Philosophical Origins of the Social Rate of Discount in Cost-Benefit Analysis

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We bequeath an ambiguous legacy to posterity. The accumulation of capital and technological knowledge that we pass on to our heirs will allow them to live with greater comfort and less disease than we do. The depleted stock of natural resources and pervasive toxic wastes that accompany this heritage will, however, pose major new threats to material well-being and public health. Modern methods of production permit contemporary society to influence directly the quality of life for future societies in ways unimaginable just a few decades ago. The social rate of discount, which is the way that future consequences are evaluated in present-day decision making, unavoidably raises difficult issues of intergenerational justice.

Two principles compete for the role of determining the social rate of discount. Some analysts argue that democratic political ideals require government to base its policies upon the preferences of its citizens, and hence to discount future events in the manner used by individuals in their private decisions. Others argue that economic axioms of opportunity cost require that public investments yield the same rate of return as investments in the private sector, and hence that market forces should dictate the social rate of discount. Under special conditions,

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well defined by economic theory, the two principles would point toward the same discount rate. Absent those special circumstances, however, the two principles point in different directions, forcing a choice.

It might be natural to assume that economists would support opportunity cost principles while philosophers would support principles of liberalism and majority rule. Recent developments in economic theory have separated opportunity cost issues from the task of establishing the social rate of discount, however, and theoretically inclined economists are placing increased emphasis on the philosophical argument that government must respect the subjective time preferences of individual citizens. Philosophers interested in intergenerational justice, on the other hand, perceive no overwhelming normative value in the often unreflective and self-interested time preferences of individual citizens, but are wary of disputing the fundamental economic axiom of opportunity cost. We face the paradoxical situation of prominent philosophers accepting discounting based on economic arguments that the economists are abandoning while prominent economists accept discounting based on philosophical arguments that the philosophers find uncompelling.

This article examines the economic and philosophical arguments that surround discounting to clarify the issues at stake in cost–benefit analysis for programs with significant intergenerational implications. These include traditional public-health investments in sewage and toxic-waste treatment facilities, basic biomedical research, efforts to slow ozone depletion and global warming, energy policy, and many more. The opportunity cost principle and the evolving discussion of its relevance or irrelevance for discounting are presented in the first section. The role of consumer time preferences in social decision making is analyzed in the second, third, and fourth sections, with particular emphasis on the shifting attitudes toward consumer preferences on the part of economics and utilitarian social thought over the past several centuries. This historical perspective reveals that subjective time preferences have come to assume an importance for economists only rather recently, and that skepticism concerning such preferences has traditionally dominated economic thinking. Philosophical objections to the use of consumer time preference for discounting future environmental benefits are presented in the fifth section. The final section suggests some implications of the analysis for the debate over intergenerational justice and the social rate of discount.

From Opportunity Costs to Time Preference

The choice of discount rate exerts enormous influence on the evaluation of projects whose costs or benefits are incurred a significant number of years in the future. A discount rate of 10 percent produces a discount factor of 0.3855 after 10 years, 0.0085 after 50 years, and 0.00007256 after 100 years. In other words, benefits accruing a decade from now are worth just under two-fifths as much as comparable benefits accruing today; benefits accruing 50 years from now are worth one-eighty-fifth as much as comparable benefits accruing today, and benefits accruing a century from now are worth less than one-ten-thousandth as much as comparable benefits accruing today. The 10 percent discount rate is required for all cost-benefit analyses conducted by federal agencies (U.S. Office of Management and Budget 1972).

Two theoretical perspectives on the social rate of discount emerge from contemporary economic doctrine, one focusing on the value of the private investment displaced by governmental programs and the other focusing on the relative preferences of individual citizens and consumers for current versus future income. These two perspectives coexisted for many years in an uneasy relationship with neither able to achieve dominance, since each was based on a different organizing principle in economic thought: opportunity cost and consumer sovereignty. Under very special circumstances, the two principles produce identical valuations for future goods and hence identical discount rates. This analytic fact, reassuring to economists, long obscured the difference between the two principles. Over the past 25 years, however, the failure of the special circumstances to hold and the imperative to choose between the two principles have become too obvious to ignore.

