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THE ECONOMIC WAY OF LOOKING AT LIFE

Gary S. Becker

The Economic Way of Looking at Life†

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I. The Economic Approach

My research uses the economic approach to analyze social issues that range beyond those usually considered by economists. This lecture will describe the approach, and illustrate it with examples drawn from past and current work.

Unlike Marxian analysis, the economic approach I refer to does not assume that individuals are motivated solely by selfishness or material gain. It is a *method* of analysis, not an assumption about particular motivations. Along with others, I have tried to pry economists away from narrow assumptions about self interest. Behavior is driven by a much richer set of values and preferences.

The analysis assumes that individuals maximize welfare *as they conceive it*, whether they be selfish, altruistic, loyal, spiteful, or masochistic. Their behavior is forward-looking, and it is also assumed to be consistent over time. In particular, they try as best they can to anticipate the uncertain consequences of their actions. Forward-looking behavior, however, may still be rooted in the past, for the past can exert a long shadow on attitudes and values.

Actions are constrained by income, time, imperfect memory and calculating capacities, and other limited resources, and also by the opportunities available in the economy and elsewhere. These opportunities are largely determined by the private and collective actions of other individuals and organizations.

Different constraints are decisive for different situations, but the most fundamental constraint is limited time. Economic and medical progress have greatly increased length of life, but not the physical flow of time itself, which always restricts everyone to twenty-four hours per day. So

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† ©The Nobel Foundation 1992. This is a slightly revised version of my Nobel Lecture, delivered December 9, 1992, in Stockholm, Sweden. It is dedicated to the memory of George J. Stigler, who died almost exactly one year before the lecture was delivered. Nobel Laureate, outstanding economist, very close friend and mentor, he would have been as happy as I was had he lived to see me deliver the 1992 Nobel Lecture in Economic Sciences. I have had valuable comments from James Coleman, Richard Posner, Sherwin Rosen, Raaj Sah, Jose Scheinkman, Richard Stern, and Stephen Stigler.

while goods and services have expanded enormously in rich countries, the total time available to consume has not.

Thus wants remain unsatisfied in rich countries as well as in poor ones. For while the growing abundance of goods may reduce the value of additional goods, time becomes more valuable as goods become more abundant. The welfare of people cannot be improved in a utopia where everyone's needs are fully satisfied, but the constant flow of time makes such a utopia impossible. These are some of the issues analyzed in the literature on time allocation analyzed in the literature on time allocation (for two early studies, see Becker [1965] and Linder [1970]).

The following sections illustrate the economic approach with four very different subjects. To understand discrimination against minorities, it is necessary to widen preferences to accommodate prejudice and hatred of particular groups. The economic analysis of crime incorporates into rational behavior illegal and other antisocial actions. the human capital perspective considers how the productivity of people in market and non-market situations is changed by investments in education, skills, and knowledge. The economic approach to the family interprets marriage, divorce, fertility, and relations among family members through the lens of utility-maximizing forward-looking behavior.

II. Discrimination Against Minorities

Discrimination against outsiders has always existed, but with the exception of a few discussions of the employment of women (see Edgeworth [1992], and Faucett[1918]), economists wrote little on this subject before the 1950s. I began to worry about racial, religious, and gender discrimination while a graduate student, and used the concept of discrimination coefficients to organize an approach to prejudice and hostility to members of particular groups.

Instead of making the common assumptions that employers only consider productivity of employees, that workers ignore the characteristics of those with whom they work, and that customers only care about the qualities of the goods and services provided, discrimination coefficients incorporate the influence of race, gender, and other personal characteristics on tastes and attitudes. Employees may refuse to work under a woman or a black even when they are well paid to do so, or a customer may prefer not to deal with a black car salesman. It is only through *widening* of the usual assumptions that it is possible to begin to understand the obstacles to advancement encountered by minorities.

Presumably, the amount of observable discrimination against minorities in wages and employment depends not only on tastes for discrimination, but also on other variables, such as the degree of competition and civil rights legislation. In the 1950s, a systematic analysis of how prejudice and other variables interact could begin with the important theory of compensating differentials originated by Adam Smith, and Gunnar Myrdal's pioneering American Dilemma (1944), but much remained to be done. I spent several years working out a theory of how actual discrimination in earnings and employment is determined by tastes for discrimination, along with the degree of competition in labor and product markets, the distribution of discrimination coefficients among members of the majority group, the access of minorities to education and training, the outcome of median voter and other voting mechanisms that determine whether legislation favors or is hostile to minorities, and other considerations. My advisors encouraged me to convert my doctoral dissertation into a book (1957, 1971). I have continued over my career to write books rather than only articles, a practice which has become uncommon in economics.

Actual discrimination in the market place against a minority group depends on the combined discrimination of employers, workers, consumers, schools, and governments. The analysis shows that sometimes the environment greatly softens, while at other times it magnifies, the impact of a given amount of prejudice. For example, the discrepancy in wages between equally productive blacks and whites, or women and men, would be much smaller than the degree of prejudice against blacks and women when many companies can efficiently specialize in employing mainly blacks and women.

Indeed, in a world with constant returns to scale in production, two segregated economies with the same distribution of skills would completely bypass discrimination, and they would have equal wages and equal returns to other resources, regardless of the desire to discriminate against the segregated minorities. Therefore, discrimination by the majority in the marketplace is effective because minority members cannot provide various skills in sufficient quantities to companies that would specialize in using these workers.

