

REVIEW

The Economics Epidemic in an AIDS Perspective

William N. Eskridge, Jr.†
Brian D. Weimer††

Private Choices and Public Health: The AIDS Epidemic in an Economic Perspective. Tomas J. Philipson and Richard A. Posner. Harvard, 1993. Pp x, 225.

"Pleasures," especially sexual ones, "impede wise thinking," said Aristotle, "for while these last no one can think of anything."¹ In *Sex and Reason*,² Judge Richard A. Posner invested 442 pages to argue, contra Aristotle, that even during sexual absorption humans behave rationally, choosing sexual strategies that optimally fit their desires and goals. *Sex and Reason* was vigorously criticized in the law reviews, but even Posner's most severe critics showed little sympathy for Aristotle's viewpoint.³

† Professor of Law, Georgetown University Law Center.

†† J.D. Candidate 1995, Georgetown University Law Center.

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¹ Aristotle, H.G. Apostle trans, *The Nichomachean Ethics* 1152b 16-18 (D. Reidel, 1975).

² Harvard, 1992.

³ See, for example, Gillian K. Hadfield, *Flirting with Science: Richard Posner on the Bioeconomics of Sexual Man*, 106 Harv L Rev 479 (1992); Robin West, *Sex, Reason, and a Taste for the Absurd: Sex and Reason*, 81 Geo L J 2413 (1993).

In *Private Choices and Public Health: The AIDS Epidemic in an Economic Perspective*, Posner and his co-author, economist Tomas J. Philipson, apply economic theory to explain the pattern of infection by the human immunodeficiency virus (HIV), the agent that causes acquired immunodeficiency syndrome (AIDS). This project follows naturally from *Sex and Reason*, because HIV is often transmitted through sexual intercourse. Assuming rational decision making in matters sexual, Philipson and Posner argue that individuals will respond to the increased risk of HIV infection by altering their behavior (pp 53-56, 65-66). They further argue that some people will continue to engage in HIV-risky sex, but that this behavior, too, is presumptively the result of a cost-benefit calculation that maximizes individual utility (pp 13-14). As the population comes to internalize HIV infection risks and adjusts behavior accordingly, an optimal level of HIV infection in the United States will be reached absent government intervention (p 218). The authors assert that we may be close to that optimal level now, possibly obviating the need for the government to devote much regulation or many resources toward fighting the disease (p 10).

As fans of rational choice theory, we applaud the authors' goal of exploring more systematically individual decisions to engage in HIV-risky activities. *Private Choices and Public Health* is an interesting book that offers many sound insights into governmental policies attempting to deal with this disease. But the authors' contribution is neither entirely novel nor altogether sound. The book's most important insight—that policy makers should assume that people will adjust their behavior in response to information about the transmission of HIV and the consequences of HIV infection—is substantially anticipated by the medical literature on AIDS. We do not linger on this criticism in our review, which cites much of the medical literature developing or testing behavioral-change models for infectious diseases generally and AIDS in particular.⁴

The focus of our criticism is that Philipson and Posner's rational behavior model is insufficiently complex. This criticism has both descriptive and normative dimensions. Descriptively, we

⁴ Medical models assuming or testing behavioral change in rational response to the AIDS epidemic are cited in notes 22-24, 64, and 72-73. Most of the behavior-based medical models are simpler than the one articulated in *Private Choices and Public Health*, but at least some of the medical models strike us as analytically more sophisticated. See, for example, David P. Fan, *Quantitative Estimates for the Effects of AIDS Public Education on AIDS Infections*, 33 Int J Biomed Comput 157 (1993).

argue that most events that transmit HIV are not the result of *well-informed, voluntary* decisions by *mature* decision makers. Instead, most HIV transmission occurs under conditions in which the infected person (i) is not perfectly informed about the risk, (ii) is acting under a form of duress or cognitive dysfunction, or (iii) is too young to be considered a rational actor under conventional economic (rational choice) theory. In short, Aristotle may have been right about sex and reason.

Our normative critique draws from our descriptive critique and makes three further points. First, Philipson and Posner ignore the rationality of ends and focus only on means; “rationality implies nothing more, really, than suiting means to ends, whatever those ends may be” (p 8). In contrast, we maintain that rational choice implies rationality of *both* means and ends. While a means focus is naturally more tractable, it yields a radically incomplete normative analysis because much HIV-infective activity—especially in the case of intravenous drug use or oppressive sexual relationships—reflects an irrational choice of ends. If the end is self-destruction, does it much matter whether oblivion is achieved in the most efficient manner?

Second, the authors’ means rationality is too abstract to be useful and tends to obscure the distributional inequities of their “efficient” level of AIDS in the United States. Social structure, mores of gender and relationships, and the myriad cultural factors surrounding human behavior must be taken into account in determining what is choice and what is mere acquiescence. Philipson and Posner’s analysis works best for people who have traditionally been empowered in the United States. It is jarringly incomplete for people of color, gay men, women, intravenous drug users, people living in poverty—cultural or political outsiders. More importantly, even if the authors were right that HIV infections in these populations are the result of rational individual choices, and therefore “efficient” in some abstract way, the distributional effects of this particular equilibrium are inequitable and, in our view, unacceptable. In short, we reject Philipson and Posner’s assumption that issues of efficiency and issues of distribution are separable.

Third, *Private Choices and Public Health* assumes an overly simple relationship between “preference” and “choice.” Following Amartya Sen,⁵ we argue that one’s preferences, including the degree of risk one is willing to take, are relational, social, and

⁵ *Behavior and the Concept of Preference*, 40 *Economica* 241 (1973).

endogenous to intercourse. Philipson and Posner assume the opposite: preferences are individual, personal, and exogenous. If preferences are social and endogenous (as we argue) rather than individual and exogenous, responses to AIDS must consider the social and cultural context of HIV-risky behavior.

I. THE PHILIPSON AND POSNER RATIONAL CHOICE MODEL OF HIV-RISKY ACTIVITIES

In the rational choice world, autonomous individuals transact with one another when each individual's perceived benefits from the transaction outweigh the perceived costs. Thus, in the market for apples, a seller will relinquish her apple to a buyer if the latter is willing and able to pay the former's asking price for the fruit. The transaction requires, first, that the seller's perceived benefits from the transaction outweigh the transaction's perceived costs (she values the money more than she values the apple) and, second, that the buyer's perceived benefits from the transaction outweigh the transaction's perceived costs (he values the apple more than he values the money). Such an exchange increases the overall utility (that is, happiness) of both parties.

That we live in a world of danger suggests an additional level of analytical complexity. The parties must consider the possibility of a hidden cost: risk. Suppose every thousandth apple is a poison apple, leading to certain death after it is eaten. Knowing that, the buyer will rationally consider not only how much the seller is charging for apples, but how likely it is he will die from eating this particular one. The buyer might still purchase the apple, but only in special circumstances. For instance, if his preference for the apple is strong, and the benefits of having the apple outweigh the price charged by the seller (plus his valuation of his life discounted by the probability of losing it on account of a poison apple), he will proceed with the transaction. If the perceived benefits outweigh the perceived costs, the buyer will purchase (and eat) an apple that might poison him.

Like our apple example, sex (the forbidden fruit) is risky business. HIV-risky sex (especially anal or vaginal intercourse without a condom) and needle-sharing among intravenous drug users (IVDUs) are activities offering a notable risk of transmitting HIV from an infected partner to an uninfected one.⁶ But

⁶ Several qualifications are necessary: (1) HIV can be transmitted through any sharing of bodily fluids (especially blood), not just anal or vaginal sex. Hence, oral sex is

just as we might rationally decide to take a risk when we buy an apple that might be poisonous, so too we might rationally decide to engage in sex that might kill us.

Philipson and Posner posit that the decision to engage in HIV-risky sex can be modeled as a two-partner transaction (p 33), much like our apple transaction. In their model, the partners will engage in HIV-risky sex only if the "expected utilities" (EU) of risky sex are positive values *for both partners*. These utilities can be represented by the following equations:

$$EU_1 = B - C(1 - P_1)(P_2)$$

and

$$EU_2 = B - C(1 - P_2)(P_1).$$

In the first equation, the expected utility of HIV-risky sex for partner 1 (EU_1) is equal to the benefits to partner 1 (B) minus the costs to partner 1 (C), multiplied by the probability of becoming infected (P). The probability of becoming infected, in turn, is the product of three other probabilities: the probability that partner 2 is already infected (P_2), multiplied by the probability that partner 1 is not already infected ($1 - P_1$), multiplied by the probability that the risky sex will transmit HIV (a very small number that drops out of the analysis). In both cases, the probability that one's partner or oneself is infected is based upon a subjective valuation and not an objective criterion such as actual incidence

potentially transmittive, as is any sexual activity that exposes one partner to the other partner's blood or semen. See J.L. Denser, *AIDS and the Heterosexual* 15-17, 22 (1991). We fault Philipson and Posner for not being more precise about the tangible risks of various sexual practices and for their relative neglect of infection through needle-sharing, but they are helpful on the next two matters: (2) The probability of transmitting HIV in any single sexual event is low, perhaps as low as 2% if the insertive partner is HIV-infected in unprotected (uncondomed) anal intercourse, and 0.2% in unprotected vaginal intercourse. Sex is a repeated activity, however. Repeated intercourse raises the odds considerably, and if prior acts have torn the sensitive walls of the vagina or rectum, the probability of HIV transmission in a single event is higher than 2%. The probability of transmitting HIV through needle-sharing with an infected person is much higher. (3) Condoms sometimes break, and therefore condomed intercourse is not completely safe. The authors guess that condomed anal intercourse therefore bears a 0.02% chance of infection and condomed vaginal intercourse a 0.0012% chance. Thus, anal or vaginal intercourse with a condom is not "safe," though it is much "safer" than intercourse without condoms.

(pp 35-36).⁷ A similar analysis applies to the second equation, the variable EU_2 standing for the expected utility to partner 2.

Philipson and Posner harbor great ambitions for this model. First, they say that their model "corrects" the tendency of medical models to overpredict the spread of HIV infection and AIDS (pp 42-56). Unlike some epidemiological models of infectious diseases, a rational choice model posits that many people will alter their behavior, thereby reducing their risk of infection or avoiding that risk altogether. As a result of these behavior changes, HIV infection rates will decline dramatically. Philipson and Posner note, however, that some people will not change their behavior⁸—an observation which leads the authors to their second, and more striking, assertion: Assuming that the expected utilities for both partners of risky sex are positive, it will be utility-maximizing, *ex ante*, for the partners to engage in risky sex, even if one of the partners is thereby infected with HIV (p 39). Thus, argue Philipson and Posner, most if not all transmissions of HIV occur in privately utility-maximizing transactions (p 41). It follows from this analysis that there is an identifiable efficient level of HIV infection in the United States.

The authors' third observation, flowing from the first two, is that the United States is approaching (or has reached) this efficient level of HIV infection (pp 220-22). As a normative consequence of this descriptive hypothesis, Philipson and Posner contend that state intervention to fight AIDS is presumptively unwarranted. They evaluate various policy responses under this presumption, arguing that mandatory testing for HIV is not worth the cost (in terms of, among other things, privacy) and could well be counterproductive (pp 133-42); that the state is probably spending far too much money on research for vaccines,

⁷ But the authors assume "in part for simplicity and in part to facilitate empirical analysis with available data" (p 35) that the subjective probabilities do in fact correspond to actual frequency in the population at large. We disagree with using actual incidence as representative of subjective probability. See Section II.A.

⁸ Based upon their model, the authors conclude that risky sex will typically take place in two special cases (pp 37-38). The first case occurs when it is very unlikely that either partner 1 or partner 2 is infected. Since the probable costs of risky sex are small, the expected benefits might outweigh the expected costs, and the parties might be willing to take the risk. The second case occurs when it is probable that both partners are infected. Since one more risky transaction is unlikely to further increase one's already high likelihood of infection, the expected costs are small. Once again, the benefits of the transaction might outweigh its costs, and the parties might be willing to engage in risky behavior. Note that the medical literature suggests, contrary to this second scenario, that risky sex between two infected people is potentially harmful, because it may introduce a more virulent strain of HIV into one of the partners.

cures, and treatment (pp 181-206); and that some money should be spent on targeted education programs that facilitate the operation of people's rational calculations (pp 163-66, 220-22).

