

## SPECIAL COMMUNICATION

# The world of smoking guns

Amartya Sen\*

*Tobacco Control* 2007;16:59–63. doi: 10.1136/tc.2006.018218

I begin with a conundrum—freshly devised, but I hope adequately old-fashioned in spirit. What's the difference between guns and cigarettes? The answer is that guns fire and kill first, and then they smoke, whereas cigarettes smoke first, and then they fire and kill. But if this contrast is right, then gun smoke has an evidential value that cigarette smoke does not immediately have, as the casualty from smoking is yet to come and might therefore be, to some extent, a matter of conjecture. This leads to the further question that must be dealt with in one form or another in a world conference like this one: how can we sensibly assess the harm that smoking does? Only after coming to grip with this question can we go on to decide what needs to be done here and now.

This deliberative perspective may seem a bit too hesitant, especially in a gathering of this kind where the participants are basically convinced that the facts and the values involved in assessing smoking as a practice are all fairly well sorted out, and all that is needed now is urgent action. The connection between smoking and morbidity (including cancer, cardiovascular diseases and other ailments) is indeed well established, but the idea of social harm raises, as the critics of interventionist policies have discussed, other issues as well. It is important for tobacco control enthusiasts to recognise that a huge proportion of the population at large as well as a great many caring and kind intellectuals are not at all convinced yet that extensive tobacco control is the right way to go. The counterpoints are many, and they all need to be dealt with, for the battle for tobacco control is not just for new laws or new government policies but also for the minds of the discerning public. To be effective in the society at large, and in particular to convince the critically minded but not unsympathetic intellectuals, the contrary arguments must be seriously dealt with.

### DEBATES OF THE PAST

But before I take up those bones of contention, it may be useful to say a word or two about the old times when the smoking–illness connections seemed unclear. The events of those days remain relevant, I would suggest, to our concerns today. I take the liberty of beginning with a bit of personal memory. As a young man in Cambridge in the 1950s, I listened with rapt attention to Professor RA Fisher, perhaps the leading statistical theorist of his time, trying to convince us of the lack of science in the belief of an evil connection between smoking and cancer: evidence for that connection was already being presented by Richard Doll in particular, beginning with a classic paper in 1954.<sup>1</sup> Fisher poked fun at the fact that the Doll and Hill paper found that statistically non-inhalers were more associated with cancer than inhalers, and at other apparent infelicities in that paper, but underlying those small points Fisher had a big alternative theory, which impressed many listeners by its eloquence. Fisher—the geneticist and old activist in the Eugenics Society—favoured the apparent statistical connection found by Doll and Hill by arguing that the same genetic propensities may make a person (1) much more prone to develop cancer and (2) much more inclined to smoke.

I was particularly fascinated by the debate for many different reasons, not the least of which was the thoroughly personal reason that I did smoke for 4 years from the age of 14 years (it seemed to me, then, as a plausible gesture of defiance and as an attempt to dispute the thesis common among my classmates that I was a single-minded nerd). But then, I ended up with cancer of the mouth when I was just 18 years old. My smoking had, of course, to stop then, since—“cancer cures smoking” (as the old aphorism goes). My own experience might have been a fluke, and certainly just one case would prove nothing, but nevertheless, having had the experience I was quite involved in questions on causation of cancer, to the extent that it could be tackled in the 1950s.

Things were happening quickly, at least from my perspective. My oral cancer was detected and treated (by radiation in the primitive form of radium mould) in Calcutta in 1952, I came to Cambridge in 1953, the Doll and Hill paper was published in 1954, and I first heard Fisher on the subject in 1955. A distant thought persisted also in my mind, that if RA Fisher were right, I would not increase my chance of having cancer again by smoking again, although my chances would be higher anyway than normal for genetic reasons, since in the Fisherian alternative reading of Richard Doll's statistics I had procancer genes rather than procancer behaviour.