When the majority is very large compared to the minority—in the United States whites are nine times as numerous and have much more human and physical capital per capita than blacks—market discrimination by the majority hardly lowers its incomes, but may greatly reduce the incomes of the minority. However, when minority members are a sizeable

fraction of the total, discrimination by members of the majority injures them as well.

This proposition can be illustrated with an analysis of discrimination in South Africa, where blacks are some five times as numerous as whites. Discrimination against blacks has also significantly hurt white, although some white groups have benefited (see Becker [1957, 1971, pages 30-31], Hutt [1964], and Lundahl [1992]). Its sizable cost to whites suggests why Apartheid and other blatant forms of Afrikaner discrimination eventually broke down.

Many economists have the impression that my analysis of prejudice implies market discrimination disappears in the "long run" (Arrow [1972] seems to be the first to make this claim). This impression is erroneous because I had shown that whether employers who do not want to discriminate compete away all discriminating employers depends not only on the distribution of tastes for discrimination among potential employers, but critically also on the nature of firm production functions (see Becker [1957, 1971, pp. 43-45]).

Of greater significance empirically is the long run discrimination by employees and customers, who are far more important sources of market discrimination than employers. There is no reason to expect discrimination by these groups to be competed away unless it is possible to have enough efficient segregated firms and effectively segregated markets for goods (see Cain's [1986] good review of this and other issues regarding discrimination).

A novel theoretical development in recent years is the analysis of the consequences of stereotyped reasoning or statistical discrimination (see Phelps [1972], and Arrow[1973]). This analysis suggests that the *beliefs* of employers, teachers, and other influential groups that minority members are less productive *can* be self-fulfilling, for these beliefs may cause minorities to underinvest in education, training, and work skills, such as punctuality. The underinvestment does make them less productive (see a good recent analysis by Loury [1992]).

Evidence from many countries on the earnings, unemployment, and occupations of blacks, women, religious groups, immigrants, and others has expanded enormously during the past twenty-five years. This evidence more fully documents the economic position of minorities and how that changes in different environments. However, the evidence has not dispelled some of the controversies over the source of lower incomes of minorities.

III. Crime and Punishment

I began to think about crime in the 1960s after driving to Columbia University for an oral examination of a student in economic theory. I was late and had to decide quickly whether to put the car in a parking lot, or risk getting a ticket for parking illegally on the street. I calculated the likelihood of getting a ticket, the size of the penalty, and the cost of putting the car in a lot. I decided it paid to take the risk and park on the street. (I did not get a ticket.)

As I walked the few blocks to the examination room, it occurred to me that the city authorities had probably gone through a similar analysis. The frequency of their inspection of parked vehicles and the size of the penalty imposed on violators should depend on their estimates of the type of calculations potential violators like me would make. Of course, the first question I put to the hapless student was to work out the optimal behavior of both the offenders and the police, something I had not yet done.

In the 1950s and '60s, intellectual discussions of crime were dominated by the opinion that criminal behavior was caused by mental illness and social oppression, and that criminals were helpless "victims." A book by a well-known psychiatrist was entitled *The Crime of Punishment* (see Menninger [1966]). Such attitudes began to exert a major influence on social policy, as laws changed to expand criminals' rights. These changes reduced the apprehension and conviction of criminals, and provided less protection to the law-abiding population.

I was not sympathetic to the assumption that criminals had radically different motivations from everyone else. I explored instead the theoretical and empirical implications of the assumption that criminal behavior is rational (see the early pioneering work by Bentham [1931] and Beccaria [1986]), but again "rationality" did not mean to imply narrow materialism. It recognized that many people were constrained by moral and ethical considerations, and they did not commit crimes when these were profitable and there was no danger of detection.

However, police and jails would be unnecessary if such attitudes always prevailed. Rationality implied that some individuals become criminals because of the financial and other rewards from crime compared to legal work, taking account of the likelihood of apprehension and conviction, and the severity of punishment.

The amount of crime is determined not only by the rationality and preferences of would-be criminals, but also by the economic and social environment created by public policies, including expenditures on police,

punishments for different crimes, and opportunities for employment, schooling, and training programs. Clearly, the type of legal jobs available as well as law, order, and punishment are an integral part of the economic approach to crime.

Total public spending on fighting crime can be reduced, while keeping the mathematically expected punishment unchanged, by offsetting a cut in expenditures on catching criminals with a sufficient increase in the punishment to those convicted. However, risk-preferring individuals are more deterred from crime by a higher probability of conviction than by severe punishments. Therefore, optimal behavior by the State would balance the reduced spending on police and courts from lowering the probability of conviction against the preference of risk-preferring criminals for a lesser certainty of punishment. The State should also consider the likelihood of punishing innocent persons.

In the early stages of my work on crime, I was puzzled by why theft is socially harmful since it appears merely to redistribute resources, usually from wealthier to poorer individuals. I resolved the puzzle (Becker [1968, fn.3]) by pointing out that criminals spend on weapons and on the value of the time in planning and carrying out their crimes, and that such spending is socially unproductive—it is what is now called "rent seeking"—because it does not create wealth, only forcibly redistributes it. I approximated the social cost of theft by the dollars stolen since rational criminals would be willing to spend up to that amount on their crimes. I should have added the resources spent by potential victims protecting themselves against crime.

