

ALTRUISM AND ECONOMICS

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In this paper, I shall consider how far altruism in human behavior is reconcilable with neo-Darwinian and with neo-classical economic theory, and explore some of the consequences for economic theory of the presence of substantial altruism in behavior. To anticipate my conclusions, I will show that altruism is wholly compatible with Darwinism, that altruism has large consequences for economic behavior, especially the behavior of managers and employees, and that extensive empirical research is needed today to establish the place that altruistic values hold in the human utility function.¹

The parallelism between Darwinian evolutionary theory, on the one hand, and classical and neoclassical economics, on the other, has often been noted and exploited [Hirshleifer, 1977]. It is argued that, just as those species that produce more surviving progeny will outgrow those that produce fewer (are less fit), so those firms that are more profitable will outgrow those that are less profitable. Survival of the more profitable has been put forward, in turn, as a basis for believing that profit-maximizing firms will predominate in a competitive economy. In this paper we will be concerned mainly with a somewhat different question about the relation of evolutionary theory with economics, that is, with the role of altruism in individual behavior, not in the behavior of firms. However, at the end of the paper, I will return to the question of what our analysis implies for the goals of firms.

THE DEFINITION OF ALTRUISM

Neo-Darwinian theory rests on the nearly tautological postulate that only fitness counts — that in the long run, those species will populate the earth that have produced the most progeny. Since the environment provides many quite different niches calling for different forms of adaptation, many species can co-exist, but only by specializing to occupy particular niches.

Altruism is defined in evolutionary theory as behavior that sacrifices one's own production of progeny, one's own fitness, to enhance the fitness of others. Let F_s be the fitness of selfish individuals, and F_A the fitness of altruists. Then F_s will be equal to some base value, X , for the species, plus a benefit, bp , contributed by the altruists, where b is a parameter, and p is the percentage of altruists in the total population. On the other hand, F_A will be equal to X plus bp , minus c , where c is the cost to fitness of the altruistic behavior [Simon, 1990]². Clearly, under these assumptions, selfish individuals will be fitter than altruists, and altruism will ultimately disappear, however beneficial it might be for the growth of the population as a whole. In barebones form, this is the case that neo-Darwinian theory makes against altruism. There are two important qualifications to this simple argument: Darwinian selection is compatible with altruism to close kin (siblings, parents, children), and in so-called "structured demes" [D. S. Wilson, 1980]. But these very special cases are not of great import to modern societies. I will return to the neo-Darwinian theory again a little later to show that under slightly different

assumptions from those employed above quite different conclusions can be drawn about the viability of altruism.

In everyday life, and in most of the literature of the social and behavioral sciences, altruism is defined very differently than it is in evolutionary theory. Altruism is sometimes formally defined as behavior that sacrifices the altruist's utility, measured by his or her utility function, for the utility of another. Using this definition (call it Definition AI), it is obvious that a neoclassical utility maximizer cannot exhibit altruism. But Definition AI is not the one we usually employ, especially when applying economic reasoning to such topics as organizational behavior or public choice. In discussing these topics, we generally treat behavior as altruistic if it sacrifices wealth or power for the wealth or power of another, and selfish if it seeks to maximize wealth and/or power. Call this Definition AII.

Using Definition AII, altruism can now be reconciled with utility maximization by incorporating Other's satisfactions in Self's utility function. As Gary Becker once put it, "I decide whether to turn out my reading lamp in bed by comparing the utility of my pleasure in reading with the amount of utility *I* receive from my wife's being able to sleep." This is quite legitimate — a wholly utility-maximizing behavior — for the postulates of neoclassical theory say absolutely nothing about what values the utility function contains. We will call the abstract neoclassical definition of utility, Definition UI. There is no inconsistency, then, between altruism, using definition AII, and maximization of utility, using Definition UI.

