AIDS: The economic rationale for public intervention
by Michael Kremer

Section One: Market failure, equity, and the rationale for public action against AIDS

Many health professionals assume that the government should be involved in combating the AIDS epidemic. While the case for government intervention may be clear to those in the health professions, many economists believe that too many resources have been invested in the fight against AIDS. It is useful to compare the case of AIDS with that of malaria. As The Economist recently noted, malaria causes three times the worldwide burden of death and disability as AIDS. Yet governments spent about US$1 billion on AIDS research in 1990 and only US$60 million on malaria research. While it may well be the case that the world should put more effort into fighting both malaria and AIDS, from the standpoint of health officials in developing countries with limited budgets, it is not clear whether more resources should be allocated to fighting AIDS.

From an economic standpoint, an argument for government intervention to fight the AIDS epidemic must have several components:

- First, an equity argument or a source of market failure must be identified. As Philipson and Posner (1993) argue, standard economic welfare analysis does not typically suggest that the government should interfere in people's decisions about what risks they wish to assume.
- Second, it must be shown that cost-effective interventions exist. Given that there is limited evidence about the effectiveness of anti-AIDS programmes, it is not clear that these programmes should be the highest priority investments for poor countries with many other problems.
- Third, even if there were a theoretical case for government intervention, and even if cost-effective interventions could be found, it must be argued that the political process could lead to these programmes actually being implemented.

This paper deals primarily with the first of these issues, arguing that even in those cases in which the risk of contracting AIDS is assumed voluntarily, there is a theoretical case for government intervention in the AIDS epidemic. Economists generally recognise the case for public subsidies for vaccination,
since people who get vaccinated reduce not only their own chance of being infected, but also the chance that they will pass on the infection to others who do not voluntarily assume the risk of infection. The analysis in this paper suggests that a similar logic applies for HIV, even if the disease were transmitted only through voluntary activity. The market failures, however, and the associated policy implications are not necessarily those that one would guess from a superficial analysis of the epidemic.

Philipson and Posner (1993) argue that since sexual activity is voluntary, the government should play only a limited role in fighting AIDS. While the neoclassical welfare analysis on which their analysis is based can be criticised as an incomplete view of our social preferences, it is worth exploring this argument more fully on its own terms. As others have pointed out, there are several possible sources of externalities surrounding AIDS.

First, some people cannot voluntarily control their risk of infection. This includes survivors of rape, minors who cannot provide consent for sexual activity, newborns, and accident victims receiving transfusions. Given that governments will not be completely effective in preventing rape and sexual exploitation of minors, however, some degree of government action is warranted to reduce HIV prevalence in the general population, so that fewer people will be involuntarily exposed to the virus.

Second, when people choose to assume risks that increase their chance of dying, they create negative externalities for family members and others with whom they have long-term implicit or explicit contracts. Societies generally adopt some limited measures to prevent people from putting themselves at risk, such as mandating seat belt use or discouraging smoking. Similar actions against people exposing themselves to HIV may be warranted.

Third, insofar as society pays part of the cost of treating AIDS, individuals will not fully consider the costs of becoming infected. This issue is likely to be minor in developing countries. Individuals face a huge private cost from developing AIDS, and it is likely that any financial cost borne by society is relatively minor in comparison to this private cost.

The reasons for government intervention listed above warrant some government spending to fight AIDS, but given resource constraints and the prevalence of other diseases, these reasons alone would not be sufficient to justify current levels of AIDS expenditure in developing countries.

While the choice of whether to engage in sexual activity is voluntary in the technical economic sense for the vast majority of people, it may not be voluntary in the normal sense of the word. Certain people, such as poor or married women, often have a very weak bargaining position. This is an issue of equity, not of market failure. The solution is to strengthen the bargaining position of women by increasing education and employment opportunities
for women, reforming divorce laws so as to give women a greater share of households' wealth, strengthening property rights for women, and so on. Standard economic theory suggests no particular rationale for interventions directly focused on AIDS.

