

A “FAIR INNINGS” BETWEEN THE SEXES?

Aki Tsuchiya[†] and Alan Williams[‡]

[†] Sheffield Health Economics Group, University of Sheffield

[‡] Centre for Health Economics, University of York

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INTRODUCTION

In most modern communities, women are known to live longer than men. A less known fact is that in many statistics reporting differences in life expectancy between socio-economic classes, the worst off women live longer than the best off men (see for example Office for National Statistics, 1999; Fitzpatrick and Jacobson, 2001). The implication is that for a man from a disadvantaged social class (or indeed, for a man from any social class), his longevity prospects would have been better if he had been born female to the same parents than to have been born male to parents in the highest social class. It is true that women tend to have higher morbidity, or lower HRQOL, but this female disadvantage does not seem to be large enough to lead to the conclusion that men and women enjoy comparable lifetime health prospects.

Although there is much public and policy discussion about the inequity of health inequalities between the social classes, there is relatively little discussion about such inequalities between the sexes. In a recent empirical study, we have found that while the majority of respondents wanted to give priority to increasing the shorter life expectancy of those from social class V as opposed to those from social class I, they did not want to give priority to increase the equally shorter life expectancy of males as opposed to females (Dolan et al, 2000). Could this be because, for some reason or other, inequality in life expectancy across the sexes is not regarded as inequitable?

To establish an inequality (a factual matter) is not the same as establishing an inequity (a moral matter), so if we are to clarify matters we need to analyse the situation from within some ethical framework and see why an inequality might be acceptable in the one case but not in the other. There are many such ethical frameworks which might be adduced for this purpose, and we have selected the “fair innings” argument as the one we are going to examine. This is because (a) it is part of the common folklore (eg. The biblical “three scores and ten”) and is widely used (implicitly) to make informal judgements about the fairness of dying in old age compared with the unfairness of dying “prematurely”; (b) it has been formulated and used by ethicists (Glover, 1977; Harris, 1985; Callahan, 1987; Daniels, 1988), so it has some philosophical credentials; and (c) it lends itself to quantification and the eliciting of trade-offs between conflicting desiderata in a social welfare function (Williams, 1997).

In its extreme, and original, form the “Fair Innings Argument” (henceforth “FIA”) says that when people reach a certain age they have had their fair innings and nothing more should be done to prolong their lives. This is not the form of FIA which is being considered here. We have espoused a more moderate form in which all that happens when people have achieved (or look likely to achieve) a fair innings is that their moral claim on resources is lower (other things being equal) than that of those who have not yet reached (or look unlikely to achieve) that fortunate position (Williams, 1997; Tsuchiya, 2000). When applied to health it answers the question “in what respects is health to be made equal between people?” by asserting that the desideratum is not health at some given point in time, but people’s whole lifetime experience of health.

Our plan here is to examine in Part 1 what the FIA does and does not say, so that the setting for our later discussion is clear. Then, in Part 2, we consider in turn 6 arguments that have been put forward as to why the FIA might not be applicable to health inequalities between the sexes, and for each of these 6 arguments we present possible counter-arguments. Our conclusion is that none of these arguments seem conclusive. Nevertheless in Part 3 we explore further the empirical implications of the argument which says that it is wrong to judge the fairness or unfairness of health inequalities in isolation, but that this judgement should be made only after considering other inequalities, most of which are believed to work to the disadvantage of women. It is a considerable intellectual challenge to formulate this assertion in such manner that it would be possible to address it in a systematic manner. That is where the paper ends, and where we are seeking ideas and suggestions.

Part 1. What is the “fair innings” argument?

In essence FIA depends on there being a sense of community between the individuals concerned, such that they feel that it is wrong for any of them to get a larger or smaller share of some good thing than is regarded as the norm in that community. The norm is usually some achievable moderate amount which has come to be regarded as a fair entitlement.

1.1 How might it apply to health?

The FIA is most prominent concerning the age at which individuals die. It is widely regarded as unjust that some individuals should die young, when other equally blameless and deserving people live to a ripe old age. Just where the “norm”, or “fair innings”, lies as regards an appropriate age at which to die, will vary from community to community, and over time for any particular community. In fairly prosperous countries it seems to lie somewhere in the range of 70 to 75, and as life expectancy increases, it too can be expected to increase. (This will be the case when the fair innings is defined as the “equally-distributed equivalent health”, parallel to the concept of equally-distributed equivalent income in the income distribution literature¹. See Dolan et al, 2000 for how this may be operationalised.)