II. LIMITATIONS OF THE PHILIPSON AND POSNER RATIONAL CHOICE MODEL OF HIV-RISKY ACTIVITIES

Rational choice theory has great appeal for modeling human behavior, because it rests both upon the intuitive descriptive proposition that people act in their best interests (as they define them) and upon the appealing normative proposition that voluntary choices have both individual and social value. Unlike other critics, we do not reject the application of rational choice theory to sexual relationships out of hand.

Nonetheless, we are critical. For a decision to be *means-rational*, it must be made by a well-informed actor capable of processing and responding to the information. These requirements do not inhere in most HIV-transmittive events, in which misinformation and fraud are normal rather than exceptional, and in which many of the victims are adolescents who are not regarded by economists as mature rational actors.⁹ For a decision to be an *ends-rational* choice, it must be voluntary and not imposed, and it must pursue a goal which is not self-destructive. These requirements do not inhere in most HIV-transmittive events, in which coercion and external imposition of costs are normal rather than exceptional, and in which many of the victims are also victims of self-destructive addictions. This part will explore each of these lines of critique in detail and will conclude with some larger theoretical observations on the complicated relationship between preference and choice.

A. Rational Choice?

Rational choice literature generally fails to discuss or defend its assumptions about information gathering and information processing. Philipson and Posner are no exceptions. Because their analysis is exclusively means-based, its failure to posit a defensible theory of information gathering and processing undermines the utility of their theory. Consider three scenarios in which people make HIV-risky decisions that are not means-rational:

⁹ See, for example, Lynn A. Stout, *Some Thoughts on Poverty and Failure in the Market for Children's Human Capital*, 81 Georgetown L J 1945, 1949-50 (1993).

1. *Ignorance.* Before 1982, people engaged in transactions that were not utility-maximizing because they did not know about the HIV virus, its lethal qualities, and/or its mode of transmission. Hence, people were ignorant of the true risks (P) and costs (C) of HIV-risky activity.

2. *Fraud.* Partner 1 is a bisexual who engages in risky same-sex activity and does not tell partner 2 about his bisexuality or his risk-taking. If the partners decide to have risky sex, EU_2 will likely be a positive number only because partner 2 has been misled about P_1 (the probability partner 1 has been infected, given partner 1's apparent risk group).

3. *Decision-making biases.* People engaging in risky activities might underestimate their potential costs (C) and/or the probabilities of infection (P). For example, if a person has many friends who engage in unprotected anal sex, and none has suffered apparent ill consequences, that person might underestimate the probability of infection, and hence underestimate the costs in her cost-benefit analysis, $C(1 - P_2)(P_1)$.

Philipson and Posner concede that the individuals in these scenarios have not made choices that are means-rational. But they try to minimize the force of that concession by marginalizing these as incidental qualifications to their general formulation.¹⁰ We reject such a strategy, for the empirical evidence suggests that these examples should be treated as central contexts for HIV infection.

Examples 1 and 2 concern imperfect information (people are uninformed and lied to), which we think is typical rather than exceptional in sexual and other HIV-transmitting activities. We explore in greatest detail Example 3 because it has been the focus of much of the medical literature.

¹⁰ On the final page of the book (p 225), the authors make passing reference to the substantial literature concerning nonrational elements in information processing and decision making. They state that such an analysis must be saved for another book: "[*Private Choices and Public Health*] is not the definitive study of AIDS Ours is an *economic* analysis, and we do not suggest that economics is the only fruitful perspective from which to view the social issues raised by the epidemic, merely that it is a neglected one." We maintain that an analysis of the systematic nonrational element in human decision making cannot be saved for a later day, for it undermines the model that Philipson and Posner propose.

1. Lack of information among adolescents.

Philipson and Posner admit that transactions transmitting HIV before 1982 were not utility-maximizing, because no one knew about AIDS during that time (pp 32, 41-42, 222). But their admission must be broader because many groups remained ignorant about important facts relating to AIDS long after 1982. One such important group, not surprisingly, is adolescents—a rolling group of new entrants into the marketplace for sex and drugs.

Evidence from the mid-1980s suggests that adolescents in large cities knew that HIV could be transmitted through sexual intercourse, but large numbers of teenagers (including sexually active ones) were unaware that HIV could also be transmitted through needle-sharing, that condoms could lower the risk of transmission, and that AIDS could not be cured.¹¹ By 1990-91, adolescents in big cities were much more knowledgeable—but this was in part because of government programs to reach out to adolescents.¹² And it was not until 1988-90 that the knowledge payoff came.

Some adolescent subgroups remain ill-informed of basic facts about AIDS. For example, incarcerated adolescents are much less knowledgeable about HIV transmission and its prevention than adolescents in school, and their higher level of sexual activity leaves them a subgroup especially at risk.¹³ Adolescents born outside the United States (a sizeable minority in many urban centers) have shown much greater ignorance of HIV transmission than the native-born in-school population.¹⁴ Finally, adolescents in African-American and Latino communities are often less well

¹¹ See Ralph J. DiClemente, R.J. Zorn, and L. Temoshok, *Adolescents and AIDS: A Survey of Knowledge, Attitudes and Beliefs About AIDS in San Francisco*, 76 *Am J Pub Health* 1443 (1986); Lee Strunin and Ralph W. Hingson, *Acquired Immunodeficiency Syndrome and Adolescents: Knowledge, Beliefs, Attitudes and Behaviors*, 79 *Pediatrics* 825 (1987).

¹² After 1986, the Surgeon General insisted upon a media campaign to educate adolescents, and more than 30 states passed statutes requiring HIV education in their school systems. This effort at education paid off with greater teenage knowledge about the means of HIV transmission and its consequences. See Ralph W. Hingson, Lee Strunin, and Beth Berlin, *Acquired Immunodeficiency Syndrome Transmission: Changes in Knowledge and Behaviors Among Teenagers, Massachusetts Statewide Surveys, 1986 to 1988*, 85 *Pediatrics* 24 (1990).

¹³ See Ralph J. DiClemente, *Predictors of HIV-Preventive Sexual Behavior in a High-Risk Adolescent Population: The Influence of Perceived Peer Norms and Sexual Communication on Incarcerated Adolescents' Consistent Use of Condoms*, 12 *J Adolescent Health* 385, 389 (1991).

¹⁴ See Ralph W. Hingson, et al, *Knowledge About HIV and Behavioral Risks of Foreign Born Boston Public School Students*, 81 *Am J Pub Health* 1638 (1991).

informed than their counterparts in other communities, in part because of fewer educational opportunities and in part because these adolescents consider AIDS a "white gay plague" that has little relevance to them.¹⁵

2. Sexual and HIV misrepresentations.

Even if participants are well informed generally, that information may not yield utility-maximizing decisions for individuals who are misinformed as to a specific matter. The probability of infection (P_1 or P_2) is subject to manipulation in just this way. Partner 2 might misrepresent his HIV status out of concern that partner 1 would not have sex with him if she knew he were HIV-positive. Because their model assumes that P_1 and P_2 are determined with reasonable accuracy, Philipson and Posner concede that this sort of fraud vitiates the voluntariness of a sexual interaction (p 36). This concession greatly undermines the usefulness of their model.

Partner 1 may misperceive P_2 if she is misled either generally or specifically. As to the former, partner 2 might mislead partner 1 about whether he is in a high-risk group. People have strong incentives in our society to avoid being categorized as drug addicted, promiscuous, or (for males) sexually passive. Not surprisingly, such people will often conceal the truth to avoid being so labelled. Consider Chris and Kim. Chris, a secret bisexual, frequently engages in condomless anal sex and shoots up heroin with his male partners, all risky activities of which Kim is unaware. In doing her cost-benefit calculation, therefore, Kim might consider Chris's probability of HIV infection to be close to zero, because she has placed him in the wrong category (monogamous and drug-free). Indeed, because people are reluctant to abandon strongly held beliefs and tend to interpret subsequent information through the bias of those initial beliefs,¹⁶ Kim might ignore telltale signs of Chris's risky lifestyle. Kim's willingness to have risky sex with Chris is irrational, because it is based on an ignorant calculus.

¹⁵ See Ralph J. DiClemente, et al, *Minorities and AIDS: Knowledge, Attitudes, and Misconceptions Among Black and Latino Adolescents*, 78 Am J Pub Health 55 (1988).

¹⁶ This is the process of minimizing cognitive dissonance. See Leon Festinger, *A Theory of Cognitive Dissonance* 135-36 (Row, Peterson, 1957); Irving L. Janis and Leon Mann, *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment* 171-72, 212-14 (Free Press, 1977).

The phenomenon in which one partner engages in risky activities unbeknownst to the other partner in an ongoing relationship is widespread, particularly in those communities where knowledge about AIDS is most sketchy (urban minority communities, for example).¹⁷ There is greater stigma placed on being a "homosexual" in some Latino and African-American communities than in mainstream ones, and the Chrises living in these communities have even stronger motivations to deny their homosexual conduct, even to themselves. This has generated a great deal of HIV transmission through secretive bisexual conduct and is one reason why urban minority communities are overrepresented among people with AIDS.

Moreover, even if Kim knew of Chris's HIV-risky activities, and according to Philipson and Posner ought to recalibrate Chris's probability of infection, she often will not. Chris might be able to influence Kim's calculation of his probability of infection (P_2) through assurances that he only engages in safe sex and has tested HIV negative. Though studies have shown that men often lie about their risky behavior and HIV status, such assurances might be believed by a spouse in the context of a relationship in which she is dependent upon or defers to her husband.¹⁸

3. Human decision making: beyond rational cost-benefit analyses.

As Philipson and Posner admit, human reasoning is subject to several documented, and irrational, biases (p 225). Two typical errors are that people give too much weight to vivid information which is presented dramatically to them or otherwise triggers an emotional response, and that people overgeneralize from unrepresentative samples.¹⁹ These biases affect people's views about

¹⁷ See Gina Brown, et al, *The African American Community*, in Margaret L. Stuber, ed, *Children and AIDS* 21, 24-25 (American Psychiatric Press, 1992); DiClemente, et al, 78 Am J Pub Health 55 (cited in note 15); Lynda S. Doll, et al, *Male Bisexuality and AIDS in the United States*, in Rob Tielman, et al, eds, *Bisexuality & HIV/AIDS: A Global Perspective* 27 (Prometheus, 1991); Stephanie Kane, *HIV, Heroin and Heterosexual Relations*, 32 Soc Sci Med 1037, 1043, 1048 (1991); J. Raul Magaña and Holly A. Magaña, *Mexican-Latino Children*, in Margaret L. Stuber, ed, *Children and AIDS* at 33, 36-37.

¹⁸ See Dianne F. Harrison, et al, *AIDS Knowledge and Risk Behaviors Among Culturally Diverse Women*, 3 AIDS Educ & Prevention 79, 87 (1991); Christine Overall, *AIDS and Women: The (Hetero)sexual Politics of HIV Infection*, in Christine Overall and William P. Zion, eds, *Perspectives on AIDS: Ethical and Social Issues* 27, 33-34 (Oxford, 1991).