### SCIENCE, SOCIETY AND INFLUENCE

I had to say that even as an undergraduate, interested among other things in decision theory and epistemology, I could not convince myself that Fisher's counterarguments were sound. The hypothesis seemed far out, and the time trend of cancer, linked with increase in smoking, appeared to give fairly strong discriminating evidence in favour of Doll's position (as the gene pool was not changing rapidly at the same time), even if the cross-section comparisons were open to Fisher's alternative explanation.

I did, however, wonder how a statistician as wise and sophisticated as RA Fisher could be so forceful in his disputation of the smoking–cancer connection using an argument with so little plausibility and such inadequate supporting evidence? In a sense, however, his enterprise was right as an exercise in critical science: it is not, in general, silly to subject every apparently obvious linkage to close scrutiny, as only that way can we be sure that we are up to something really convincing. So, Fisher could be seen as practising the discipline of science—and he was a great soldier there—to subject the observed relationship between smoking and cancer to an exacting scrutiny, trying out other hypotheses, even though his alternative line of explanation proved, ultimately, to be entirely unsustainable.

But what remains more difficult to explain is that it also emerged during those debates that RA Fisher had the patronage of the Imperial Tobacco Company as a well-supported consultant. It is, of course, entirely possible—and I believe quite likely—that Fisher could have put forward exactly the same alternative hypothesis, whether or not he had any such

tobacco company connection (there is some evidence that Fisher's fervent dislike of puritans who wanted to spoil the pleasures of other people played a bigger part than anything else in influencing him). And yet, given that connection, Fisher, as great a statistician as he was, might have applied his critical mind not just to the scientific hypothesis he was disputing, but also to the wisdom of accepting financial support from an interested party while promoting a hypothesis that would have been extremely pleasing and lucrative for that party.

Further, if one issue of continuing interest is the need to be even handed with critical scrutiny, another issue is to understand the pervasive and sometimes hidden involvement of the tobacco business in our social and intellectual lives. The interference is often explicit enough, as in hugely expensive ads to promote smoking; at other times, it is mixed with other concerns, but still clear enough, as in the voicing of support for women's liberation while promoting Virginia Slims; and on still other occasions, the influence is entirely implicit and hidden—for example, in the sponsoring of sports events and other generally "good" social causes. Indeed, the support that RA Fisher got from the tobacco companies was certainly patronage for a towering intellectual of the 20th century, in addition to whatever advantage the companies may have seen in generating the disputation of Richard Doll's work and campaign against tobacco. Those mixed involvements—partly explicit, partly hidden—and their unspoken presence remain extremely important in the fight against tobacco control today—as they were in those early days in the 1950s.

## CURRENT ISSUES

Let me come back now to issues that are very alive today, unlike the one with which RA Fisher was involved. It is absolutely right to recognise, especially for those involved in the discussions on public policy regarding tobacco use, that governmental or societal action demands not merely an understanding that there is a causal connection between smoking and diseases such as cancer, but also, first, an assessment of the relative importance of the connection, and second, some clarification of how the bad effects of smoking may be assessed against other concerns that may, quite possibly, tend to push us in the opposite direction—that is, towards non-interference and inaction.

I shall come to the contrary arguments presently, but let me begin with the importance of that smoking–cancer connection and the magnitudes involved. Given the conjectural element in any calculation of cause and effects (to which I referred earlier), any estimate of connections has to be viewed as being open to further scrutiny, but there does seem to be strong enough evidence to understand that the magnitudes involved are indeed gigantic. To use some good research estimates presented in a book called *Tobacco control in developing countries*,<sup>2</sup> edited by Prabhat Jha and Frank Chaloupka, it appears that about 1.1 billion people in the world now smoke, of whom 82% are in poor and middle-income countries. Moving from there to mortality, it has been estimated that >5 million premature deaths/year are connected with the use of tobacco, of which >3.5 million of those deaths occur in the low-income and middle-income countries (2.6 million deaths in low-income countries).

