. Each individual maximizes her utility subject to certain socially imposed constraints (rules). These individual actions are aggregated according to still other rules, which are defined by the nature of the equilibrium of the process that brings individuals into contact. The equations found in *Foun-*

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\* My thanks for comments go to Viktor Vanberg.

*dations* will look familiar to economists, even if the definitions of some of the variables, and descriptions of the processes are not.

As an economist I suppose I should champion Coleman's efforts to spread the methodology of economics to the other social sciences. Although I do think that economics can contribute to an evolving common framework for analysis in the social sciences, the foundations of social theory need to be built on more pillars than just rational actor and aggregate equilibrium modeling. My purpose here is to defend this assertion, and sketch out the other components of the foundations. It is appropriate to begin by examining the methodology of economics.

### 1. The Methodology of Economics

For the first century of its existence economics was largely an inductive science. Adam Smith's genius lay primarily in his powers of observation, in his ability to generalize from the experience of a single factory, a particular market. The *Wealth of Nations* (1776) is a deft interweaving of such generalizations built upon a profound understanding of human nature. Smith and his followers, e.g., David Ricardo, were also adept at reasoning, of course, but their reasoning was always applied to the world they observed around them.

The wholesale shift to a purely deductive form of reasoning came at the end of the 19th century with the development of neoclassical economics. This shift led to the great *Methodenstreit* that divided economists on the Continent of Europe into warring camps. The inductivist/institutionalists put up a spirited fight, but in the end the neoclassicists were triumphant.

Although the early neoclassicists were mostly concerned with the task of adding analytic structure and rigor to the discipline, they did pay considerable attention to the behavioral assumptions inherent in their approach. Debate took place over the nature of utility, its measurability, the psychological support for the assumption of diminishing marginal utility, etc.

If we examine economic modeling as it takes place today, five main components can be identified: (1) a behavioral assumption about the goal of the actor, e.g., profits, utility, wealth; (2) a set of auxiliary assumptions particular to the problem under investigation, e.g., perfect certainty, the actor is risk averse; (3) the rule the actor follows to achieve his goal, e.g., optimization; (4) the constraints faced by the actor, e.g., his budget, a competitive equilibrium. From these four elements the implications of the model are drawn. Step (5) would be to confront the predictions of the model with data and see how well it explains them.

One would naturally expect scientific progress to consist of advances in all five components of the above outlined methodology. Even the neoclassical pioneers of a century ago like Edgeworth and Walras, who were the most sophisticated in mathematics of their time, would be awed by the number and intricacy of the constraints that can be incorporated into today's theoretical models in eco-

nomics and dazzled by the virtuosity with which optimization problems are solved. The development of computers and econometrics has allowed economists to test models that they would not have dreamed of tackling even a generation ago. Thus, much of what exists in the economic journals of today would be strange and incomprehensible to the neoclassical economist of a century ago - with one exception - he would find today's economist making the same behavioral assumptions about motivation that he and his fellow pioneers made a century ago. The entrepreneur maximizes profits, the consumer utility ... . With respect to the assumed goals of individuals and the rule followed to achieve these goals, today's economic models do not differ from their forbearers. The one noticeable difference is that today's models assume that the consumer or the entrepreneur can solve optimization problems that the economists of 100 years ago would not have been able to solve.

Not only have economists failed to develop the behavioral foundations of their discipline, they have generally attacked those who have tried to do so.<sup>1</sup> To model economic behavior today without assuming that the actors in one's model maximize one of the handful of individual goals that the profession holds dear is to risk having one's model declared *ad hoc*, and no other adjective carries a worse connotation in economics than this one. The strength of an economic model today varies directly with the simplicity of the objectives assumed for the actors and the sophistication with which they are assumed to pursue these objectives.

In some areas these simple behavioral assumptions give strong predictions that accord well with the data. Railroads in the 1880s policed their cartel by punishing the noncooperative behavior of any of its members in the way predicted by a model that assumes joint profit maximizing behavior on the part of the cartel (Porter 1983). In others they do not. The pricing behavior of firms over the business cycle does not obviously correspond to that predicted by straight profit-maximizing behavior,<sup>2</sup> nor does the pattern of wages in a firm

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<sup>1</sup> The marginalist controversy about whether managers set prices consistent with the profits maximization assumption, the satisficing hypothesis of Herbert Simon and the Carnegie School, and the managerialist literature about managerial goals are three examples of these. They are discussed with references to the literature in Mueller 1992.

<sup>2</sup> This issue has been one of controversy for over a half century. Those who have presented evidence against the profits maximization assumption include Means 1935; 1972; Hall/Hitch 1939; Lester 1946; Kaplan/Dirlam/Lanzilotti 1958; Weiss 1977. Most of the responses to these challenges to the profits maximization assumption presented arguments not evidence. Exceptions would be Stigler/Kindahl 1970; 1973. Although Stigler 1947 originally presented his evidence on price rigidity as being inconsistent with the kinky demand curve hypothesis, it along with its follow-up studies (Primeaux/Bombal, 1974; Primeaux/Smith 1976) should also be interpreted as failing to corroborate the predictions of a model based on profits maximization. These three studies report a dramatic direct relationship between the number of price changes over time in an industry and the number of sellers. Although this behavior is not what a model based on the profits maxi-

(Frank 1985). The low returns large corporations earn on their investments are inconsistent with the premise that they maximize their shareholders' wealth (Baumol/Heim/Malkiel/Quandt 1970; Mueller 1987). Movements of stock prices do not resemble those one would find, if investors made their decisions by rationally calculating the present discounted values of expected future dividend streams (Shiller 1981). Mergers, like stock price movements, occur in waves that are better understood with models that presume alternative goals and behavior to that commonly postulated in neoclassical economics (Shiller 1984; Mueller 1977; 1987). The same is true of the findings that mergers do not generally increase the profitability of the merging firms, nor the wealth of the acquiring firm's shareholders (Meeks 1977; Ravenscraft/Scherer 1987; Caves 1989; Mueller 1977; 1980; 1987).

On a more micro level Cyert and March (1963) were able to track and predict the behavior of an individual firm to a high degree of accuracy with a model that presumed that managers pursued five goals, of which profits was but one, and that managers did not follow a maximizing rule. Contrary to conventional descriptions of rationality individuals have been found to refuse to purchase subsidized flood insurance (Kunreuther et al. 1978), and in experimental situations to make choices that violate the most basic axioms of rational behavior normally assumed to hold in economic modeling (Kahneman/Tversky 1979; Kahneman/Slovic/Tversky 1982). When one moves away from the market terrain that economists normally study, one finds simple rational actor models doing even worse. Individuals do not defect enough in prisoners dilemma situations, and vote too often in political ones (Marwell/Ames 1979; 1980; 1981).