If one were willing to abstract from the considerations above, Philipson and Posner's argument would be correct if potential sexual partners had symmetric information about each other's sexual history. However, most sexual interactions take place under asymmetric information, and because of this, sexual behaviour will generally create externalities. The remaining sections of this paper examine the resulting externalities and the implications for policy.

- Section two argues that problems of adverse selection in private insurance markets suggest that there may be a role for government-provided social insurance to cover some of the costs associated with HIV infection. However, administrative problems with social insurance are likely to be severe in most developing countries. At a minimum, the government should prevent firms from testing employees for HIV and firing those who are HIV-positive, actions that some firms have undertaken to escape the responsibility of providing insurance for their employees.

- Section three argues that people often cannot document activities like condom use that reduce their chance of infection to future potential partners. These activities will therefore be under-provided for by the private market. This suggests a role for government encouragement of, and subsidies for, condom use, treatment for sexually transmitted diseases (STDs) that are cofactors for HIV transmission, and the use of safe blood in medical procedures.

- Section four argues that asymmetric information strengthens the case for targeting public health messages that urge reductions in the number of partners to high-activity people. This is likely to include commercial sex workers and intravenous drug users.

- Section five argues that there is a public-good case for national and international support of AIDS research and surveillance. It may make sense to buy out patents on certain AIDS drugs and allow them to be produced competitively.

**Section Two: Asymmetric information, social insurance, and firm-provided insurance**

It may be useful first to review the application of the economic theory of asymmetric information in the more familiar context of insurance markets for AIDS. It is well known that the market will not, in general, yield efficient outcomes if people have different costs of obtaining information - or in economic language, asymmetric information (Akerlof 1970). For example, risk-averse individuals would prefer to insure themselves against the risk of infection with HIV. If all information about other people were costlessly
available, there would be insurance markets in which each individual would pay an actuarially fair premium, given his or her chance of catching the disease.

However, insurance companies can only obtain information on risk factors for AIDS at great cost, and even then, the information they obtain is likely to be worse than the information individuals have about themselves. It is therefore impossible for insurance companies to offer actuarially fair insurance rates to all people. People who know that they have a higher chance of infection than the insurance company can estimate from its information will be especially likely to participate in the insurance contract, whereas people who know that they have a lower chance will be less likely to participate. As Akerlof (1970) shows in his analysis of the market for lemons, this will typically lead some or all of the population to wind up uninsured against the risk of AIDS. This is a theoretical justification for governments to insure individuals and their families against the risk of infection. The rationale is the same as for national health insurance.

In practice, the costs of such a system have to be weighed against the benefits. In the case of AIDS, one cost of this system is moral hazard. There will be some tendency, although it likely will be quite slight, for individuals to adopt riskier behaviour if they are partially insured against the financial consequences of this behaviour. Theory suggests that in these situations it is generally optimal to provide partial insurance. Since the main costs to the individual of contracting AIDS are not financial, it is likely to be optimal to insure much of the financial cost.

In any case, the costs of administering such a system, and the fact that premiums would have to be collected through highly distortionary taxes, imply that large-scale insurance programmes are not likely to be feasible in many developing countries. Moreover, there is no reason to focus on AIDS rather than on other serious diseases.

One policy issue that has attracted attention is whether firms should be allowed to require employees to be tested for HIV and then to fire those who are HIV-positive. This question is sometimes phrased as a tradeoff between human rights and economic efficiency. In fact, there is likely to be no tradeoff. While in some cases it may be privately optimal for a company to require its employees to be tested for HIV and to fire those who are infected, it is very unlikely to be socially efficient. Formal sector companies in some countries, including the United States and many developing countries, provide insurance to their employees in order to alleviate the adverse selection problems in insurance markets. By spending money testing employees, firms often shift the burden of caring for HIV-positive people to the rest of society and away from themselves. Spending resources on HIV testing in order to create this transfer is socially inefficient and should probably be prohibited. The only exceptions would be in the rare cases in which an employee's ability to perform the job is directly harmed by being infected with HIV. Note,
however, that for all the controversy that this issue has attracted, it is unlikely to be relevant for the vast majority of workers in developing countries, since they work for firms that do not provide health insurance.