Life expectancy at birth is frequently the statistic on which this concern focuses. Ideas about a fair distribution are not, of course, the only ideas that are in play here, because people also want the average life expectancy of the whole community to increase as well. We may then have to face a possible tension between the two desiderata, because it may

¹ The standard definition of an equally distributed equivalent income is “the income which, if received by each member of the community, would result in the same level of overall social welfare as the existing distribution yields” (Cowell, 1995). Graphically, on a social welfare contour between the income of two individuals, this corresponds to the point where the contour intersects the 45° ray. Under inequality aversion, this amount will be smaller than average income, since inequality aversion is represented by contours that are convex to the origin.

only be possible to reduce inequalities by concentrating resources where they are less productive overall. (See for example Dolan et al, 2000.)

The concern with life expectancy at birth commonly manifests itself in discussions about the health prospects of babies depending on the socio-economic status of the parents to whom they happen to be born. It is not uncommon for such differences (in life expectancy at birth) between the best-off and worst-off groups to reach an order of magnitude of around 5 years (see for example the Office for National Statistics publications), which is regarded by many as an intolerable inequality amongst people who regard themselves as members of the same community (e.g. as fellow-citizens within a nation-state).

1.2 What generates a sense of community?

This observation brings to the fore the crucial significance of people's sense of community. At a public policy level the sense of community is most likely to narrow down to solidarity with one's fellow citizens within a nation-state. But even this may be too broad for many people, because not all of the citizens in a nation-state feel themselves to be members of the same community. The strength of their sense of community may depend more on where they live, or what religion they practise, or what race they belong to, or what occupation they pursue; in other words, according to a vast array of characteristics which give people a sense that other people are like them, and, accordingly, should be shown fellow-feeling, especially in the face of adversity. Looked at from a slightly different viewpoint, this sense of mutual interdependence can also be gauged by observing who people turn to for help in adversity, expecting a positive response. From whom do they expect a caring response (apart from those who are paid to care)? Relatives? Friends? Neighbours? Anyone who happens to find out about their fate? When people appeal for help from strangers, through the media, what vein of compassion or solidarity do they expect to draw upon? Is it a moral obligation that is relied upon, or is it an appeal to enlightened self interest ("there, but for the grace of God, go I")?

1.3 "Fairness" or "prudence"?

It will not always be possible in reality to separate the ethical sentiments from the prudential elements in people's manifest sense of social solidarity, but it is important to try to do so in principle in the present context. Prudence is about minimising your own chances of doing badly in life, and in that context the showing of fellow feeling is the insurance premium you pay in order to improve the prospect that someone will help you when you are the unfortunate one. This is very different from the FIA view about distributive justice, which does not appeal to people's self-interest (indeed it expects the more favoured to make sacrifices for the less favoured which are quite unlikely to redound to their own advantage in future). It is not asserted that adopting the FIA will make everyone in society better off. What is asserted is that those who are likely, over their entire lifetime, to enjoy more of the good things that a society offers its members, should, on moral grounds, be prepared to sacrifice some of them for the less fortunate,

simply because a true sense of community within the group makes such inequalities inequitable. It is about the nature of a good society.

1.4 “Fairness” and “externalities”

A further complicating factor is introduced when the wish to help some unfortunate person is (at least partly) motivated by the fact that by helping that person you indirectly help others whose welfare is tied up with the welfare of that person. This would lead people to favour the parents of young children over childless couples simply for the sake of the children. If both the parents and the children thereby stand a good chance of enjoying a fair innings, this has to be seen not as an equity issue but as an efficient way to improve the welfare of several people simultaneously, and is regarded as justified on those grounds alone. Very often, an argument to give priority to a parent before a childless adult is put forward in terms of fairness: that it is unfair that the child should be orphaned. Note however that this is an argument about fairness between different children, and not an argument about fairness between the parent and the childless adult. As far as the original question is concerned, the fairness issue should be concerned with the acceptability of treating the two adults differently depending on whether or not they have a dependant.

1.5 “Fairness”, “luck” and “responsibility”

A basic argument underlying FIA maintains that if people end up in a disadvantaged position through no fault of their own, then they should in some way be compensated for it. The implication of this is that if people end up in an advantaged position over and above what can be expected from their own efforts, then they should contribute towards the compensation of the less fortunate. In this case, what FIA does is take from the better off what is not due to them, and give it to the (undeservedly) worse off. In this manner, FIA could result in a pure “meritocracy” that insulates individuals from any distortions that occur fortuitously.