I have admittedly cited mostly evidence against the simple behavioral assumptions that underlie most economic models and the strong form of rationality that they presume. Virtually every challenge to these assumptions has been met by a vigorous defense of their applicability. Much evidence to the contrary could be cited. A careful examination of this contradictory evidence would, I submit, reveal the following: (1) a willingness to accept fairly weak evidence in support of the orthodox behavioral assumptions, as confirmation (e.g., if a measure of the cost of voting has the predicted sign and is statistically significant in a vote equation, the rational voter model is presumed to have been vindicated even though this and the other variables that this model predicts account for only a

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mization hypothesis predicts, it is what Gardiner Means's nonneoclassical, administered price hypothesis predicts. For further discussion, see Mueller 1992, 152-3. - The behavior of prices over the business cycle has become an issue of debate again recently. In this literature profits maximizing behavior is assumed and auxiliary assumptions are added to yield predictions of how prices will vary over the cycle. Unfortunately, with the appropriate choice of auxiliary assumptions one can predict either more or less rigid prices with a given market structure, so that this literature produces neither a clean prediction of the behavior of prices over the business cycle nor an unambiguous defense of profits maximization. See Rotemberg/Saloner 1986 and Haltiwanger/Harrington 1991.

small fraction of the variation in voter behavior, and other, sociological/psychological variables explain far more of the variation) and/or (2) the assumed simple objective plus rational (i.e., maximizing) behavior are consistent with the data only *with the addition of the appropriate set of auxiliary assumptions*, e.g., transaction costs, threshold effects, asymmetric information, outliers in the data should be thrown out.<sup>3</sup>

The upshot is that in many situations the standard economic model built on the assumption that rational actors pursue a simple objective explains observed behavior rather poorly. This fact is ironic, since most economists believe that the primary (sole) objective of economic analysis should be prediction, i.e., that economics is mainly a *positive* science. I would argue just the opposite, that theoretical economics is almost solely a *normative* science. The economist's model of monopoly tells us what the monopolist ought to do if it wants to maximize profits; the principal/agent model describes what the optimal managerial employment contract would look like if stockholders wrote that contract and they and the managers had the preferences assumed. How well these models *explain* what we observe depends on how well their premises about behavior and institutions accord with reality.<sup>4</sup>

James Coleman (18) has made description and prediction the ultimate measuring rod for the success of his social theory, and calls for empirical verification to determine success. But most economic models are not constructed in such a way as to make empirical verification or rejection easy and sometimes not even possible, and typically are not tested against alternatives even when such experiments are feasible. This outcome is not inevitable. I shall argue that the goal of description and prediction has a greater chance of being achieved, if social theory is built on a different behavioral foundation. In so doing, however, I shall claim that rational behavior models can play a useful role in social theory, when judiciously employed.

## 2. The Behavioral Foundations of Social Theory

### a) Genetic constraints

It is obvious that humans like other animal species have evolved through a process of genetic selection. We inherit a set of genes that determine to some degree

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<sup>3</sup> I hasten to make clear that I am not asserting that all economic modeling resorts to these ruses to make its predictions fit the data. As stated above in many cases standard form neoclassical models predict quite well. The above stratagems are often observed, however, in those situations in which the standard model has been shown to perform poorly.

<sup>4</sup> For evidence on the poor correspondence of the predictions of the principal/agent model regarding managerial compensation contracts and the actual characteristics of these contracts, see Jensen/Murphy 1990. For discussion as to why this model performs poorly in this case, see Mueller 1992, 157-8.

our desires (e.g. for sex, for child bearing), and our capabilities. To what degree our genetic heritage constrains and determines our actions is a question of long-standing controversy. The social scientist, who seeks the foundations of his discipline, must decide where he stands on this issue. The nature-nurture question is fundamental to the social sciences, however sterile the debate over it sometimes seems. If the study of human behavior can ever claim to be a science, then a consensus among its practitioners on this issue must be possible.

*b) Preference formation*

The next step is to understand the nurturing process - the science of learning. Here behavioral psychology offers considerable promise as a science of learning. At a minimum, we inherit genetically driven desires for food, drink, warmth and parental affection. Parents the world over have selectively satisfied these desires, rewarding certain actions and punishing others, and thereby have unconsciously applied the principles of operant conditioning to shape the behavior of their children. And they have been consciously employed in a wide variety of other contexts.<sup>5</sup>

The advantage of choosing behavioral psychology as an important component of one's theory of preference formation is that it requires us to make but one basic assumption about human motivation - it is selfish. So much animal and human behavior is consistent with a purely selfish motivation that this behavioral postulate must be part of any set of assumptions one makes about human motivation. If it is the *only* assumption necessary for modeling human behavior, the structure of this model is greatly simplified. Other motivations - altruism, masochism, sadism - that would seem to contradict a selfish behavior postulate, can be explained as secondary motives arising from prior operant conditioning. A child, who is rewarded for giving and punished for taking, exhibits behavior in later life that appears to be altruistic. She may feel pangs of guilt when undertaking or even contemplating undertaking certain selfish acts. In a way, her altruistic behavior is selfishly motivated even in later life. She is rewarded for being altruistic by not feeling guilty.<sup>6</sup> Many seemingly "irrational" actions of adults can be explained by their reward and punishment experiences as children (Berne 1964). Coleman (16, n.) cites this fact in connection with his arguments *against* psychological theories of action. While it is true that psychological theories suffer from a degree of circularity as Coleman claims, a similar objection can be

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<sup>5</sup> For example, computer learning games immediately reward a child for a correct answer by stating or printing "that is correct", or some such. Mental illnesses have been effectively treated using operant conditioning. For discussions of its principles and accomplishments see Millenson 1967; Notterman 1970; Schwartz/Lacey, chs. 2-6, and Staddon 1983.

<sup>6</sup> For further discussion of the redundancy of an altruistic motivation alongside a selfish behavior postulate, see Cohen 1978.

leveled against rational actor models. *Any* action can be explained as the consequence of utility maximization with the proper choice of utility function. Thus, altruism becomes consistent with rational behavior by positing a second, altruistic set of preferences to be maximized (Margolis 1982; Etzioni 1986).