¹⁹ See Amos Tversky and Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, in Daniel Kahneman, Paul Slovic, and Amos Tversky, eds, *Judgment Under Uncertainty: Heuristics and Biases* 3 (Cambridge, 1982); Richard E. Nisbett and Leon

HIV infection. Some people are overcautious because they have been scared by AIDS stories. Other people, particularly adolescents, are undercautious.²⁰ Because of the long incubation period for HIV infection to develop into AIDS, adolescents tend not to know other adolescents who have symptoms associated with AIDS, and that contributes to their erroneous belief that their drug use and uncondomed sex with one another do not place them at risk. Overgeneralizing that AIDS is an older persons' disease is a frequent rationale for unsafe sex by the young.²¹

Consider a broader point. The Philipson and Posner model has a close analogue in the medical literature: the health belief model of decision making.²² The health belief model postulates that perceived high susceptibility to a disease with severe consequences if infected, combined with a belief in the efficacy of proposed preventive behavior, will induce people to change their behavior. Like the Philipson and Posner model, the health belief model posits self-interested individuals who perform cost-benefit analyses and alter their conduct in response to an infectious disease. And like the Philipson and Posner model, the health belief model has been applied to analyze HIV-transmitting decisions. Unlike the Philipson and Posner model, however, the health belief model has been empirically tested in connection with decisions to engage in HIV-risky activities, mainly condomless sex. A large majority of the empirical studies have found that knowledge about HIV risk and its consequences has a

Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* 24-28, 44-45 (Prentice-Hall, 1980).

²⁰ See Susan D. Cochran, et al, *Sexually Transmitted Diseases and Acquired Immuno-deficiency Syndrome (AIDS)*, 17 *Sexually Transmitted Diseases* 80 (1990). See also Marshall H. Becker and Jill G. Joseph, *AIDS and Behavioral Change to Reduce Risk: A Review*, 78 *Am J Pub Health* 394 (1988).

²¹ See Robert B. Hays, Susan M. Kegeles, and Thomas J. Coates, *High HIV Risk-Taking Among Young Gay Men*, 4 *AIDS* 901 (1990). See also Harrison, et al, 3 *AIDS Educ & Prevention* at 83 (cited in note 18) (young women much more likely than mature women to assume that a person with AIDS cannot look or feel healthy).

²² This model was set forth in John P. Kirscht, *Research Related to the Modification of Health Beliefs*, in Marshall H. Becker, ed, *The Health Belief Model and Personal Health Behavior*, 2 *Health Educ Monographs* 455 (1974) (special issue), and reviewed in Nancy K. Janz and Marshall H. Becker, *The Health Belief Model: A Decade Later*, 11 *Health Educ Q* 1 (1984). The Philipson and Posner model also involves a cost-benefit analysis similar to that of the AIDS Risk Reduction Model developed in Joseph A. Catania, Susan M. Kegeles, and T.J. Coates, *The AIDS Risk Reduction Model (ARRM): A Model for Predicting High Risk Sexual Behavior*, 17 *Health Educ Q* 27 (1990). See also Susan M. Kegeles and Joseph A. Catania, *Understanding Bisexual Men's AIDS Risk Behavior: The AIDS Risk-Reduction Model*, in Tielman, et al, eds, *Bisexuality and HIV/AIDS* at 139 (cited in note 17).

surprisingly low effect on condom use²³ or has an explanatory power for condom use that is less robust than the power of two other theories of decision making.²⁴

One is a conflict model of decision making, which posits that people's decisions are influenced by the level or type of stress created by a new situation.²⁵ New health threats create stress for individuals, who then seek to reduce this stress through ameliorative strategies. This is consistent with the health belief model, but, unlike that model, the conflict model further posits that a high degree of stress (like the threat of AIDS) can trigger psychological defense mechanisms such as denial of the risk, shifting responsibility for the decision to someone else, and/or hypervigilance, in which the individual takes the path of least resistance. All of these defense mechanisms can make it more likely that an HIV-infected person can persuade an uninfected person to engage in risky sex.

These reactions to anxiety-provoking health threats do not involve a simple cost-benefit analysis, as the health benefit model does, but rather involve more intuitive responses. In our earlier example, even if Kim knew of Chris's high-risk behavior, she still might have risky sex with him because the anxiety aroused by her fear of AIDS could be so high that she denies its applicability to her life, or she simply shifts responsibility for dealing with the risk to Chris. This is not an uncommon strategy for people who

²³ The main study finding some effect reported a low one. See Ralph W. Hingson, et al, 85 *Pediatrics* at 24 (cited in note 12). For studies finding no effect, or even a negative effect, see Anthony Biglan, et al, *Social and Behavioral Factors Associated with High-Risk Sexual Behavior Among Adolescents*, 13 *J Behavioral Medicine* 245 (1990); John Vincke, et al, *Factors Affecting AIDS-Related Sexual Behavior Change Among Flemish Gay Men*, 52 *Human Organization* 260 (1993) (an excellent study and synthesis generally); Heather J. Walter, et al, *Factors Associated with AIDS Risk Behaviors Among High School Students in an AIDS Epicenter*, 82 *Am J Pub Health* 528 (1992). See also Laurie J. Bauman and Karolynn Siegel, *Misperception Among Gay Men of the Risk for AIDS Associated with Their Sexual Behavior*, 17 *J Applied Soc Psychology* 329, 343-45 (1987) (discussing effects on "risky sex").

²⁴ See Daniel E. Klein, et al, *Changes in AIDS Risk Behaviors Among Homosexual Male Physicians and University Students*, 144 *Am J Psychiatry* 742 (1987); Madeline M. Gladis, *High School Students' Perceptions of AIDS Risk: Realistic Appraisal or Motivated Denial?*, 11 *Health Psychology* 307 (1992); Mary-Ann Shafer and Cherrie B. Boyer, *Psychosocial and Behavioral Factors Associated With Risk of Sexually Transmitted Diseases, Including Human Immunodeficiency Virus Infection, Among Urban High School Students*, 119 *J Pediatrics* 826 (1991); Vincke, et al, 52 *Human Organization* 260.

²⁵ See generally Janis and Mann, *Decision Making* (cited in note 16); Kenneth H. Beck and Arthur Frankel, *A Conceptualization of Threat Communications and Protective Health Behavior*, 44 *Soc Psychology Q* 204 (1981).

engage in risky activities, especially for gay men, young people, and (many) women.²⁶

Another theory that helps explain human responses to AIDS is the social norm model. Under this model, an individual's response to a health risk is strongly conditioned by social norms and attitudes. Consider Leslie, a sixteen-year-old boy who is a regular sex partner for Chris and who (unlike Kim) knows of Chris's drug habit. Under the health benefit model, one would expect Leslie not to have risky sex with Chris. The social norm model, however, suggests that Leslie might go along with risky sex if his adolescent culture stigmatizes condoms ("they're for squares"), thereby making him embarrassed to bring up the subject. This, in turn, plays into the dynamics suggested by the conflict model. Leslie's anxiety about AIDS might impel him to defer to Chris, a most irrational but not uncommon strategy.²⁷ Also, if Leslie feels incapable of successfully negotiating with Chris to use condoms or of using the condoms correctly, he will be deterred from insisting upon safer sex.²⁸

B. Rational Choice?

Just as they offer no theory of information and decision making, so too Philipson and Posner fail to discuss their key assumptions of consent and voluntariness. This gap is also unfortunate for their project. Many of the situations in which HIV-risky activity takes place involve non-consensual behavior or behavior whose end is so irrational as to call into question the assumption that it is chosen freely. In such situations, the victim has been forced to engage in a risky transaction that yields an overall negative expected utility to her. Or, stated another way, the victim's decision is not connected to a goal or activity that is rational or productive for that individual. Consider the following possibilities for transmission of the HIV virus:

²⁶ See Fleur Sack, *Romance to Die For: The Startling Truth About Women, Sex, and AIDS* 61-74 (Heath Communications, 1992); Mindy Thompson Fullilove, et al, *Black Women and AIDS Prevention: A View Towards Understanding the Gender Rules*, 27 J Sex Research 47 (1990); Hays, et al, 4 AIDS at 905 (cited in note 21).

²⁷ For an example of this phenomenon, see Mary Kittredge, *Teens with AIDS Speak Out* 33-39 (Messner, 1991) (the story of 15-year-old Mike W., who was infected by an adult who assured him that, although the adult's former partner had AIDS, Mike wouldn't "catch it").

²⁸ Conflict theorists also emphasize the importance of one's self-efficacy—the ability to adapt one's behavior to deal with stress. See, for example, Karen Basen-Engquist and Guy S. Parcel, *Attitudes, Norms, and Self-Efficacy: A Model of Adolescents' HIV-Related Sexual Risk Behavior*, 19 Health Educ Q 263 (1992).

1. *Drug addiction.* The very notion of addiction involves non-voluntariness and is not ends-rational. The addict's expected utility for a fix is fantastically high in moments of desperation, though the behavior is irrational over the long-term.

2. *AIDS babies.* Children born with HIV infection because of the risky activities of one or both parents bear third-party effects of their parents' supposedly utility-maximizing activities.

3. *Rape.* If partner 2 rapes partner 1, the transaction occurs even though EU_1 is negative.

The rational choice model is irrelevant for all three of these examples. Philipson and Posner follow a rhetorical strategy of admitting but marginalizing these as "special cases" that are "exceptions" to their general formulation (pp 33, 36). We are skeptical of such a strategy, for a serious analysis of HIV transmission requires that these three examples be treated as important means of transmission.

1. Momentary consent and the drug addict.

Philipson and Posner's model of HIV-risk-taking is developed in the context of sexual "transactions" and then simply extended to needle-sharing. This treatment of drug addiction and needle sharing represents a big hole in their analysis, for the second-leading cause of HIV infection is through tainted drug apparatus. Additionally, the drug subculture is a large one. There are an estimated 1.1 to 1.3 million IVDUs in the United States, of whom at least 39,000 have AIDS and a larger but indeterminate number have been infected with HIV.²⁹ The authors respond to this sort of criticism by asserting that risky sexual and needle-sharing activities are "analytically quite similar" (p 31). They are both wrong and right, and both features reveal further problems with their rational choice model.

The authors are wrong in assuming that a needle-sharing transaction is functionally similar to sexual intercourse. Unlike risky sexual "transactions," which typically involve only two peo-

²⁹ Robert O'Brien, et al, *The Encyclopedia of Drug Abuse* 4 (Facts on File, 2d ed 1992). Posner and Philipson say the number of addicts is between 500,000 and 2 million, but note that the latter number "seems too high" (p 202 n 5).

ple, drug abusers often are infected by HIV when they interact with groups of people, as happens in "shooting galleries," where drug paraphernalia is shared among several users.³⁰ The group dynamic of the shooting gallery is a far cry from the two-party transaction on which Philipson and Posner base their model. Moreover, since most drug users take their first injection during their teenage years,³¹ it is unlikely that these youthful participants will fully appreciate the dangers. The social norm and conflict models of decision making seem much more pertinent to the drug subculture than does a rational choice model.

A more profound difference between transactions involving drugs and sex is that drug addiction is an irrational end, while the love of sex is not necessarily so. Like a character from Franz Kafka or Robin West,³² the drug addict "chooses" a good that not only provides the addict little benefit, but through habituation ensures the addict's destruction—often an early death, even before AIDS. Philipson and Posner's response is essentially this: "Unlike you, we eschew evaluation of people's goals and ends, because there is no way to do so; we must content ourselves with means analysis." But as we now suggest, ends and means cannot be easily separated. The drug addict often "regrets" his addiction. We are inclined to respect the addict's regret more than the addict's "preference" for drug use, because the latter is compulsive, the product of the addiction itself.³³

This last point can be expressed in rational choice terms. Where the addict craves a quick fix and the only immediately

³⁰ See Neil McKeganey and Marina Barnard, *AIDS, Drugs and Sexual Risk* 25-52 (Open University, 1992); Charles F. Turner, et al, eds, *AIDS, Sexual Behavior, and Intravenous Drug Use* 189-96 (1989); Don C. Des Jarlais and Samuel R. Friedman, *Shooting Galleries and AIDS: Infection Probabilities and "Tough" Policies*, 80 *Am J Pub Health* 142 (1990); Lawrence J. Ouellet, et al, *Shooting Galleries and HIV Disease: Variations in Places for Injecting Illicit Drugs*, 37 *Crime & Delinquency* 64 (1991).