However, in the literature of institutional economics and public choice we also do not usually employ this free-floating definition, UI, of utility. Much more often, we postulate (often implicitly) that *Own's* wealth and power are prominent (sometimes exclusive) components of the utility function. Call these definitions UII(W) and UII(P), respectively. If *Own's* wealth is the sole component of the utility function, then behavior is altruistic (AII) that sacrifices *Own's* wealth for the wealth of *Other*. And if power is the sole component of the utility function, then behavior is altruistic that sacrifices *Own's* power for the power of *Other*. With this view, the utility function is no longer an empty box, to be filled with whatever the individual chooses to value. Instead, it is assumed (a very strong empirical assumption) that it is filled only with wealth and/or power.

It is important to notice that altruism (sacrificing wealth and/or power) is consistent with utility maximization if we use Definition UI for utility, but not if we use Definition UII. Definition UII, with its much stronger assumption about the content of the utility function, rules out altruism completely under utility maximization. Hence, the common use of Definition UII rather than Definition UI in the applications of neoclassical reasoning to real-world affairs has strong consequences.

Of course there are no limits on the number of variants we can construct of Definition UII, simply by filling the utility function with different contents. We might, for example, allow combinations of wealth and power in the function, or add a "glory" component. These three components are especially attractive because the quantities they refer to are fungible: wealth, power, and glory can usually be exchanged for others of the World's goods, hence can be thought of as surrogates for other utilities, or even as a sort of numeraire.

In some kinds of worlds, these goods can be exchanged for fitness: the wealthy, powerful, or famous can have more progeny than those who lack these goods. In such worlds, but not necessarily in others, there is a close link between the evolutionary and the social definitions of altruism.

NEO-DARWINIAN ALTRUISM

With these questions of definition out of the way, it is time to reconsider the compatibility of fitness with altruism within the neo-Darwinian framework. I begin with two assumptions, which I believe have unimpeachable empirical support (but I do wish also to emphasize that they *are* empirical assumptions).

Assumption I: Docility. Human beings who are genetically disposed to docility are, *ceteris paribus*, fitter than human beings who are not docile.

Docility, here, means a tendency to accept knowledge and advice that is transmitted through social channels.³ In this context, docility connotes disposition to be taught or to believe, but not necessarily to be tractable or passive. Docile people learn readily in a social setting, and tend to acquire socially approved behaviors and beliefs in matters both of fact and value. Docility may have both a cognitive and a motivational component.

On the cognitive side, docility implies belief legitimated by social processes (information received from "qualified" sources), rather than belief based on self-evaluated empirical evidence. On the motivational side, docility means acceptance on the basis of social legitimation and approval rather than acceptance on the basis of individual drives and motives that were not socially acquired.

Assumption II: Bounded Rationality. Because of limits of knowledge and computational power, people are frequently unable to judge whether particular beliefs are true, and whether particular behaviors will contribute to their utility (wealth, power, or whatever it may be).

The hypothesis of bounded rationality is crucial to the explanation of human behavior not only in the context of docility, but in virtually all real-life situations, for human beings are never even remotely in a position to know all available alternatives of action, or to evaluate the consequences of each. Limits on knowledge and computation are central to the human condition. But I will not elaborate upon bounded rationality in general, a theme I have been emphasizing in season and out since 1947 [Simon, 1947, 1979, 1986]. Our concern here is with the implications of bounded rationality for altruism.

Altruism Revisited

Let us now incorporate our assumptions of docility and bounded rationality in the simple (or simplistic) Darwinian model that was presented earlier [Simon, 1990]. We assume that docile individuals receive an increase in fitness, d , as a result of the skills they acquire from the social environment and the advantages they gain by exhibiting socially sanctioned behavior. The society can now impose a "tax" on this bonus to fitness by influencing docile persons to engage in some behaviors that contribute to the net fitness of the society but that are, in fact, fitness-reducing to the individual. Society can influence individuals, for example, to be brave soldiers or to limit the sizes of their families. Call this "tax" t , so that the net contribution of docility to an individual's fitness will now be $d-t$. We count in the "tax" only behaviors that could not be enforced effectively by society in the absence of docility. Hence we rule out what is usually called reciprocal

altruism - behavior contributing to others on the expectation that it will be reciprocated in some way, or on the expectation that failure to contribute will be punished.