Extending the estimates to future years, and assuming the present trends continue, probably, in the first quarter of this century (ie, between 2000 and 2025) there would be about 150 million tobacco-related deaths, which may rise to 300 million in the second quarter, followed by about 500 million in the rest of the century. Events may prove that mortality will actually be less if anti-tobacco policies are more successful (and meetings of the kind we are currently attending can have a serious effect

on policies and accepted norms). Or, alternatively, there could be more if the trends accelerate over what have been observed in the past. But no matter how exactly the future unfolds, it would be hard to deny that the present ravages and the future damages from tobacco use are nothing short of colossal—indeed so massive that reductions of mortality figures even by millions and millions would still leave phenomenally large adversities in the foreseeable future. It is definitely a mountain we are looking at, not a mole-hill.

Further, the fact that the prevalence of smoking and the related mortality are rising much faster in the poorer countries than in the more affluent societies adds to the seriousness of the predicament that the world faces, and also—on the other side—suggests scope for greater use of anti-tobacco policies, as there has been rather little attempt so far to discourage smoking in the poorer countries. Indeed, quite the contrary, thanks to the activism of tobacco companies aimed at these poorer people, and the appetite of the governments of many of these countries to earn quick revenue in the form of taxes and other collections from tobacco sales. Certainly, there is something here that calls for urgent action.

## LIBERTY AND RIGHTS

I turn now to the contrary arguments that may suggest priorities different from saving lives and reducing illness through tobacco control. One such value involves the classic issue of liberty and rights, and in its simplest version it takes the form of the old no-nonsense argument that each adult person should be free to do what he or she likes in his or her personal life, no matter what others think that they should do. I will not, here, go into the viability of the general libertarian approach, on which questions can be raised (issues I have discussed elsewhere<sup>3,4</sup>), but my concentration here will specifically be on the possibility of applying this principle in ways that have been proposed to rebut the interventionist case.

The dismissal of social intervention on the ground of this basic libertarian principle runs into an immediate problem. In the case of smoking, the allegedly personal lives often affect others as well, those who experience the effects of indirect or passive smoking—that is, those who involuntarily inhale the smoke emanating from others. Indeed, as the harm done by passive smoking has become clearer to a wider public, the case for both public control and a social policy of campaigns against smoking has become more plausible, since being forced into passive smoking is a simple and straightforward violation of the liberty of others who do not want to smoke. John Stuart Mill would have seen no great difficulty in endorsing that line of reasoning against involuntary passive smoking.

But, given the dominance of the prevention of "passive smoking" as a cause that is receiving much attention right now, especially in America and West Europe, we must ask whether prevention of passive smoking is the only rationale of anti-smoking actions and strategies. If this were indeed the case, then the domain of anti-tobacco campaigns would be quite restricted. I shall have to come back to this question presently, but let me first consider some general arguments against the anti-tobacco position, despite the recognition of the relevance of passive smoking.

A cogent presentation of a fairly strong line of general non-interventionist argument can be found in an excellently written recent essay by Martin Wolf, one of the leading writers in economics and financial journalists in Britain. Rather than extending intervention beyond the domain of passive smoking, Wolf would restrict and reduce the use of the passive smoking argument, unless some further conditions are also met. In the essay cited, called "The absurdities of a ban on smoking", published in *The Financial Times* (23 June 2006), Martin Wolf

reaches the following general conclusions (involving principles to be followed), in addition to rejecting some existing anti-tobacco policies (eg, in America and in some countries in West Europe):

**Harm to others is a necessary justification for government interference. But it is not sufficient. Intervention should be both effective and carry costs proportionate to likely gains.**

The cogency of this position is worth noting first. Note, in particular, that Wolf does not deny the relevance of harm-prevention policy, but says that the harms to be prevented through social policy must be caused to others, not to the smokers themselves, as the smokers should have the liberty to decide what to do with their own lives. So passive smoking can be the basis of social intervention, which must not, in this view, be on the basis of an indiscriminate assessment of harms done to all—smokers as well as non-smokers (this, if correct, would reduce the policy relevance of the mammoth mortality statistics presented earlier in this lecture, which do not differentiate between active and passive smokers). Although the existence of harm to others through such effects as passive smoking may be a legitimate—and in Wolf's view necessary—basis for intervention, Wolf points out that it cannot be in itself a sufficient basis for interference. Not only should an interventionist policy which is to be justified in the name of prevention be actually effective in resulting in prevention, we also have to compare the harm caused by the continuation of uninterfered smoking with the alternative harm that may be caused by the policy of intervention itself.