³¹ Robert J. Battjes, Carl G. Leukefeld, and Roy W. Pickens, *Age at First Injection and HIV Risk among Intravenous Drug Users*, 18 *Am J Drug Alcohol Abuse* 263, 266 (1992).

³² See Robin West, *Authority, Autonomy, and Choice: The Role of Consent in the Moral and Political Visions of Franz Kafka and Richard Posner*, 99 *Harv L Rev* 384 (1985). Note the literature on "sex addiction," such as Ralph Earle and G. Crow, *Lonely All the Time—Recognizing, Understanding, and Overcoming Sex Addiction, for Addicts and Co-dependents* (1991).

³³ For studies of drug addiction that describe the addict's desire for a fix as she or he anticipates severe "withdrawal" symptoms that would follow seven or eight hours without a new fix, see John Kaplan, *The Hardest Drug: Heroin and Public Policy* 46-51 (Chicago, 1983); Richard C. Stephens, *The Street Addict Role: A Theory of Heroin Addiction* 80-85 (SUNY, 1991). More generally, see also Mark Kelman, *Choice and Utility*, 1979 *Wis L Rev* 769.

available apparatus is one he can borrow from his shooting buddy, the value of the risky transaction is enormous, albeit only for a moment, after which the addict may regret his actions. A person's valuation of benefits (B) at the moment of choice might be very different than her valuation at another moment more distant from the choice situation; hence, the expected utility might change over time. Philipson and Posner do not defend their choice to privilege the valuation at the moment of risk, and there is good reason to reject the notion that this is the only moment that has normative consequence.

Note here a similarity between needle-sharing and unsafe sex: at the point of risk—shooting up and orgasmic exchange of bodily fluids—the “decision maker” is least likely to be “processing” information in a rational cost-benefit way. Again, Aristotle might be right to suggest that at certain moments we take leave of reason and throw ourselves into craving and compulsion. Choices to shoot up or to go for a risky orgasm under these circumstances can be understood as made under diminished capacity—momentary choices that cannot be considered utility-maximizing. Interestingly, the two phenomena, drugs and sex, sometimes combine in a synergism of risk. Studies suggest that partners are more likely to engage in HIV-risky sexual activities when they have been using drugs.³⁴ By clouding the mind or releasing inhibitions, drugs can induce an acquiescent or skewed judgment yielding a momentary utility calculation not reflective of one's ordinary thinking. We are reluctant to consider such scenarios as utility-maximizing for both participants.

³⁴ See, for example, Robin Warshaw, *I Never Called It Rape: The Ms. Report on Recognizing, Fighting, and Surviving Date and Acquaintance Rape* 43-45 (Harper & Row, 1988) (noting that 75% of the men and 55% of the women involved in acquaintance rape had been drinking or taking drugs just before the attack); Robert Stall, et al, *Alcohol and Drug Use During Sexual Activity and Compliance with Safe Sex Guidelines for AIDS: The AIDS Behavioral Research Project*, 13 Health Educ Q 359 (1986). To the extent the Stall study suggests that risky sex is associated with alcohol consumption, it has been overtaken by later studies, analyzed in Ralph Bolton, et al, *Alcohol and Risky Sex: In Search of an Elusive Connection*, 14 Med Anthropology 323 (1992). See also Turner, et al, eds, *AIDS, Sexual Behavior and Intravenous Drug Use* at 197-200 (cited in note 30).

2. AIDS babies and recipients of tainted blood.

AIDS babies represent a phenomenon of growing importance.³⁵ Most (83% as of 1990) AIDS babies were infected through their mothers in the birthing process, and (as of 1989) 1.5 babies out of every 1000 are born to HIV-infected mothers nationwide.³⁶ The incidence of AIDS in babies can be expected to increase as the incidence of HIV in women increases. AIDS babies are innocent victims even under Philipson and Posner's account, because they suffer from unconsented-to externalities resulting from their parents' conduct. The same can be said for recipients of HIV-tainted blood. Notwithstanding better screening methods for blood supplies, transfusions remain a concern, as revealed in recent episodes where large quantities of tainted blood were sold in France and Germany.³⁷

Philipson and Posner concede that AIDS babies and recipients of tainted blood are exceptional cases falling outside their consent-based model; their infections are "externalities," costs imposed upon them without their consent by the conduct of third parties (pp 113, 131). This externality exception can be generalized. Many HIV-risky transactions involve potentially substantial third-party effects that the transactors do not consider in their cost-benefit decisions. Unless those third-party effects are included in the calculation of costs (C), a transaction that might be utility-maximizing for the participants may not be so for third parties who must bear their external effects without any meaningful consent. For example, in choosing whether to share a needle, the drug user (Chris) does not consider the risk to his lover (Kim or Leslie) of contracting AIDS. Given the fact that sex with IVDUs is a substantial means of HIV transmission, these scenarios represent a large negative externality.

3. Rape and the manufacture of consent in sexual interactions.

Philipson and Posner also concede that HIV infection resulting from rape is not utility-maximizing for the victim and therefore falls outside their model. The authors assume rape to

³⁵ See generally Stuber, ed, *Children and AIDS* (cited in note 17).

³⁶ Associated Press, *Study Finds 80,000 Women May Carry HIV*, NY Times B6 (Apr 3, 1991).

³⁷ See Alan Riding, *France Approved Use of AIDS-Tainted Blood*, NY Times A7 (Oct 20, 1991); Stephen Kinzer, *Fear of H.I.V.-Infected Blood Spreads Past German Borders*, NY Times A1 (Nov 5, 1993); Jane Kramer, *Bad Blood*, New Yorker 74-95 (Oct 8, 1993).

be another marginal exception (pp 113-14), but this assumption is open to question. Rather than the archetypical attack by a masked assailant, the phenomenon typically involves date rape, marital rape, rape within prisons, or the statutory rape of minors by people inside and outside the family unit.³⁸ The extent of rape is heavily contested. One empirical study found that 15% of college-age women have been raped, another 12% have been victims of attempted rape, and 26% have been subjected to other unconsented sexual aggression.³⁹ Similar percentages have been reported for women in the general population,⁴⁰ and much lower percentages have been reported for men.⁴¹ Even if the numbers are found to be much lower (as some believe they are), rapes represent a significant number of unconsented-to transactions that are usually capable of transmitting HIV (most rapes involve unsafe vaginal and/or anal sex), and are increasingly likely to do so as the prevalence of HIV rises.

Rape can be conceptualized in rational choice terms: Partner 1's expected utility (EU_1) is negative, but the transaction still proceeds because partner 2 uses force. Yet in a sense, that may be erroneous. If $EU_1 = B - C(1 - P_1)(P_2)$, as in the Philipson and Posner model, the rapist (partner 2) threatening partner 1 with death or serious injury is inducing a positive value for EU_1 by manipulating partner 1's expected benefits: Partner 1's benefit (B) of agreeing to risky sex is substantial (immediate death being

³⁸ See Diana E.H. Russell, *Sexual Exploitation: Rape, Child Sexual Abuse, and Workplace Harassment* (Sage, 1984); Mary P. Koss, et al, *The Scope of Rape: Incidence and Prevalence of Sexual Aggression and Victimization in a National Sample of Higher Education Students*, 55 *J Consulting & Clinical Psychology* 162 (1987). On rape by spouses and boyfriends, see Julie A. Allison and Lawrence S. Wrightsman, *Rape: The Misunderstood Crime* (Sage, 1993); Diana E.H. Russell, *Rape in Marriage* (Indiana, 2d ed 1990); Susan Brownmiller, *Against Our Will: Men, Women, and Rape* (Simon and Schuster, 1975).

³⁹ These are the figures from Koss, et al, 55 *J Consulting & Clinical Psychology* at 168, and Warshaw, *The Ms. Report* at 48 (cited in note 34). Such figures are contested in Katie Roiphe, *The Morning After: Sex, Fear, and Feminism on Campus* 52-55 (Little, Brown, 1993), a book usefully reviewed by Wendy Kaminer, *What Is This Thing Called Rape?*, *NY Times G1* (Sep 19, 1993).

⁴⁰ See Russell, *Sexual Exploitation* at 283-85 (finding, in a study of 930 randomly selected women in San Francisco, rates of rape or attempted rape of 12% by dates, 3% by boyfriends, 6% by lovers or ex-lovers, and 11% by strangers); David Finkelhor and Kersti Yllo, *License to Rape: Sexual Abuse of Wives* 203-05 (Holt, Rinehart and Winston, 1985) (finding, in a study of 323 randomly selected Boston women, 10% had been sexually assaulted by dates, 3% by strangers).

⁴¹ See Cindy Struckman-Johuson, *Forced Sex on Dates: It Happens to Men, Too*, 24 *J Sex Research* 234, 237 (1988) (finding, in a study of 268 male students at the University of South Dakota, that 16% of men have been forced to have sex by their dating partners; all examples given are of men forced to have sex by women).

the perceived alternative), more than enough to offset even a high cost ($C(1 - P_1)(P_2)$) of risky sex (only the possibility of death somewhat later).

Viewing rape as partner 2's manipulation of partner 1's benefit calculation, we can see how rape is related to other phenomena that are not legally defined as rape. Partner 2's ability to influence partner 1's benefit calculation is a conceivable scenario whenever partner 1 physically or psychologically fears partner 2, or what partner 2 might do if denied risky sex. Whether or not these cases legally constitute rape, we question whether they are utility-maximizing—for the same reasons rape is not. Philipson and Posner take no position on this issue. Yet it is an issue they cannot ignore, given the documented incidence of battering in male-female, male-male, and female-female relationships.⁴²

Moreover, partner 2's ability to influence partner 1's benefit calculation is possible whenever there is an imbalance of power or wealth between partners 1 and 2.⁴³ Philipson and Posner treat such cases as utility-maximizing (pp 33-34), but we do not believe they can do so neutrally. The distinction between rape and these cases is the following: in rape or near-rape cases, partner 2's physical threat (force or the possibility of force) is responsible for partner 1's vulnerability, which creates a high expected benefit for risky sex in partner 1's calculations. In the next level of cases, partner 2's emotional or economic threat (emotional or financial withdrawal) is responsible for partner 1's vulnerability. For issues relating to partner 1's utility maximization (as opposed to issues relating to imposing a criminal sanction on partner 2), we do not see a material difference between the two scenarios.

Lynn Stout suggests one difference between threats of physical battering and threats of emotional withdrawal: The former contribute to a completely unproductive dynamic of fear, while the latter are part of a potentially productive dynamic of emotional exchange.⁴⁴ Also, while battering is criminal conduct, the

⁴² For battering in same-sex relationships, see Caroline K. Waterman, et al, *Sexual Coercion in Gay Male and Lesbian Relationships: Predictors and Implications for Support Services*, 26 J Sex Research 118, 120 (1989) (surveying 36 lesbian and 34 gay male college students and finding 31% of the lesbians and 12% of the gay men reported they were coerced by their partners into having sex).

⁴³ That such scenarios are typical in male-female relationships is discussed, through examples, in Russell, *Rape in Marriage* at 80-83 (cited in note 38); Fullilove, *Black Women and AIDS Prevention* at 58-60 (cited in note 26).

⁴⁴ Stout suggested this argument to us in comments on our review. The point is further developed in David W. Barnes and Lynn A. Stout, *Cases and Materials on Law*

latter is at most civilly actionable. Stout's distinction gives us pause, though we remain unpersuaded that the utility of the dependent spouse is positive in either transaction. Stout's further point is most persuasive to us: Even if it is *efficient* for one partner to "give in" to the other partner's "insistence" upon risky sex, it is not *equitable* if it is always or usually one partner who gives in and, especially, if that partner is acting from a systematically weak bargaining position.