Under these assumptions, we recalculate the relative fitness of selfish persons and altruists. F_s will now equal $X + bp$, where, as before, X is a base level of fitness, b is a positive contribution made by each altruist, and p is the percentage of altruists in the population. However, F_A will now equal $X + (d-t) + bp$. As long as d is larger than t , so that $(d-t)$ is positive, altruists will be fitter than selfish persons, and will gradually dominate the population.

Why do clever altruists not avoid the "tax," t ? Primarily because they are not aware that they are being taxed. Limits of knowledge and computational ability prevent them from seeing that some of the behaviors in which society persuades them to engage are inimical to their fitness. They are persuaded, for example, that limiting family size is "for their own good." Bounded rationality may be further reinforced by the mechanisms of guilt and shame. If these mechanisms have a genetic component, and if docility makes a net contribution to individual fitness, then since persons who experience guilt and shame will be more docile than others, there will also be positive selection for these traits. Beliefs about rewards and punishments after death, which are present in one form or another in most religions, provide an important example of the support of altruism by docility combined with bounded rationality. Independently of whether any particular such belief is true or not, its truth or falsity is not something that a human being can establish easily, if at all. Hence, such beliefs are strongly influenced by the surrounding culture. They often promise rewards for behavior that is altruistic, i.e., fitness-reducing. It must be emphasized that d can be a very large term in the expression for fitness. As the current population of the Earth and its rate of growth demonstrate, human beings in modern civilized societies, especially those enjoying the benefits of current medical technology, are much fitter than humans in primitive hunting and fishing, or even agricultural, societies. If d is a large term, t can be correspondingly large. In a modern high-tech society there is room for a lot of altruism.

Wealth, Power, and Glory

Before we leave the Darwinian fitness model, one more complication should be introduced. Consistent with our earlier Definition UII of utility, wealth, power, and glory appear to be prominent objects of human desire in virtually every society that has been studied. How do we explain the ubiquity of these components of the utility function? There would seem to be at least three possible explanations, not mutually exclusive. For simplicity, I will speak of wealth, but the argument applies to any or all of the three values, certainly to power, but probably also to glory.

First, there could be genetic selection of a desire for wealth. It is not clear that under contemporary conditions wealth contributes to fitness (i.e., to number of progeny), but it certainly did in many, if not most, early societies, where wealth gave access both to food and to mates. Even if wealth does not now contribute to fitness, too few generations have elapsed since the time when it did to remove from the genome any genetic component of these drives that had become established.

Second, because of its fungibility, wealth might well become a value for any adaptive system, even one of severely bounded rationality, that had some sensitivity to the future.

Then, whatever the system's specific values, wealth would come to be desired for its exchangeability with other goods. Fungibility would be particularly valuable under conditions of uncertainty, a feature that is not absent from our world.

Third, if the presence of a certain number of wealthy individuals enhanced the fitness of a society, the duty of striving for wealth, of substituting saving and investment for consumption (on a scale beyond that compensated by the rewards for waiting) could become one of the "taxes" that the society placed on its docile members. In such a society, striving for wealth would be a form of altruism; Andrew Carnegie's "gospel of wealth" was an expression of such a doctrine.

We have here an embarrassment of riches. There is no dearth of mechanisms that would predispose members of a society to seek wealth (or power, or glory). Of course the mechanisms are not mutually exclusive; they might well reinforce each other in promoting people's urges to acquire these goods.

THE ROLE OF ALTRUISM IN SOCIETY

We have seen that neo-Darwinian theory says little about what values can appear in the utility function; altruism is quite as acceptable as selfishness, provided that docility, net of its altruistic deduction, makes an overall contribution to fitness. We have also seen that human beings appear quite generally to hold (if in widely varying degrees) wealth, power, and glory as being valuable, a preference that may or may not include a genetic component or be tied directly to fitness.