However, if people’s conceptualisation of legitimate property rights covers not only what people achieve through their own efforts but also what sheer good luck brings to them, then this contribution expected of the better off may come to be seen instead as an intrusive penalty for doing too well or being too lucky. Being lucky in this case may be understood as a talent one is born with: it is beyond one’s choice or effort, and yet one is permitted to cash in on it. In such a context, the moral obligation set forth by FIA would have to be interpreted as overriding such property rights. But it would be inconsistent if positive fortuitous results were accepted as legitimately retainable while negative fortuitous results were seen as entailing a right to compensation.

The discussion so far has assumed that the source of disadvantage suffered by the worse off is just bad luck. However, should FIA be extended to cover cases where the disadvantage of the worse off is to a large extent due to their own informed and deliberate choices? Should not the sense of solidarity be concerned solely with inequalities in health that are simply due to misfortunes beyond one’s control? FIA itself does not

prescribe how people with different merits should be treated, but an approach based on solidarity is likely to be less punitive than a market type system where each player maximises self-interest. Nevertheless, if two individuals were in equally poor shape, one due to sheer bad luck and the other due to his own daredevil attitudes, it seems unfair to ignore the degree of responsibility each individual has.

1.6 “Fairness”, “reasonableness” and “paternalism”

If the FIA is to cover cases where the disadvantage in question was to some extent brought on by the disadvantaged themselves, then the moral obligation upon the better off to make sacrifices for the worse off may be moderated by requiring that in order to become entitled to make such a moral claim certain conditions have to be fulfilled. For instance, it may be stipulated that claimants must have behaved (and must in future behave) in a “reasonably prudent” manner so as to minimise their disadvantage. This presupposes that the concept of “reasonable prudence” is well established in the lore of that community. However, on the whole, middle class attitudes, behaviour and values tend to be more conducive to good health than those of the working class, so that when the better off require the worse off to demonstrate an acceptable level of reasonable prudence (as judged by the better off), it may more like a social control mechanism than an expression of solidarity.

Further, the FIA presupposes that the better off do not impose such a strict entitlement regime upon their fellow citizens that this serves to undermine the charitableness and compassion which should be felt for those who may not be capable of the same self-discipline that made the better-off better off. A complicating matter is that in the real world, individuals are not born with equal endowments which place them on the same starting line. The socio-economic background one is born into has a crucial effect on one’s life expectancy. So it is very unlikely that the *same* level of self-discipline will bring the socio-economically better off and the socio-economically worse off to the same level of health. Some tolerance for the frailty of others is an essential element in a sense of community; it goes beyond compensating for mere bad luck.

1.7 Is “fairness” domain-specific?

The other important element in any such discussion turns on whether the same FIA considerations apply to all goods, or whether they should vary according to which good we are considering. Life expectancy was mentioned earlier as the element to which a FIA might be applied, but we could also have considered lifetime earnings, intelligence, physical attractiveness, character, and artistic or athletic talent. Do people also feel it wrong that these elements should be so very unequally distributed within the community, or are inequalities of this sort to be tolerated (or even encouraged, so that we can be proud of having within our community internationally acclaimed star performers)? If someone was a star, got very rich, but died young, then is that early death to be weighed as roughly equivalent (from a FIA viewpoint) as a death in old age of someone who was an impoverished nonentity throughout their life? In other words, should the FIA be applied only to a broad concept of well-being, and not separately to each component of

it? Do we have some multidimensional concept of what a citizen can reasonably feel entitled to in our community, and do we allow for offsetting compensations when someone is doing better than the norm on some dimensions and worse than the norm on others?

1.8 Recapitulation

So in applying the FIA to, say, the expected lifetime health of the various members of a community, there are several issues we have to address:

- What defines that particular community?
- How averse are they to inequalities between the members?
- What do they regard as a “fair innings”?
- Is there one fair innings for all, or different ones for different subgroups of people?
- Does FIA only cover for misfortunes, or does it also cover imprudence?
- Are conditions set that have to be fulfilled by claimants?
- Are non-health elements seen as moderating the application of the fair innings argument to lifetime health?

Part 2. Inequality in health between the sexes

2.1 Is there a case to answer?

Let us now see whether, when these arguments are applied to health inequalities between the sexes, there is a case of possible unfairness to answer. To some extent, the issue lies within the remit of gender health studies. However, of interest is to note that a large part of this literature seem to come from specific gendered positions: viz. women’s studies (for which literature is abundant) or men’s studies (good examples are Sabo, Gordon, 1995 and Kimmel, Messner, 1998); and as a result, normative studies that address the issue of gender/sex inequality in health without a predetermined agenda are rare. In this respect, what is lacking is a discourse that compares the prescriptive claims of these two camps from a more detached perspective.