The intuitive kernel of the opportunity cost argument is that more than one possible use for any pool of investment funds always exists. The desirability of any particular investment project must therefore be evaluated in light of the returns potentially available in other projects. In a competitive economy without uncertainty or taxes, the market rate of interest would reflect the rate of return available in the least remunerative investment project actually being undertaken (projects with expected rates of return less than the interest rate would not be undertaken). In this world, the market rate of interest would identify

the opportunity cost of displacing private investments with public ones and, according to the opportunity cost principle, should be used as the social rate of discount.

The intuitive kernel of the consumer sovereignty argument is that the only factor of ultimate concern is the distribution of consumption levels across time. Investment projects are only means for restricting present-day consumption in favor of future consumption. The distribution of current income between consumption and savings for investment will depend on the rate of interest. Consumers will transfer present consumption possibilities into future consumption by depositing current income in a bank up until the point that the interest rate is no longer high enough to prompt further restrictions on consumption. In a fashion analogous to that described for investment decisions by entrepreneurs, the market rate of interest will reflect the rate at which consumers are willing to trade present consumption for future consumption. The principle of consumer sovereignty maintains that individual consumer and citizen preferences should determine government policy, and hence that the market rate of interest should be used as the social rate of discount.

The opportunity cost approach to discounting public investments has gradually been undermined by developments in the theory of optimal economic growth. Arrow (1966) noted that the displacement of private investment in one year also displaces the investment and consumption in future years that would have been financed by the returns on the initial displaced investment. Conversely, the returns to public investments ultimately accrue to private citizens as consumers or entrepreneurs and hence finance future higher levels of consumption and private investment than would have been possible absent the initial public investment. In order to evaluate a particular project adequately, Arrow claimed, one needs to evaluate the whole stream of future consequences for the private sector and not just the immediate displacement of private investment. This argument paralleled one made in a different context by Feldstein (1964), where the emphasis was on the inability of market interest rates to reflect the positive effects on future private investment of current public investments.

The corollary of this train of thought was that issues of opportunity cost should logically be dealt with when calculating the future costs and benefits stemming from an investment project. They are not rele-

vant for determining the discount rate, which is applied to the stream of future costs and benefits to make them comparable to present-day dollars. For practical purposes, this involves a two-step procedure. First, one estimates the size of an adjustment factor that is used to multiply the present costs of a project to account for future displaced investment and consumption. Then the discount rate is determined based solely on consumer time preferences, and is used to discount future costs and benefits without concern for issues of opportunity cost (Bradford 1975). This discount rate would be substantially lower than market interest rates or any other measure of the rate of return achievable on private investments, with empirical estimates falling in the range of 1 to 5 percent (Lind 1982, 89). The argument in favor of basing the social rate of discount on consumer time preferences has forced a reevaluation of discounting practices at the Congressional Budget Office, General Accounting Office, and the Office of Management and Budget (Hartman 1988; Lyon 1988).

The important implications of the two-step procedure to discounting lie in the renewed focus it places on the role of consumer time preference in evaluating public investment projects. By successfully separating issues of opportunity cost from the discounting issue per se, it highlights consumer sovereignty as the dominant principle in contemporary economic thinking on intergenerational transfers.

The existing preferences of individual consumers are accepted by mainstream economic theory as the foundation upon which normative arguments must be constructed. This principle is so widely accepted in contemporary economics as to be rarely questioned. It is quite controversial among noneconomists, however, and particularly among philosophers for whom the popularity of particular attitudes is not compelling evidence for their moral acceptability. Rawls (1971, ch. 44–45), Goodin (1982), and Parfit (1984, 480–86), for example, have no trouble disputing the sacrosanct nature of individual time preferences, but have been reluctant to contest the opportunity cost argument for discounting. By sidelining considerations of opportunity cost, the recent economic developments have brought the discounting debate onto intellectual turf familiar to a new set of protagonists. In so doing, moreover, they have raised the ghosts of an earlier tradition of economic thought for which objective well-being rather than satisfaction of subjective preferences was the guiding principle of public policy.