One reason why the economic approach to crime became so influential is that the same analytic apparatus can be used to study enforcement of all laws, including minimum wage legislation, clean air acts, insider trader and other violations of security laws, and income tax evasions. Since few laws are self-enforcing, they require expenditures on conviction and punishment to deter violators. The United States Sentencing Commission has explicitly used the economic analysis of crime to develop rules to be followed by judges in punishing violators of Federal statutes (United States Sentencing Commission [1992]).

Studies of crime that use the economic approach have become common during the past quarter century. These include analysis of the optimal marginal punishments to deter increases in the severity of crimes—for example, to deter a kidnapper from killing his victim (the modern literature starts with Stigler [1970]), and the relation between private and

public enforcement of laws (see Becker and Stigler [1974], and Landes and Posner [1975]).

Fines are preferable to imprisonment and other types of punishment because they can deter crimes effectively if criminals have sufficient financial resources—if they are not "judgement proof," to use legal jargon. Moreover, fines are more efficient than other methods because the cost to offenders is also revenue to the State. My discussion of the relations between fines and other punishments has been clarified and considerably improved (see, e.g., Polinsky and Dhavell [1984], and Posner [1986]).

Empirical assessments of the effects on crime rates of prison terms, conviction rates, unemployment levels, income inequality, and other variables have become more numerous and more accurate (the pioneering work is by Ehrlich [1973], and the subsequent literature is extensive). The greatest controversies surround the question of whether capital punishment deters murders, a controversy that arouses much emotion, but is far from being resolved (see, e.g., Ehrlich [1975]), and National Research Council [1978]).

IV. Human Capital

Until the 1950s economists generally assumed that labor power was given and not augmentable. The sophisticated analyses of investments in education and other training by Adam Smith, Alfred Marshall, and Milton Friedman were not integrated into discussions of productivity. The T. W. Schultz and others began to pioneer the exploration of the implications of human capital investments for economic growth and related economic questions.

Human capital analysis starts with the assumption that individuals decide on their education, training, medical care, and other additions to knowledge and health by weighing the benefits and costs. Benefits include cultural and other non-monetary gains along with improvement in earnings and occupations, while costs usually depend mainly on the foregone value of the time spent on these investments.

Human capital is so uncontroversial nowadays that it may be difficult to appreciate the hostility in the 1950s and 1960s toward the approach that went with the term. The very concept of *human* capital was alleged to be demeaning because it treated people as machines. To approach schooling as an investment rather than a cultural experience was considered unfeeling and extremely narrow. As a result, I hesitated a long time before deciding to call my book *Human Capital* (1964, 1975), and hedged the risk by using a long subtitle that I no longer remember. Only gradually did

economists, let alone others, accept the concept of human capital as a valuable tool in the analysis of various economic and social issues.

My work on human capital began with an effort to calculate both private and social rates of return to men, women, blacks, and other groups from investments in different levels of education. After a while it became clear that the analysis of human capital can help explain many regularities in labor markets and the economy at large. It seemed possible to develop a more general theory of human capital that includes firms as well as individuals, and that could consider its macro-economic implications.

The empirical analysis tried to correct data on the higher earnings of more educated persons for the fact that they are abler: they have higher I.Q.'s and score better on other aptitude tests. It also considered the effects on rates of return to education of mortality, income taxes, foregone earnings, and economic growth. Ability corrections did not seem very important, but large changes in adult mortality and sizeable rates of economic growth did have big effects. Meltzer (1992) recently has argued that the high death rates, especially from AIDS, to young males in many parts of Africa greatly discourage investments in human capital there.

The empirical study of investments in human capital received a major boost from Mincer's classic work (1974). He extended a simple regression analysis that related earnings to years of schooling (Becker and Chiswick [1967]) to include a crude but very useful measure of on-the-job training and experience—years after finishing school; he used numerous individual observations rather than grouped data, and he carefully analyzed the properties of residuals from earnings-generated equations. There are now numerous estimated rates of return to education and training for many countries (for a summary of some of this literature, see Psacharopoulos [1985]); indeed the earnings equation is probably the most common empirical regression in microeconomics.

The accumulating evidence on the economic benefits of schooling and training also promoted the importance of human capital in policy discussions. This new faith in human capital has reshaped the way governments approach the problem of stimulating growth and productivity, as was shown by the emphasis on human capital in the recent presidential election in the United States.

One of the most influential theoretical concepts in human capital analysis is the distinction between general and specific training or knowledge (see Becker [1962], and Oi [1962]). By definition, firm-specific knowledge is useful only in the firms providing it, whereas general knowledge is useful also in other firms. Teaching someone to operate an

IBM-compatible personal computer is general training, while learning the authority structure and the talents of employees in a particular company is specific knowledge. This distinction helps explain why workers with highly specific skills are less likely to quit their jobs and are the last to be laid off during business downturns. It also explains why most promotions are made from within a firm rather than through hiring—workers need time to learn about a firm's structure and "culture"—and why better accounting methods would include the specific human capital of employees among the principle asset of most companies.