Given that women have better lifetime health prospects, applying FIA to health seems to lead to the view that in this domain men are getting an unfair deal relative to women, and that in order to address this unfairness, men’s health should be given priority over women’s health; but is this the case?

2.2 Why there may be no case to answer

For those who wish to avoid accepting this conclusion, there are (at least) six main lines of argument available:

- (1) to challenge the data;

- (2) to deny that men and women should be regarded as members of the same community;
- (3) to assert that the differences are largely due to biology and therefore beyond our control;
- (4) to claim that men are themselves the main cause of and thus responsible for their shorter life expectancy and therefore women should not be called on to compensate for the men's state;
- (5) to point out that changing life styles of women are making them live more stressful lives and die earlier, so that before long there will be no more inequality in health between the sexes and therefore this discussion is unnecessary; and
- (6) to question having health considered separately from all other sources of wellbeing, and to argue that better health is to be weighed against poorer socio-economic status when striking an overall balance about who is getting a "fair innings".

We will consider each of these in turn.

2.2.1 The data are inconclusive

There is a large literature on the issue of gender/sex differences in health that looks at the differences in prevalence of specific diseases and conditions, or in self-reported health, across males and females. The early literature established what is sometimes referred to as a paradox: men have higher mortality rates but women have higher morbidity rates, especially at advanced age. The recent literature looks more closely into different types of diseases and of self-reported problems, and has come to question such sweeping statements. It is claimed that the picture is more complicated and inconclusive, so that there are disease areas where there seem to be no sex differences, or even excess male morbidity. (For an excellent collection, see the special issue of *Social Science & Medicine*, 1999; also see for example MacIntyre, Hunt, Sweeting, 1996; Murray, Lopez, 1996; Verbrugge, 1989.)

However, the issue here is whether or not excess female morbidity *overall* is such that it will wipe out their advantage in life expectancy. The emergent literature on quality adjusted life expectancy, disability adjusted life expectancy, and the like, suggests that, at least for the developed countries, male advantage in health related quality of life is unlikely to be large enough to make their overall life time health prospects equals to that of females (see for example Cambois, Robine, 1996; Manuel, Schultz, 2001; Murray, Lopez, 1997; Kaplan, Erickson, 2000).

2.2.2 Men and women are separate communities

In the pursuit of the more equal treatment of women as regards civic status, educational and employment opportunities, pay, access to finance, and property rights, a strong element has been the appeal to a sense of community (equal rights) between men and women, rather than having one set of rules and attitudes towards one and a rather different set towards the other. So it seems appropriate to start by adopting that same stance here. Otherwise it might appear that the appeal to fairness (or equal rights) was

not driven by a genuine concern for fairness, but by a willingness to use any argument that helped to improve the lot of women, which can be dropped as soon as it ceases to serve that particular end.

One obvious respect in which men and women are different is in their biological characteristics (which we will turn to in the next section). Historically, this has affected a large part of their social roles (eg in child-rearing, or bread-winning) and much of the discussion about a sense of community between the sexes turns upon the extent to which biological differences (and everything that goes with them in evolutionary terms) influence gender roles within a society, and how strongly differentiated these roles should be. It could be argued that those who choose to play a particular role (like those who choose to take up a particular occupation) must be assumed to do so knowing the occupational hazards associated with it. Thus our society is made up of many different “occupational groups”, each of which forms a separate community. It so happens that the more dangerous ones are mostly pursued by men and the less dangerous ones (including housework and child-rearing) by women. The two stereotyped “gender roles” could therefore be seen as a composite summary of these distinctive “occupational” patterns and the characteristics that are associated with them, and it might be claimed that this is what justifies regarding them as separate communities in this context. The curiosity about this line of argument is that it comes very close to resting on the same occupational considerations as determine “social class”, where the appeal to a sense of community has been particularly strong.

2.2.3 Biology is the cause and we are helpless

A rather special variant of the “two separate communities” position rests on the issue of biological potential mentioned above. There are good reasons to suppose that biology and evolution has left the human female much more resilient to health hazards than the human male (Kramer, 2000), and given that the difference is “natural”, or not amenable to intervention, this argument holds that the existing inequality is not a matter of fairness. This raises two issues for consideration in the present context. The first is to estimate the likely magnitude of this favourable inheritance in terms of extra lifetime health so that we can form a view as to whether it still leaves a lot of the difference between the sexes unaccounted for. The second is to consider whether or not, even if it did account for most of the observed differences, this removes the issue from ethical consideration and therefore makes the FIA irrelevant.