Time Preference and the Foundations of Utilitarianism: Bentham and Hume

Individual preferences are central to the contemporary version of utilitarianism upon which normative economic theory is based, and economists feel it would be inconsistent and unjustifiable to deviate from reliance upon individual preferences in any one particular area such as discounting future costs and benefits. It is appropriate, therefore, to go back to the 18th-century writings of Jeremy Bentham and David Hume, the founders of utilitarian social theory, to examine whether this interpretation is valid. Both Bentham and Hume considered time preference to be of central importance in understanding economic and political behavior. An examination of their seminal work reveals, however, that Bentham and Hume drew conclusions from their psychological insight diametrically opposed to the one drawn by today's economics. Far from being a justification for a public devaluing of future events, the fact that individuals discount future events was interpreted by Bentham and Hume as strong support for the principle that government exists precisely to counteract the pernicious effects of unrestrained individual initiative.

The principle of consumer sovereignty, as applied to the discounting debate, has two discrete components: an empirical claim that individuals do in fact discount future events and a political argument that governmental policy should do likewise, given that the goal of policy is to enhance the welfare of the citizenry. At first glance, this seems consonant with Bentham's writings, which combine psychological descriptions of what makes people happy with a political doctrine that the sole end of government is to make people happy. If anyone is to be accused of confusing descriptive psychology with political philosophy, however, it cannot be Bentham. His lifelong intellectual struggle against the dominant legal and philosophical doctrines of the day was in large part organized around the insight that confusion between psychology and ethics, between what is and what ought to be, was a major cause of social misery.

Bentham begins his philosophical magnum opus, *An Introduction to the Principles of Morals and Legislation* (1789), with a clear distinction between the psychological insight that each person pursues his or her own individual utility and the utilitarian doctrine that government

should order its policies to obtain the greatest good for the greatest number.

> Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as to determine what we shall do. On the one hand the standard of right and wrong, on the other the chain of causes and effects, are fastened to their throne... The principle of utility recognises this subjection, and assumes it for the foundation of that system, the object of which is to rear the fabric of felicity by the hands of reason and law (Bentham 1789, 1).

A friend and admirer of Adam Smith, Bentham was deeply impressed by the notion that the pursuit of self-interest by individuals often could accomplish social goals. In many important cases, however, unregulated pursuit of self-interest would prove inimical to the public welfare, Bentham believed, and he conceptualized government as a means of channeling individual energies and appetites in directions conducive to social ends. For this purpose a precise understanding of individual motivations and preferences was necessary, and the study of psychology forms an essential part of Bentham's work and fills the greater part of the *Introduction*. For Bentham, psychological insights are nothing more than aids to governmental planning and policy making, much of which will be devoted to those instances when individual self-interest and social welfare diverge. The political principle that government exists to further the happiness of its citizens is independent of the psychological fact that individuals generally pursue their own happiness.

These considerations are particularly important with respect to individual preferences for present over future pleasures. The psychological fact that individuals discount future events is for Bentham something that legislators must be aware of when designing policies; the deterrent effect of a particular punishment, for example, will depend inversely on the remoteness in time at which it will be administered. This is far from implying, however, that government should base its policies concerning the distribution of revenues between current consumption and future consumption on individual rates of time preference. On the contrary, Bentham ceaselessly inveighed against low rates of savings and blamed them on the irrational time preferences of the citizenry. A gov-

ernment that does not strive against such prejudices is wrong "in suffering the people, for want of some instruction, which ought to be and might be given to them, to quarrel with their own interest" (Bentham 1789, 187–88).