The following sections apply the ideas of asymmetric information in the somewhat less familiar context of policy toward sexual behaviour.

**Section Three: Policies to promote condom use, treatment for sexually transmitted diseases, and use of safe blood**

When an individual takes an action that reduces his or her chances of becoming infected, but that cannot be documented to future partners, the individual creates positive externalities. Consider, for example, somebody who has a sexually transmitted disease that is a cofactor for HIV transmission. If the person has the disease treated, he/she is less likely to pass on the disease to his/her future partners. If the person’s future partners cannot observe whether he/she has had his/her sexually transmitted disease treated, then the person would face too small an incentive to obtain treatment.

Moreover, consider someone who has a sexually transmitted disease and is deciding whether to be treated immediately or after a year. Even if the person’s partner during the year can observe that the person has a sexually transmitted disease, there will still be a positive externality to obtaining treatment immediately. The person is less likely to become infected with HIV during the year if he/she is treated and therefore is less likely to infect new partners after the year has finished. Thus, there is a role for the government in promoting and subsidising treatment of sexually transmitted diseases. Note that this is also likely to be a cost-effective way of fighting the AIDS epidemic, in part because it automatically targets high-activity people. A similar argument indicates that the government should subsidise the provision of safe blood. It is an empirical matter whether it is cost-effective for the government to pay for blood supplies.

Note that the possibility of HIV testing does not eliminate this externality. HIV testing is costly enough in money and in psychic well-being that most people do not undertake it. Given this, people will not face correct incentives for taking actions that affect their risk of HIV infection, such as obtaining treatment for an STD or using a condom. Note also that the mere fact that people have some information about the risk of the potential partner does not necessarily reduce this externality. For example, if people use age and outward behaviour as a signal of risk, they may in fact do quite well in estimating the risk that a potential partner will be infected. However, people will still not have correct incentives to take actions, such as seeking STD treatment or using a condom, that cannot be observed by future partners.

Philipson and Posner have suggested that the cost of the AIDS epidemic is bounded by the cost of condom use, since people can protect themselves through condom use. This argument should not be taken as implying that the
cost of the AIDS epidemic is low, but rather that the costs of condom use are high. Note also that this argument is not unique to AIDS. People can at least partially protect themselves against malaria by using mosquito nets treated with insecticides, yet malaria is still considered costly.

At first sight, it is not clear whether somebody who decides to insist on condom use creates a positive or a negative externality for others. If their partner does not want to use a condom, insisting on condom use could create a negative externality. On the other hand, by insisting on condom use, the person reduces the chance that the partner will become infected and this reduces the chance that their future partners will be infected. This creates a positive externality. (This would not be an externality if people could prove that they had used condoms in the past.)

A preliminary analysis using the standard susceptible-infective (SI) epidemiological model suggests that condom use creates large positive externalities in the steady state. In this model, the proportion of people who are infected is denoted \( Y \) and the population is normalised to 1, so that the uninfected population is \( 1 - Y \). There is a Poisson hazard rate of death, \( \delta \), which for analytic tractability (although not for realism in the case of AIDS) is taken to be constant. The transmission rate is denoted \( \beta \).

Suppose that the costs of condom use is \( c \) for those who do not wish to use condoms, and that this cost is less than the cost of searching for another partner, so that those who do not wish to use a condom will agree to use one if their potential partners insist rather than searching for new partners.\(^1\) In the model, everyone is symmetric, so the couple will use a condom if the person who wishes to use the condom has a benefit of more than \( c \) for using the condom. (It should be straightforward to extend the model to allow for the more realistic case that allows differences in bargaining power between partners.)