Recall Chris and Kim. They might engage in risky sex because Chris forces her, which is marital rape. But Kim also might acquiesce in risky sex because she fears Chris's "temper" when he is denied sex on his terms. This might not be rape as legally defined, but it strikes us as not utility-maximizing either. Or Kim might engage in risky sex because Chris nags her, threatening to withdraw emotional or financial support if Kim does not acquiesce. Recent surveys suggest that women in relationships with men often acquiesce in sex because the man insists upon it.⁴⁵ Given the low use of condoms by heterosexual couples and the far greater risk such sex poses for women, these activities are actually exposing many women to HIV under circumstances that we cannot consider fully voluntary and that are severely inequitable for the partner at risk.

C. The Complex Relationship Between Choice and Preference

Philipson and Posner's model assumes that the partners' preferences predate the transactions in which they are "revealed." This is a standard market concept. Recall the apple-buying scenario. In traditional economic analysis, the buyer has subjective preferences that can be given a determinate value, both for the apple and for the money in his pocket. Each of these subjective preferences is independent of the seller and of the apple/money exchange. Similarly, the seller has subjective values that she attaches to the apple and to the money, which she arrived at independent of the impending transaction and of the buyer.

and *Economics* 265-69 (West, 1992).

⁴⁵ Compare Koss, et al, 55 *J Consulting & Clinical Psychology* at 167 (cited in note 38) (25% of the women reported engaging in unwanted intercourse because they felt overwhelmed by men's pressure and arguments). See also Charlene L. Muehlenhard, et al, *Sexual Violence and Coercion in Close Relationships*, in Kathleen McKinney and Susan Sprecher, eds, *Sexuality in Close Relationships* 155 (Lawrence Erlbaum Assoc, 1991) (summarizing several studies, including Koss's).

But does this understanding of preferences and transactions resemble the world in which we live? Twenty years ago, Amartya Sen suggested otherwise and criticized rational choice theory—of which he is a parent—for too casually assuming that a person's "choice" accurately reflects her pre-existing "preference."⁴⁶ Stated more technically, Sen argued that people's preferences are "endogenous" rather than "exogenous" to their choices and the transactions that help shape those choices. This insight suggests a different mode of analysis of HIV-risky behavior than that adopted by Philipson and Posner. It also provides a rational choice vocabulary for expressing most of the criticisms developed above.

1. Relational preferences.

Sen inspires our view that one's preferences in a transaction are "relational"—they are influenced by one's relationship with the other party or parties. In sexual interactions, therefore, part of what partner 2 "prefers" is to do what makes partner 1 happy, and vice versa.

The relational preferences idea can be formally modeled for partner 2 by bifurcating her benefits from sex with partner 1:

$$B_2(\text{total}) = B_2(\text{self-regarding}) + B_2(\text{other-regarding})$$

thus,

$$EU_2 = B_2(\text{self-regarding}) + B_2(\text{other-regarding}) - C_2(1 - P_2)(P_1).$$

Suppose further that in this two-person world partner 2's other-regarding preferences are equal to partner 1's expected utility from the transaction. In that event:

$$EU_2 = B_2(\text{self-regarding}) + (B_1 - C_2(1 - P_2)(P_1)).$$

Thus, the effect of relational preferences is to add a variable (B_1) to the right side of the equation equal to the benefits the other party is perceived to enjoy from HIV-risky sex. In cases where B_1 is positive, as in our Chris-Kim example, partner 2's expected utility calculus might offset the cost (to partner 2) of risky sex by the pleasure partner 1 derives from HIV-risky sex.

⁴⁶ Sen, 40 *Economica* at 247-52 (cited in note 5). See also John C. Harsanyi, *Advances in Understanding Rational Behavior*, in Robert E. Butts and Jaakko Hintikka, eds, *Foundational Problems in the Special Sciences* 315 (D. Roidel, 1977); Kelman, 1979 *Wis L Rev* 769 (cited in note 33).

This analysis creates a dilemma for the Philipson and Posner model. Their assumption that HIV-transmittive events are simply two-party consensual transactions becomes highly dubious. One possible response would be for the authors to deny that preferences in sexual interactions are relational. To the contrary, though, sex is more clearly relational than most other transactions. Unlike the economic marketplace, sex not only requires two people to go along with the transaction, but even after agreement it is a "joint enterprise" whose success depends on the participants' cooperation. In the economic marketplace, on the other hand, the parties to a transaction need not cooperate (the buyer eats the apple). Also, in the economic marketplace the commodity in question is fungible and exists independent of the parties to the transaction (apples are everywhere and interchangeable), but in the sexual marketplace the "commodity" is the relationship itself, which is unique to the parties.

Another possible response would be for the authors to concede that the two equations in their model are interconnected and to posit that a transaction is efficient so long as the aggregated expected utility of the two partners is positive.⁴⁷ The problem with this strategy is that it requires the authors to develop a normative theory of sexual interactions to justify the possible subordination of one partner's utility-maximizing activity in favor of the other's.⁴⁸ The authors have not done this, and the analysis in this Essay suggests that they cannot.

2. Socially constructed preferences.

While he might have understated the relationship between sex and reason, Aristotle was on firm ground in believing that human beings are "political animal[s]."⁴⁹ That is, we are influenced not only by other individuals but also by social and cultural norms and mores as we form or re-form our preferences. The background norms that underlie a transaction strongly (and non-neutrally) influence preferences in the partners' sexual interactions.⁵⁰

⁴⁷ This would be a movement from a Pareto concept of efficiency (both parties are better off) to a Kaldor-Hicks concept (the party who is better off could "pay" the party who is not for her loss and still have surplus benefit).

⁴⁸ We reject their possible response that any subordination is justified by the two-party "consent" (actual or hypothetical) to the transaction, based upon our analysis in Part II.B., which has been re-presented here in a more formal way.

⁴⁹ See Aristotle, Carnes Lord trans, *The Politics*, 1253a1 (Chicago, 1984).

⁵⁰ See Rodrick Wallace, *Social Disintegration and the Spread of AIDS—II*, 37 *Soc Science & Medicine* 887 (1993) (discussing the meltdown of sociogeographic structures in

Recall partner 2's expected utility calculation, expressed as $EU_2 = B_2 - C_2(1 - P_2)(P_1)$. Social factors strongly influence all of the variables: People's estimates of the respective probabilities of infections (P_2 and P_1) are influenced by what others in their cohort believe and, as discussed earlier, by what the other partner reveals. The perceived cost of contracting HIV (C_2)—great suffering and premature death—is strongly influenced by one's self-image (and one's wealth), which is in turn strongly influenced by how a person is treated by others. Most of all, partner 2's benefits (B_2) will be strongly influenced by social factors. Whether intercourse without a condom is even a "benefit" depends in large part on social factors. If the partners' culture considers condoms "sexy," or if their peer group considers using condoms the "in" thing to do, partners 1 and 2 are much less likely to consider sex without a condom to be a "benefit" at all.

Now consider how the social and relational features of preferences can be integrated. Because B_2 is a relational function, its overall value depends on how partner 2 responds to the perceived desires of partner 1 and on how persistently partner 1 presses his own desires onto partner 2. Social and cultural pressures also influence these dependent variables. Certain segments of our society have traditionally been socialized into "pleasing" roles. For the most prominent example, women have traditionally been socialized to please men, and men have been socialized to be aggressive in imposing their own sexual preferences on women.⁵¹ These social norms affect the balance in our relational preference calculation. While Chris and Kim may each consider the other's preferences in deciding whether they want to engage in risky sex, Chris is more likely to speak up and press his preferences onto Kim, and she in turn is more likely to defer to Chris's desires. Until this culture changes, there typically will be no reason to believe that HIV-risky heterosexual intercourse, even when "consented to," is utility-maximizing or is fair for women. The normative qualms we have about this phenomenon are deepened by the asymmetry of risk: an infected man is much more likely to transmit HIV to an uninfected woman in unpro-

urban minority neighborhoods and the resultant effect on the spread of AIDS).

⁵¹ See Fullilove, *Black Women and AIDS Prevention* at 58-60 (cited in note 26); Laurie Wermuth, Jennifer Ham, and Rebecca L. Robbins, *Women Don't Wear Condoms: AIDS Risk Among Sexual Partners of IV Drug Users*, in Joan Huber and Beth E. Schneider, eds, *The Social Context of AIDS* 72 (Sage, 1992).

tected sex than an infected woman is to transmit HIV to an uninfected man.⁵²

A similar analysis applies to others who are socialized into submissive roles. In intercourse between two men, a frequent subcultural script calls for one of the men to be "dominant" and the other "submissive," the former a "top" and the latter a "bottom." The top is the insertive partner. As the man is often "in charge" in many heterosexual couplings, so too the top is typically "in charge" in a top-bottom coupling. If the top insists upon condomless sex, the bottom will often defer. Added to the asymmetry of risk (the bottom receiving the ejaculate is much more likely than the top to become infected through risky sex), this social mode of male-male intercourse makes "consent" by the bottom almost as questionable as the woman's consent in the standard male-female script.⁵³

The importance of social or cultural scripts undermines any Philipson and Posner argument for considering a sexual encounter utility-maximizing so long as the joint benefit to the parties is positive. If Chris and Kim engage in HIV-risky sex because Chris really wants to and Kim acquiesces, there is no neutral way to say this is truly utility-maximizing, even for the couple, because the cultural baseline is "husband insists, wife relents." Under such a baseline, Chris feels entitled, Kim feels trapped, and risky sex will often follow.⁵⁴ But if the cultural baseline were that the husband must respect his wife's sexual wishes and the wife should be assertive in expressing them, the calculus would be very different, and HIV-risky sex would less frequently follow. The importance of background endowments reveals the relation-

⁵² See Diane Richardson, *Women and the AIDS Crisis* 36-37 (Pandora, 1989); N.S. Padian, et al, *Female-to-Male Transmission of Human Immunodeficiency Virus*, 266 J Am Med Assn 1664 (1991); A. Johnson, et al, *Transmission of HIV to Heterosexual Partners of Infected Men and Women*, 3 AIDS 367 (1989).

⁵³ We do not completely equate top-bottom male sex with traditional male-female sex, because male-male couplings do not operate out of as strong a tradition of privileging the preferences of the insertive partner. The analysis in the text does not include "butch-femme" scripts for female-female intercourse, because lesbian sex thus far has not been identified as HIV-infective, perhaps because it does not combine anal sex and the exchange of bodily fluids.

⁵⁴ The "endowment effect" of baselines is even more dramatic in sex involving prostitution and sadomasochism, two other common scripts characterizing a great deal of heterosexual intercourse. The endowment effect is inspired by the "offer-asking" dilemma in market transactions: The price a buyer will "offer" for an apple possessed by the seller is likely to be lower than the price the buyer would "ask" to give up an apple he does have. See Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 Stan L Rev 387, 401-21 (1981).

ship between our argument that risky sex is not utility-maximizing for Kim, and our argument that it is inequitable for Kim to take risks at all. Utility and fairness are intertwined once one understands the implications of Sen's delinking of preference and choice.

3. Regret and the ex ante/ex post valuation of human life.

Preferences are also temporally relational and mobile—our preferences change over time in relation to the transactions in which we participate. Even if our present choices reflected our present preferences (an ambitious assumption, as shown above), there is insufficient reason to believe that they will reflect our future preferences. Insofar as we are shaped by our experience, our present choices and the activities that follow from them will influence our future preferences. These future preferences will in turn shape our future choices, which will in turn shape our future preferences, and so on. This further complicates the Philipson and Posner model.