Loyalty and Group Identification

There is one other human value that needs special mention because of its central role in economic behavior: group loyalty. Human beings exhibit a strong tendency to behave in ways that contribute to the achievement of the goals of the groups to which they belong: not only the family, but larger groups like tribes, ethnic groups, nations, and - especially important for our purposes - organizations. They frame situations in terms of a "we," whose interests may conflict with the interests of "they." And the "we" shifts from time to time with shifts in the focus of attention; at one time it is the individual, at another the family, at still another a religious, language, or racial group, at others an organization or a nation. Thus, people may speak of (and work toward) the economic well-being of themselves or their family. But they may equally speak of (and work toward) the economic well-being of their city, or their company, or their ethnic group, or their nation. They are attentive to such indicators of the condition of the groups with which they identify as the average rate of unemployment (in their city or state, in their profession, in their race or age group), or total or per capita income. They are particularly attentive to indicators of the well-being of the groups with which they identify *in comparison with* other groups, and to the trends of these indicators over time.

Group loyalty often expresses itself in altruistic behavior, and that is why the altruism mechanism is so central to our concerns. Without altruism, group loyalty could persist only so far as it could be enforced by rewards and punishments. "Reciprocal altruism," which is not altruism at all, would be possible, but not pure altruism.

There are unanswered empirical questions here of the utmost importance for economics, in particular, questions of the balance between reciprocal altruism and true altruism in the behavior we observe in human political and economic organizations.

Lacking detailed evidence to answer these questions, I will have to rely on the anecdotes provided to all of us by our everyday experiences. Such anecdotes are not a permanent substitute, of course, for real evidence, but they will have to suffice until the systematic empirical work has been done. In engaging in such casual empiricism, I will at least not be departing from the customary practices of contemporary economic theorizing.

There are also unanswered empirical questions about the forces and mechanisms that secure the identification of an individual with one group rather than another. Under what circumstances will loyalty to family take precedence over loyalty to company, and vice versa? When will people measure their well-being by the average well-being of the ethnic group to which they belong? What determines the scope of an identification? (Are we Croats or Southern Slavs or Slavs?) Is identification a kind of "imprinting" process? When are people sensitive to such imprinting and when can they alter it? Here is a huge unknown (or almost unknown) continent of empirical social inquiry.

Motivation in Organizations

The account given of business firms and other organizations in the New Institutional Economics rests on such imperfections of human rationality as transaction costs, opportunism, asymmetries of information, and unenforceability of agreements [Williamson, 1985]. In the theory of the business firm in that literature, the assumption is strongly present (but often implicit) that the economic actors desire wealth and power, and that they are selfish with respect to these specific values. Observation of behavior in real-world organizations undermines this assumption of total selfishness (however much it supports the other neo-institutional assumptions of bounded rationality). In real-world organizations, employees, from executives to blue-collar workers, frequently make decisions to advance the goals of the organization even when these decisions may cost them something in terms of their personal values. They identify with the goals of the organization, thereby exhibiting organizational loyalty [Simon, 1976, Chapter X]. They do not usually "work to rule," confining their production and contributions to the minimum laid down in the regulations.

The whole possibility of delegating most decisions to managers and supervisors located at various levels in the organization depends on the delegates' accepting the organizational goals as their decision premises. And the delegation would be wholly ineffective if each decision had to be checked again in detail at higher levels to make sure that it did in fact implement these goals. Without organizational loyalty substantial delegation would be impossible. This is particularly true at middle and higher management levels where there is, and for effectiveness must be, extensive delegation of initiative, i.e., of responsibility for searching out problems and opportunities and finding promising new courses of action to deal with them.

Organizational loyalty and selfishness often make conflicting demands on the individual, and neither one consistently dominates. The point is not that individuals always sacrifice their own interests for those of the organization — clearly they don't — but that they sometimes do. A major reason why they do is that they perceive the organization's goals as *their* goals — which is precisely what identification means. "We" and "they" are fundamentally important pronouns in the language, and an individual's conception (varying from one time to another) of who "we" are defines his or her frame of reference in making decisions.

Since I have developed this point in a recent article [Simon, 1991], I can be brief about it here. If people commonly identify with organization goals, then personal reward and profit cease to hold the unique position in motivating individuals that they would otherwise have. In particular, the differences in executive and employee motivations that are often supposed to exist between government and privately owned organizations or between profit making and non-profit organizations may be small or even nonexistent. We will need to examine carefully the evidence on the relative efficiency of these different forms of social organization, for if organizational identification is common, efficiency cannot be inferred from theoretical first principles, but must be determined empirically.

