

## Human rights, climate change, and discounting

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It is widely recognised that climate change is having malign effects on human life. How though should we evaluate these changes? The dominant approach employs cost–benefit analysis. In this essay I defend an alternative. I argue that we should see climate change as a threat to human rights. The inter-temporal character of climate change poses a second question, namely should we subject these rights to a positive discount rate. I examine five arguments which purport to show that the human rights jeopardised by dangerous climate change should be subject to a positive discount rate and conclude that none of these succeed. I argue that the rights jeopardised by dangerous climate change do not diminish in importance throughout time.

### Introduction

In its Fourth Assessment Report the Intergovernmental Panel of Climate Change (IPCC) has provided further confirmation that climate change will have serious impacts on human life. It reports that

The global average surface temperature has increased, especially since about 1950. The updated 100-year trend (1906–2005) of  $0.74^{\circ}\text{C} \pm 0.18^{\circ}\text{C}$  is larger than the 100-year warming trend at the time of the [Third Assessment Report] (1901–2000) of  $0.6^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$  due to additional warm years. The total temperature increase from 1850–1899 to 2001–2005 is  $0.76^{\circ}\text{C} \pm 0.19^{\circ}\text{C}$ . The rate of warming averaged over the last 50 years ( $0.13^{\circ}\text{C} \pm 0.03^{\circ}\text{C}$  per decade) is nearly twice that for the last 100 years. (Solomon *et al.* 2007, p. 36)

In addition to this, the IPCC projects that temperatures will continue to rise. It employed six different ‘emissions scenario families’ (known as SRES scenarios) to project future climate changes given a wide variety of assumptions and these all found that temperatures will rise by 2090–2099 as compared to the

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temperatures between 1980 and 1999. On some scenarios temperatures will increase by 1.8°C (the best estimate of the B1 scenario). On others temperatures will increase by 4.0°C (the best estimate of the A1FI scenario). If we examine the 'likely range' then the lower limit is 1.1°C and the higher limit is 6.4°C (Solomon *et al.* 2007, p. 70). Climate change will also involve a rise of sea levels. Again, the IPCC employs six different SRES scenarios. On some, sea levels are projected to rise by 0.18–0.38 metres (B1 scenario) and on others the increase is projected to be 0.26–0.59 metres (A1FI scenario). It is crucial to note that these projections exclude 'future rapid dynamical changes in ice flow' (Solomon *et al.* 2007, p. 70). Furthermore, the situation looks to be getting worse rather than better. Carbon dioxide emissions stemming from fossil fuel use and industry have grown by more than 3% per annum during the 2000–2004 period as compared to 1.1% per annum between 1990 and 1999 (Raupach *et al.* 2007, p. 10288).

These changes pose considerable ethical challenges, of which one concerns how we evaluate the impacts of climate change. For example, do persons have a right not to suffer the ill-effects of global climate change? Some have advocated a human right to a healthy environment and related concepts are affirmed in international law. One important starting point is the 1972 Stockholm Declaration of the United Nations Conference on the Human Environment. Principle 1 of the Declaration maintains that:

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. (United Nations 1972)<sup>1</sup>

More recently, the United Nations Human Rights Council passed a resolution in 2008, stating that 'climate change poses an immediate and far-reaching threat to people and communities around the world and has implications for the full enjoyment of human rights'.<sup>2</sup> In this paper, I wish to argue that persons do have a human right to a healthy environment (see also Nickel 1993, Adger 2004, Hayward 2005). The current consumption of fossil fuels is, I argue, unjust because it undermines certain key rights. The remainder of the paper maintains that this right should not be subject to a positive pure time discount rate.

### **The main argument**

Anthropogenic climate change might be condemned on a number of grounds. I here argue that one, but only one, source of condemnation is that climate change jeopardises human rights.<sup>3</sup> My argument is that employing the normal kinds of argument for justifying rights shows that persons have a right not to suffer from dangerous climate change. The argument can be stated relatively simply.

*Step 1.* First, as Joseph Raz has persuasively argued, to say that X has a right is to say that X has interests which are sufficiently weighty to impose obligations on others (1986, chapter 7 in general and p. 166 in particular). This account can explain our use of the concept of rights. We hold that there are rights to activities such as freedom of expression and association and belief because these protect important interests which are weighty enough to impose obligations on others.