### CONSEQUENCE-SENSITIVE ANALYSIS

Wolf is invoking here, in supplementing the liberty-based priorities, a good general principle of consequence-sensitive analysis, which has been widely used in economics. We must not base a policy aimed at preventing some harm simply on the case for achieving that prevention, but must actually compare alternative scenarios of public policy and their likely consequences (including the prospects of achieving or not achieving the sought-after effects) and then pick one that is better—or at least no worse—than any alternative policy scenario that is also feasible (including doing nothing). Let me say straightaway that I too think, in agreement with Wolf, that this basic principle does make good general sense (subject to some qualifications related to rule assessment when that conflicts with act assessment) and that I have used this principle in many assessments. However, after asserting my loyalty to that general principle, I go on to ask: what does that general principle demand in the specific case of tobacco control? It is here that the focus of my use of the shared general principle of consequences-sensitive assessment may have to differ from Martin Wolf's use of the same precept.

The first question to ask is: who exactly are the "others" harm to whom must be considered in justifying social intervention as opposed to harm done to oneself? It is hard to be convinced that the victims of passive smoking are the only people involved to whom substantial harm is done. There are not only important conceptual and even philosophical issues here (one or two of which I will go on to discuss later), but economic ones as well.

Firstly, if the smoker's decision to go on smoking causes illness to him or her, then the society could either take the view that these victims of self choice have no claim to public resources (such as a National Health Service or any other social resource), or more leniently (and I believe more reasonably) accept that these people still qualify to get social help. If the former, we would be living in a society in which people with treatable ailments or relievable suffering would receive no

social help even if they cannot afford to pay for the treatment themselves, simply on the grounds that they have caused their own injury. But that would be a very—I believe monstrously—unforgiving society to live in, for reasons that normal human beings should be able to see. But if the smokers do retain the right to treatment and care (whether or not somewhat restricted), then the interests of others—not just passive smokers—who have to share the use of the same public resources and may have to contribute to adding to them, are clearly involved. The libertarian position, carried all the way, has extraordinarily stern implications for social assistance, but if that degree of sternness is not accepted by the society (which seems extremely plausible), then the case for libertarian immunity is also correspondingly undermined.

Secondly, smokers live in families which are relevant not merely because of their connection with domestic passive smoking, but also because the family resources used in smoking by some may influence the availability of resources for the use of others in the family. In male-dominated families, which are common across the world but tend to be more frequent in the less developed countries, the incidence of smoking is still much more common among men than among women (this is the case, again, in nearly all the countries in the world, but particularly so in the low-income countries). The coupling of these two empirical realities tends, by and large, to make the prevalence of smoking cause deprivation of resources for the use of women and of course children. It is hard to think that there is no harm done here to those "others" involved (whether or not they are victims also of passive smoking).

### HABITS, BONDAGE AND LIBERTY

The two arguments just presented are largely matters of economic reasoning, but there are other issues that are conceptually more complex. The third argument I wish to consider deals with the implications of the fact that smoking is a formation of habit. Once acquired, the habit of smoking is hard to kick, and it can be asked, with some plausibility, whether youthful smokers have the right to place their future selves in bondage. There is a very basic philosophical issue here, which the great economist-cum-philosopher Henry Sidgwick had well discussed in another context. The question he asked is whether our future selves can indeed be seen unproblematically as just ourselves, pure and simple, without also having some aspects of being "other" people. These future selves are not palpably identical to us, nor even fully known to us, and we can think about them in somewhat similar ways that we can think about other people. As the Oxford philosopher, Derek Parfit, has shown, who is identical with whom is not such a clear-cut issue.<sup>5</sup>