Their model, like other rational choice models, focuses on the ex ante preferences of partners 1 and 2. That is, the numbers plugged into the authors' expected utility equations are the subjective preferences of partner 1 and partner 2 *before* they engage in the transaction. Suppose that t_1 represents time one (1990) and that t_2 represents time two (1992). The ex ante valuation of the sexual transaction looks like this:

$$EU_{1t_1} = B_{t_1} - C_{t_1}$$

$$EU_{2t_1} = B_{t_1} - C_{t_1}$$

Because a sexual transaction occurs, both expected utilities are believed to be positive. Assume further that partner 1 and partner 2 possess the same subjective preferences for the transaction at time one, and that these preferences are:

$$B_{t_1} = 10$$

$$C_{t_1} = 5$$

The following equations result:

$$EU_{1t_1} = B_{t_1} - C_{t_1} = 10 - 5 = 5$$

$$EU_{2t_1} = B_{t_1} - C_{t_1} = 10 - 5 = 5$$

Even if the transaction transmits HIV to partner 2, her ex ante costs (5) and benefits (10) of the risky sex remain unchanged by the discovery in 1991 that she is HIV-positive.

But if we ask partner 2 to value the 1990 transaction "ex post"—we ask her to assign values to the costs and benefits of the 1990 transaction from her perspective in 1992, after she has discovered she has AIDS—the cost changes dramatically. While the value of the benefits may remain the same ($B_{t_2} = 10$), the cost is extremely high ($C_{t_2} = 10,000,000$),⁵⁵ given the fact that she faces an early death from a debilitating disease. Thus, partner 2's ex post utility function is the following:

$$EU_{2t_2} = B_{t_2} - C_{t_2} = 10 - 10,000,000 = -9,999,990$$

Since the expected utility to partner 2 is negative when viewed ex post, the transaction would not have taken place if partner 2 could have known the ex post cost prior to the transaction.

The economist's response to our example is that human beings do not in fact value life so highly. We agree. Rational humans climb mountains under risk of falling and drive cars under risk of crashing, revealing their limited valuation of their own lives. Modern life is replete with devices that pit the risk of death against the utility of convenience, and we repeatedly choose to use them. This is not the final word on the intractable problem of valuing human life, however. While the ex post value humans place on life may be too high (practically infinite in relation to the ex ante measure), the ex ante valuation might be too low, especially when probabilities are reintroduced into the equation, which we now do.

A substantial academic literature describes people's tendency to underestimate the value of their lives when faced with very small risks of death.⁵⁶ To illustrate, the fact that someone demands \$100 to accept a 0.1% risk of death does not mean that she will accept \$10,000 to accept a 10% risk of death or that she will accept only \$100,000 to accept a certainty of death. In general, people demand a disproportionately (and unrealistically) small sum of money to accept a very small risk of death. This occurs both because of people's inability to properly assess risk and

⁵⁵ We considered an ex post utility-of-life set at infinity (∞) but follow the common economic practice of valuing life at much less, because people would not be willing to pay an infinite amount to preserve their lives. Our essential point in the text can be made under either approach.

⁵⁶ See Richard A. Posner, *Economic Analysis of Law* § 6.12 (Little, Brown, 4th ed 1992), and sources cited therein.

because of the diminishing marginal utility of money. This represents yet another cognitive defect that undermines Philipson and Posner's rational choice model. Because people systematically undervalue small risks of incurring great costs, they will take too many small risks. This phenomenon is especially true for adolescents.

This human response to risk and death is frequently exhibited. For example, suppose Chris tells Kim (ex ante) that should he develop cancer, he does not wish to undergo expensive chemotherapy. Chris subsequently develops cancer. Despite his best ex ante intentions, now that he is faced with imminent death, Chris changes his mind (ex post) and undergoes the treatment, at great cost to himself and Kim. The great gulf between ex ante and ex post valuation of life is nowhere more apparent than in automobile accidents and explains (in part) why we have seatbelt laws. The risk of death from an automobile accident is very small, yet the cost if one occurs is very great. Each individual systematically underestimates the risk that *he* will be in such an accident. Hence, he also undervalues the cost to himself should one occur. Given the systematic underestimation of both the risks and the costs, states impose seatbelt laws (or require passive restraints) to help cure this inaccurate private decision making and to enable people to achieve their full preferences.⁵⁷

Posner and Philipson note that the risks of HIV transmission from a single episode of risky sex are slight (p 21). Unlike automobile accidents, however, the cost when the risk materializes is always the same: certain death from a debilitating disease. For the same reasons that we do not trust the revealed preferences of risky automobile drivers (and therefore favor state regulation), so too we do not trust the revealed preferences of people engaging in risky sex or drug use. Additionally, we would like to make a more general point: It is more appropriate to consider revealed preferences in economic markets (where the difference between ex ante and ex post valuation is usually slight) than it is in markets for risky sex, where the difference is likely to be very substantial.⁵⁸

⁵⁷ See Kenneth W. Simons, *Assumption of Risk and Consent in the Law of Torts: A Theory of Full Preference*, 67 BU L Rev 213 (1987).

⁵⁸ Philipson and Posner's comparison of risky sexual behavior to mountaineering deaths (p 41) is misplaced. We could indeed prevent all mountaineering deaths by preventing all mountaineering. Clearly, this is not utility-maximizing, since so many people continually choose to engage in the activity despite the dangers. Or is it because of the dangers? Suppose instead of preventing the activity, we required everyone to ride up the side of the mountain in a Walt Disney-style monorail and called that mountaineering.

III. CONSEQUENCES OF OUR ANALYSIS

Our framework yields a different picture of the AIDS crisis than Philipson and Posner's, different policy prescriptions, and a few new angles on rational choice theory itself.

A. Descriptive Implications

We endorse Philipson and Posner's main argument that people will often respond to an infectious disease by changing their behavior, for much the same reason that they will purchase less of a product when its price goes up. We are more hesitant than they to think that human behavior in the bedroom or the shooting gallery is just like behavior in the marketplace, and we see more market failures than they do. While the authors' criticism of some medical models for failing to take account of behavior changes in charting the course of AIDS is well-taken, we insist that much of the medical literature for almost a generation has explicitly assumed behavioral changes, and most of the AIDS literature in the medical journals critically analyzes this point. Finally, we maintain that Philipson and Posner are too optimistic in suggesting that HIV infections have leveled off at an "efficient" plateau (pp 218-19), and we detect troubling new trends in HIV infection.

1. Younger women as the next AIDS victim group.

The Philipson and Posner model tends to slight the social and cultural dimensions of HIV-risky conduct. This theoretical defect obscures for the authors a pressing practical dimension of the AIDS epidemic—the apparent increase in HIV infection among younger women.⁵⁹ A simple economic or medical ap-

This would not satisfy the mountaineers because what they seek is not just the view but the *risk*. Mountaineering is a risk-seeking activity. Individuals accept the risk as part of the activity, not despite it. While it may be true that some sexual behavior is erotic in part because of the risks it entails, the risk-taking features of sex are dominated by other features—pleasure, friendship, love, and aesthetics. See Posner, *Sex and Reason* at 118-19 (cited in note 2).

⁵⁹ See Carole A. Campbell, *Women and AIDS*, 30 Soc Sci Med 407 (1990); Olga A. Grinstead, et al, *Sexual Risk for Human Immunodeficiency Virus Infection Among Women in High-Risk Cities*, 25 Family Planning Perspectives 252 (1993); Lisa Krieger, *HIV Rates for Blacks, Women, and Young Rising*, San Francisco Examiner (Dec 13, 1993). Given the authors' recognition of the asymmetry of risk in heterosexual intercourse, it is puzzling that they do not focus more attention on HIV risks for women. Their main discussion is the assertion that HIV risk is greatest for African-American women (pp 75-78). This group is greatly at risk, but focusing on African-American women obscures similar risks for

proach to HIV infection may underestimate this problem, because these models fail to take account of the cultural dimensions of risky behavior.

Recall our discussion of the relational and social dimensions of preferences, and traditional scripts whereby women and men are socialized into specified roles. For a woman socialized into a pleasing role, as partner 2; her expected utility for risky sex (EU_2) will include strong consideration of her male partner's desire for sex without a condom (B_1):

$$EU_2 = B_2(\text{private}) + B_1 - C_2(1 - P_2)(P_1).$$

Since condomless heterosexual intercourse is much riskier for the woman (partner 2) than for the man (partner 1),⁶⁰ men may be subjecting women to dangerous risks of HIV infection.

Our discussion of decision-making biases and the temporal dimension of preferences suggested that young people are more susceptible to risky sex than more mature people in the same risk group. Thus:

$$EU_{y2} = B_{y2} - (C_{y2} - X)(1 - P_2)(P_1)$$

where EU_{y2} is the expected utility to a young female. X is what might be called the "youth discount," which is simply the added amount an immature person underestimates the cost of danger. Combining this with the equation above yields the following:

$$EU_{y2} = B_{y2}(\text{private}) + B_1 - (C_2 - X)(1 - P_2)(P_1).$$

The combined equations simply illustrate how a young woman's expected utility of engaging in risky sex is often discounted twice—first, by the fact that she is female and, second, by the fact that she is young.

Because there is little direct data on HIV infection (as there is for AIDS cases), it remains to be seen whether our hypothesis is correct. But there is some suggestive evidence. Statistics published by the Centers for Disease Control and Prevention (CDCP) for 1993 indicate that 34% of the total female AIDS cases have been diagnosed in the prior year and 51% in the last two years,

Latinas (see figures 2-9 and 2-10, pp 76-77) and risks for women in general that are just now showing up in AIDS cases.

⁶⁰ See Richardson, *Women and the AIDS Crisis* at 36-37 (cited in note 52). One non-behavioral factor makes young women particularly vulnerable to AIDS: anatomy. Young women are especially vulnerable to lesions in the lining of the vagina from the age of 10 to 18 as puberty progresses. Lesions make the transmission of HIV during intercourse much more likely.

compared with comparable figures for male AIDS cases of 27% and 41% respectively.⁶¹ Since the AIDS case data reflect infections that usually occur five to ten years prior to manifestation of AIDS, this information suggests that the rate of female infection accelerated in the mid-1980s. Some experts believe that in 1992 heterosexual transmission of HIV became the leading cause of the disease in women, taking over first place from needle-sharing during intravenous drug use.⁶²

2. Relapses by gay and bisexual men.

Notwithstanding the early incursions of HIV in the gay and bisexual male population, AIDS is not a "gay plague." The newer AIDS cases reveal heterosexual transmission to be an increasing source of HIV transmission.⁶³ Consistent with the medical literature, Philipson and Posner credit behavioral changes on the part of gay and bisexual men with reducing the incidence rate of new HIV infections in that subgroup (pp 68-69). We agree but note that there is substantial evidence of "relapses" into unsafe sex by gay and bisexual men, as well as by heterosexual men.⁶⁴

The authors try to explain these documented relapses as a rational response to negative incidences of HIV infection in the gay and bisexual population or as a rational reflection of sorting HIV-positive from HIV-negative subpopulations (p 69). The data demand a richer cultural and social explanation. Experts believe that San Francisco, which had an incidence rate of less than one new infection per 100 gay men in 1985, has double that rate now, and four times that rate among young gay or bisexual men.⁶⁵

⁶¹ Calculations from CDCP, *HIV/AIDS Surveillance Report* 6-8, Tables 3-5 (Oct 1993) ("CDCP Report"). Other data suggest that female adolescents may now be infected at a higher rate than male adolescents. See George A. Conway, et al, *Trends in HIV Prevalence Among Disadvantaged Youth*, 269 *J Am Med Assn* 2887 (1993).

⁶² Boyce Rensberger, *AIDS Spreads Fastest Among Young Women; U.N. Study Finds Adolescents on Epidemic's Leading Edge*, *Wash Post* A1 (July 29, 1993). This claim goes beyond the evidence to be found in the CDCP reports.

⁶³ Of the AIDS cases reported from October 1991 to September 1993, 9% represented infections from heterosexual transmission, up from 6% of the pre-October 1991 cases. More than half of the heterosexually transmitted cases were reported after October 1991. Calculated from *CDCP Report* at 6, Table 3.