*Step 2.* Consider now climate change. This clearly jeopardises several fundamental interests. Three in particular are worth stressing. First, climate change is likely to lead to widespread malnutrition and jeopardises persons' interests in subsistence. According to recent estimates, a temperature increase of 2.5°C will result in an extra 45–55 million people suffering from hunger by the 2080s; a temperature increase of 3°C will result in an increase of 65–75 million people of those who are threatened by hunger; and a temperature increase of 3–4°C will result in an increase of 80–125 million in that category (Hare 2006, p. 179). Second, climate change undermines person's interests in being able to support themselves. Even if people are not subject to malnutrition their capacity to attain a decent standard of living is threatened by climate change. Rising sea levels, storm surges, and extreme weather events may destroy buildings and infrastructure and thereby ruin businesses and industries. Decreased rainfall may obviously lead to crop failure. Some of those affected may not be threatened by malnutrition but their capacity to support themselves has nonetheless been greatly impaired. Third, climate change jeopardises a fundamental interest in health. As many have noted, climate change can endanger human health through a number of different mechanisms, including (a) extreme weather phenomena, (b) heat stress, (c) vector-borne diseases (e.g. malaria and dengue), and (d) water-borne diseases (e.g. cholera and diarrhoea), and (e) poor air quality (Patz *et al.* 2000, especially pp. 369–373, McMichael *et al.* 2003, 2004, especially pp. 1562–1605, Kovats *et al.* 2005, Confalonieri *et al.* 2007). Climate change thus clearly damages key human interests.

*Step 3.* This, though, is not sufficient to establish that it violates people's rights because as, was noted above, persons have rights when they have an interest that is fundamental enough to impose obligations on others. The third step in my argument, then, is that the interests cited above *are* indeed sufficient to impose obligations on others. Several considerations are relevant here. In the first place we should record that the interests in question are not trivial or frivolous interests – they are key to all persons. These interests are as fundamental as, say, other kinds of interests which we believe that should be protected by rights – such as the interest in freedom of speech or creed. Second, the evidence that is currently available suggests that averting dangerous climate change can be secured at a cost of several per cent of global GDP per annum. For example, the Stern Review has suggested that it will only cost between 1% and 3.5% of global GDP to stabilise the concentration of carbon dioxide (CO<sub>2</sub>)

in the atmosphere at 550ppm, and it proposes 1% of GDP as the most likely cost (2007, p. 239). Similar estimates are made by Christian Azar and Stephen Schneider (2002, pp. 77–78). The most recent IPCC Assessment Report produces estimates which are higher but nonetheless entirely reasonable. For example, the ‘Summary for Policymakers’ produced by Working Group III of the IPCC (those detailed to work on mitigation) concludes that the cost of stabilising CO<sub>2</sub> concentration in the 445–535 range will involve a cut in the global GDP in 2030 of less than 3% (Barker *et al.* 2007, p. 12). Were the costs excessive then one might conclude that the interests in avoiding dangerous climate change are not fundamental enough to impose obligations on others. That an interest is vital is insufficient to generate a right to it until we know whether it is appropriate to hold others to be under a duty to it. However, the evidence just cited shows that the costs are reasonable.

On the basis of what we have seen so far we can say, then, that persons have fundamental interests in health, subsistence and supporting themselves and that the duty to protect these interests from dangerous climate change is not unreasonably demanding on the appropriate would-be duty bearers. Given both of these considerations we may, then, conclude that the interests in question are sufficient to impose duties on others. As such, it follows that, on the Razian account affirmed earlier, people have a right not to suffer from climate change which jeopardises these interests.

Two further points should be made about this argument. First, note that if this account is valid it provides a defence of *human* rights because the interests cited are interests of all human beings: all persons have this right not to be exposed to dangerous climate change. Second, note that the argument provides a different way of thinking about climate change. The prevailing intellectual framework employed to analyse climate change by policy elites is cost–benefit analysis. If my argument above is correct, we should also see climate change as an issue of human rights.

The argument for a rights-based approach to climate change is, however, far from complete. Some, for example, would argue that this right cannot be held by members of future generations (the extreme challenge). Others would argue that this right should be subject to a positive pure time discount rate and therefore the development rights of current generations may override the discounted rights of current and future people not to suffer from dangerous climate change (the moderate challenge). Space precludes examination of the extreme challenge here.<sup>4</sup> In the remainder of this paper I shall focus on the moderate challenge. As we shall see, many reasons have been given (especially since the publication of the Stern Review) as to why it is appropriate to discount future people’s interests. In the light of this, I shall examine the case for pure time discounting in the rest of this paper. My claim is that the right that I have defended above (the right not to be exposed to dangerous climate change) should not be subject to a positive pure time discount rate. This allows the possibility that a discount rate might be applied to other values: it simply denies that rights should be discounted.