Firm-specific investments produce rents that must be shared between employers and employees, a sharing process that is vulnerable to "opportunistic" behavior because each side may try to extract most of the rent after investments are in place. Rents and opportunism due to specific investments play a crucial role in the modern economic theory of how organizations function (see Williamson [1985]), and in many discussions of principle-agent problems (see, for example, Grossman and Hart [1983]). The implications of specific capital for sharing and turnover have also been used in analyzing marriage "markets" to explain divorce rates and bargaining within a marriage (see Becker, Landes, and Michael [1977], and McElroy and Horney [1981]), and in analyzing political "markets" to explain the low turnover of politicians (see Cain, Ferejohn, and Firoina [1987]).

The theory of human capital investment relates inequality in earnings to differences in talents, family background, and bequests and other assets (see Becker and Tomes [1986]). Many empirical studies of inequality also rely on human capital concepts, especially differences in schooling and training (see Mincer [1974]). The sizeable growth in earnings inequality in the United States during the 1980s that has excited so much political discussion is largely explained by higher returns to the more educated and better trained (see, e.g., Murphy and Welch [1992]).

Human capital theory gives a provocative interpretation of the so-called "gender gap" in earnings. Traditionally, women have been far more likely than men to work part-time and intermittently partly because they usually withdrew from the labor force for a while after having children. As a result, they had fewer incentives to invest in education and training that improved earnings and job skills.

During the past twenty years all this changed. The decline in family size, the growth in divorce rates, the rapid expansion of the service sector where most women are employed, the continuing economic development that raised the earnings of women along with men, and civil rights

legislation encouraged greater labor force participation by women, and hence greater investment in market-oriented skills. In practically all rich countries, these forces significantly improved both the occupations and relative earnings of women.

The United States' experience is especially well-documented. The gender gap is earnings among full-time men and women remained at about 35 percent from the mid-fifties to the mid-seventies. Then women began the steady economic advance which is still continuing; it narrowed the gap to under 25 percent (see, for example, O'Neill [1985] and Goldin [1990]). Women are flocking to business, law, medical schools, and are working at skilled jobs that they formerly shunned, or were excluded from.

Schultz and others (see, e.g., Schultz [1963] and Denison [1962]) early on emphasized that investments in human capital were a major contributor to economic growth. But after a while the relation of human capital to growth was neglected, as economists became discouraged about whether the available growth has brought human capital once again to the forefront of the discussions (see, e.g., Romer [1986], Lucas [1988], Becker, Murphy, and Tamura [1990], and Barro and Sala-I-Martin [1992]).

V. Formation, Dissolution, and Structure of Families

The rational choice analysis of family behavior builds on maximizing behavior, investments in human capital, the allocation of time, and discrimination against women and other groups. The rest of the lecture focuses on this analysis since it is still quite controversial, and I can discuss some of my current research.

Writing *A Treatise on the Family* is the most difficult sustained intellectual effort I have undertaken. The family is arguable the most fundamental and oldest of institutions—some authors trace its origin to more than 40,000 years ago (Soffer [1990]). The *Treatise* tries to analyze not only modern Western families, but those in other cultures and changes in family structure during the past several centuries.

Trying to cover this broad subject required a degree of mental commitment over more than six years, during many nighttime as well as daytime hours, that left me intellectually and emotionally exhausted. In his autobiography, Bertrand Russell says that writing the *Principia Mathematica* used up so much of his mental powers that he was never again fit for really hard intellectual work. It took about two years after finishing the *Treatise* to regain my intellectual zest.

The analysis of fertility has a long and honorable history in economics, but until recent years marriage and divorce, and the relations between husbands, wives, parents, and children had been largely neglected by economists (although see the important study by Mincer [1962]). The point of departure of my work on the family is the assumption that when men and women decide to marry, or have children, or divorce, they attempt to raise their welfare by comparing benefits and costs. So they marry when they expect to be better off than if they remained single, and they divorce if that is expected to increase their welfare.

People who are not intellectuals are often surprised when told that this approach is controversial since it seems obvious to them that individuals try to improve their welfare by marriage and divorce. The rational choice approach to marriage and other behavior is in fact often consistent with the instinctive economics "of the common person" (Farrell and Mandel [1992]).

Still, intuitive assumptions about behavior are only the *starting point* of systematic analysis, for alone they do not yield many interesting implications. Marquise du Deffand said, when commenting on the story that St. Dennis walked two leagues while carrying his head in his hands, that the most remarkable was the first step. The first one in new research is also important, but it is of little value without second, third, and several additional steps (I owe this reference to the Marquise and the comparison with research to Richard Posner). The rational choice approach takes further steps by using a framework that combines maximizing behavior with analysis of marriage and divorce markets, specialization and the division of labor, old age support, investments in children, and legislation that affects families. The implications of the full model are often not so obvious, and sometimes run sharply counter to received opinion.

For example, contrary to a common belief about divorce among the rich, the economic analysis of family decisions shows that wealthier couples are *less* likely to divorce than poorer couples. According to this theory, richer couples tend to gain a lot from remaining married, whereas many poorer couples do not. A poor woman may well doubt whether it is worth staying married to someone who is chronically unemployed. Empirical studies for many countries do indicate that marriages of richer couples are much more stable (see, e.g., Becker, Landes, and Michael [1977], and Hernandez [1992]).