The importance of norms and culture in "explaining" behavior is also fully compatible with individual preferences having been molded by operant conditioning. Each society contains a variety of institutions for rewarding and punishing individual actions (schools, church, police). Since the most important period of preference formation is childhood, it is not surprising that the most important norm culture inculcating institutions - family, schools and church - are oriented toward children.

An additional advantage of behavioral psychology as a theory of learning is that it can account for both regularities in individual behavior and "unpredictable" actions. An individual learns by being rewarded after undertaking an action. But chance events can reward or punish independently of any actions undertaken. An individual may mistakenly interpret the reward or punishment as having been a consequence of some prior action, and thus repeat or cease that action. The baseball player, who hits two home runs on a day when he put his T-shirt on backwards, begins to wear his T-shirt backwards every day. The individual who becomes ill after eating turtle soup refuses to eat turtle soup again.

This potential for random reinforcement and punishment makes difficult the task of predicting exactly the behavior of any one individual. But in the social sciences, we are generally interested in predicting the average behavior of many individuals. Individual behavior conditioned by random events should itself be random and should not affect our ability to predict the response of individuals to systematic rewards and punishments.

Since many of the failings of rational behavior models that have been the focus of recent debate have been pointed out by psychologists, it is not surprising that psychology can offer better explanations for these cases than the rational actor models. Students do not usually play games in which they are rewarded for choosing a particular row or column. They do, however, encounter countless prisoners' dilemma (PD)-type situations every day. Schools are a primary institution for conditioning cooperative behavior in these situations (doing homework, keeping quiet, lining up, being polite to elders). Those who remain in school as far as college will have well-conditioned cooperative habits in PD situations. When confronted with a payoff matrix the first time, students who have been conditioned to cooperate in many classroom situations might well be expected to emit a cooperative or partially cooperative response in this one. What would be surprising would be if they continued to cooperate after being punished for doing so.

The dominant nature of noncooperation in a PD makes it likely that students would obtain greater rewards from playing this strategy than from cooperating. It

is thus reassuring to find cooperative behavior quickly extinguished when the PD game is repeated with the same players a few times (Isaac/McCue/Plott 1985).

The tit for tat strategy is nothing more, of course, than a rule for rewarding cooperation and punishing defection. If one player employs tit for tat, one expects the other to learn to cooperate, and with enough trials two players may be expected eventually to hit upon mutual cooperation as the most rewarding actions. The pattern observed by experimentalists - initial cooperation, followed by defection in subsequent games, and eventual emergence of joint cooperation - is quite consistent with individual behavior being conditioned by rewards and punishment, with much of this conditioning occurring within the sequence of a PD supergame.

Preference reversals come about because individuals compare alternatives along a single dimension, e.g. price. These rules of thumb are habits that have been formed presumably because they have been rewarded in the past. That they do not work in the situation of the experiment implies that a different rule of thumb is superior. With repeated exposure to the same kinds of choices, individuals should be capable of learning to compare the alternatives along two dimensions, unless something in the genetic make-up of humans prohibits this kind of learning. More generally, rules of thumb for tackling new problems can be learned.

For similar reasons, examples of individuals failing to buy subsidized insurance against events with tiny probabilities of astronomical risks, individuals springing into icy water to save a drowning child, or leaping on a live grenade, are not disturbing to a theory of behavior based on operant conditioning. These examples confront individuals with a unique event, and in the latter cases allow limited time to study the situation and make the appropriate response. A single stimulus is recorded - the child's scream and the first response elicited is carried out.

As noted above, rational actor models do often explain human behavior well. They do so, however, not when applied to explain a particular individual's response to an unusual stimulus (the drowning child's scream), but when explaining the repetitive behavior of well-conditioned individuals. The appropriate way to view and use models of rational behavior is as depictions of the actions of individuals in situations in which they have been frequently rewarded and punished in the past. The law of demand can be interpreted from the perspective of behavioral psychology as a conditioned response to the stimulus of a fall in price rather than as a consciously rational act (Elster 1989). The consumer, in filling his shopping cart, acts *as if* he were maximizing a utility function subject to a budget constraint. In recent years psychologists have been able to describe the behavior of rats using models in which the rats are assumed to be maximizing a utility function (Staddon 1983). Rats, like man, buy more water when its price (the number of lever presses for a reward) falls. This does not mean that rats can some day be trained to be insurance analysts, but it does



suggest that the kind of learned behavior we seek to model is similar in rats and other animals to that of man.

Thus the kinds of conditioned behavior that characterizes humans and other animals can sometimes be modeled as if it resulted from maximizing behavior of the kind presumed in rational actor models. Nevertheless an important difference between the view of man contained in the *strong form* rational behavior models and that favored here exists. In strong form rational behavior models man is seen as entirely forward looking. Sunk costs are ignored. All that matters are the future payoffs and man makes the optimal choice given these future payoffs. An extreme version of this is the view of man in rational expectations models.

In contrast, the behavioralist view of man is backward looking. To predict how an individual will respond in a given situation today, one must know how she was rewarded and punished for different actions in similar situations in the past. Context, culture and social background are important in predicting behavior. The proper way to model expectations for the behavioralist is as adaptive behavior (Vanberg 1993).

But when environments are stable and individuals have repeated experiences in similar situations, the actions predicted by adaptive and rational behavior models converge. Rational behavior models can give accurate descriptions and predictions of the actions of experienced individuals operating in a familiar setting. Since both presume selfish behavior, the conditioned responses of individuals to past rewards will predict the actions to obtain future rewards.<sup>7</sup>

Thus, the main contribution to the social sciences of the rational behaviorists is their ability to model the end states toward which human behavior converges when individuals conditioned in a specific way are confronted by a particular institutional (i.e. reward and punishment channeling) environment. This contribution is important because once we understand how individuals behave in one environment, we can model and predict how they will behave in another, *once they have adapted to the new environment*. Our ability to develop and test hypotheses is enhanced. One of the major impediments to behavioral psychology's development as a field until fairly recently has arguably been its failure to describe its main findings with more general models that would allow it to engage in deductive hypothesis formulation as well as the inductive hypothesis formation process upon which it relied.