### Rights and discounting

Let us turn now to the claim that the intertemporal character of climate change is morally significant because the rights (or interests – for those who reject the claim that future people have rights) of current and future generations should be subject to a positive ‘discount rate’. That is to say the rights (or interests) of people should be ascribed less value the further they are into the future. On this view, the rights of future generations should be afforded less protection than the rights of contemporaries and, moreover, the rights of contemporaries should also be discounted throughout their life. By contrast, the position that I am defending affirms what is termed a zero discount rate to the protection of rights. On my account the rights of a person in the twenty-first century have the same moral standing as the rights of a person in the twenty-third century. This is an important conclusion because if we think that future people have rights of a lesser significance than the rights of contemporaries, the rights of future people not to suffer from the ill-effects of climate change could more easily be overridden by the interests of the currently alive in activities which release high levels of greenhouse gas into the atmosphere. And indeed some object to large scale policies of mitigation on precisely these grounds. So, whether we adopt a positive or a zero discount rate has great practical importance.<sup>5</sup>

Before considering challenges to my affirmation of a zero discount rate for rights, it is essential to make three preliminary points about discounting in general. First, we should distinguish between different accounts of what it is that should have a positive or zero (or negative) discount rate. What, we might ask, is the subject of the discount rate?<sup>6</sup> Two possibilities are ‘moral worth’ and ‘resources’. If we apply a positive discount rate to the ‘moral worth’ we attribute to people then we hold that we should attribute less moral worth to people the later in time that they live. We exhibit what is termed ‘pure time preference’. By the same token, if we apply a positive discount rate to the ‘resources’ we allocate to people then we hold that we should spend less money on people the later in time that they live. Now the account that I am defending above is fundamentally committed to a zero discount rate for persons’ moral worth (cf. Ramsey 1928, p. 543, Sidgwick 1981 [1907], p. 414).<sup>7</sup> My aim is to defend the view that when determining persons’ worth (and in particular when determining the importance of protecting people’s rights) there should be no pure time preference. The two different kinds of discounting are often combined in the following very simple formula:

$$\text{Social discount rate} = \text{pure time preference } (\delta) + \eta \times (\text{rate of increase in consumption per capita}).^8$$

My concern is with  $\delta$ . My claim is that earlier rights should be accorded the same moral status as later rights:  $\delta$  should be zero.

Second, we should note that those who affirm a positive value for  $\delta$  vary in the kinds of discount rate they affirm. Some suggest a fixed social discount rate. They may propose, for example, that we should apply a pure time discount rate

of 3% so those born now have a value of 1 and those born in 10 years have a value of  $1/(1.03)^{10}$ . One obvious upshot of a fixed pure time discount rate is that fairly soon the moral standing of members of future generations becomes very low. Partly in light of this, others suggest varying pure time discount rates which apply a higher discount rate to near future generations and lower rates to distant future generations. For example, some have advocated hyperbolic discount rates (on which see Ainslie, 2001, Groom *et al.* 2005, pp. 471–473). In a similar vein, Martin Weitzman (2001, especially p. 270) has suggested a system of ‘sliding scale’ discount rates, which divides the future into five separate periodisations (1–5 years, 6–25 years, 26–75 years, 76–300 years, and more than 300 years) and then allocates a different discount rate to each periodisation (respectively, 4%, 3%, 2%, 1%, and 0%). These variable rates have less dramatic effects on the moral weight of future generations so although they ascribe them less weight than current people they do not undercut the moral weight of future people so drastically. To take one important example, in their book *Warming the World* William Nordhaus and Joseph Boyer (2000, p. 16) hold that the (moral) discount rate (i.e. the extent of pure time preference) should drop from 3% p.a. in 1995 to 2.3% p.a. in 2100 to 1.8% p.a. in 2200.

Third, it is useful to distinguish between two perspectives when thinking about the justice of discounting. We can consider matters from the perspective of the rights-bearer (are persons receiving their entitlements?) and also from the perspective of the duty-bearer (what duties do persons owe others?). Viewed from a rights-bearer perspective, it seems hard to see why there should be a positive pure time discount rate. The interests being invoked to explain why a present person has a right to protection from X would also explain, *ceteris paribus*, why any future person has a right to the *same* level of protection from X. Nothing in the argument developed above gives us any ground for thinking that the rights of some are of a lesser worth than the rights of others. Put more extravagantly, we might say that a person is a person is a person. Given this, it seems likely that arguments for a positive value for  $\delta$  can succeed only if they work from a duty-bearer viewpoint. That is to say, the most plausible defence of a positive pure time discount rate will reflect in some way the interests of the putative duty-bearers.