Suppose that all people have \( i \) partners per period, but that a proportion \( q \) insists on condom use. (For simplicity, I will assume the disease is never transmitted when condoms are used.) If people who insist on condom use match only with each other, then the decision to use condoms will not affect others' risk of infection. However, if those who would not otherwise use a condom always agree to use a condom when they meet people who insist on it, the differential equation for prevalence will be

\[
\dot{Y} = (1 - q - Y) \beta i Y - \delta Y
\]

since only noninfected, non-condom users are susceptible. Setting the change in prevalence equal to zero implies

\[
Y^* = 1 - q - \frac{\delta}{\beta i}.
\]

Dividing by \( 1 - q \) shows steady-state prevalence among the group that does not insist on condoms is

\[
1 - \frac{\delta}{(1 - q) \beta i}.
\]

So condom use affects prevalence in the rest of the population just as would a reduction in the transmission rate.
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To see why condoms are likely to have large positive externalities in the steady state, note that if an additional 1 per cent of the population insists on condoms, those who do not insist on condoms will have to use condoms, contrary to their preferences, an additional 1 per cent of the time. They may or may not be compensated by their partners for this. On the other hand, since

\[ Y^* = 1 - q - \frac{\delta}{\beta} \]

steady-state prevalence in the pool of available partners will fall by 1 per cent. Thus if people are willing to trade off a 1 per cent increase in condom use against a 1 per cent reduction in the chance that they will have unprotected sex with an infected person, increases in condom use will create positive externalities in the steady state. This will be the case under the weak condition that people prefer to use condoms with those they know are infected. Although adopting condoms may create negative externalities in the short run, this analysis suggests that the long-run positive externalities are likely to be huge.

The social benefits from obtaining treatment for sexually transmitted diseases, using safe blood, or using condoms are likely to be many times the private benefit. For every case of AIDS averted among those who use a condom themselves, several additional cases may be averted among other members of the population. This suggests a strong case for government subsidies.

Section Four: The economic rationale for targeting public health messages that urge reductions in sexual activity

An analysis of asymmetric information provides an economic rationale for targeting public health messages to high-activity people that urge reductions in sexual activity. Others have argued that targeting is likely to be cost-effective (Hethcote and Yorke 1984; Over and Piot 1993). This paper reinforces the case for targeting, because it suggests that even if widely broadcast messages are no more expensive than narrowly targeted messages, targeting may lead to higher welfare and lower prevalence.

If sexual histories were publicly observable, people who had few previous sexual partners would be considered desirable partners, and in equilibrium they would either match with others who had few previous partners or with higher-risk people who provided some compensating advantage. Those with few previous partners would thus face lower costs of having additional partners. This would tend to equate private and social costs from having additional partners.

However, if people lack information about others' sexual history, negative externalities will be created by increases in activity by people with many previous partners, or by people who had not used condoms in the past or who had dangerous partners in the past. The potential partners of these high-risk people might not have agreed to have sex with them if they had known their sexual history.
Counterintuitively, reductions in activity by those with few previous partners may actually make others worse off by increasing the average probability of infection in the remaining pool of partners. For example, if the majority of the population goes to a bar and finds a sexual partner once a year, and a small minority goes 20 times a year, it might be the case that a person picked randomly from the bar would be expected to have 10 partners per year. However, if the low-activity people reduce their activity to zero, someone who picks a partner from the bar will be certain of meeting someone with 20 partners per year. Reductions in activity by low-activity people will thus create a negative externality.

While economists may judge the impact of reductions in sexual activity by the externalities they create, public health officials are likely to be concerned with their effect on prevalence. In fact, increases in the frequency of partner change by low-activity people may reduce long-run prevalence in the population as a whole (Kremer 1996; Whittaker and Rentin 1992). To see why, note that for an infectious disease to persist, each infected person must infect one new person before dying, on average. Suppose that the transmission rate for HIV were such that each infected person must have an average of 19 partners per year to infect one person before dying. If a small minority of the population had 20 partners a year, and the majority had no partners at all, the disease would persist among the active minority. If each member of the abstinent majority decided to have one partner in his or her lifetime, then the high-activity people might typically match five times a year with low-activity people and 15 times a year with other high-activity people. In this case, the disease would eventually die out because many of the new infections would occur among low-activity people who would not infect others.