*c) Positive and normative analysis*

James Coleman (17) claims as an advantage of rational actor (purposive action) models that they are easily linked to moral and political philosophy, law, etc.,

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<sup>7</sup> Of course, what it is that rewards an individual (money, status, love, power) may itself be dependent on the individual's past. An important failing of many rational behavior models is an often simplistic assumption of what rewards individuals seek, e.g. only money.

and to the works of Kant, Rawls, Bentham, Rousseau, Mill and Locke. As noted above, whatever their shortcomings in describing or predicting human action, rational actor models are *always* normative descriptions of what the actor ought to do to achieve the postulated objective. Thus, their immediate extension to normative analysis is straightforward. How useful this extension is depends on the purpose to which one wishes to put moral theory. If all one wishes to do is categorize actions as good or bad, moral or immoral, then rational actor models are ideal. Given the posited objective (e.g., utility maximization), one demonstrates with logic (e.g., a PD matrix) that stealing is bad, honesty good. Good people faced by a PD choose the cooperative strategy (do not steal), bad people defect. To deter the defection of rational, immoral or amoral individuals, laws against stealing and police to enforce them are needed. Principles for categorizing actions and incarcerating individuals can be fairly easily derived, when one posits that each individual's choice of action depends only on the future payoffs he anticipates.

The same principles can be used to categorize or incarcerate even if individual actions are conditioned responses to stimuli based on past reward and punishment histories. Thus, if categorization is our sole objective, as it often seems to be in moral philosophy, a normative theory built on the rational actor assumption suffices. But if we are interested in inducing individuals to behave in the way we describe as good, the rational actor model may again prove to be inadequate. If behavior is conditioned responses, inducing 'good' behavior will require conditioning certain actions in particular situations. Once again our attention shifts to what happened *before* the individual confronts the choice between stealing and not stealing. We are back to school, family, church, etc. The strong form rational actor model requires that we ignore the past. To the moral philosopher the right action is clear; to the social engineer armed only with a rational actor model, it is also. The only policy for inducing good behavior is to make the *anticipated* penalties and probabilities of receiving them sufficiently high.

The leading philosophers of the 17th and 18th centuries were psychologists of sorts, and the philosophies of Hobbes and Bentham in particular are built on views of man that are quite compatible with those of the behavioral psychologist. Man strives for pleasure and to avoid pain.

This view of human action is also compatible with the sort of methodological individualism that Coleman (16) and many other social scientists, who adopt the rational actor premise, wish to found their research on. One models individual actions and aggregates these to predict social outcomes. So long as only a positive analysis is sought, the adaptive, behavioral view of human action and the rational, purposive view are on an equal methodological footing, and the choice between them should rest on their relative capacities to explain and predict. Coleman appears to want to extend his theory from the purely positive to the normative by using the rational actor assumption to link into moral philosophy and other normative theories that share this behavioral premise. My preference is

to tackle normative questions, as they arise in the social sciences, by extending methodological individualism to normative individualism. At any point in time, an individual has certain interests (wants, desires) that he seeks to advance. What these interests are and how he chooses to advance them are a function of his experience as well as his innate desires. The normative goal of the social scientist is to describe those institutions that best allow individuals to advance their interests.

The charge of circularity can again be raised. The strong form version of the rational actor model takes individual preferences as given and immutable (Stigler/Becker 1977). Given this assumption, the policy or set of policies that best advances the interests of the collection of individuals in society can be derived, and it too is immutable. With preferences endogenous, policy prescriptions are relative to the individuals in a particular society and the preferences that they have. Across cultures and across time the institutions that best advance individual interests may differ, as the interests themselves are likely to differ. While such endogeneity (circularity) is unfortunate, if it in fact exists, it is better to deal with it than to assume it away.

### **3. From Individual Action to Social Interaction**

If we take the narrow view of individual behavior, that it is conditioned responses to stimuli to secure rewards and avoid punishments, then all social interactions are a form of externality, since the impact of A's action on B is an unintended consequence of A's attempt to gain a reward or avoid a punishment. The most interesting options are set out in Matrix 1 (p. 206).

Consider first the cases in squares 1 and 2. B can do nothing to change the outcome. A's action could make B better off, as when A kills a prowling fox to protect her chickens, and thereby also protects B's, or worse off. A perfectly competitive market system might also be thought of as an example of square 1. A buys bread from B and makes both better off. A acts to increase her own welfare by obtaining the reward of the bread, but in so doing makes B better off. B might like to act so as to make himself still better off, say by charging A a higher price, but is prevented from doing so by the competitive market.

In square 2 we place the case in which A's action makes B worse off, and B is helpless to prevent it. A steals from B and B is too weak to protect himself. In squares 3 and 4 we represent positive and negative externalities in which B can improve his welfare, if he can induce A to undertake more (square 3) or less (square 4) of the activity. Coase (1960) described how self-interest can lead rational individuals to coordinate their actions in an optimal way when each has full knowledge of the gains or losses of the other, and bargaining costs are zero. But an important task of the social scientist is to understand how this agreement (coordination) takes place in real world situations, when full information about

*Matrix 1*  
*Social Interactions*

	<i>B's Action Cannot Change A's Action to the Benefit of B</i>	<i>B's Action Can Change A's Action to the Benefit of B</i>	<i>B's Action is Symmetric to A's in Adjacent Column</i>
<i>A's Action Makes B Better Off</i>	1 Allocative Efficiency (Market Exchange)	3 Positive Externality	5 Public Good Prisoners' Dilemma
<i>A's Action Makes B Worse Off</i>	2 Redistribution (Theft)	4 Negative Externality	6 Welfare Reducing Prisoners' Dilemma

other parties is lacking, bargaining costs are present, and individuals are perhaps imperfectly rational.

What A can do, in general B can do. Four cases in addition to 1-4 exist in which A and B's actions are symmetric. The symmetric analogues to 1 and 2, however, present no new issues. If B can buy milk from A making both better off, then the level of welfare for the two is enhanced still further. But if each acts selfishly and independently of the other no issues of social coordination are raised. The invisible hand solves the coordination problem.

If B can steal from A as well as A stealing from B and each is powerless to prevent the other from doing so, we again confront no coordination problem. If the situation is perfectly symmetric and the act of stealing is costless, both A and B wind up in the same position where they started. If stealing uses up resources (e.g. A and B's time), square 2 becomes square 6 (Mueller 1989, 9-15).

When each person's action benefits the other, and each can be still better off, if she can increase the level of the other's action, we have a public good/prisoners' dilemma situation (square 5). Acting independently each underprovides the public good (free rides). If they coordinate their contributions, both contribute more, and both are rewarded for it.

Square 6 covers the symmetric case, where the actions of each make the other worse off. A plays heavy metal at maximum volume, B heavy opera at maximum volume. When both act independently neither can hear her preferred music and both get headaches. Coordination (playing on alternate nights, not playing at all) is needed to avoid this suboptimal outcome.