What arguments might one adduce for either a fixed or a varying positive social discount rate? And do they undermine the view defended above? Consider five arguments.

### ***Argument 1: the ‘Argument from Revealed Preferences’***

Some simply maintain that persons exhibit myopia in their conduct – they prefer a pleasure to occur earlier rather than later – and they infer from this that a social discount rate should also exhibit a partiality toward the present. William Nordhaus and Joseph Boyer, for example, appear to affirm this line of reasoning. They use people’s investment and savings behaviour to ascertain

people's attitude to discounting and then conclude that the extent of pure time preference should be reflected in government policy towards climate change.<sup>9</sup> They thus adhere to the following three assumptions:

- (1) Analyses of how to respond to the possibility of climate change should employ a discount rate for pure time preference that corresponds to the preferences of the people [the revealed preference assumption]
- (2) People's views on discounting for pure time preference can be ascertained by observing their behavior in the market place [the methodological assumption]

If we employ the method described in (2) we find that

- (3) People's behavior exhibits impatience [the empirical claim].

The correct approach to take towards climate change should therefore employ a positive pure time discount rate.

The problem is that each of these assumptions is problematic. Consider (2). For many economists, the appropriate method for ascertaining people's preferences is to observe their market behaviour and, in particular, their decisions to invest, save and spend. These, it is thought, reveal people's attitude to (their own) present and future utility. There are at least three problems with this. First, market mechanisms cannot cope with prisoners' dilemmas. Individuals may want a certain outcome but the dominant strategy may be to act in ways that will not bring about that outcome. People, that is, may have a preference not to contribute to this good if no one else is and also a preference not to contribute to this good if others are contributing (they aim to free-ride). So whatever others do, the appropriate strategy is not to contribute to the provision of the good. Second, there are also 'assurance' problems. These occur when people have preferences for a certain outcome but will not act to bring about that outcome unless they can be assured that others (whose action is also needed for the outcome to come about) will also contribute to the provision of the desired outcome. The problem is that market mechanisms cannot detect these preferences because they reflect individual preferences expressed separately. Political action can, however, overcome this coordination problem.<sup>10</sup> A third problem with (2) is that, as Mark Sagoff has long argued, people behave differently as consumers to how they do as citizens. When people occupy different roles they often deploy, and should deploy, different kinds of reasoning. What persons choose in the marketplace sometimes differs from what they would choose in the ballot box. Market mechanisms are, therefore, incomplete as devices for fully reflecting people's preferences (Sagoff 1988, especially pp. 50–73; see also Sen 1982, p.328). Assumption (2) is thus highly problematic.<sup>11</sup>

Someone may respond to my critique of (2) that we should use other means for determining people's attitude to the future – for example, opinion polls,

focus groups, referenda – and that these show that people exhibit myopia (Cropper *et al.* 1994). Let us therefore consider (3). This claim may seem hard to contest but it is not, I submit, as straightforward as might first appear. As Shane Frederick (2003) has argued, whether people exhibit pure time preference or not depends on the method being employed. He identified six different elicitation procedures (that is, methods for ascertaining how much people think we should discount for time) and then conducted a survey of 401 people. His research found that these six different procedures all issue in different results – some of them markedly different.

For example, when people were asked to compare a death from pollutants 100 years from now compared to a death from pollutants next year, 64% replied that they were ‘equally bad’ (Frederick 2003, p. 43). A similar result was obtained when people were asked whether they would prefer a policy that saved 300 lives in the current generation, 0 lives in the next generation and 0 lives in the next generation after that to a policy that saved 100 lives in this generation, 100 lives in the next generation and 100 lives in the generation after that. Frederick (2003 p. 46) reports that 80% preferred the second policy. By doing so they chose a view that does not discriminate against future generations and they rejected a view that is characterised by pure time preference. The assumption that people’s views are strongly pro-discounting is therefore not as straightforward as is often assumed. People exhibit different views depending on the kind of intertemporal issue in front of them and how the options are described. People do not have a single undifferentiated approach to pure time preference.