Efficient bargaining between husbands and wives implies that the trend in Europe and the United States toward no-fault divorce during the past two decades did not raise divorce rates, and, therefore, contrary to

many claims, that it could not be responsible for the rapid rise in these rates. However, the theory does indicate that no-fault divorce hurts women with children whose marriages are broken up by their husbands. Feminists initially supported no-fault divorce, but some now have second thoughts about whether it has favorable effects on divorced women.

Economic models of behavior have been used to study fertility ever since Malthus's classic essay; the great Swedish economist, Knut Wicksell, was attracted to economics by his belief in the Malthusian predictions of overpopulation. But Malthus's conclusion that fertility would rise and fall as incomes increased and decreased was contradicted by the large decline in birth rates after some countries became industrialized during the latter part of the nineteenth century and the early part of this century.

The failure of Malthus's simple model of fertility persuaded economists that family-size decisions lay beyond economic calculus. The neo-classical growth model reflects this belief, for in most versions it takes population growth as exogenous and given (see, for example, Cass [1965] or Arrow and Kurz [1970]).

However, the trouble with the Malthusian approach is not its use of economics per se, but an economics inappropriate for modern life. It neglects that the time spent on child care becomes more expensive when countries are more productive. The higher value of time raises the cost of children, and thereby reduces the demand for large families. It also fails to consider that the greater importance of education and training in industrialized economies encourages parents to invest more in the skills of their children, which also raises the cost of large families. The growing value of timw and the increased emphasis on schooling and other human capital explain the decline in fertility as countries develop, and many other features of birth rates in modern economies.

In almost all societies married women have specialized in bearing and rearing children and in certain agricultural activities, whereas married men have done most of the fighting and market work. It should not be controversial to recognize that the explanation is a combination of biological differences between men and women—especially differences in their innate capacities to bear and rear children—and legal and other discrimination against women in market activities, partly through cultural conditioning. However, large and highly emotional differences of opinion exist over the relative importance of biology and discrimination in generating the traditional division of labor in marriages.

Contrary to allegations in many attacks on the economic approach to the gender division of labor (see, e.g., Boserup [1987]), this analysis does

not try to weight the relative importance of biology and discrimination. Its main contribution is to show how sensitive the division of labor is to *small* differences in either. Since the return from investing in a skill is greater when more time is spent utilizing the skill, a married couple could gain much from a sharp division of labor because the husband would specialize in some types of human capital and the wife in others. Given such a large gain from specialization within a marriage, only a *little* discrimination against women or *small* biological differences in child-rearing skills would cause the division of labor between household and market tasks to be strongly and systematically related to gender. The sensitivity to small differences explains why the empirical evidence cannot readily choose between biological and "cultural" interpretations. This theory also explains why many women entered the labor force as families became smaller, divorce more common, and earning opportunities for women improved.

Relations among family members differ radically from those among employees of firms and members of other organizations. The interactions between husbands, wives, parents, and children are more likely to be motivated by love, obligation, guilt and a sense of duty than by self-interest narrowly interpreted.

It was demonstrated about twenty years ago that altruism within families enormously alters how they respond to shocks and public policies that redistribute resources among members. It was shown that exogenous redistributions of resources from an altruist to her beneficiaries (or vice versa) may not affect the welfare of anyone because the altruist would try to reduce her gifts by the amount redistributed (Becker [1974]). Barro (1974) derived this result in an intergenerational context, which cast doubt on the common assumption that government deficits and related fiscal policies have real effects on the economy.

The "Rotten-Kid Theorem"—the name is very popular even when critics disagree with the analysis—carries the discussion of altruism further, for it shows how the behavior of selfish individuals is affected by altruism. Under some conditions, even selfish persons—of course, most parents believe that the best example of selfish beneficiaries and altruistic benefactors is selfish children with altruistic parents—are induced to act *as if* they are altruistic toward their benefactors because that raises their own selfish welfare. They act this way because otherwise gifts from their benefactors would be reduced enough to make them worse off (see Becker [1974], and the elaboration and qualifications to the analysis in Lindbeck and Weibull [1988], Bergstrom [1989], and Becker [1981, 1991, pp.9-13]).

The Bible, Plato's Republic, and other early writings discussed the treatment of young children by their parents, and of elderly parents by adult children. Both the elderly and children need care—in one case because of declining health and energy, and in the other because of biological growth and dependency. A powerful implication of the economic analysis of relations within families is that these two issues are closely related.

Parents who leave sizeable bequests do not need old age support because instead they help out their children. I mentioned earlier one well-known implication of this" under certain conditions, budget deficits and social security payments to the elderly have no real effects because parents simply offset the bigger taxes in the future on their children through larger bequests.

It is much less appreciated that altruistic parents who leave bequests also tend to invest more in their children's skills, habits, and values. For they gain from financing all investments in the education and skills of children that yield a higher rate of return than the return on savings. They can indirectly save for old age by investing in children, and then reducing bequests when elderly. Both parents and children would be better off when parents make all investments in children that yield a higher return than that on savings, and then adjust bequests to the efficient level of investment (see section I of the Appendix for a formal demonstration).