Instances to fit all 6 squares can be thought of. Libertarians see most social activity as *potentially* falling into square 1. Marxists seem sometimes to see the history of society as all falling into square 2 (e.g. Engels 1984). But some significant fraction of social interaction must fall in squares 1, 3 or 5 or man would not be the social animal he obviously is. If all social interaction consisted of

individuals robbing one another or in some other way harming one another, if what benefitted one person always made others worse off, humans would not have evolved as animals living in groups. Man, like the grizzly bear, would wander through the forests alone, teaming up with its sexual opposite only when the instinctive urge to procreate took hold. For man's evolution as a social animal to be consistent with either biological theories of evolution, or the view that man seeks rewards and avoids punishment, activities in squares 1, 3, and 5 must dominate those in 2, 4, and 6 in terms of either survival probabilities or net reward payoffs. If we do not join the libertarians and view all social activity as falling into square 1, we must assume that 3 or 5 are also important. Since symmetry to some degree seems inevitable in most social groups of humans, that takes us to square 5. Man must be assumed to live in groups in part to obtain the positive benefits of public good provision. But these in turn entail coordination/cooperation problems of the type depicted in PD games. Social dilemmas are ubiquitous.

The typical analysis of PDs seems to assume that the dilemma is encountered by two (or  $n$ ) deaf mutes stranded on an island. Thus, the need to communicate by adopting tit for tat or similarly exotic communication devices. Why cannot A simply approach B and say to him "If you quit shirking, I'll quit shirking and we'll both be better off, and I'm going to watch to make sure that you do"? For societies possessing speech, we expect it to play an important role in bringing about cooperation in PDs. (This observation raises the interesting question of the role played by the rewards from cooperation, e.g., in hunting, protecting against predators, and the necessity of communicating to bring about cooperation, in man's development of speech).

The most conspicuous examples of the use of communication to enforce cooperation in social PDs are customs, mores, and taboos, and in more complicated societies laws and the state itself. Mores against stealing, against cowardice in the face of the enemy, will play an obvious role in providing benefits to all members of society. A task facing the social scientist is to sort out the mores and customs whose survival is best explained by social Darwinism, and which by Skinnerian behavioralism. Did societies that practiced incest or failed to punish cowardice simply die out? Did mores against stealing evolve, because all members of society learned from past experiences of rewards and punishments that they are all better off when this more is enforced?

Customs, taboos, religious and similar social institutions induce cooperative behavior by developing certain habits and beliefs that *prevent* individuals from making the strictly rational, utility maximizing decisions in prisoners' or similar social dilemma situations. Their effectiveness is easier to account for with an adaptive model of human behavior than one that presumes strong form rationality. Of course, at the societal level these institutions are fully consistent with a rationalist view. If a social planner were to try and maximize the welfare of the society, as represented say by a Benthamite welfare function, she would presum-

ably want all individuals to choose the cooperative strategies in PDs, and make similarly socially beneficial, individually irrational, choices. Many of the "thou shall nots" of social custom and organized religions proscribe behavior that the social planner would want to forbid. But no social planner chooses the customs and religions of a society.<sup>8</sup> To the extent that they contribute in a positive way to the welfare of the society, one might model their evolution as if they were chosen by a social planner, just as individual behavior can sometimes be reasonably modeled as if it were motivated to maximize a utility function.

#### 4. The Role of Chance

If all individuals were rational utility maximizers, then they might be expected to choose social institutions that maximized a social welfare function of some sort. Another difficulty rational actor models confront is accounting for dysfunctional social institutions.

One way to account for dysfunctional social institutions in a society of rational actors is to attribute them to problems of aggregating individual preferences or actions. Coleman (1962, 374-80) seems to favor this route, although he is much more interested in designing institutions that do improve individual welfare than accounting for those that do not. The problem of collective irrationality in a world of individual rationality is usually introduced by reference to Arrow's (1951) famous theorem. But Arrow proved the impossibility of aggregating individual preferences in a consistent way *conditional* on there being no dictator. Do dysfunctional social institutions only exist in democracies? Would not all of the institutions that a dictator created be functional in the sense of contributing to the maximization of at least his utility, if he himself is rational? And if he were truly rational would he not choose social institutions that were Pareto optimal, institutions that maximized a social welfare function, albeit one with extra weight attached to his utility (Olson 1991)? Although there are important differences between dictatorships and democracies, I do not think they include the existence of a great disparity in the number of dysfunctional social institutions under the two kinds of systems. More than just problems of preference aggregation are needed to account for the existence of dysfunctional social institutions.

Dysfunctional or afunctional characteristics of animals can be attributed to the randomness inherent in genetic mutation. Afunctional characteristics survive to produce marginal differences in individual members of a species, and even some dysfunctional characteristics can survive in environments that are not overly hostile.

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<sup>8</sup> At places in his more formal treatments of issues, where the consequences of the rational actor assumption are most conspicuous, James Coleman sometimes gives the impression that he is arguing that social institutions are chosen because they maximize utilities or achieve Pareto optimality. See, e.g., his discussion of norms, pp. 800-28.

We have already described how chance events can reward or punish individual actions producing individual behavior that is dysfunctional ("irrational"). Random events can also affect the development of social institutions like customs and mores. A starving tribe observes a herd of antelope by the light of a full moon, attributes its survival to the moon, calls the moon a god, and begins to offer it presents. A chief dies following the eating of a turtle, and a taboo arises against eating turtles. As with individual character traits, we shall expect those customs and mores that are observed in most or all societies to be generally beneficial to a community. The rarely observed custom or more must have arisen as a result of a chance event, or an environmental characteristic peculiar to a particular community (e.g., the turtles in a nearby river carry a bacteria deadly to man).

The principles of operant conditioning can explain why certain dysfunctional or afunctional behavior patterns may survive, and why certain patterns that once were functional, but no longer are, survive. The same is true of social customs.

A particular behavioral response to a stimuli can be maintained for long periods or even indefinitely with only occasional positive reinforcement. The baseball player need only hit an occasional home run on a day when his T-shirt is on backwards (or strike out three times when it is not) for this habit to be maintained. Occasional success at the hunt under a full moon maintains the practice of giving and praying to the moon.<sup>9</sup> This behaviorist view also leads to the prediction that dysfunctional or afunctional customs and mores that *prohibit* certain behavior will survive longer than those that require that one *exhibit* certain behavior. Each time a full moon passes without the tribe having atypical success in the hunt, devotion to the moon god is weakened. But if no one ever eats turtle meat after the chief dies, the tribe never has a chance to observe that this meat is harmless.