In addition to all the above, we should be circumspect in reaching conclusions based on the use of opinion polls and surveys to identify people’s commitment to ‘pure time preference’. The answers given to the questions posed in such surveys will almost inevitably reflect other non time-related factors – such as uncertainty (‘how can we be sure the government will save 300 lives later?’) and optimism (‘maybe a cure will be found in which case we should prioritise those who are ill now’). They are, thus, fraught with problems as a means of identifying people’s commitment to pure time preference (Frederick 2003, pp. 49–50).

Let us turn now to assumption (1). Perhaps the most serious flaw in the argument under consideration is that it maintains that the rate of discount for pure time preference should be determined by people’s preferences. Some write as if this assumption were beyond doubt. A number of reservations should, however, be entered. First, as many have argued, pure time preference appears irrational and this raises the question of why policy should conform to it. A.C. Pigou famously described pure time preference as a failure of rationality. In his words, ‘our telescopic faculty is defective’ (Pigou 1946, p. 25). As he points out, to prefer a pleasure because it is earlier will lead to a life with less pleasure in it for we would choose a lower pleasure now than a greater pleasure later and thereby end up with less pleasure (Pigou 1946, pp. 25–26; see also Jevons 1970 [1879], p. 124).<sup>12</sup>



A further problem with setting the pure time discount rate according to people's revealed preferences is that the latter often exhibit a second, distinct, kind of irrationality. Recent psychological studies have shown that the extent to which people discount varies depending on how (identical) options are described and framed. In particular, they establish that there is a difference in people's reactions depending on whether their choice is presented in terms of a specific date (e.g. would you be willing to postpone a pleasure to 5 August?) or in terms of a delay (e.g. would you be willing to postpone a pleasure for six months?). Interestingly, even when the proposed time lag is identical people systematically discount less when the time lag is described as a 'date' rather than as a 'delay' (Read *et al.* 2005).

These first two points about (i) are troubling. However, the main problem with the revealed preference view is simply that people's preferences are neither identical to, nor evidence of, what is morally right. The point is well made by Thomas Schelling. As he observes, one cannot move from the case of discounting within a person's life to determine whether discounting between generations is appropriate. That I might want a unit of pleasure to occur earlier in my life rather than later in my life does not establish that it is permissible that I enjoy a unit of pleasure in my life rather than that some future person enjoy that same quantity (Schelling 1995, p. 396). To claim the contrary would just be a non-sequitur. My preferences towards either my pleasure later in my life or towards the interests of future generations do not logically imply anything about the extent of my own obligations to future people. By defining moral obligations in terms of what people prefer, (1) entails that people define the nature of their own obligations to others. But one cannot derive a moral duty (or permission) to discount just from the fact that many prefer to act in this way. People's preferences are neither equivalent to nor good evidence for correct moral principles.

### ***Argument 2: the 'Argument from Welfarism'***

Given the limitations of the first argument's invocation of people's preferences let us now consider a second argument which also makes reference to people's revealed preferences. One problem with the last argument is that it gives us no reason to follow the revealed preferences of those who are currently alive. The second argument seeks to remedy this defect. It argues that the state should further people's welfare and this is why it ought to satisfy their preferences. Proponents of this argument then argue that people have a preference for pleasures to take place sooner rather than later: they have a preference for 'impatience'. Therefore the state should adopt a positive discount rate. Kerry Turner, David Pearce and Ian Bateman have, for example, reasoned in this way. They defend discounting on the basis that 'people prefer to have benefits now rather than later' and that 'the very rationale for [cost benefit analysis] is that preferences count' (Turner *et al.* 1994, p. 97; cf. also Pearce *et al.* 1989, pp. 132–133; Pearce *et al.* 2003, p. 122).

This argument is seriously flawed. It claims to follow from a commitment to welfarism but it fails to understand the nature of a welfarist political morality. It is problematic in four ways. First, welfarism holds that all people's preferences should count and should do so equally. These are its fundamental tenets. The aim of a (maximising) welfarist is to satisfy as many preferences as possible. As such the preferences of those who will be born matter and there is nothing within the idea of welfarism to justify, or even permit, disregarding or marginalising the preferences of some just because others do think that they should count equally. Second, the egalitarian principle that each person's preferences should count equally is part of what gives welfarism its appeal. From Jeremy Bentham to Peter Singer welfarists have stressed the egalitarian character of welfarism. As such a welfarist approach will disregard preferences about whose preferences should count and by how much. Third, this argument is guilty of a non-sequitur. It is, of course, correct that welfarists think that preferences about what goods or services to consume and which activities to engage in should be satisfied. However, it does not follow from this that the fundamental tenets of welfarism (its commitment to treating all equally and to maximisation) should themselves be decided by preference satisfaction. To think this is to commit a category mistake. *Argument 2* is thus inadequate even if we assume that all issues in political morality should be determined wholly from the perspective of cost–benefit analysis. However, we should also note here that the argument developed earlier defends a human rights approach and denies that cost–benefit analysis is the whole of political morality. *Argument 2* thus does not bear on the argument defended. To say this is not to say that cost–benefit analysis should be rejected. It is the more modest point that there is more to political philosophy than cost–benefit analysis, that there are rights (including the right not to suffer from dangerous climate change) and hence that the second welfarist-inspired argument has no purchase on the discount rate affirmed here.