Indeed, the idea of another person can involve not only the differences between distinct people at a point of time but also the differences between one person who chooses to smoke, perhaps as a teenager, with all the freedom in the world, and the addicted person he becomes after years of smoking when he finds it hard to get out of the bondage. John Stuart Mill had considered just such a case in his powerful argument against a person's freedom to sell himself or herself into slavery. As Mill put it in rejecting the right to peddle away one's freedom, "the principle of freedom cannot require that the person be free not to be free", and "it is not freedom to be allowed to alienate his freedom".<sup>6</sup> If modern libertarian priorities failed to come to grips with Mill's classic argument against placing ourselves in bondage, it should be considered a limitation of the modern libertarian approach. Although we may not look for an immediate resolution of that large philosophical and social issue here, it is important that the practical case for tobacco control is not held captive and paralysed by an incomplete and inadequate assessment of the demands of liberty.



I wish to comment briefly now on another aspect of the use of full consequential analysis of alternative policy scenarios. Among the alternative policies to be considered is that of dissemination of information about the consequences of smoking and the promotion of understanding of the ways and means of changing the habit. The rationale of such a policy, central to tobacco control, is one based on the expectation that this would reduce harm in the society, not merely as others see it, but also as it is seen by the people involved themselves. After all, if in the light of new information and understanding people decide to quit smoking, then they must have been themselves convinced that quitting does make sense given what they now know, and it would be hard to say that going along with that would be a violation of those people's liberty. This development is a part of the full accounting of the consequences of a policy of broadening informational availability. Indeed, it is entirely in line with the classic liberty-based thinking, which has done much to emphasise the importance of information and knowledge in enhancing a person's real freedom to choose.

### REASONS, INFORMATION AND POLICIES

Possible policies for tobacco control can involve many different areas of operation. Let me briefly comment on a few of them before I close.

Firstly, informational broadening is clearly quite central to the entire enterprise. This may include the restrictions that can be placed on hard-sell ads that are aimed at tempting gullible people, often very young people (even children), to overlook the dangers of disease as well as addiction and future bondage. But apart from issues of controlling informational damage, there is a tremendous need for positive informational campaigns focusing on throwing light on the long-term consequences of smoking.

Secondly, even though I have spoken against concentrating too much on passive smoking only, the fact remains that ways and means of preventing passive smoking must remain important aspects of the social policies for tobacco control. More has been achieved here in the richer countries than in the poorer countries. It is often pointed out that the prohibition of smoking in public places, where other people can be present, involves an overkill. That may well be so, but it is not obvious how the prohibitory features can be exactly fine tuned. Given the fact that social hesitation makes many non-smokers reluctant to object vocally to others who light up, reliance on positive objection by others is not adequate. Nor is the presence of others an adequate requirement, as non-smokers may simply shun the places taken over by smokers. Fine-tuning may not be a feasible option.

Many economic and social policies have the common feature of having to balance the type-II error of over-inclusion against the type-I dangers of under-inclusion. In this case too, the balance would have to be sensibly worked out (this does demand public discussion), but the policy to be chosen should not fail to take note of the serious harm that may result from significant under-inclusion, given the grim consequences of smoking on others, not to mention the other types of harms I have discussed earlier on in this lecture.

Thirdly, higher taxation is also an effective way of discouraging smoking. In addition to whatever it does to reduce passive smoking, it can also have a role in reducing the effects on others, in the family and in the society at large, whose real opportunities may be damaged by smokers (for reasons already discussed). But on top of these concerns, the use of heavy taxation to reduce smoking can also have some justification in terms of the prevention of addiction and bondage that are generated by it (also discussed earlier).