In a ruthlessly Darwinian natural environment even modestly dysfunctional physical characteristics would disappear. In the psychologist's box, rats can be trained to exhibit very similar behavior patterns. If wars or emigration produced a Darwinian environment for societies, they too would be forced to adopt similarly utilitarian social institutions to survive. But neither the natural environment nor man's social environment appear to be sufficiently unforgiving to produce such uniformity. Diversity abounds, and this diversity is more easily accounted for by adaptive models of individual behavior, and an historical, evolutionary account of social institutions.

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<sup>9</sup> My grandmother inevitably would remark on a gray or rainy Good Friday that "it always rains on Good Friday". On sunny Good Fridays, she failed to comment on the weather.

## 5. Qualifications and Extensions

I am proposing that the social sciences build from a simple and unified view of human and animal behavior. Would that the behavioral psychologist had a more complete and detailed description of human behavior. Although behavioral psychology accounts well for behavior patterns observed in the higher animal species, and for some aspects of human behavior, e.g. habit formation, it gives an inadequate explanation for other, more complicated human behavior.

The most obvious and important attribute of man is the evolutionary development of his brain. This organ allows man to learn much more quickly than other animals, and to generalize from one set of stimuli to others so rapidly that the task of predicting future actions from past reward and punishment histories can be extremely difficult. Other theories, e.g. cognitive psychology, seem better able to account for more complicated mental acts like problem solving. Although these theories do not necessarily contradict behavioral psychology's major tenets, they point to important limitations in its scope.

So impressive are the human mind's capacities and achievements that it is tempting to reject the hedonistic view of man contained in behavioral psychology, or behaviorism more generally, as capable of accounting for all human action, in favor of theories that emphasize man's ability to reason. The mind/body distinction has had a central place in man's intellectual history. Goethe's *Faust*, Stevenson's *Jeckyll and Hyde*, Wilde's *Dorian Gray*, Freud's id-ego-superego, the philosopher's passion versus reason all capture in one way or another the notion that man is both a pleasure seeking-pain avoiding myopic beast, and a thinking being capable of contemplating the effects of his actions on others, capable of recognizing the long run consequences of not cooperating in a PD situation, capable of choosing right from wrong. This dichotomous view of man appears in various guises in the social sciences, as for example when individuals are assumed to make choices using two distinct sets of preferences (Harsanyi 1955; Margolis 1982; Etzioni 1986; Elster 1989).

Despite the peerage of the proponents of this view, I am unwilling to join them. Behaviorist psychology is adequate for understanding child learning and the behavior of other species of higher animals. To posit a second, cerebral side of man that is not governed by selfish drives, and past punishments and rewards, is to posit that at some magical point in man's evolution he was freed from his biological past. He obtained the power to reason, freedom of will. Moreover, each man and woman recaptures this power as they pass from childhood to adulthood, when they become the forward looking, reflective creatures that both Kant and economic theorists assume we are. By extension one might think of the customs and taboos of the primitive society as best explained by psychological and evolutionary theories that emphasize individual or social adaptation, and the norms and laws of the developed society as the outcome of conscious choices by rational actors. A society, like an individual, passes through a curtain at some



point in its development, and is transformed thereby from being tradition-bound and backward looking to being rationally governed and forward looking.

Once mind is separated from body, and is presumed to be capable of somehow rising above man's biological nature or perhaps more accurately conquering and governing it, it is a short step to positing an entirely separate being from biological man - spiritual man. Spiritual man's life can be severed entirely from that of biological man. The door now swings open for all the fantasies that have been created down through the ages about man's spirit, and science goes out the window.

Pending the appearance of irrefutable evidence that altruism, cooperation, farsightedness and the other forms of behavior, that we associate with the enlightened self, cannot be explained by past experience (conditioning) of selfishly motivated individuals, Occam's razor requires that we retain this simpler view. In so doing, the social scientist divorces himself from centuries of speculation about good and evil, right and wrong, and man's capability (freedom) to choose between them.<sup>10</sup> But by abandoning the effort to proscribe what man ought to do, the social scientist might just acquire the tools to explain what man actually does do.

## 6. Towards a Unified Social Science

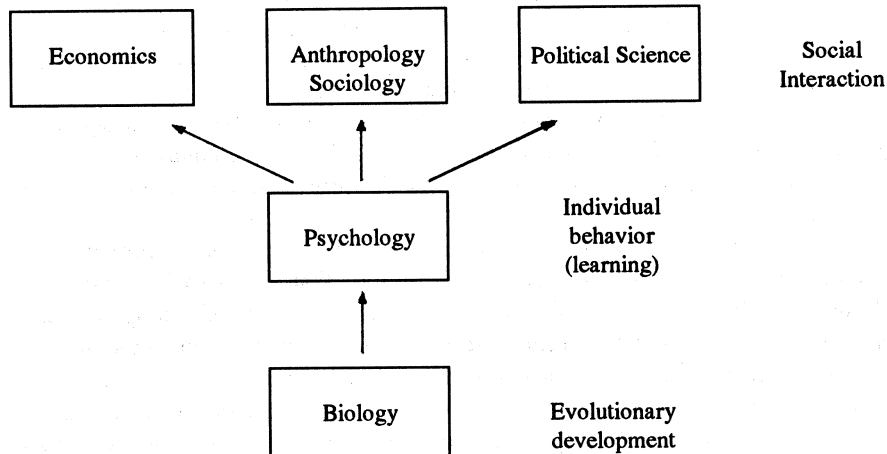
Like Coleman, Jon Elster (1989) in his recent, much more slender volume, sets out "to introduce the reader to causal mechanisms that serve as the basic units of the social sciences" (vii), the nuts and bolts from which the tower of knowledge in the social sciences is (should be) built. I have set this as my goal in this essay also. Moreover, I have sought to strip away even more of the conceptual frills of social science to expose the fundamental causal relationships upon which the study of man must rest. They are three. (1) The evolutionary process in which man's genetic heritage is shaped. (2) The learning process by which man's responses to different situations and signals are formed. (3) The process of social interaction in which the rules with which individuals coordinate their actions are determined.

On page 74 Elster presents a figure to depict the order of reduction in the social sciences from sociology and economics down to chemistry and physics. Ignoring the latter two, I would redraw the figure thusly.