Calculations using survey data on sexual activity and simple epidemiological models suggest that the example above is more than a theoretical curiosity (Kremer and Morcom 1997). More than 90 per cent of the population in a comprehensive study of sexual activity in Britain had low enough activity that reductions in activity would increase steady-state prevalence under the standard SI epidemiological model. Simulations using this simplified model suggest that if everybody who had one partner every five years reduced their frequency of partner change by 5 per cent, steady-state prevalence would increase by 7 per cent. Even if high-activity people are disproportionately likely to match with each other, reductions in activity by low-activity people are likely to create negative externalities and increase steady-state prevalence. However, for realistic parameter values, increases in activity by low-activity people could not actually eliminate the disease.

It is important to note that these results are subject to several caveats. First, this result should not be taken as implying that low-activity people should have more partners or should not be informed about the disease. Anyone who has more partners increases their own chance of infection, and people have a right to expect that public health authorities will truthfully inform them about health risks.
Second, the model suggests that reductions in activity by low-activity people are only likely to increase steady-state prevalence in low-prevalence populations. Reductions in activity by low-activity people are not likely to increase prevalence in high-prevalence countries in Africa, for example.

Third, reductions in activity by low-activity people will reduce prevalence for a short period before increasing prevalence.

Fourth, the conclusions may be weakened by search costs in finding partners and by behavioural responses to changes in others' activity. The analysis above implicitly assumed zero search costs and used the example of a bar in which one could always find a partner. One could also imagine a 'dating' model, in which people went on dates and decided whether to have sex, and the search costs for finding a new date were infinite. If the low-activity people decided to have sex on fewer dates, the high-activity people would automatically also have sex on fewer dates. It seems likely that many high-activity people will not continue dating without sex, but instead will seek other sexual partners.

It seems plausible that search costs are small enough that many high-activity people will respond to a potential partner's abstinence by seeking a new partner, but large enough that some of the same high-activity people will choose to comply with a potential partner's preference for condom use. As discussed below, in this case, public health messages directed to low-activity people will be more likely to reduce prevalence if they stress condom use rather than abstinence.

Although making the number of partners endogenous changes the positive analysis of the spread of the epidemic, it does not change the direction of externalities. If there are no search costs, each person's welfare depends on the probability of infection in the pool, because it is this probability of infection that determines the tradeoff between the desired number of partners and the probability of infection. Reductions in activity by low-activity people that increase prevalence in the pool of available partners will reduce others' welfare. If there are search costs, people who reduce their activity will create additional negative externalities by increasing search costs for the rest of the population.

These caveats and the extreme simplicity of the models suggest that the results discussed above should be taken as provisional. However, to the extent that the results prove robust under more complex models, they reinforce the case for targeting to high-activity people public health messages urging reductions in the frequency of partner change.

Public health messages can be targeted through their content, as well as through the choice of advertising media. For example, under theories of cognitive dissonance, messages stressing the dangers from even a single sexual encounter may have more impact on low-activity people, but messages urging people to avoid one-night stands may reduce activity among the highly active. The 'Get high, Get stupid, Get AIDS' campaign in the United States warning people about the links among substance abuse, unprotected sex, and AIDS presumably
targeted high-activity people more effectively than the mass mailing of AIDS-prevention literature to all US households in the early days of the epidemic.

Note that this analysis suggests that it is likely to be particularly important to target commercial sex workers and intravenous (IV) drug users. Even though the partners of these high-risk people may know that they are engaging in a high-risk activity, their partners will not know this, so reducing activity among sex workers and IV drug users, therefore, creates negative externalities.