More broadly, Bentham interprets government as having an important active role in determining what is the social good and in guiding individuals in directions compatible with that good. He rejects the notion of any natural identity of interests among individuals, and interprets the role of government as one of creating an artificial identity of interests as an alternative to discord and strife. In this, Bentham builds consciously upon the work of David Hume. Hume's famous critique of social-contract theory forms the basis of all political theories that justify government by the consequences of its actions for individual welfare, rather than by any purported original agreement among individuals to limit their natural rights in exchange for a new set of political rights.

David Hume is important for this discussion due both to his critique of social-contract theories of government, which opened the way for utilitarianism, and to the prominent role played by discussions of time preference and discounting in that critique. Hume was first and foremost an epistemologist, who believed in founding his political theory inductively on an empirical account of how people actually behave, rather than deductively from questionable first principles concerning God or the state of nature prior to the formation of any government. Human motivations and actions are governed by a combination of reason and passions, for Hume, with the latter having the far stronger role. Individual ethics and political institutions serve primarily to strengthen reason in redirecting the often self-destructive energies of the passions.

Hume derives from his theory of perception the principle that remote events, whether distant in space or time, have much less impact on motives and behavior than otherwise similar but more proximate events. In the *Treatise of Human Nature* (1739), he devotes one chapter of his discussion of the passions to the psychology of preferences for the present and the near, and takes the theme up again in several chapters of his discussion of justice. Time preference is identified as more important than preference for spatially near objects in influencing human passions. It plays an important part in the subsequent analysis of the origin and justification of government, which for Hume arises from the mutual gains to be had by encouraging cooperation and the

social division of labor. Time preference is for Hume merely a fact of human nature and is not described using pejorative language. Nevertheless, its effects are pernicious and undermine social cooperation by inciting individuals to break promises in order to achieve small immediate benefits at the cost of much larger future benefits.

> There is no quality in human nature, which causes more fatal errors in our conduct, than that which leads us to prefer whatever is present to the distant and remote, and makes us desire objects more according to their situation than their intrinsic value (Hume 1739, 538).

If time preference undermines the public good, public policy must counteract the tendency to prefer present gratifications over future gratifications. In *An Enquiry Concerning the Principles of Morals* (1751), Hume writes:

> Sympathy, we shall allow, is much fainter than our concern for ourselves, and sympathy with persons remote from us much fainter than that with persons near and contiguous; but for this very reason it is necessary for us, in our calm judgments and discourse concerning the characters of men, to neglect all these differences, and render our sentiments more public and social (Hume 1751, 216).

The Utilitarian Tradition

Bentham and Hume set the tone for the subsequent tradition of utilitarian social and economic thought. The classical utilitarian position was well represented by Sidgwick, who argued that "the time at which a man exists cannot affect the value of his happiness from a universal point of view" and that "the interests of posterity must concern a Utilitarian as much as those of his contemporaries" (Sidgwick 1874, 414). More important for present purposes, time preference came to play a central role in economic theories of savings, investment, and the appropriate role for government in a market economy.

Alfred Marshall, whose *Principles of Economics* dominated economic theory for decades after its first edition was published in 1890, viewed pure time preference as an intellectual and moral weakness, more of a problem in some people than in others. Individuals with high subjec-

tive rates of time preference had for Marshall "less power of realizing the future, less patience and self-control"; they were "impatient and greedy for present enjoyment... like the children who pick the plums out of their pudding to eat them at once" (Marshall 1890, 120). In this, Marshall echoed the writings of Eugen von Bohm-Bawerk, for whom subjective time preference was "markedly flagrant" in the behavior of children, "laborers," and "savages," but also threatened "men of the greatest prudence, the highest principles and the maturist deliberation" (Bohm-Bawerk 1888, 268). Marshall's stance was also consistent with that of John Stuart Mill (1848, vol. 2, 581), for whom consumer time preference and the regrettable decisions based on it were one of the two principal exceptions to the rule that individuals are the best judges of their own interest (the other exception concerned children in need of parental guidance). The full implications of this denigration of time preference were only drawn, however, by Marshall's prominent colleagues, Arthur C. Pigou and Frank P. Ramsey.