Regarding the first issue, the Global Burden of Disease (GBD), and the Gender-related Development Index (GDI) supplementary to the Human Development Index (HDI), have the standard life expectancy at birth of women at 82.5 and 87.5 years respectively, and that of men at 80 and 82.5 years respectively (World Bank, 1993, UNDP, 1995). These differences between the sexes, of 2.5 years and 5 years respectively, are justified on the basis of what are thought to be the different biological potentials of the two sexes. There are two things to note. Firstly, the use of differential standards does not imply that the issue of fairness becomes irrelevant. Taking as an example the calculation of the GDI, if a death at 87.5 years for women is regarded as just as fair as a death at 82.5 for men, and

if inequalities within each sex group are equally abhorrent, then a woman dying at 70% of the female potential may be seen as equally unfair as a man dying at 70% of the male potential, and so on right down the scale. Secondly, setting different standards for each sex and allowing for a large differential (such as 5 years) tends to cancel out the observed female advantage in absolute life expectancy. A smaller differential (such as 2.5 years) will preserve the inequality. While this is a factual matter that may one day become established beyond reasonable doubt, it is currently rather speculative, and the choice of values is a sensitive matter.

On the second issue we start from the observation that whether or not something can be done about a situation (a matter of fact) is irrelevant to whether or not the situation is unfair (a matter of judgement). Nobody can be morally required to do the impossible. However, suppose somebody has a permanent incurable disability. Although nothing can be done *to remove this disability*, it does not follow that nothing can be done *to address the situation*. He may be given priority over non-disabled patients for cataract extraction, be given concessions for prescription charges, or be entitled to beneficial medical interventions that have larger cost/QALY than is the standard threshold. There are numerous ways in which the health care system can compensate an individual, or to make sure that the existing disadvantage does not get any larger, when the community regards him as having being treated unfairly by biology, even if the original unfair situation itself cannot be changed.

A variant of this biology argument may claim that it is “normal” for men to have a shorter life expectancy than women, while this is not so for a person with a disability; a disability is an anomaly, and therefore the above example of a person with a disability does not apply to men with shorter lives. The difficulty with this variant lies with the choice of normality-setting context. It is true that men normally die earlier than women, but in itself this has no ethical significance, since it does not tell us whether this *ought or ought not* to be what is “normal”. Once the reference group is shifted from men and women to humankind in general, then it can also be said that the length of life of males is shorter than what is normal for humans, whilst that of females is longer. In other words, what is biologically “normal” for a particular population cannot determine what is relevant when the fairness of an inequality is discussed. It only becomes so when a prior decision has been made that a particular choice of population is the one that is relevant for the ethical discussion.

Furthermore, when the inequality is one over which the person has no control, then there should be even more reason to be concerned about its equitability. Given that one’s sex and the associated biological underpinnings are completely beyond one’s choice or control, this clearly applies to inequalities in expected lifetime health by sex. This disadvantage to males should not be ignored because they happen to have been born the wrong sex and because in general we are helpless to change that fact.

Thus our conclusion is that the source of the inequality being biology does not offer a good argument against the application of FIA to the inequalities in health between the sexes.

2.2.4 *Men have brought this onto themselves*

While there are many biological models which seek to explain why women outlive men, there are also many sociological and behavioural models that seek to do so. Given the overall picture regarding the kinds of lifestyle that men choose, their attitudes to risk, and the lack of attention men give to their own body and health, it is hardly surprising that the expected age of death for men is lower than that for women. On average, women do not overwork themselves at a stressful workplace, women do not drink in excess or drive too fast, and women watch their diet better and go to see their GPs earlier. It seems that, to the extent that shorter male life expectancy is attributable to factors that are within individual control, it could be argued that men's claim to preferential treatment to compensate for their poor outcomes by appeal to the FIA is thereby diminished.

Evaluating this argument is difficult. The first difficulty is in determining how much of the male disadvantage is caused by factors that are *in principle* subject to individual choice. But as with the biology argument above, this is an empirical issue. The second, and trickier task is to determine how much of this is *in fact* subject to individual choice. For example, men drink more alcohol. In principle, it is entirely a matter of individual choice how much one will drink. However, the amount of alcohol consumed in a pub or a bar is likely to be determined by the company you are in, by how much others have already drunk, and how competitive the atmosphere is in short, by how much pressure (real or imagined) there is for a man to demonstrate to his peers that he is a MAN, by drinking yet another pint. To what extent is an individual to be held responsible for such socialised behaviour?