⁶⁴ See David E. Kanouse, et al, *AIDS-Related Knowledge, Attitudes, Beliefs, and Behaviors in Los Angeles County* 18-31 (Rand, 1991); S.M. Abid, et al, *Relapse in Sexual Behaviour Among Homosexual Men: A 2-Year Follow-up from the Chicago MACS/CCS*, 5 *AIDS* 757 (1991); Jane McCusker, et al, *Maintenance of Behavioral Change in a Cohort of Homosexually Active Men*, 6 *AIDS* 861 (1992); Michael C. Samuel, et al, *Changes in Sexual Practices over 5 Years of Follow-up Among Heterosexual Men in San Francisco*, 4 *J AIDS* 896 (1991).

⁶⁵ See Jane Gross, *Second Wave of AIDS Feared By Officials in San Francisco*, *NY*

The reasons listed by the experts for the upswing in unsafe sex in that and other cities are those suggested by our critique, and not those suggested by the Philipson and Posner model: momentary passion or intoxication, youthful immaturity or belief in one's indestructibility, the perceived inefficacy of safer sex (the disease will get you sooner or later), and individual or peer group dissatisfaction with condoms.⁶⁶

The relapse evidence impels us to inquire whether the Philipson and Posner analysis adds anything to the existing medical literature, which already establishes that people do sometimes change their behavior in response to outbreaks of disease. The attraction of an economic analysis is that it might be more rigorous, offering more precise predictions. But Philipson and Posner do not promise better predictions from their model. The best they can do is to provide interesting but incomplete post hoc analyses of developments in a swiftly evolving field.

3. AIDS, ethnicity, and poverty.

Philipson and Posner are sensitive to the strong connection between HIV infection and poverty, and a weaker connection with ethnicity (pp 72-78). We agree with the correlations. African-American and Latino communities are particularly devastated by the disease, and the communities hardest hit are those of the greatest poverty.⁶⁷ The data concerning AIDS cases among African-American and Latino men display a unique pattern. In both groups, 36% or more of the currently reported AIDS cases are the result of HIV transmission through intravenous drug use.⁶⁸

The authors are on more controversial ground in suggesting reasons for these correlations. They say that "drug addicts and members of disadvantaged minority groups" are less likely to change their behavior in response to AIDS, because they "derive

Times A1 (Dec 11, 1993).

⁶⁶ See John B.F. de Wit, et al, *Why Do Homosexual Men Relapse into Unsafe Sex? Predictors of Resumption of Unprotected Anogenital Intercourse with Casual Partners*, 7 AIDS 1113 (1993); Gross, *Second Wave* at A10; Jeffrey A. Kelly, et al, *Predictors of Vulnerability to AIDS Risk Behavior Relapse*, 59 J Consulting & Clinical Psychology 163, 166 (1991) (citing beliefs that "luck, fate, or others determine risk").

⁶⁷ Whereas African-Americans comprise only 12% of the nation's population, 27% of all AIDS patients were African-American as of September 1993. *CDCP Report* at 7, Table 4 (cited in note 61). Similarly, Latinos and Latinas comprise only 6% of the nation's population but 16% of all AIDS cases. *Id.*

⁶⁸ *Id.* See also David McBride, *From TB to AIDS* (1991) (discussing effect of epidemics on urban blacks in this century).

relatively little utility from living, perhaps reflecting (as well as causing) poverty” (p 73). Such statements cry out for social and cultural analysis. Poor minority communities have become ghettoized not only from the mainstream white community, but also from middle-class communities of color, and their ghettoization has in no discernible way been by choice. Their marginalization is reflected in the state’s neglect of ghetto education and contributes to the flourishing of drug subcultures, which in turn directly contribute to the spread of HIV within inner city communities. Any description of the “optimal” level of a disease or a government’s response to it must take such factors into account. Furthermore, it is wrong for social planners to invoke low self-worth as a basis for neglecting the spread of HIV in ghetto communities, when that self-worth is in part a consequence of other policies of neglect. Again, issues of utility-maximization cannot be divorced from issues of distribution, as Philipson and Posner attempt to do.

Consider another example of the interpenetration of public and private choices in matters of sexuality and AIDS. Monogamy generally retards the spread of HIV because it encourages better monitoring and more altruistic attitudes between sexual partners. Promoting monogamous marriage is thus a cheap and effective way for the state to fight AIDS. After recent changes in the tax code, however, our country’s citizens now face a substantial marriage penalty.⁶⁹ In some cases, more than 15% of the couple’s combined income will be converted into a penalty should they marry—a penalty many couples can ill afford. Surely such a penalty influences the decision whether to get married. This cultural factor is just one of many relevant to the AIDS equation.

B. Policy Consequences of Our Analysis

Paralleling their premise that HIV-infective transactions are typically utility-maximizing, Philipson and Posner argue that the “*net external costs*” of AIDS “might be relatively modest” (p 118) and that our country might be approaching an efficient level of AIDS (pp 109-25). For that reason, their treatment is suffused with a presumption against state intervention to fight the disease.

⁶⁹ Jonathan Marshall, *Price of Family Values Just Went Up*, NY Times C11 (Sep 12, 1993).

Our analysis suggests that Philipson and Posner severely underestimate the external costs of AIDS. It is typical rather than exceptional for someone to be infected through an occurrence that does not meaningfully reflect that person's voluntary choice. It is at best indeterminate what an "efficient" level of AIDS in the United States would be. Though we are unsure whether the incidence of HIV infection has been rising, new infections continue at an unacceptable rate. Hence, the externalities of the disease, properly defined, are greater than Philipson and Posner indicate. Additionally, AIDS has engendered massive social consequences that cannot readily be calculated but which are nonetheless profound. The reduced pleasures of sex include not just withdrawing risky practices from peoples' repertoire of pleasure, but casting death's pall over interactions that might otherwise be occasions of great joy, interconnection, and personal fulfillment. The pall of death surely has cultural ramifications that are only recently being felt and understood.⁷⁰ Fighting the disease vigorously might be justified not only by the millions of individual lives affected, but also by the cultural stakes.

In short, a presumption against state intervention is insufficiently defended. Rejecting Philipson and Posner's presumption, we also question many of their specific positions. But we concur with the authors' insistence that regulatory interventions be carefully justified and with their pragmatic approach to such justifications. Moreover, we share the authors' unhappiness with the cost-effectiveness of current policy. Finally, we would extend the authors' analysis to suggest that many of the causes of HIV infection (especially those discussed in Section II) involve broader issues of gender, race and ethnicity, sexual orientation, and poverty—issues that transcend programs specifically aimed at AIDS and most certainly transcend rational choice theory.

1. Education.

The best insight of the Philipson and Posner approach and its medical analogue, the health belief model, is that better-informed people often will make decisions that are better for them. Hence, the authors endorse programs which report new informa-

⁷⁰ See Jodi Short, *Richard Posner on AIDS: Sex, Death and Immortality* (Georgetown University Law Center, 1993) (on file with U Chi L Rev), applying Georges Bataille, *The Tears of Eros* (City Light Books, 1988).

tion about AIDS to the general population and which present specific educational information to relatively less informed subpopulations that are at risk, especially teenagers, Latino and African-American communities, and persons with lower incomes (pp 168-69). We agree with these recommendations but are critical of traditional educational efforts,⁷¹ and we would caution that educational programs must be more ambitious than simply providing information.

Well before the publication of *Private Choices and Public Health*, the medical literature had found that educational programs which merely supplied information to adolescents were not very effective in reducing risk-taking adolescent behavior.⁷² Consistent with our view that anxiety and social factors decisively influence decision making, especially among adolescents, the medical literature has shown the greater success of programs that go well beyond providing information. Such (modestly) successful interventions tie behavior to consequences in concrete ways, engage the students in exercises designed to improve their perceived self-efficacy (namely, their ability to engage in safer behaviors skillfully), and seek to change the peer culture that determines what is socially acceptable.⁷³

Thus, Leslie (the teenager introduced in Part II) will not stop having risky sex with Chris simply because he learns in the abstract that AIDS can be transmitted in this way. Leslie is more likely to change his behavior if his attention is also engaged by simulated negotiations, which suggest how easy and normal it can be to have a condom ready and to use it correctly. He is much more likely to demand safer sex if his peer group decides that condoms are "in" and that "only dopes take risks for unsafe sex."

⁷¹ This is not to say that Philipson and Posner are not (properly) critical of existing efforts, finding them insufficiently focused on the communities that are least well-informed and too often duplicative of private educational efforts (pp 155-56, 164).

⁷² See Ralph J. DiClemente, *Preventing HIV/AIDS Among Adolescents: Schools as Agents of Behavior Change*, 270 J Am Med Assn 760 (1993) (editorial); Ralph J. DiClemente and Amanda Houston-Hamilton, *Health Promotion Strategies for Prevention of Human Immunodeficiency Virus Infection Among Minority Adolescents*, 20 Health Educ 39 (1989); Douglas Kirby, et al, *Reducing the Risk: Impact of a New Curriculum on Sexual Risk-Taking*, 23 Family Planning Perspectives 253 (1991); Heather J. Walter and Roger D. Vaughan, *AIDS Risk Reduction Among A Multiethnic Sample of Urban High School Students*, 270 J Am Med Assn 725 (1993).

⁷³ See DiClemente, 270 J Am Med Assn 760; Walter and Vaughan, 270 J Am Med Assn 725; John B. Jemmott, III, et al, *Reductions in HIV Risk-Associated Sexual Behaviors Among Black Male Adolescents: Effects of an AIDS Prevention Intervention*, 82 Am J Pub Health 372 (1992).

The AIDS epidemic also reminds us of the tension between the relative virtues of education in school versus education in the home. One of us (Weimer) believes that children's parents are their best educators. He suggests that the state prevents marriage (through tax penalties and the like) at its own peril. The other (Eskridge) is more pessimistic about the ability of families to engage in effective sex education and urges that the state must take up the slack by providing school-based AIDS and sex education. We both believe that AIDS education in cities, where poverty strikes particularly hard, can be part of a broader effort for the schools to educate adolescents about sex generally—including not just the mechanics of it, but also larger cultural points about sexual orientation and homosexuality, male-female communication (including the significance of “no”), and the dangers drugs and alcohol pose for one or both partners. A responsible and ambitious sex education program that induces less HIV-risky behavior can also have payoffs by reducing teen suicides (especially by adolescents confused about homosexuality), date rape and sexual harassment, and unanticipated pregnancies—serious problems the educational system has addressed unevenly.

2. State subsidies to fight AIDS.

While the state's first and most important role in fighting AIDS is education, state subsidy of AIDS-fighting activities is also important, so long as appropriately targeted. Philipson and Posner's main recommendation for affirmative state intervention is to recognize same-sex marriages (pp 148, 179-80). State-sanctioned marriage both subsidizes and encourages committed monogamous relationships.⁷⁴ Philipson and Posner believe that monogamy is an efficient way to fight AIDS, both by reducing the number of different sexual partners and by creating relationships where mutual altruism and more effective monitoring might flourish (pp 54-56). Though cautioning that monogamy will not protect the partners if one is infected and safer sex practices are

⁷⁴ Marital relationships are subsidized by the many health insurance and other economic benefits accorded married couples and not unmarried ones. See William N. Eskridge, Jr., *A Social Constructionist Critique of Posner's Sex and Reason: Steps Toward a Gaylegal Agenda*, 102 *Yale L J* 333, 354-55 (1992) (listing such benefits under D.C. law). Monogamy is also encouraged by state penalties against adultery, which not only is a criminal offense in many states, but also potentially subjects the adulterer to a costly divorce.

not rigorously followed, we endorse their proposal, for it reflects a social rejection of anti-homosexual biases and discrimination. Legalizing same-sex marriages would also contribute to the fight against AIDS by fostering more open and mature discussions of sexuality in America. In Sweden, state sanctioning of gay relationships and prohibition of discrimination against gay men and lesbians is a key component of that country's successful anti-AIDS campaign.⁷⁵

Other than their endorsement of same-sex marriage (which is state policy on the cheap), Philipson and Posner are exceedingly tight-fisted about spending state money on fighting AIDS, reflecting their unrealistic view that most HIV infections are a byproduct of utility-maximizing transactions.⁷⁶ Even given the authors' stinginess, we are surprised that they are not enthusiastic about subsidies for condom distribution and needle-exchange programs. Their concern is that increased availability of these safer mechanisms will only encourage the underlying activities (anal or vaginal sex and drug use), thereby canceling out the good effects of such subsidies (pp 174-79). This may be an example of conservative cultural factors sneaking back into the authors' analysis, for the empirical data do not support this concern, and experience in this and other countries suggests that condom availability and (especially) needle-sharing programs have an overall dampening effect on HIV transmission.⁷⁷ But

⁷⁵ See Benny Henriksson and Hasse Ytterberg, *Sweden: The Power of the Moral(istic) Left*, in David L. Kirp and Ronald Bayer, eds, *AIDS in the Industrialized Democracies: Passions, Politics, and Policies* 317, 321-22 (Rutgers, 1992). As Henriksson and Ytterberg note, however, Sweden has been reluctant to begin needle exchanges, and has shown a willingness to rely on repressive measures such as open isolation of HIV-positive persons, compulsory testing, and prejudicial mass information campaigns. Id at 317-19.