However, even in rich countries many parents do not plan on leaving bequests. These parents want old age support, and they "underinvest" in their children's education and other care. They underinvest because they cannot compensate themselves for greater spending on children by reducing bequests since they do not plan on leaving any.

Both the children and parents would be better off it the parents agreed to invest more in the children in return for a commitment by the children to care for them when they need help. but how can such a commitment be enforced? Economists and lawyers usually recommend a written contract to insure commitment, but can you imagine a society that will enforce contracts between adults and ten-year-olds or teenagers?

Part of my current research considers an indirect way to generate commitments when promises and written agreements are not binding. I will describe briefly some of this new work because it carries the economic approach to me family onto uncharted ground related to the rational formation of preferences within families.

Parental attitudes and behavior have an enormous influence on their children. Parents whose are alcoholic or are addicted to crack create a

bizarre atmosphere for impressionable youngsters, whereas parents with stable values who transmit knowledge and inspire their children favorably influence both what their children are capable of and what they want to do. The economic approach can contribute insights to the formation of preferences through childhood experiences without necessarily adopting the Freudian emphasis on the primacy of what happened during the first few months of life.

Again, I am trying to model a common sense idea; namely, that the attitudes and values of adults are enormously influenced by their childhood experiences. An Indian doctor living in the United States may love curry because he acquired a strong taste for it while growing up in India, or a woman may forever fear men because she was sexually abused as a child.

Through its assumption of forward-looking behavior, the economic point of view implies that parents try to anticipate the effect of what happens to children on their attitudes and behavior when adults. These effects help determine the kind of care parents provide. For example, parents worried about old age support may try to instill in their children feelings of guilt, obligation, duty, and filial love that indirectly, but still very effectively, can "commit" children to helping them out.

Economists have too narrow a perspective on commitments. "Manipulating" the experiences of others to influence their preferences may appear to be inefficient and fraught with uncertainty, but it can be the most effective way available to obtain commitment. Economic theory, especially game theory, needs to incorporate guilt, affection, and related attitudes into preferences in order to have a deeper understanding of when commitments are "credible" (see section 2 of the appendix for a formal discussion).

Parents who do not leave bequests may be willing to make their children feel guiltier precisely because they gain more utility from greater old age consumption than they lose from an equal reduction in children's consumption. This type of behavior may be considered more common than suggested by the number of families that actually do leave bequests, for parents with young children often do not know whether they will be financially secure when they are old. They may try to protect themselves against ill health, unemployment, and other hazards of old age by instilling in their children a willingness to help out if that becomes necessary.

This analysis of the link between childhood experiences and adult preferences is closely related to work on rational habit formation (see

Becker and Murphy [1988]; also see discussion by Kandel and Lazear [1992] of the creation of guilt among employees). The formation of preferences is rational in the sense that parental spending on children partly depends on the anticipated effects of childhood experiences on adult attitudes and behavior. I do not have time to consider the behavior of children—such as crying and acting "cute"—that tries in turn to influence the attitudes of parents.

Many economists, including myself, have excessively relied on altruism to tie together the interests of family members. Recognition of the connection between childhood experiences and future behavior reduces the need to rely on altruism in families. But it does not return the analysis to a narrow focus on self-interest, for it partially replaces altruism by feelings of obligation, anger, and other attitudes usually neglected by models of rational behavior.

If children are expected to help out in old age—perhaps because of guilt or related motivations—even parents who are not very loving would invest more in the children's human capital, and same less to provide for their old age. (For a proof, see section 3 of the Appendix.) But equation (12) of the Appendix shows that altruistic parents always prefer small increases in their own consumption when old to equal increases in their children's *if* they have made their children feel guilty. This means that such parents always underinvest in the children's human capital. This shows directly why creating guilt has costs and is not fully efficient.

Altruistic family heads who do not plan to leave bequests try to create a "warm" atmosphere in their families, so that members are willing to come to the assistance of those experience financial and other difficulties. This conclusion is relevant to discussions of so-called "family values," a subject that received attention during the recent presidential campaign in the United States. Parents help determine the values of children—including their feelings of obligation, duty, and love—but what parents try to do can be greatly affected by public policies and changes in economic and social conditions.

Consider, for example, a program that transfers resources to the elderly, perhaps especially to poorer families who do not leave bequests, that reduces the elderly's dependence on children. According to the earlier analysis I gave, parents who do not need support when they become old do not try as hard to make children more loyal, guiltier, or otherwise feel as well-disposed toward their parents. This means that programs like social security that significantly help the elderly would encourage family

members to drift apart emotionally, not by accident but as maximizing responses to those policies.

Other changes in the modern world which have altered family values include increased geographical nobility, the greater wealth that comes with economic growth, better capital and insurance markets, higher divorce rates, smaller families, and publicly-funded health care. These developments have generally made people better off, but they also weakened the persomal relations within families between husbands and wives, parents and children, and among more distant relatives, partly by reducing the incentives to invest in *creating* closer relations.