A similar argument can be built from evolutionary psychology: males have an evolutionary reason for behaving more aggressively than females ("because they need to fight and compete against other men to inseminate more women", etc), and therefore individual men cannot be held responsible for typical male behaviours.

On the other hand, there is a group of what may be called "masculinist" thinkers who are concerned about certain kinds of male culture that lead to expressions of masculinity that are harmful for men themselves (and the women close to them), and who are calling for new models of masculinity that are less aggressive, less competitive, more caring, and thus more healthy. They claim that, although it won't be easy, men can change (see for example Francome, 2000; Clare, 2001; Segal, 1990). Their key concept is masculinities in the plural: the prevailing type of masculinity is not the only one available. Is then the extent to which they could change their behaviour to be taken as the extent to which they could be held responsible?

The tentative conclusion to draw on this topic seems to be that, while individual men cannot be held entirely responsible for their own shorter life expectancy, they are not completely blameless either. This will imply a diminished applicability of FIA.

2.2.5 The present trends in the changing the roles and behaviour of women will soon wipe out the inequality

During the past half-century more and more women have adopted careers, attitudes and behaviours that have hitherto been associated with men. So if the major part of excess male mortality is due to their more stressful lifestyles and greater risk taking (either by free deliberate choice or by peer pressure), an interesting implication may well be that the days where women have longer life expectancy than men are now numbered. The increase in the number of men who have happily given up the breadwinner role, and adopted the alternative model of masculinity mentioned above, should also work in the same direction. The final outcome of the feminist ideal on minimising the extent to which one's biological sex restricted the choices available to one in life, may turn out to be a world where the inequalities in health across the sexes were also minimised.

The evidence cited in section 2.1.1 above seems to cast doubt upon the assumptions of this argument, but even if it did turn out to be correct, this does not seem to offer enough reason to ignore the FIA for the present generations. That the existing unfairness may disappear one day in the undated future is insufficient to counter the appeal to rectify it now.

2.2.6 Health should not be considered in isolation

The final line of argument asserts that the fair innings argument should not be applied separately to each important domain of life, but in a much more holistic or comprehensive manner, weighing each domain against the others. Thus although health may indeed be the most important of all the domains, it is still not the only one. Women may be better off than men in the health domain, but if they are worse off than men in some other important domain of well-being, then which sex does better overall would not be a straightforward matter.

There is however a different way of interpreting the role played by measures of lifetime health prospects in this discussion. One could regard it as the best single indicator we have of an individual's overall potential to flourish, i.e. to lead a fulfilling life. In this view lifetime health is itself a proxy for human well-being, and can therefore be regarded as an end in itself, encapsulating all the effects of all the other inequalities. The effects on human welfare of any inequalities where women are the disadvantaged have already been taken into account. In the process it would be necessary to decide whether it is lifetime health in terms of an absolute number of QALYs that should be compared, or the percentage attainment of differentiated targets accommodating different biological potentials. If the former approach is taken, then it seems that despite their social disadvantage women are still better off than men overall. If the latter approach is taken, then the situation will depend largely on how the differential is set. Also note that, under this approach, the incorporation of quality adjustment weights in the calculus should be carefully re-assessed. It may be that there is also a biological element in some of the disease and HRQOL differences between the sexes.

If existing measures of lifetime health are not considered to be good indicators of overall welfare, then we have to address the key issue of how the social value of health is to be compared with the social value of all the other good things in life that are amenable to public policy and in which there are significant inequalities between the sexes. We shall devote Part 3 of this paper to that important topic.

2.3 Recapitulation

Let us summarise the above.

- (1) The evidence on lifetime health prospects between men and women indicates that women are better off than men, in other words, there is an inequality.
- (2) Arguments in support of regarding men and women as members of separate communities based on their different natures and roles are dubious, and do not reject the applicability of FIA.
- (3) Arguments denying the inequity of the inequality based on the fact that it is biological/natural/normal fail, and cannot reject the applicability of FIA.
- (4) Arguments assigning responsibility for the inequality to men's own behaviour have some (but not complete) relevance, and therefore the applicability of FIA is diminished.
- (5) The argument that, given the recent trends, the issue will eventually go away, is not satisfactory, and does not reject the applicability of FIA.
- (6) The argument that health should not be considered in isolation has reasonable appeal, and questions the applicability of FIA to health prospects alone (but not the applicability of FIA to some indicator of overall well-being).

Part 3 Where next?