We must, however, consider the often-invoked argument that smoking provides one of the few affordable sources of joy

for many poor people, especially in the third world, and to turn that tap off, particularly through very high taxes (which, not surprisingly, would have a much bigger effect on the poor than on the rich), would be, it has been argued, an "anti-poor" policy and distributionally detrimental. The viability or force of this immediate hedonistic reasoning is, however, powerfully reduced by the fact that the poor smokers and their family members would also have to face the negative consequences of their smoking, and in the absence of medical insurance available to all—rarely the case in the poorer countries—the penalties in terms of suffering and death may indeed be extremely heavy, particularly for the poor. Of the 150 million or so of tobacco-related deaths that are expected to occur in the first quarter of this century (many times more than the totality of casualties from all famines put together in the entire last century), a huge proportion of premature mortality may occur in poorer people—smokers and others affected by them—with little access to healthcare or indeed health information and advice.

### SOCIAL GRADIENTS IN MORTALITY

Fourthly, among the social determinants of smoking, there are some that have deep-seated connections with societal inequalities and with psychological tensions and frustrations generated by powerful economic and social stratification. In the so-called "social gradients" in mortality, studied by Michael Marmot and others, smoking is shown to be one of the causal factors that raise the mortality of those at the bottom of the hierarchy who have greater social stress.<sup>7</sup> This connection may be obscured in the global statistics today by the fact that the poor often cannot afford to buy as much tobacco as the rich, but as economic development progresses, without changing stratifications and curtailing inequalities, what has already been observed among the relatively worse off—but not desperately poor—among the Whitehall staff in the UK (studied by Michael Marmot) may have a very large and very adverse global reflection. Among the attempts at limiting the social penalties of tobacco use, such broader—and indeed much harder—issues must also receive some attention. The roots of the appalling weed we are dealing with can go very deep into the social soil.

Finally, a general approach that has a pervasive presence in the field of tobacco control is the use of public reasoning. The importance of societal discussion is an integral part of democratic values, and it fits well into the understanding of democracy, which, as John Stuart Mill (to invoke him yet again) as well as John Rawls and others have suggested, can be seen as "government by discussion". To place the demands of liberty in a framework of analysis where public reasoning is not given its due can lead to a very limited societal approach. We certainly can do a great deal better than that.

It is time that we bring the huge social challenges involved in smoking and its consequences more fully into the domain of social discourse and the making of public policy. There is much more room for that in most countries in the world, but there is a particularly strong need for it in the less prosperous parts of the globe, which have a gigantic problem already and are facing an oncoming disaster of colossal magnitude. In the chequered history of humanity, there has rarely been a stronger case for well-deliberated social action than this. This is the right time to turn a page.

Competing interests: None declared.

\*Winner Nobel Prize for Economics, 1998

This is a keynote address given at the World Conference on "Tobacco OR Health" in Washington, DC, on 12 July 2006.

Correspondence to: A Sen, Department of Economics, Harvard University, Cambridge, MA 02138, USA; weiner@fas.harvard.edu

## REFERENCES

- 1 Doll R, Hill AB. The mortality of doctors in relation to their smoking habits; a preliminary report. *BMJ* 1954;**4877**:1451-2.
- 2 Jha P, Ranson MK, Nguyen SN, et al. Tobacco addiction. In: Jha P, Chaloupka FJ, eds. *Tobacco control in developing countries*. Oxford: Oxford University Press, 2006:869-885.
- 3 Sen A. Well-being, agency and freedom: the Dewey lectures 1984. *J Philosophy* 1985;**82**:169-221.
- 4 Sen A. *Development as freedom*. New York: Knopf, 1999.
- 5 Parfit D. *Reasons and persons*. Oxford: Clarendon Press, 1984.
- 6 Mill JS. On Liberty (1859). In: Lerner M, eds. *Essential works of John Stuart Mill*. New York: Bantam Books, 1965:348.
- 7 Marmot M. *Status syndrome*. London: Bloomsbury, 2004.

# The Lighter Side

---



© Vince O'Farrell, The Illawarra Mercury, Australia.