The fact that people who have many previous partners create strong negative externalities by having additional partners would theoretically suggest that these additional partnerships by high-activity people should be taxed. As Over has suggested this may mean taxing bars in some situations (Mead Over, personal communication 1997). In practice this is likely to be done most easily by taxing alcohol. This clearly creates a problem of encouraging illegal alcohol consumption, but there may be more room for increasing alcohol taxes in some countries to discourage alcohol consumption and the risky behaviour associated with it.

Section Five: Research

Just as there can be externalities between individuals within countries, there can be externalities between countries. Each country would prefer that other countries have stronger anti-AIDS policies, because this will lower infection rates and thus reduce the chance of cross-border transmission. While such externalities may be minor, the willingness of rich countries to pay for AIDS programmes in developing countries suggests that they consider it to be significant.

A more important externality may be that by conducting research on how to fight AIDS, one country may create knowledge spillovers for other countries. This suggests a strong theoretical justification for international agencies to help finance research against AIDS. In order to maximise this learning, it is important that these initiatives be carefully monitored, and this is an area in which international organisations may be able to help provide expertise and funding. Surveillance research may be conducted at the national level.

Given the monopoly price distortions created by patents, it may be useful for national governments or international organisations to buy out patents on AIDS drugs and place them in the public domain, as discussed in Kremer (1997).

The Rockefeller Foundation recently established a US$1 million prize for a diagnostic test for gonorrhoea and chlamydia suitable for use in developing countries (Rockefeller Foundation 1997). Such a test might be an appropriate place to try a patent buyout. Gonorrhoea and chlamydia are easily treated and the social value of treating these diseases far exceeds the private value, since the diseases are believed to increase the likelihood of HIV transmission three- to fivefold. Yet millions of people in developing countries go untreated because tests suitable for use in developing countries are not available.

The problem of developing a diagnostic test suitable for use in developing countries vividly illustrates the shortcomings of existing mechanisms of
encouraging research. Patents could provide an incentive for developing appropriate tests. Yet monopoly prices on tests for these diseases would lead many fewer people to get tested and treated, thus leading to many more cases of HIV. The research could be contracted out, but many academic researchers are more interested in pursuing pure science than the applied problem of developing a test that can be used in tropical conditions and cheaply manufactured. Researchers awarded a grant to develop such a test might well devote time to publishing scientific papers rather than actually creating the test.

To be eligible for the Rockefeller Foundation prize, the diagnostic tests must be 99 per cent accurate, take less than 20 minutes, require no more power than can be delivered by a 9-volt battery, be storable for six months in tropical conditions, cost less than US$0.25 per device to manufacture, and be usable by health workers with primary education after two hours of training. One weakness of using a prize mechanism to encourage research is that this mechanism does not allow for tradeoffs between these criteria. For example, it might be worth accepting a device that is slightly less accurate if it was much cheaper, faster, and simpler to use. Moreover, the Rockefeller Foundation is not likely to be particularly well informed about the marginal cost of meeting the various requirements. It is possible that a test requiring 21 minutes to undertake could be developed with US$100,000 in research expenditure, but that a test that would take 19 minutes would require US$20 million of research expenditure. The Rockefeller Foundation could try to establish a complicated menu of prizes, but this would be unwieldy, and ultimately it may be preferable to let the market decide how to value the characteristics of the test.

The prize rules require that the developer of the patent provide a license to the Rockefeller Foundation. The foundation states that it will not use this license if the inventor takes steps to ensure that the device is made available to developing countries at a price no more than 10 per cent above manufacturing and distribution costs. The Rockefeller prize will therefore provide no additional incentive for invention if the monopoly value of the patent would be greater than US$1 million plus the profits that could be made by selling the invention at 10 per cent above production costs.

Perhaps the Rockefeller Foundation should consider announcing that if the prize has not been claimed by March 1, 1999, the date the prize expires, it would consider using the funds for a patent buyout. The foundation might want to buy only part of the patent rights, given the limited funds at its disposal. For example, the foundation might buy out the last 10 years of the patent, so as to leave the inventor with an incentive to market the test for the first several years.