The above discussion has identified several key areas where factual data are missing. Some of them are best addressed by epidemiologists or behavioural psychologists, such as the sex differences in mortality and morbidity rates, the extent to which these differences are attributable to biological causes, the extent to which socialised behaviour is subject to individual control, the dynamics of engendered socio-cultural norms and attitudes, and so on. One area where health economists can be expected to contribute is the issue of the relationship between health and other domains of well-being. In this Part, we will discuss the Human Development Index, and explore ways to improve on this by empirically estimating the relevant parameters.

3.1 The Human Development Index

The Human Development Index (HDI; created largely on the initiative of Amartya Sen) is an indicator of "the average achievement of a country in basic human capabilities". It is based on the assumption that human development within a population can be approximated by a composite measure representing life expectancy at birth, adult literacy, and (the log of) real GDP per capita. Since its first publication in 1990, its formulation

has gone through several changes, but the essence has remained the same: each of these three components is expressed as the proportion achieved against maximum and minimum observed levels (or target levels in later formulations), and then averaged. So for example, a country that achieves 80% on the life expectancy component, 70% on the literacy component, and 60% on the GDP component, the HDI will be 0.700 (for more conceptual and technical details, see UNDP, 1990 and the subsequent *Human Development Reports*).

Of particular interest in our context is that equal weight is given to marginal improvement in health and economic performance. The implication is that if men are $x\%$ better off than women in the GDP component and women are doing $x\%$ better off than men in the life expectancy component, then overall human development will be equal across the sexes. Indeed, UNDP (1990) makes a crude attempt at comparing, within each country, HDI for men and HDI for women. The results show that amongst the 20 or so “high human development countries” the HDI when calculated separately for men and women is roughly the same, if not somewhat better for women. This appears to mean that when health is weighed in the balance alongside other key features of human welfare, women and men in these countries are doing roughly equally well².

GDI is a supplementary index that has been published as part of the *Human Development Report* since 1995, and “measures achievement in the same basic capabilities as the HDI does, but takes note of inequality in achievement between women and men” (UNDP, 1995). Whereas the HDI is a function of the *averages* across the population in life expectancy, literacy, and GDP, GDI is a function of the *equally distributed equivalent achievements* in these three components (cf. footnote 1). Suppose there are two countries that are similar in terms of total levels of the three components of HDI (and thus, similar HDI), but completely dissimilar in terms of the equality between men and women in the three components, then GDI will pick up this difference so that the country with more gender equality will have a higher GDI. In this respect, GDI is an improvement over HDI.

However, GDI does not answer our question. Firstly, the three components of human development continue to be given equal weight. Secondly, the three components are simply added together across the sexes so as to report one index for the whole population (as opposed to reporting each indicator separately for each sex), and as a result, it cannot distinguish between the case where one sex has the advantage in all three components and the case where the advantage in one component is to one sex and in another to the other³. And thirdly, the inequality aversion parameter used to calculate the equally distributed equivalent achievements has neither a theoretical nor an empirical basis.

² Note that this is *not* part of GDI, and thus no allowance is made for the difference in biological potential for longevity by sex. If the biology argument justifies the use of different standards, then male HDI will increase and the female HDI will decrease accordingly. From available information, the magnitude of this effect is not clear.

³ The *Report:1995* argues that this is not a serious shortcoming since “deprivations often go together and reinforce --- rather than counteract --- each other”.

3.2 A research agenda

At the practical level, the design and the calculation of HDI and GDI are seriously limited by the availability of reliable data. Nevertheless, it seems to us that the indices can be improved further by establishing empirically the following parameters.

- (1) People's aversion to inequality between the sexes in each of the three components.
- (2) The relative importance people give at the margin to each of the three components.

Let us first represent the various indices in a stylised form, and then explore how the empirical study may be designed. In what follows, scale parameters are omitted for simplicity, and thus the level of well-being is not directly comparable *across* different formulae. Also see the Annexe, where stylised examples are used to demonstrate the effects of using different specifications. The HDI can be represented crudely as implying:

$$D_1 = H + L + E,$$

where D is human development, H represents population health, L is population literacy, E is economic achievement, each measured in some appropriate scale. The implied function for GDI then is:

$$D_2 = (H_f^r + H_m^r)^{1/r} + (L_f^r + L_m^r)^{1/r} + (E_f^r + E_m^r)^{1/r}, \quad r \leq 1, r \neq 0$$

where subscripts f and m represent the two sexes and r is the (common) inequality aversion parameter. The *Human Development Report:1995* runs a set of sensitivity analyses using different values of r to explore its effects, and then arbitrarily chooses the value of -1 on which to base all calculations thereafter.