VI. Concluding Comments

An important step in extending the traditional analysis of individual rational choice is to incorporate into the theory a much richer class of attitudes, preferences, and calculations. This step is prominent in all the examples I consider. The analysis of discrimination includes in preferences a dislike of—prejudice against—members of particular groups, such as blacks or women. In deciding whether to engage in illegal activities, potential criminals are assumed to act as if they consider both the gains and the risks—including the likelihood they will be caught and severity of punishments. In human capital theory, people rationally evaluate the benefits and costs of activities, such as education, training, expenditures on health, migration, and formation of habits that radically alter the way they are. The economic approach to the family assumes that even intimate decisions like marriage, divorce, and family size are reached through weighing the advantages and disadvantages of alternative actions. The weights are determined by preferences that critically depend on the altruism and feelings of duty and obligation toward family members.

Since the economic, or rational choice, approach to behavior builds on a theory of individual decisions, criticisms of this theory usually concentrate on particular assumptions about how these decisions are made. Among other things, critics deny that individuals act consistently over time, and question whether behavior is forward-looking, particularly in situations that differ significantly from those usually considered by economists—such as those involving criminal, addictive, family, or political behavior. This is not the place to go into a detailed response to the criticisms, so I simply assert that no approach of comparable generality has yet been developed that offers serious competition to rational choice theory.

I have intentionally chosen certain topics—such as addiction—to probe the boundaries of rational choice theory. William Blake said that you never know what is enough until you see what is more than enough (Jon Elster brought this proverb to my attention). My work may have sometimes assumed too much rationality, but I believe it has been an antidote to the extensive research that does not credit people with enough rationality.

While the economic approach to behavior builds on a theory of individual choice, it is not mainly concerned with individuals. It uses theory at the micro level as a powerful tool to derive implications at the group or macro level. Rational individual choice is combined with assumptions about technologies and other determinants of opportunities, equilibrium in market and nonmarket situations, and laws, norms, and traditions to obtain results concerning the behavior of groups. It is mainly because the theory derives implications at the macro level that it is of interest to policymakers and those studying difference among countries and cultures.

None of the theories considered in this lecture aims for the greatest generality; instead, each tries to derive concrete implications about behavior that can be tested with survey and other data. Disputes over whether punishments deter crime, whether the lower earnings of women compared to men is mainly due to discrimination or lesser human capital, or whether no-fault divorce laws increase divorce rates, all raise questions about the empirical relevance of predictions derived from a theory based on individual rationality.

A close relation between theory and empirical testing helps prevent both the theoretical analysis and the empirical research from becoming sterile Empirically oriented theories encourage the development of new sources and types of data, the way human capital theory stimulated the use of survey data, especially panels. At the same time, puzzling empirical results force changes in theory, as models of altruism and family preference have been enriched to cope with the finding that parents in Western countries tend to bequeath equal amount to different children.

I have been impressed by how many economists want to work on social issues rather than those forming the traditional core of economics. At the same time, specialists from fields that do consider social questions are often attracted to the economic way of modeling behavior because of the analytical power provided by the assumption of individual rationality. Thriving schools of rational choice theorists and empirical researchers are active in sociology, law, political science, and history, and to a lesser

extent, in anthropology and psychology. The rational choice model provides the most promising basis presently available for a unified approach to the analysis of the social world by scholars from different social sciences.

Appendix

I. To develop a formal analysis, suppose that each person lives for three periods: youth *(y)*, middle age *(m)*, and old age *(o)*, and has one child at the beginning of period *m*. A child's youth overlaps his parent's middle age, and a child's middle age overlaps his parent's old age. The utility parents get from altruism is assumed to be separable from the utilities produced by their own consumption.

A simple utility function of parents (Vp) incorporating these assumptions is

$$V_p = u_{mp} + \beta u_{op} + \beta a V_c, \qquad (1)$$

where β is the discount rate, and the degree of altruism rises with *a*. For selfish parents, $a = 0$. I do not permit parents to be sadistic toward children ($a < 0$), although the analysis is easily generalized to include sadists.

Each person works and earns income only during middle age. It is possible to save then to provide consumption for old age (Z_{op}) by accumulating assets with a yield of R_k. Parents influence children's earnings by investing in their human capital. The marginal yield on these investments (R_h) is defined as

$$R_h = \frac{dE_c}{dh}, \qquad (2)$$

where E_c is the earnings of children at middle age, and h is the amount invested. This yield is assumed to decline as more is invested in children: $dR_h / dh \leq 0$.

Parents must also decide whether to leave bequests, denoted by k_c. If parents can consume at different ages, leave bequests, or invest in the child's human capital, their budget constraint is

$$Z_{mp} + h + \frac{Z_{op}}{R_k} + \frac{k_c}{R_k} = A_p, \qquad (3)$$

where *A* is the present value of resources.

One first order condition to maximize parental utility determines their optimal consumption at middle and old age.

$$u'_{mp} = \beta R_k u'_{op} = \lambda_p, \tag{4}$$

where λ_p is the parents' marginal utility of wealth. Another condition determines whether they give bequests;

$$\beta a V'_c \leq \frac{\lambda_p}{R_k} = \beta u'_{op}; \tag{5}$$

and the last determines investments in the human capital of children

$$R_h \beta a V'_c = \lambda_p. \tag{6}$$

Equation (6) assumes that the first order condition for investment in human capital is a strict equality; that some human capital is always invested in children. This can be justified with an Inada-type condition that small investments in human capital yield very high rates of return. In rich economies like Sweden or the United States, investments in basic knowledge and nutrition of children presumably do yield a very good return. As long as parents are not completely selfish—as long as a > 0—then such a condition does always imply positive investment in human capital. For completely selfish parents, equation (6) would be an inequality.