⁷⁶ And reflecting the authors' view that state spending on AIDS is driven by interest group politics ("The Redistributive Factor in Public Policy Towards AIDS," pp 199-206). Hence, Philipson and Posner maintain that doctors and "homosexuals" have organized to extract rents from society to further their own agendas (p 201). This is undermined by our demonstration that the externalities of AIDS are much greater than Philipson and Posner acknowledge, and by political histories of AIDS funding, which demonstrate state reluctance and hostility to spending money on a disease that affects the socially marginalized. See Geva Corea, *The Invisible Epidemic: The Story of Women and AIDS* (HarperCollins, 1992); Randy Shilts, *And the Band Played On: Politics, People and the AIDS Epidemic* 322-23 (Penguin, 2d ed 1988). These sources maintain that the rent-seeking has been by moralistic groups who insist on blocking needed programs.

⁷⁷ See School of Public Health, University of California, Berkeley and Institute for Health Policy Studies, University of California, San Francisco, *The Public Health Impact of Needle Exchange Programs in the United States and Abroad* iii-iv (Sept 1993) (comprehensive study finding that needle-exchange programs are very cheap to run, are associated with decreased HIV-risky drug behavior, and do not contribute to increased overall drug use); Larry Gostin, *The Interconnected Epidemics of Drug Dependency and AIDS*, 26

the availability of condoms and clean needles must be supplemented by practical educational campaigns teaching people how to use condoms and by media or community efforts suggesting the social responsibilities of safer activities. As we argued in Section II, knowledge without understanding and social reinforcement is not useful.

The least helpful portion of Philipson and Posner's analysis is their hostility toward subsidizing AIDS research for cures, vaccines, and treatments. The authors' libertarian baselines in these chapters overwhelm the fact-based approach followed elsewhere in the book. Because the external costs of AIDS are higher than what the authors suggest and because private companies tend to under-invest in such public good research, there is a plausible case to be made for spending public money on cures. We disagree as to how much should be spent on the crisis; one of us (Eskridge) is inclined to spend a great deal of money, the other (Weimer) not so much. However, we do agree that AIDS is a public health threat to a larger segment of the population than the Philipson and Posner model admits.

3. Mandatory testing and exposure liability.

In addition to subsidizing research, education, needles, and condoms, the state might fight AIDS through regulatory interventions. Philipson and Posner are suspicious of most regulatory interventions, both for pragmatic as well as for libertarian reasons (pp 126-53). We think their pragmatic points are most telling, and we endorse most of their conclusions, including (i) their skepticism that mandatory testing is effective in fighting the spread of AIDS, (ii) their opposition to the current exclusion of HIV-positive noncitizens from entering the United States, and (iii) their insistence that laws and norms stigmatizing homosexuality have contributed and continue to contribute to the spread of AIDS.

Given our belief that HIV is often spread through fraudulent or misinformed transactions, the hardest issue for us is mandatory testing. We are persuaded that testing specific populations does not retard the spread of HIV, because it just discourages people from entering those populations.⁷⁸ Mandatory testing of

Harv CR-CL L Rev 113, 147-62 (1991); Gerry V. Stimson, et al, *Distributing Sterile Needles and Syringes to People Who Inject Drugs: The Syringe-Exchange Experiment*, in John Strang and Gerry V. Stimson, eds, *AIDS and Drug Misuse: The Challenges for Policy and Practice in the 1990s* 222 (Routledge, 1990).

⁷⁸ An exception is the prison population. We tentatively think that testing prisoners

the general population is even less feasible because it is exceedingly expensive, an invasion of privacy, and possibly counterproductive.⁷⁹ To ameliorate the last problem, any testing program should be accompanied by criminal and tort liability laws penalizing HIV-infected people who expose others to the virus without disclosure of their HIV status.⁸⁰

Even if mandatory testing is not adopted, the question remains as to whether the law should discourage risky conduct by raising its cost through criminal or tort liability for knowing, reckless, or negligent exposure of one's partner without disclosure of one's HIV status. Under the Philipson and Posner model, this strategy makes some sense. If partner 2 knows he is infected, his cost of risky sex is zero,⁸¹ and risky activity will occur if he can persuade partner 1 to go along. Our analysis suggests that this will sometimes happen, even when it is not in partner 1's interest to engage in risky activity. This scenario is both unjust and inefficient, but if the law can add a new cost factor—the risk of imprisonment or payment of monetary damages—then partner 2 will have an incentive to engage in fewer risky transactions. This is, of course, a limited deterrent, because the infected partner has less to lose and may have fewer financial resources if he is already disabled by the disease. Nevertheless, for those transactions where the external costs can be internalized through criminal liability, such sanctions might be a good idea.⁸²

is probably a good idea, given the high incidence of both rape and HIV infection among prisoners. The issues are discussed in Theodore M. Hammett, *AIDS in Correctional Facilities: Issues and Options* 59-70 (US Dept of Justice, Nat'l Institute of Justice, 3d ed 1988).

⁷⁹ As Philipson and Posner argue, people who test positive would have fewer incentives to engage in safe sex and some incentive to deceive their partners into engaging in risky sex (p 137). But people who test negative would have greater incentives to engage in safer sex and some incentive to insist upon proof of HIV status from their partners. Given our analysis in Part II, we are inclined to think that in the short term the risky incentives will outweigh the safe ones. We are completely uncertain about the longer term, however.

⁸⁰ See, for example, Mich Comp Laws § 333.5210 (1993) (imposing criminal liability for sexual penetration without disclosure of HIV-positive status).

⁸¹ In partner 2's utility function, the cost side is $C(1 - P_2)(P_1)$. If partner 2 knows that he is infected, then $P_2 = 1$ and the cost side is zero, assuming he has no qualms about possibly infecting another. Recall that Philipson and Posner are probably wrong in thinking that an HIV-positive partner has nothing to lose by engaging in unsafe sex; in fact, such individuals may thereby expose themselves to more virulent forms of the virus.

⁸² See generally Comment, *The AIDS Challenge Continues: Should Pennsylvania's Criminal Law Take on the Challenge?*, 30 Duquesne L Rev 283 (1992); Comment, *The Fear of a Disease as a Compensable Injury: An Analysis of Claims Based on AIDS Phobia*, 67 St. John's L Rev 77 (1993); Note, *In Search of a Balance: AIDS, Rape, and the Special Needs Doctrine*, 66 NYU L Rev 1881 (1991); Comment, *From Mother to Child . . . A Criminal Pregnancy: Should Criminalization of the Prenatal Transfer of AIDS/HIV be the*

C. Economics in an AIDS Perspective

As critical as we are of *Private Choices and Public Health*, we think it an important book, else we would not be reviewing it. It is important because it provides hard-headed analysis on a difficult topic, and is unflinching in its frankness about a topic so many Americans find displeasing even to discuss. It is also important as an exemplar of economics-imperialism. Posner has been both pioneer and emperor of the application of economic assumptions and models to many areas of law—from the traditional market settings of antitrust and contract, to nonmarket areas ranging from accidents, procedure, standing to bring lawsuits, statutory interpretation, adoption, and (most recently) sex. We admire this work, which insists that human decision makers can and do make decisions that rationally contribute to their goals, and which reminds us that the scarcity of resources imposes limits on our ability to address all the problems that press our society.

Private Choices and Public Health reveals both the appeal and the limitations of economics in thinking about social problems outside regular marketplace settings. An appeal of economic analysis is that it provides a general theory that explains *everything*. A further appeal is that economics seems to do so neutrally, that is, by reference to values that are widely held and appear not to be partial to any group or viewpoint. These are not spurious appeals; they are genuine, and they are made at a point in history—the policy-wonk 90s—when there is a ready market among intellectuals for omnibus theory and neutral policy science.

A problem with economic analysis is that, like meteorology, economics is much better at explaining what has just happened, than what is going to happen. Philipson and Posner are no exceptions (nor are we, so take our own predictions with a grain of salt). Triumphantly, Philipson and Posner show how their behavior-based theory explains the trends in HIV infections. But this explanation was already in the medical literature, and indeed the economic analysis is little more than common sense dressed in mathematical jargon. What would you expect people to do when faced with a death that can be avoided by changes in conduct? The great surprise is that more people have not changed their conduct, and that is the puzzle the medical literature has been

focusing on for the last five years. Philipson and Posner offer few (and no persuasive) explanations for why gay men are relapsing into unsafe sex, why drug users still go to shooting galleries and share needles, and why young men and women continue to have unsafe sex. Without answers to these questions, and further questions of epidemiology (is there much risk of heterosexual transmission?), it is difficult if not impossible to predict the current state of HIV infection or the future course of AIDS.

Even if Philipson and Posner do not offer a novel or robust predictive model of HIV and other viral infections, their work may have an appeal because it offers "neutral" criteria for discussing what our polity ought to do in response to AIDS. However, as we have noted several times, economics' neutral criteria are most useful when applied to traditional market settings. Indeed, we are in agreement that economics should sometimes be the *governing* mode of analysis in traditional market settings. But we are also in agreement that economics is less useful when it enters the arena of normative public policy debate, and we find it difficult to discern what special insights economics has to offer for the AIDS crisis.

Unfortunately, the aura of "neutral" criteria in economics easily obscures economists' underlying normative assumptions and analysis. For example, the prescriptions in *Private Choices and Public Health* flow mainly from the libertarian and conservative pragmatic baselines of the authors, and not from their economic analysis. We agree with Philipson and Posner's recommendations concerning same-sex marriage (for it), mandatory testing (skeptical), quarantining people with AIDS (against it), and allowing people infected with HIV to enter the United States (for it). But our agreement hardly stems from any agreement with Philipson and Posner's descriptive model, which we criticize. Instead, we agree with these recommendations because we share the authors' policy biases on issues of personal liberty. One of us (Weimer) also tends to agree with Philipson and Posner's tight fist around the nation's purse strings, but mainly because he follows Posner's libertarian views about economic issues and is more socially conservative. The other of us (Eskridge) is willing to spend money on research and education, because he is not libertarian on these issues, and because he has seen people suffer and die of complications associated with AIDS.

The greatest dangers of the Philipson and Posner model are that the economics jargon tends to obscure the normative and cultural analysis, and that the economic analysis (at least of the

Chicago School variety) tends to normalize and thereby reinforce some of the questionable features of American society. Although it is written in a dry technical style and discusses subjects that leave most Americans squeamish, *Private Choices and Public Health* buttresses middle-class America's desire to avoid guilt by thinking that it is spending "enough" on AIDS, that we need feel little sympathy for the people who have been infected because they have full personal responsibility for their infection, and that our children are not at risk so long as they are brought up to think rationally. By desiccating a messy problem, rational choice theory impedes our understanding and helps reinforce the moral distance that mainstream society would like to create between itself and AIDS.