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<sup>10</sup> As noted above, the social scientist does not need to assume strong form individual rationality to engage in normative analysis, if she is willing to extend the methodological individualism postulate that underlies her positive analysis to one of normative individualism, and seeks to identify those policies and institutions that best satisfy the wants of individuals as they exist.

Figure 1



Economics has, of course, traditionally concerned itself with man's interactions in the market place, political science with interactions in the political arena. Anthropology and sociology have studied social interactions in all realms of activity differing mainly in the stage of complexity of the societies they investigated. This division of labor might have been expected to lead to a more rapid development of each, and thus a more rapid increase in our knowledge of social interactions in all realms of activities. But each of the main branches of the social sciences has evolved like species trapped on separate islands. Thus each has evolved its own methodology, jargon, and assumptions about the elemental causal relationships of its discipline. The result being that the whole of our knowledge in the social sciences is, if anything, less than the sum of its parts. James Coleman's magnum opus can be viewed as a monumental attempt to bridge the gap across the disciplines by applying the rationality assumption and the analytic rigor of economics to the complex social issues that arise in the other social sciences.

Appropriately, perhaps, competition among alternative methodologies has been most intense in economics, so that today a single model of man rules nearly unchallenged, namely that of neoclassical economics. Individuals are assumed to be rational, self-interested actors making choices subject to certain institutional/environmental constraints. Social interaction is depicted as consisting of certain equilibrium (or occasionally disequilibrium) processes like market competition. The only important<sup>11</sup> challenge to neoclassical theory within economics today

<sup>11</sup> A few Marxists and institutionalists can be found surviving here and there. Traditional institutionalism seems devoid of any real methodological core. The "new institutionalism" is essentially neoclassical economics, albeit with the kind of concern for explaining real world phenomena (i.e., institutions) advocated here (DeAlessi, 1983).

comes from a group of behaviorist/evolutionists, who emphasize the more complex psychological nature of individual choices than presumed in neoclassical models, the adaptive nature of both individual and group behavior, and the evolutionary nature of social institutions.<sup>12</sup> What I propose for a unified methodology for the social sciences is essentially a marriage of this adaptive/behavioralist view of man's psychology (motives, preferences), and the analytic rigor of the neoclassical models.

When this economist peers into the fields of anthropology and sociology, he sees a bewildering array of methodological stances. Yet the main elements are visible there also. George Homans (e.g., 1958; 1962; 1964; 1967; 1974) recognized and championed the usefulness of behavioral psychology as a foundation for sociology. James Coleman (e.g., 1990) has demonstrated the analytic potential of rational actor models in sociological theory.

Students of politics, who recognized the inherently selfish nature of man, can be found in all ages (e.g. Machiavelli, James Madison). In the last generation, the appearance of rational actor models in political science journals has accelerated. That some of these have been naive in their assumptions about individual motivation and/or institutional characteristics should not cloud their potential.

Viewed as models of man, the three strata of the social sciences fit together nicely. Animal species evolve as if they sought to maximize survival probabilities.<sup>13</sup> Here the as if nature of the maximization process is uncontroversial. No one believes that rabbits choose the color of their fur to blend in with the natural background in a given area, or even, I presume, that wolves consciously decide the size of pack that is optimal for hunting in a particular region. And yet both selections can be modeled as if they had been chosen to maximize a survival function in a particular environment.

Selfish man learns to do that which is rewarded and avoid doing that which brings forth punishment. With attention to past conditioning, motives for individuals can be posited and their actions modeled as if they were maximizing a given objective (utility) function. The success these models have will depend directly on the accuracy with which an individual's motives and perceptions can be inferred from his past experience.

The 'choice' of social institutions can be modeled *as if* it was made to maximize a society's welfare, as say depicted through a Benthamite social welfare function. This selection process might take place through the disappearance of

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Marxism has a distinct methodology, but, at least in economics, seems destined for the intellectual trash bin with recent developments in East Europe helping to accelerate this transition.

<sup>12</sup> This group would trace its origin to Nobel Laureate Herbert Simon (1959). More recent contributions would include Nelson/Winter 1982; Witt 1985; 1991a; 1991b; Frey 1992, and Vanberg 1993.

<sup>13</sup> For discussion of the usefulness of economic modeling (i.e., maximization, equilibrium conditions) in evolutionary biology, see Hirschleifer 1977; 1985.

societies that make the wrong choices, or through the disappearance of the institutions themselves within a society, as a byproduct of the social interaction of its members. Although the evolution of social institutions may be modeled as if it were being undertaken so as to maximize a social welfare function of some form, the weights this process places on the welfare of the individual members need not be uniform. A challenge for the social modeler is to determine what these weights are and to sort out the systematic from the random elements in this process.

### **7. Joseph A. Schumpeter as Exemplar of the Social Scientist**

Before bringing this essay to a close, I shall illustrate the methodological approach that I am advocating through a brief look at the work of Joseph Schumpeter. Richard Swedberg (1991, 43) credits Schumpeter with being the first person to use the term "methodological individualism". His work has been widely read in economics, political science and sociology. He is arguably one of the 10 or so most influential social scientists of the 20th century. Thus, his thoughts on and practice of methodology should be relevant to the question at hand.

Schumpeter was by the standards of his day an economic theorist. Leon Walras, the great French economist who sought to place neoclassical theory on a mathematically rigorous foundation, was one of the two economists to whom Schumpeter thought he owed the most (Swedberg 1991, 8). In an essay written in 1940, he too embraced the standard methodological position in economics that it does not matter how realistic the premises of an economic model are, but only how well it predicts (Schumpeter 1991a). In that essay he used this argument to justify the assumption that firms (managers) maximize profits as the starting point for analyzing the actions of firms.

But it is also clear from this essay that Schumpeter thought that a symbiotic relationship should exist between the models the economist constructs and the real world phenomena that they purport to explain. He recognized also that one might not be able to explain certain data well, if one assumed that rational actors pursue objectives that they do not in fact pursue (1991a, 324-5), and, when this was the case, advocated abandoning one's original behavioral assumption. He specifically recommended the adoption of a more general specification of a managerial utility function, if a model based on profits maximization failed to explain the data well (1991a, 329-30). Perhaps, the most interesting observation of Schumpeter's 1940 essay, with respect to the arguments of the present one, is his assertion that to understand an end and judge the rationality of the means used to attain it, the analyst must put himself into the position of the person, whose behavior is being modeled (1991a, 325). Schumpeter clearly recognized that the goals of individuals are likely to depend upon the culture in which they have been raised, and cautioned about the risks inherent in modeling behavior "far removed from our own personal experience" (1991a, 325). Schumpeter used

none other than Max Weber as an example of someone, who had perhaps fallen into error in his analysis of ancient China for this reason.