Equation (4) determines the accumulation of assets to finance old age consumption. Whether parents leave bequests or want old-age support from their children is determined by the inequality in (5). If this is a strict inequality, parents want support and would not leave bequests.

That inequality can be written in a more revealing way. If children also maximize their utility, then the envelope theorem implies that

$$aV'_c < u'_{op} \text{ whenever } au'_{mc} < u'_{op} \text{ since } V'_c = u'_{mc}. \tag{7}$$

Equation (7) has the intuitive interpretation that parents do not give bequests when the utility the parents get from their children consuming a dollar more at middle age is less then the utility they get from a dollar more of their own consumption at old age. Obviously, such an inequality holds for completely selfish parents since the left hand side of equations

(5) and (7) are zero when *a* is zero. The weaker the altruism (the smaller *a*) the more parents want from children.

Combining equations (5) and (6) gives

$$\frac{\lambda_p}{R_h} \leq \frac{\lambda_p}{R_k}, \text{ or } R_h \geq R_k. \tag{8}$$

Equation (8) implies that the marginal rate of return on human capital equals the return on assets when Parents give bequests, and it is greater than the asset return when parents do not give bequests. Parents can help children either by investing in their human capital or by leaving them assets. Since they want to maximize the advantage to children, given the cost to themselves—parents are not sadistic—they help in the most efficient form.

Consequently, if strict inequality holds in equation (8), they would not give bequests, for the best way to help children when the marginal return on human capital exceeds that on assets is to invest only in human capital. They leave bequests only when they get the same marginal return on both (some of these results have been derived in Becker and Tomes [1986]).

2. To analyze in a simple way the influence of parents over the formation of children's preferences, suppose parents can take actions *x* and *y* when children are young that affect their preferences when adults. I use the assumption of separability to write the utility function of middle-age children as

$$V_c = u_{mc} + H(y) - G(x,g) + \beta u_{oc} + \ldots \tag{9}$$

I assume that $H' > 0$ and $G_x > 0$, which means that an increase in *y* raises the utility of children, but an increase in *x* lowers their utility. Interpret H for concreteness as "happiness," and G as the "guilt" children feel toward their parents, so that greater *x* makes children feel guiltier. The question is why would non-sadistic parents want to make their children feel guilty?

The variable g is the key to understanding why. This measures the contribution of children to the old-age support of parents; let us assume that children feel less guilty when they contribute more ($G_g < 0$). If $G_{gx} > 0$, then greater x both raises children's guilt and stimulates more giving by them.

The budget constraint of parents becomes:

$$Z_{mp} + h + x + y + \frac{Z_{op}}{R_k} + \frac{k_c}{R_k} = A_p + \frac{g}{R_k}. \qquad (10)$$

The first order condition for the optimal *y* is:

$$\beta a H' \leq \lambda_p. \qquad (11)$$

Since H′ > 0, it is easy to understand why an altruistic parent may try to affect children's preferences through *y* since an increase in *y* makes children happier.

The first order condition for x is more interesting, for even altruistic parents may want to make their children feel guilty if that sufficiently raises old-age support. This first order condition can be written as

$$\frac{dV_p}{dx} = \frac{dg}{dx}\beta\left(u'_{op} - au'_{mc}\right) - \beta a\frac{dG}{dx} \leq \lambda_p, \qquad (12)$$

where *dG/dx* incorporates the induced change in *g*. The second term in the middle expression is negative to altruistic parents because greater *x* does raise children's guilt, which lowers the utility of these parents (a > 0). However, guilt also induces children to increase old-age support, as given by *dg/dx*. The magnitude of this response determines whether it is worthwhile for parents to make children feel guiltier.

Increased old-age support from children has two partially offsetting effects on the welfare of altruistic parents. On the one hand, it raises their old age consumption and utility, as given by u'_{op}. On the other hand, it lowers children's consumption, and hence the utility of altruistic parents, as given by $-au'_{mc}$. This means that altruistic parents who leave bequests never try to make children feel guiltier, $u'_{op} = au'_{mc}$ for these parents. Since *dG/dx* > 0, they must be worse off when their children feel guiltier.

Equations (5) and (12) imply that

$$\frac{dg}{dx} - \frac{aG_x}{u'_{op}} = R_x \leq R_k. \qquad (13)$$

The marginal rate of return to altruistic parents from making children feel guiltier (given by R_x) nets out the parents evaluation of the loss in children's utility from their guilt. Selfish parents (*a* = 0) ignore this loss, and simply compare the effects of *x* and *k* on their consumption at old age.

3. Combine the first order conditions in equations (5) and (6) to get

$$\frac{u'_{op}}{au'_{mc}} = \frac{R_h}{R_k}. \tag{14}$$

Both sides of this equation exceed unity when parents do not give bequests. Since greater old-age support from children lowers the left have side by lowering the numerator and raising the denominator, the right hand side must also fall to be in a utility maximizing equilibrium. But since R_k is given by market conditions, the right hand side can fall only if R_h falls, which implies greater investment in children when parents expect greater old-age support from children. Even completely selfish parents ($a = 0$) might invest in children if that would sufficiently increase the expected old-age support from guilty children.

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