Pigou's *Economics of Welfare* (1920) was the most important analysis of the economic foundations of public policy until the philosophical revolution of the 1930s swept concepts of objective need out of mainstream economic theory and replaced them with concepts of subjective preference. Pigou began his work with a distinction between the true well-being to be derived from particular objects and activities, which he labeled satisfaction, and subjective desires for those objects and activities, which may not correspond to any valid need. He identified this divergence between needs and wants as a major problem for normative economics within the context of a market economy, since market prices measure the subjective desire felt by consumers for particular commodities rather than their usefulness in satisfying true human needs. Fortunately for welfare economics as a whole, Pigou believed, people's subjective desires would roughly correspond to their objective needs and hence market prices could be used by government policy as an index of the relative value of particular commodities (Pigou 1920, 23–24).

To this general conclusion, however, Pigou added "one very important exception": subjective time preference. The fact that individuals value present enjoyments over future enjoyments of the same type and magnitude, solely because they are present, was the result of "defective" reasoning and "wholly irrational preference" (25). This intellectual deficiency had serious pejorative effects on overall utility and

happiness by reducing the wealth of the community over time. The aggregate level of savings and investment was too low for Pigou, who felt that individuals consumed too much of their annual incomes and saved too little. The mix of those investments that were made was also perverted, as resources were shifted from investments yielding large returns in the distant future to investments yielding small returns in the near future. One type of investment was particularly slighted:

> This same slackness of desire towards the future is also responsible for a tendency to wasteful exploitation of Nature's gifts. Sometimes people will win what they require by methods that destroy, as against the future, much more than they themselves obtain (Pigou 1920, 28).

Far from being constrained to base its policies upon the rates of time preference exhibited by individual citizens, the government was obliged to counteract the social tendency toward profligate use of available resources.

> But there is wide agreement that the State should protect the interests of the future in some degree against the effects of our irrational discounting and of our preference for ourselves over our descendants. The whole movement for "conservation" in the United States is based on this conviction. It is the clear duty of Government, which is the trustee for unborn generations as well as for its present citizens, to watch over, and, if need be, by legislative enactment, to defend, the exhaustible natural resources of the country from rash and reckless spoliation (Pigou 1920, 29).

The precise mathematical implications of utilitarian ethics and economics for intergenerational justice were developed by Ramsey (1928), in what is still the classic paper on discounting in the economic literature. Ramsey presented a formal model of intertemporal decision making in which the object was to maximize the aggregate utility of all individuals through history without regard to the generation to which they happened to belong. The key decision variable was the allocation of the labor and capital resources available in each period between the production of goods to be consumed in that period and the production of capital goods that would lead to greater possible production and consumption levels in future periods.

Because the consumption levels of all future generations were in-

creased by restrictions on current consumption, and because the number of future generations was infinite in Ramsey's model, aggregate utility could be increased by dramatically raising rates of saving and investment. The sacrifice of present consumption in favor of savings and investment was restrained in the model by the declining marginal utility of income: future generations, being wealthier than the present one, would derive progressively less satisfaction from further contributions to their consumption level. Nevertheless, the implications of utilitarianism for the current generation were clear. "The rate of saving which the rule requires is greatly in excess of that which anyone would normally suggest." Although Ramsey followed Marshall and Pigou in believing that subjective time preference resulted from a "weakness of the imagination" and that its use in governmental policy was "ethically indefensible," he never followed the logic of his own model to advocate intergenerational utilitarianism without discounting.