Understanding motivations in organizations is particularly urgent at this moment in history when many nations are asking fundamental questions about the forms of their social and economic organization. What is the role of prices and markets in motivating socially efficient decisions? What effect does the form of ownership — private profit-making, private non-profit, cooperative, governmental — have upon motivation and choice of goals? Sound understanding of motivations is critical for finding the right answers to these questions. For example, recommending the replacement of central planning with markets says little or nothing about how organizations operating in a market system can be reinvigorated or how ownership should be arranged.

Natural Selection of "Correct" Motives

Reference was made earlier to the argument of Hirshleifer and others that selection of the fittest (of the most profitable) among business firms will guarantee that the surviving firms will be profit maximizers. If we could be sure of that outcome, then the motivations of individuals might be of little importance to economics at the level of markets or of the whole economy. But is the argument valid? Darwinism implies only "survival of the fitter" and not "survival of the fittest. Competition can only select among organisms or organizations that have been "invented" and have come into being. If there are no profit-maximizing firms, then evolution can only favor those among the existing firms that come closest to this norm. "Closest" may not be very close, especially when there are many factors in the external environment, some of them changing rapidly, that alter the firm's abilities to make profits and the effectiveness of its current procedures [Cyert and DeGroot, 1987].

Moreover, if there is a mechanism causing firms to increase fitness in response to competition [Nelson and Winter, 1982], this mechanism will be a hill-climbing process that seeks local maxima. Only in the simplest of worlds does local maximization guarantee anything even approaching global maximization. The maximizer will more likely end up on top of the Sears Tower than Mount Everest. The Darwinian equilibrium of the Australian fauna was seriously displaced with the importation of rabbits, which Nature had not previously "invented" in Australia. In an economic world where new technologies and social inventions are continually being introduced, there is no reason why the organizations that are viable at any given time should be optimizers if, indeed, this term can be defined in such a context. Hence, we may expect that organizations will displace others that are much less fit (profitable) than they are, but not that the selection process entails profit maximization. A theory of the firm based on natural selection will be concerned primarily with continuing change through innovation rather than with an illusory equilibrium at an optimum [Nelson and Winter, 1982].

The history of this kind of evolving system may be highly sensitive to the order in which innovations are introduced. Success to date of a particular technology may influence strongly the resources devoted to its continuing development, hence its success in the future in competition with alternative technologies. As David [1988] has shown, the victory of alternating-current over direct-current technology in the history of electrification was not pre-ordained by the superior efficiency of the one over the other, but resulted from a whole complex of circumstances, including the exact dates of introduction of various components of the technology: transformers, ac-dc converters, and others. The final choices of specific ac frequencies were even more contingent on short-run, but irreversible, considerations.

Any remaining illusions that the behavior of firms, or of the economy, can be explained in terms of a stable, optimizing equilibrium, are challenged by the discovery that even simple Walrasian market mechanisms may produce chaotic regimes [Grandmont, 1987; Day and Shafer, 1987], so that small changes in initial conditions produce widely diverging paths. In the theory of the firm, and in the interactions of that theory with the theory of markets, we will necessarily deal with the dynamics of a non-linear economic system, and these dynamics are unlikely to be simple.

Motivations in Politics

Introducing the mechanisms of group identification into our model of human decision making also has profound consequences for our understanding of political institutions. Within the current literature of public choice, the standard assumption is that actors are striving to maximize wealth or power, or some combination of these. This assumption makes paradoxes or mysteries out of familiar phenomena.

For example, individuals have essentially no selfish motive for voting — a single vote is unlikely to change the outcome of an election in a city, much less a nation. Yet millions of people do vote, even though comparable numbers may stay at home. Altruism, in the form of identification with the political entity, the city or nation, provides a motivation for voting, and for other pro-social behavior where public goods are involved, that selfishness does not.

The experiences in this century of the peoples of Russia and China can be interpreted (and have been interpreted) as showing that economic self interest is the only reliable motive for powering an economy. But such an interpretation does not separate out the effects of central planning from the effects of forms of ownership, or of motivation. Nor does it explain the frequent eclipse of issues of efficiency by struggles for ethnic autonomy — for political self-determination of an abstract *we*.