### *Argument 3: the 'Argument against Philosopher Kings'*

Some would be uneasy about the preceding arguments against reflecting revealed preferences. It is important, then, to consider another argument that to some extent motivates the previous two arguments. This argument (the Argument against Philosopher Kings) defends pure time discounting, not by emphasising why it is right to conform to existing preferences (following Arguments 1 and 2) but by emphasising what is wrong with the alternative (namely using the value judgement of the analyst that zero discounting is required by justice). We find an eloquent expression of this argument in two responses to the Stern Review.

Martin Weitzman criticises Stern, and also William Cline, for their affirmation of a zero pure time discount rate. In his discussion of the rate of

pure time preference (which, recall, is represented by the term  $\delta$ ) Weitzman writes:

Cline and *Stern* are soul-mates in their *cri de coeur* justifying  $\delta \approx 0$  by relying mostly on a priori philosopher-king ethical judgements about the immorality of treating future generations differently from the current generation – instead of trying to back out what possibly more representative members of society than either Cline or *Stern* might be revealing from their behavior is *their* implicit rate of pure time preference. An enormously important part of the ‘discipline’ of economics is supposed to be that economists understand the difference between their own personal preferences for apples over oranges and the preferences of others for apples over oranges. Inferring society’s revealed preference value of  $\delta$  is not an easy task in any event (here for purposes of long-term discounting, no less), but at least a good-faith effort at such an inference might have gone some way towards convincing the public that the economists doing the studies are not drawing conclusions primarily from imposing their own value judgements on the rest of the world. (Weitzman 2007, p. 712; italics original)

Similar concerns are raised by William Nordhaus in his evaluation of the Stern Review. He writes that

The *Review* takes the lofty vantage point of the world social planner, perhaps stoking the dying embers of the British Empire, in determining the way the world should combat the dangers of global warming. The world, according to Government House utilitarianism [footnote omitted], should use the combination of time discounting and consumption elasticity that the *Review’s* authors find persuasive from their ethical vantage point. (Nordhaus 2007, p. 691; italics original)

The exact nature of the complaint is unclear but the key point seems to be that it is inappropriate for an economic analysis to rely on the ethical judgements of the analyst. Instead one should rely on the revealed preferences of the people. Ethical judgements (including judgements about discounting) are the subject of disagreement and so it is inappropriate for an economist to invoke their own moral assumptions.

The argument as stated, however, is multiply flawed. First, and most crucially, it rests on an illusion. Nordhaus and Weitzman object to a climate analysis that rests in any way on the author’s ‘ethical vantage point’ (as Nordhaus puts it). To do this is to impose ‘their own value judgements on the rest of the world’ (as Weitzman puts it). But this is inescapable. It is simply impossible for economists to avoid such moral judgements. For example, Weitzman’s claim that the rate of pure time preference across generations should be settled by determining people’s revealed preferences is itself a moral doctrine. It holds that it is wrong, morally wrong, for decisions to proceed otherwise. Furthermore Weitzman’s assumption that policies should seek to satisfy preferences is again based on his moral judgement that this is the morally correct way to determine policy. There are very many other moral approaches and he and Nordhaus are adopting one moral perspective (a preference-satisfying consequentialism). As such they too are imposing their

values as much as Stern and Cline. The doctrine that welfare economics should not employ moral assumptions is a non-starter.

To see the peculiarity of Nordhaus and Weitzman's claims (and the worries attendant on following the revealed preferences of the members of society) consider issues not related to climate change. Would they say that a book on the welfare economics of the abolition of slavery may not rely on the analyst's (moral) judgement that blacks and whites have equal moral standing when making utility judgements? Presumably not. In doing so they are implicitly relying on their own (perfectly sound) moral judgement. Such a case shows not only that appealing to moral analyses is inescapable but also that it is not troubling.