Ramsey's hostility toward subjective time preference, but hesitancy with respect to pure intergenerational utilitarianism, set the tone for subsequent discussions of savings, investment, and discounting for those economists who resisted the shift toward subjective measures of value and advocated objective concepts of need and well-being. Roy Harrod (1948) could characterize subjective time preference as "greed," something "reinforced by animal appetite," and "stronger in primitive than in civilized man" (1948, 37), but still balk at an abandonment of discounting. Time preference played an important role in Harrod's overall assessment of the economy but for reasons diametrically opposed to those concerning earlier writers. As a Keynesian theorist worried about inadequate aggregate demand and macroeconomic depression in the immediate postwar period, Harrod considered time preference to be socially useful due to its tendency to reduce savings and increase current consumption. Nevertheless, when engaged in economic planning, the government should pay no attention to pure time preference, "a polite expression for rapacity and the conquest of reason by passion" (Harrod 1948, 37).

Dobb (1960) denounced the use of consumer time preferences in social choices as "individualist" and declared that policy makers "cannot derive any investment criterion from individual savings-decisions, whether registered on a market or in some other way" (Dobb 1960, 19). Nevertheless, the state should not attach equal weight to consumption in every period because to do so would "lead to a situation

where one was always ready to starve oneself in the present so long as there was any annual benefit however small to be derived from adding to the community's stock of capital." Dobb approved of social discounting based on the principle of diminishing marginal utility of income and on the uncertainty of future consumption relative to present consumption, but not based on consumer time preference per se. A similar position was adopted by Sen (1960, 1961).

The "New Welfare Economics"

The skepticism evinced by economists and utilitarians throughout the 18th, 19th, and into the 20th centuries with respect to time preference in particular and consumer attitudes in general seems far removed from present-day economic thinking in the United States. A major intellectual revolution occurred during the 1930s and 1940s in which the mainstream of Anglo-American economics turned away from evaluations of social well-being based on objective criteria and toward evaluations based on the subjective preferences held by individual consumers and citizens. These theoretical developments had many important implications for applied welfare economics, including income distribution (Cooter and Rappaport 1984) and the dollar valuation of life in cost–benefit analyses (Robinson 1986). They also exerted an important, if indirect, influence on the question of how government policy should treat future generations.

Marshall, Pigou, and their associates conceptualized economics ultimately as an investigation of ways through which to increase social well-being, primarily by reducing hunger, disease, and other impediments to happiness. Their concept of utility was an objective one, composed of the satisfaction of needs common to all human beings. Interpersonal comparisons of utility were central to their policy recommendations. Although the focus was most often on the distribution of goods and services among rich and poor members of one generation, they were quite comfortable discussing the relative well-being of different generations, as exemplified by Ramsey's derivation of the rate of savings appropriate for maximizing utility across all generations.

Doubts concerning the validity of such interpersonal comparisons of utility appeared as early as in Jevons (1871). Pareto (1896) clearly distinguished between objective well-being, which he termed *utility*, and the satisfaction of subjective desires ("whether legitimate or not"),

which he termed "ophelimity" (Pareto 1896, 3). These concerns did not exert a substantial impact upon Anglo-American thought until the 1930s, when a number of economists proposed an abandonment of concepts of objective well-being in favor of concepts of subjective satisfaction of wants (while retaining the term "utility").

The "new welfare economics," as this body of thought came to be known, was based first and foremost on methodological concerns, and in particular upon an interpretation of the logical positivism of the day. Hicks and Allen (1934) and later Samuelson (1938, 1950) argued that all the essential propositions of economics could be retained using a preference-based concept of utility without need for difficult-to-verify concepts of relative happiness across different persons. (For a discussion of the methodological issues at stake, see Wong [1973] and Cooter and Rappaport [1984].) A more important aspect of the new concept of utility, for present purposes, was its implications for public policy concerning the use of market prices and the subjective preferences upon which they are based. Robbins (1932) declared discussions of the appropriate distribution of income as outside the professional competence of economists, since they are based on normative values rather than scientific analysis. Kaldor (1939) proposed a method by which governmental programs with distributional consequences could be scientifically evaluated using the preference-based concept of utility, based on whether the gains to program winners were sufficiently large to enable them to compensate program losers and still come out ahead. This compensation of losers by winners need only be hypothetical; in most real-world cases, actual compensation would not occur. Subsequent papers in this tradition clarified the extent to which compensation tests would necessarily rely on market prices, and hence ophelimity, to measure the value of benefits to program winners and costs to program losers (Harberger 1971; Mishan 1971).