In the presence of group identifications, of which ethnicity is an instance, even the notion of selfish economic motivation becomes ambiguous. How do people judge whether one party or another will advance their economic interests? By the recent history of their family income? By trends in per capital GNP? By the economic gains or losses of their ethnic group? By their own employment or unemployment, or by that of some group (factory workers, white collar workers, farmers) to which they belong or with which they believe their economic prospects are joined?

This array of possibilities banishes the idea that we can predict political behavior from the axioms of utility maximization — or even these axioms conjoined with assumptions about human economic motivation and selfishness. To predict behavior, we must have empirical information about the motives that guide people, about their knowledge

and beliefs concerning the operation of the economy and the social system, and about the particular subset of values, knowledge and beliefs on which their attention is currently focused by the events around them.

There is no *a priori* source for this information. It can be won only by painstaking observation of human behavior in the marketplace, in the home, and in organizations. Until economics has paid its dues, very expensive ones, of empirical study and experimentation, it has no chance of arriving at veridical theories of human political behavior. There are no Three Laws of Motion that can substitute for the study of actual human behavior.

CONCLUSION

In this paper, I have reexamined the question of whether Darwinian selection is compatible with altruism, and have shown that, contrary to prevailing doctrine, the two are indeed compatible. The analysis starts with two assumptions: first, that docility contributes to human fitness, hence will be selected for; second, that by reason of the limits on their rationality, human beings must accept many things as true without being able to test their validity independently. Society uses this bounded rationality to "tax" docility, inducing individuals to engage in many behaviors that increase average fitness in the society but decrease the net fitness of the altruist.

One especially important form of altruism is loyalty to (identification with) groups to which the individual belongs. The shape of this loyalty, and the nature of the groups to which it attaches in a particular society go far toward determining the institutional structure of that society and its social processes. In particular, identification with organizations, especially by employees, allows organizational effectiveness to reach far higher levels than could be attained by rewards and punishments alone in the face of wholly selfish motivation.

Given the viability of altruism, even such traditional "selfish" goals as wealth, power, and glory receive a possible new interpretation. They may have little to do, at least under modern conditions, with individual fitness. Instead, they may be socially induced motives that contribute to average fitness in the society - in short, a form of altruism. This, of course, is a speculation which needs to be tested empirically. The willingness of people sometimes to provide public goods also becomes understandable once altruism is admitted into the set of effective human motives. And even "selfish" political behavior must be reexamined in the light of its dependence on the group identifications that members of the polity form and that exercise a strong influence on their behavior.

Introducing this more complex and realistic picture of the motives of human actors in the economic and political arenas requires us to abdicate any belief that human behavior can be inferred from a rational model without painstaking empirical inquiry into peoples' specific values, beliefs, and foci of attention. It calls for a reassignment of priorities in economics and in the education of economists toward this empirical inquiry and toward the techniques of experimentation and observation that must be mastered to carry it out.

The tools of contemporary econometrics are wholly inadequate to the task. Economists, even empirically oriented economists, can no longer screen themselves from the world behind banks of statistical data, data that are frequently noisy and barely relevant. They will have to venture out into the world itself, like anthropologists who learn the languages of the natives, speak with them, and observe them. But how this can be done must be left to another article.

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NOTES

1. I will speak throughout this paper about "utility functions." I do not really believe that people have utility functions that assure consistency of choice; and the empirical evidence is squarely on the side of disbelief. My alternative to utility functions is sketched in Simon [1955] and [1956], reprinted as Chapters 7.2 and 7.3 in Simon [1982]. However, my argument will not depend in any critical way on whether people have global utility functions or systems of values organized in some other, presumably less mythical, way. Hence, I will use the usual economic terminology as a convenient label.
2. I will apologize in advance for referring in this paper largely to my own publications, as the main aim of the paper is to bring together into a coherent picture arguments that I have made separately, on the topics of bounded rationality, organizational motivations, public choice, and altruism.
3. I am not wholly satisfied with the term, "docility," which carries overtones of passivity, but there does not seem to be a wholly satisfactory alternative in English. "Socializability" would be a possibility if it were not so awkward. For the present, I will stick with "docility."

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