More generally, Schumpeter refused to adopt the position of the neoclassical economists in the great *Methodenstreit*. He argued instead that economists must make use of both inductive and deductive reasoning. If he were still alive, he would recommend that economics build on the accumulated knowledge of the other social sciences. What Schumpeter advocated and practiced was not economic theorizing as it takes place today, but what might better be termed "economic sociology" (*Sozialökonomie*).<sup>14</sup>

A broad, historically grounded perspective on social science is evidenced in Schumpeter's own research. His most original and important contribution to economics is undoubtedly *The Theory of Economic Development* first published in German in 1911 (English translation 1934). This book was as iconoclastic as the entrepreneurs it described in challenging the equilibrium models of neoclassical economics, including those of Walras. Indeed, in the preface to the Japanese translation of this book published in 1937 Schumpeter championed his theory precisely because it "contributes something to the understanding of the struggles and vicissitudes of the capitalist world and explains a number of phenomena, in particular the business cycle, more satisfactorily than it is possible to explain them by means of either the Walrasian or the Marshallian apparatus [i.e., the static equilibrium models of neoclassical economics]" (Swedberg, 1991, 39). It is obvious to all who read this book that "the theory" developed in it is a reflection of the capitalist process in the mind of one of its most astute observers.

When he discussed the goals of the entrepreneur, the main actor in economic development as Schumpeter depicted it, Schumpeter did not simply posit the goal which even by then was the standard one employed in economics - the profits of the firm. Instead, he relied upon what was most probably a mixture of personal observation and introspection. Schumpeter's (1934, 96) description of these goals is worth quoting in full.

"First of all, there is the dream and the will to found a private kingdom, usually, though not necessarily, also a dynasty. The modern world really does not know any such positions, but what may be attained by industrial or commercial success is still the nearest approach to medieval lordship possible to modern man. Its fascination is specially strong for people who have no other chance of achieving social distinction. The sensation of power and independence loses nothing by the fact that both are largely illusions. Closer analysis would lead to discovering an endless variety within this group of motives, from spiritual ambition down to mere snobbery. But this need not detain us. Let it suffice to point out that motives of this kind, although they stand nearest to consumers' satisfaction, do not coincide with it.

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<sup>14</sup> See Swedberg 1991, 37-8 upon which this paragraph is based.

Then there is the will to conquer: the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself. From this aspect, economic action becomes akin to sport - there are financial races, or rather boxing-matches. The financial result is a secondary consideration, or, at all events, mainly valued as an index of success and as a symptom of victory, the displaying of which very often is more important as a motive of large expenditure than the wish for the consumers' goods themselves. Again we should find countless nuances, some of which, like social ambition, shade into the first group of motives. And again we are faced with a motivation characteristically different from that of 'satisfaction of wants' in the sense defined above, or from, to put the same thing into other words, 'hedonistic adaptation'.

Finally, there is the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity. This is akin to a ubiquitous motive, but nowhere else does it stand out as an independent factor of behavior with anything like the clearness with which it obtrudes itself in our case. Our type seeks out difficulties, changes in order to change, delights in ventures. This group of motives is the most distinctly anti-hedonist of the three."

What is particularly revealing in this passage is the way Schumpeter first positions the entrepreneur in the structure of society at the particular juncture of history at which he is observing it, and then puts himself into the psyche of the entrepreneur to understand what this key figure's goals are likely to be.<sup>15</sup> Although Schumpeter would later extol the analytic advantages of simple behavioral assumptions about entrepreneurial goals, he chose to build his own theory on more complex and realistic assumptions about motivation.

When Schumpeter (1991b) studied imperialism, he again felt compelled to consider the motivation of these "empire builders" in a nonperfunctory way. I have no doubts that it is because Schumpeter grasped important aspects of the entrepreneur's and the imperialist's motivations that his theories of capitalism and imperialism have been found by so many to have been insightful descriptions of these complex processes.

## 8. Conclusions

A reader of this article who has not read *Foundations* might well conclude that this tome is filled with abstract models built on naive behavioral assumptions. It

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<sup>15</sup> A half century later Robin Marris (1964) would construct a theory of "managerial capitalism" upon the behavioral assumption that corporate managers were empire builders (pursued the growth of their firm). Marris justified this assumption with a lengthy review of the literature (including many works in psychology and sociology) regarding managerial rewards, pecuniary and psychic (ch. 2).

is not. Coleman repeatedly draws upon both the psychology and sociology literatures when discussing individual actions and social interactions. But these behavioral foundations fade into the background when he presents his formal models in Part V. Such is the seductive attraction of formal modeling that I fear the nascent social theorist who reads the *Foundations* may link Coleman's adoption of the rational actor assumption in Chapter 1 to the models of Part V, and ignore the rich and far more complex discussion of behavior in the intervening 23 chapters. For formal modeling is a bit like the sorcerer's apprentice. Once called forth to help answer one real world social issue, it continues on creating and answering questions on its own. Each new question is obtained from an imagined or real weakness of a previous model. Models feed and build upon one another until the social theorist is answering questions that have no real world counterparts or relevance.

Perhaps the most significant event since the end of World War II has been the collapse of communism in East Europe and the Soviet Union. As the former communist countries struggle to introduce capitalism and create market institutions they look to the West for guidance. If a Western economist were to go to the East with only the leading graduate texts in micro economic theory and industrial organization in her briefcase, she would find that they provide little help for advising the reformers in the East about how markets work, or about how the basic institutions of capitalism are created and evolve. Far better choices for the briefcase would be Adam Smith's *Wealth of Nations*, Alfred Marshall's *Principles*, Schumpeter's *Theory of Economic Development*.

This fact is a sad comment on the state of economics today, a state that has arisen because economists have become more captivated by the elegance of their models, than by their capacity to explain the world around them. But rigor and relevance need not be foes. Schumpeter's desire to see a unified social science relying upon inductive and deductive theorizing can still come about. But it can be achieved only if those inspired to try and develop social theory by Coleman's *Foundations* never lose sight of the fact that the purpose of their models is to explain social outcomes, and that this objective is most likely to be achieved if these models are built upon accurate assumptions about human behavior.

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