Furthermore, Nordhaus makes much of the claim that there are different moral theories and these may disagree with Stern's view about the discount rate (Nordhaus 2007, pp. 692–693). But the theories that he lists – such as the view that we should maximise the condition of the poorest generation or the view that people should leave as much capital as they inherited from preceding generations – disagree with his own moral theory. So if he thinks that Stern's commitment to a zero discount rate should be rejected because some moral theories might clash with it then he should by the same token reject his own normative framework. The point is the same: evaluations of how to respond to climate change (including Nordhaus and Weitzman's) inescapably rest on normative assumptions and the moral commitments of the analyst.

Third, Weitzman's suggestion that to rely on ethical arguments for the discount rate is to commit ourselves to philosopher kings<sup>13</sup> is also mistaken. The appropriate conclusion is that policy decisions rest, and should be acknowledged to rest, on moral considerations: it is not that moral theorists themselves should be making political decisions.

A fourth point bears noting. Nordhaus and Weitzman's objection gains whatever plausibility it possesses because it suggests that Stern's methods are undemocratic. A similar kind of point was made by Stephen Marglin in a discussion of pure time preference written nearly four decades ago. He contends that those who give a moral argument in favour of a zero discount rate as (such as Pigou) are being 'authoritarian' (Marglin 1963, p. 96: cf. also pp. 96–98). They are fundamentally undemocratic. As Marglin (1963, p. 97) puts it, '[w]hatever else democratic theory may or may not imply, I consider it axiomatic that a democratic government reflects only the preferences of the individuals who are presently members of the body politic'. This argument is, however, misconceived. In the first place, it is incorrect to claim that it is 'axiomatic' that in a democracy government policy reflects the preferences of the people. This is not true of the democratic theories famously advanced by John Stuart Mill and Edmund Burke for both hold that democratically elected representatives should act on their own best judgement. Furthermore, it is an unattractive conception of government. If one thinks that democratic government should 'only' reflect the wishes of the people then one would think that if the majority of a state wishes to invade another then that is what

its government should do. Marglin's conception recognises no constraints on the decision-making powers of those who 'are presently members of the body politic' and as such, if those members choose a policy of rape, murder and imperial conquest then Marglin must allow it. To oppose this is of course not 'authoritarian' but evidence of a commitment to the rights of the individual. In the same way, opposing an untrammelled majoritarianism which is indifferent to the rights of future people is also evidence of a commitment to the rights of the individual. Finally, it bears noting that, as Derek Parfit (1986, pp. 480–481) pointed out, we should distinguish between, on the one hand, whether discounting is morally justified, and, on the other hand, whether the government should implement the wishes of the people. Our focus is on the former (is pure time discounting ethical or just?) and the views of the majority are not germane to that though they do bear on the second question.

#### *Argument 4: the 'Argument from Demandingness'*

As the previous argument reveals, some critics of a pure time discount rate dispute the role of ethical analysis in informing climate policy. Given the failure of that argument it is appropriate to turn now to consider an argument against a zero discount rate which explicitly invokes ethical principles in its support. The argument in question contends that a zero pure time discount rate is unduly demanding on people. It can require people to make unreasonably large sacrifices in cases where doing so would benefit not just the next generation but all the ones after that. This troubling conclusion can be avoided if we posit a positive discount rate (either fixed or varying). A zero discount rate, however, leaves us committed to imposing heavy sacrifices on any generation to promote the well-being of its successors (Lomborg 2001, p. 314, Pearce *et al.* 2003, pp. 124–125, Posner 2004, pp. 152–153).<sup>14</sup> Prior to evaluating this argument, note that this defence of a positive discount rate has the feature which I suggested that an argument for a positive discount rate should adopt – namely it reflects a duty-bearer perspective. Its complaint is that a zero discount rate is too onerous on duty-bearers.