The two proposals above amounts to a special case of D_2 :

$$D_3 = \alpha (H_f^q + H_m^q)^{1/q} + \beta (L_f^s + L_m^s)^{1/s} + \gamma (E_f^t + E_m^t)^{1/t},$$

where health, literacy, and economic well-being are given differential weights α , β , and γ (which add up to 1), and inequality aversion is also differentiated (q , s , and t ; ≤ 1) across these three components. As was discussed above, the shortcoming of this functional form is that its three components are independent from each other so that there is no scope to test whether female advantage in health is cancelled out by male advantage in the two other components. Thus, an interesting alternative may be to consider the function:

$$D_4 = [(\alpha H_f + \beta L_f + \gamma E_f)^r + (\alpha H_m + \beta L_m + \gamma E_m)^r]^{1/r},$$

where the value of r may differ from that in D_2 . This way, rather than defining the level of human development of a community as a function of the three components, which in

turn are defined as the achievements of the two sexes, the objective function is composed of the achievements of the two sexes, which in turn are defined in terms of the three components. As a result, D_4 will be sensitive to inequality in overall well-being between the sexes, which is what is missing from the other formulations.

It is important to note that the proposed functional forms D_3 and D_4 do not require any additional raw data. They simply suggest different ways in which to aggregate them. The only additional data required are the values of the parameters and weights, which we would seek to determine empirically.

Having thus formulated the indices, we can move on to discuss possible strategies for empirical studies. For the moment we are going to set aside some tricky questions about how to move from individual values to social values, whose values to seek, and whether to operate at local national or global levels, etc. Since our comparative advantage as economists lies in eliciting trade-offs it is upon these that we shall concentrate.

By adopting the methods presented in Shaw et al, (20001), the following trade-offs will be examined:

- (a) for α , β , and γ : between H , L , and E , within each sex (in D_4), and for the whole population (in D_3),
- (b) for q , s and t in D_3 : between overall attainment and reduced inequality between the sexes for each component, and
- (c) for r in both D_3 and D_4 : between higher overall attainment and reduced inequality between the sexes for the composite index.

The application of the existing questionnaire to (b) is straightforward. In fact, parameter q has already been studied in Dolan et al (2000), where it was found that the median respondent was inequality neutral.

To the reader...

This is where we have reached, and this is a work in progress. Any helpful thoughts from elsewhere would be greatly appreciated!

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Annexe

This annexe illustrates highly stylised examples, and explores the effects of using different specifications (D_1 to D_4) of the human development function. The table below represents four cases, where HDI in each case is 0.700. For the sake of simplicity, Literacy is kept constant at 90% for both males and females.

		Life expectancy (H)	GDP/capita (E)	Literacy (L)
(W)	males	60	60	90
	females	60	60	90
(X)	males	60	80	90
	females	60	40	90
(Y)	males	40	80	90
	females	80	40	90
(Z)	males	40	40	90
	females	80	80	90

† The figures represent percentage attainment of the relevant target.

‡ The population consists of 50% males and 50% females.

$$\begin{aligned}
 D_1 &= H + L + E, \\
 D_2 &= (H_f^r + H_m^r)^{1/r} + (L_f^r + L_m^r)^{1/r} + (E_f^r + E_m^r)^{1/r}, \\
 D_3 &= \alpha (H_f^q + H_m^q)^{1/q} + \beta (L_f^s + L_m^s)^{1/s} + \gamma (E_f^t + E_m^t)^{1/t}, \text{ and} \\
 D_4 &= [(\alpha H_f + \beta L_f + \gamma E_f)^r + (\alpha H_m + \beta L_m + \gamma E_m)^r]^{1/r}.
 \end{aligned}$$

HDI, represented by D_1 , is the same for the four outcomes, and thus

$$D_1(W) = D_1(X) = D_1(Y) = D_1(Z).$$

Assuming inequality aversion, GDI, represented by D_2 , will rank X lower than W to reflect the gender inequality in the GDP component. However, it will automatically rank Y and Z equally, despite the fact that inequality in Z persistently favours one sex. Thus, more formally, according to GDI, when $r < 1$, then

$$D_2(W) > D_2(X) > D_2(Y) = D_2(Z).$$

The ranking of the four cases under D_3 will depend on the parameters, and is not straightforward. Under D_4 , when $\alpha = \beta = \gamma$ and $r < 1$, then

$$D_4(W) = D_4(Y) > D_4(X) > D_4(Z).$$

Note the differences in the rankings of X and Y . In D_2 X is preferred to Y , because X has only one component with an inequality whereas Y has two. But in D_4 Y is preferred to X , because the two inequalities in Y go in opposite directions, while there is nothing to offset the only inequality in X .