An announcement that the foundation would consider a patent buyout if the prize had not been awarded by March 1, 1999, might cause inventors to slacken their effort to meet the requirements of the prize, but this seems unlikely because any inventor who did this would run the risk that another researcher would claim the prize.
Section Six: Concluding remarks

The analysis above has examined the market failures surrounding AIDS. However, an analysis of public policy must also consider the cost-effectiveness of various policies and the political constraints surrounding their acceptance and implementation. In large part these are empirical questions, and they will vary considerably from country to country. Table 1 summarises some of the policy issues surrounding AIDS. Note that standard economic theory suggests that public subsidies should depend on externalities, not cost-benefit analysis. For example, suppose that by providing free treatment for one person for a sexually transmitted disease, it is possible to reduce that person’s chance of infection by 20 per cent, and this produces an average reduction of one infection in the rest of the population. In this case, the treatment should be subsidised to reflect the benefits to society of preventing infection of the additional person, not the person who has the sexually transmitted disease. Under a neoclassical analysis, that person would appropriately decide whether to obtain treatment based on its private costs and benefits.

Any expenditures on AIDS should be compared for cost-effectiveness against other health expenditures. In developing countries, there are likely to be many other pressing needs, such as immunisation for childhood diseases, that are likely to be extremely cost-effective and for which there is a strong economic rationale in terms of welfare analysis. However, from the standpoint of an individual developing country, the availability of subsidies from international organisations and from rich countries to fight AIDS suggests that the cost-benefit threshold for approving anti-AIDS projects may be lower than that for other diseases, such as malaria.

It is difficult to assess the cost-effectiveness of anti-AIDS efforts, because it is difficult to estimate the number of additional infections due to each primary case and because it is very difficult to know how behaviour responds to such interventions as promotion of condoms. While economic analysis can show the theoretical usefulness of interventions, it is very difficult to be confident in judgments about whether we are spending too much or too little on particular interventions. The data are simply not available.

It is also important to note that there is little agreement on the philosophical basis for the economic welfare analysis carried out in this paper. Most doctors and philosophers would see the welfare analytical framework used here as failing to incorporate fully social objectives. They would feel that governments should either prohibit people from voluntarily subjecting themselves to a large risk of death or spend lots of resources to convince them not to do so. This is a philosophical issue beyond the reach of economics, but it would be a mistake to reject these views out of hand, merely because they are not consistent with the familiar framework of welfare economics.
## Table 1. Market failures and policy implications

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<th>Market failure</th>
<th>Policy</th>
<th>Potential problems</th>
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<tr>
<td>Adverse selection in insurance markets</td>
<td>Provide social insurance for AIDS victims and families</td>
<td>Corruption, administrative costs, distortionary taxation, moral hazard</td>
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<td></td>
<td>Prohibit formal sector firms from firing HIV-positive employees</td>
<td>Very few, except in sectors in which HIV status could affect ability to perform job</td>
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<td>Activities that reduce the chance of infection are difficult to document to future partners</td>
<td>Target to high-activity people public health messages urging reduced activity</td>
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<td>Tax alcohol</td>
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<td>Encourage and subsidise condom use</td>
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<td>Public good nature of research</td>
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<td>Share of research budgets devoted to AIDS may already be higher than is cost-effective</td>
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<td>Buy out patents on AIDS drugs/diagnostic tests</td>
<td>Administrative problems, collusion among drug companies</td>
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<td>Involuntary exposure to AIDS</td>
<td>Laws against rape, exploitation of minors</td>
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<td>Equity problems</td>
<td>Create educational and job opportunities for women, improve property rights, improve rights under divorce proceedings</td>
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Note
1 Imagine that there is a distribution of costs and benefits of using a condom, and that the couple uses a condom if the benefits, weighted by the bargaining power of the partners, outweigh the costs. Consider the example of someone who switches from being neutral about condom use to having such a strong preference that he or she insists on condom use.

References