This preference-based concept of utility had major implications for the ways economists came to view intergenerational transfers and the social rate of discount. The appropriate rate of discount for governmental projects became defined as that rate preferred by the majority of contemporary members of society (in contrast to the classical utilitarian emphasis on the equal valuing of individuals regardless of the generation to which they belong). Eckstein (1957) declared this to be a direct application of the principle of consumer sovereignty and, as such, the foundation of all governmental policies with implications for

future generations. Marglin (1963) rejected Pigou's skepticism concerning subjective rates of time preference as "authoritarian" and asserted that democratic principles required the exclusive reliance on individual time preferences for public policy.

Although Eckstein and Marglin insisted upon the priority of individual preferences, they were cautious concerning the extent to which market data on individual choices between consumption and saving validly reflected the citizenry's true attitudes on the benefits of long-term public investments. They argued that people possess different sets of preferences for individual and collective decisions, with the preferred discount rate for public projects being lower than the preferred rate for private purchases. These latter preferences are the ones revealed in marketplace transactions. Eckstein and Marglin advocated using a mix of data from market prices and political processes to establish the social rate of discount.

The relevance for public policy of the distinction made by Eckstein and Marglin between individual and collective rates of time preference drew fire (Warr and Wright 1981). Other economists focused strictly on market data as the appropriate basis for the social rate of discount. Olson and Baily (1981) suggest various econometric strategies whereby consumer rates of time preference can be estimated using marketplace data and then plugged into cost–benefit analyses for public investments. Although differing among themselves in many respects, these various economic analyses accept two basic principles neither of which derives from economic theory. First, individuals know best what is good for them, and so subjective time preferences in one year are adequate guides for public investments that will influence utility in future years. Second, only the preferences of current members of society are relevant for public policy; the subjective rate of time preference of the present generation is a valid guide for investments affecting future generations.

Philosophical Objections

The facility with which mainstream economics switched from opportunity cost principles to consumer sovereignty principles as a justification of discounting reveals a profound ignorance of even the basic contemporary discussions among philosophers concerning discounting and intergenerational justice. A number of prominent arguments needs to be

confronted before subjective time preferences held by the current generation of consumers and citizens can be adopted ethically as the foundation for public policies with important implications for the future well-being of the current generation and for the well-being of future generations.

Philosophers tend to reject the automatic identification, typically made by modern welfare economists, between the satisfaction of an individual's preferences and the furthering of that individual's interests. Preferences are often hastily obtained, unreflectively maintained, and subject to all the cognitive frailties enumerated by psychologists and students of consumer risk perception. Sagoff (1988, 102) asks: "Why should we regard the satisfaction of preferences that are addictive, boorish, criminal, deceived, external to the individual, foolish, grotesque, harmful, ignorant, jealous, or zany to be a good thing in itself?" Goodin (1982, 54–55) asserts that "there is no more reason for public policy to reflect this disability [consumer time preference] than there is for it to reflect people's incapacity to think rationally about large numbers or to perform fancy arithmetic."

Some versions of welfare economics admit that consumer preferences are sometimes misguided but argue that principles of liberty demand that individuals be allowed to make their own decisions without paternalistic interference from the government. This argument is obviously irrelevant to decisions whose effects will be experienced largely by future generations rather than by the decision makers themselves. Even with regard to decisions whose effects occur in the near future, however, this argument is often misguided. As argued by Broome (1978) in another context, liberal political philosophy does not speak to the issue of whether the government is required to make the same choices as individual citizens would have made, had the choices assigned to the government been ones that could have been made by individuals. It makes no claim that the choices made by individuals are in the best interest of those individuals, but asserts the value of the decision-making process itself. If the choice is not to be made by the individual but by the government in any case, then the proper choice for the government to make is the one that is in the objective best interest of the individuals affected.

Rawls (1971) and Parfit (1984) question the notion that failure to incorporate consumer time preferences into the social rate of discount is an authoritarian rejection of democratic principles. Belief in democracy

as the best way for government to be organized does not necessitate any statement of faith in the infallibility of popular sentiment. Analogously to the case of the preferences of the individual, democratic majorities often espouse views that are misguided and clearly immoral. Rawls argues:

> There is nothing sacrosanct about the public decision concerning the level of savings; and its bias with respect to time preference deserves no special respect. In fact the absence of the injured parties, the future generations, makes it all the more open to question. One does not cease to be a democrat unless one thinks that some other form of government would be better and one's efforts are directed to this end. As long as one does not believe this, but thinks instead that appropriate forms of non-compliance, for example, acts of civil disobedience or conscientious refusal, are both necessary and reasonable ways to correct democratically enacted policies, then one's conduct is consistent with accepting a democratic constitution (1971, 296).

Rawls and Parfit also dispute the notion, revived by Olson and Baily (1981), that consumer time preference can serve a useful role as an antidote to the excessively rigorous demands of classical utilitarian models of intergenerational justice. For Rawls this constitutes an abandonment of the search for a valid principle of intergeneration justice. There is no reason why the rate of consumer time preference should be the appropriate figure to use in adjusting Ramsey's utilitarian savings rate. Rawls feels that "these devices simply mitigate the consequences of mistaken principles," and highlight the inappropriateness of utilitarianism for deciding questions of intergenerational transfers (Rawls 1971, 297). Parfit feels that a use of consumer time preference in this fashion would be a deceptive misstatement of society's true purposes: "Our belief is not that the importance of future benefits steadily declines. It is rather that no generation can be morally required to make more than certain kinds of sacrifice for the sake of future generations. If this is what we believe, this is what should influence our decisions" (Parfit 1984, 484).

Finally, consumer preferences are endogenous and cannot fulfill the desired role of undetermined determinants of public policy. People's attitudes toward themselves, their environment, and the future are strongly influenced by the public investments made or not made. As Sagoff states: "Our decisions concerning the environment will also de-

termine, to a large extent, what future people are like and what their preferences and tastes will be" (1988, 63).

Conclusion

A consensus is growing among economists that the appropriate discount rate for governmental projects is the consumer rate of time preference. Issues of the opportunity cost of the capital used in these projects should be dealt with separately, when calculating the projects' costs and benefits in each future period prior to discounting. Whatever its other advantages, this new interpretation of the social rate of discount has the merit of focusing attention on consumer and citizen attitudes toward future events. The maxim of consumer sovereignty, that public policy should be based on some estimate of the attitudes and preferences held by the citizenry, has obvious appeal, and it is a practical and principled approach for many areas of governmental activity. For some public programs, however, especially those with long-term public health and environmental consequences, the emerging consensus among economists will encounter strong opposition from noneconomists.

The attempt to base the social rate of discount on individual attitudes toward future events has two major weaknesses. First, there is no reason to assume uncritically that individuals think clearly and consistently about events likely to occur decades in the future, in the sense of making decisions now that they will not regret later. Second, even if contemporary individuals had unlimited cognitive abilities, they would lack the incentive to weigh undesirable events to be suffered by future generations equally with those to be suffered by themselves. The cognitive problem requires political decision-making processes that rely on debate and discussion to sift and sort through the myriad citizen attitudes, ultimately basing governmental policy on a set of reflective rather than unreflective citizen preferences. The second problem requires some principles of intergenerational justice. Various possibilities present themselves here, many involving some notion of not unduly limiting choices and options open to future societies.

Citizens can consistently demand that the government base its policies upon citizen preferences without maintaining a simplistic view of those preferences as unchanging and beyond examination. To the contrary, individuals often recognize their own opinions as limited and fal-

lible, and seek opportunities for reflecting upon them and improving them. The new focus on consumer and citizen time preference opens rather than closes the debate on the social rate of discount.

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