Five points can be made in reply. First, we should distinguish between different kinds of behaviour. Many distinguish between negative and positive duties, where the former refer to duties to abstain from certain actions (e.g. a duty not to murder) and the latter refer to duties to perform certain actions (e.g. a duty to aid). This distinction is relevant here because many argue that discounting is most plausible for positive duties and is implausible for negative duties. Put less abstractly, the suggestion is that the duty not to kill or the duty not to expose people to dangerous risks should not be subject to discounting but positive duties are perhaps more vulnerable to discounting.<sup>15</sup>

A second even more telling point can also be made. Whether a principle of intergenerational justice is unduly demanding is a function not simply of whether there is no discounting but also what the content of the principle is. Those pressing the objection assume that it is the role of the state to maximise

preference satisfaction and their argument is that obtaining maximal preference satisfaction will demand the imposition of heavy costs on early generations when doing so would satisfy the preferences of all or many following generations. The view defended above, however, is immune to this objection because it is not committed to the maximisation of preference satisfaction. It applies a zero pure time discount rate to one specific value (the realisation of people's basic rights) and this scope restricted view is, therefore, not vulnerable to the argument from demandingness. To hold that the basic rights of all persons should be treated on an equal basis would not require the highly demanding sacrifices that a maximising view (or indeed other views) might.<sup>16</sup>

Those who propound the argument from demandingness overlook the possibility of a scope restricted view (that is, the view that a zero discount rate should apply to some but not all values). David Pearce and his co-authors, for instance, maintain that zero discounting is problematic because '[z]ero discounting means that we *care as much for someone* not just one hundred years from now as we do for someone now, but also someone one thousand years from now, or even one million years from now' (Pearce *et al.* 2003, p. 124; emphasis added). But as I have argued above, zero discounting in itself does not, of necessity, entail this. The version of zero discounting defended in this paper is quite consistent with people *caring more* for their contemporaries. It just insists that when it comes to fundamental rights we should treat people on a par, independently of which generation they are born into, and then above that they can devote more (indeed far more) care to those close to them. This approach disaggregates moral principles and maintains that some values (such as rights) behave differently to other values (such as loyalty or care). Our sentiments of loyalty or care may diminish over time. Our commitment to fundamental rights may not.

Three additional points merit attention. We have seen that a basic rights view is not vulnerable to the concern that a zero discount rate is unduly demanding. Let us now consider the structure of argument from demandingness in more detail. Put in its barest form the charge is that *given*, (1), a commitment to maximum preference satisfaction, if we affirm, (2), a zero discount rate, then, (3), we would be committed to an intolerably demanding morality. The suggestion then is that we should abandon (2). But two points could be made against this. First, we need an argument as to why dropping (2) rather than (1) is the appropriate response. Why does this not call into question the commitment to maximal preference satisfaction?<sup>17</sup> Second, the case for abandoning (1) rather than (2) is strengthened further when we put the debates about utilitarianism, demandingness and discount rates into context. For utilitarianism is often criticised for being unduly demanding – not just in the intergenerational context but also in intra-generational contexts. Discounting future generations may prevent utilitarianism from being unduly demanding in intergenerational contexts but it does nothing to meet the charge that maximising consequentialism asks too much in intra-generational contexts.

Discounting over time thus remains a partial solution to a more general problem with maximal preference satisfaction.

One final observation is in order. In his version of the ‘argument from demandingness’ Kenneth Arrow appeals to Samuel Scheffler’s concept of an ‘agent-centred prerogative’ to defend discounting (Arrow 1999, p. 16). Scheffler’s claim is that each person is morally entitled to further their own interests and goals. They have what he terms an ‘agent-centred prerogative’ to promote their own personal projects (Scheffler 1982). But Scheffler’s (very plausible) argument is that a commitment to an agent-centred prerogative claim entails that we should reject a maximising consequentialism. His claim is *not* that the utility of other persons should be discounted and that we should retain a commitment to maximisation. The whole point of his argument is that persons do not have a duty to maximise well-being. That is why his book is entitled *The Rejection of Consequentialism* (1982). To invoke agent-centred prerogatives whilst also affirming a maximising consequentialism thus misunderstands Scheffler’s argument and the conclusions that he plausibly derives from it. This, however, is precisely what Arrow does, for after invoking agent-centred prerogatives he holds that society should ‘*maximize a weighted sum of its own utility and the sum of utilities of all future generations, with less weight on the latter*’ (1999, p. 16; emphasis added).

#### ***Argument 5: the ‘Argument from Economic Growth’***

Any analysis of the case for discounting would be incomplete without considering a fifth and final argument for discounting that is often adduced. Like the previous argument it thinks that discounting is unfair on current generations but it takes a different tack. It defends discounting on the grounds that there will be economic growth and future generations will be wealthier than current generations. It then argues that the more wealth persons have the less marginal utility results from each extra increment of wealth (i.e. the law of diminishing marginal utility). Hence it makes sense to employ a positive discount rate: wealth produces more utility if it is spent on earlier rather than later generations. It would therefore be wrong not to discount.

This argument is, however, also unsuccessful as a critique of the view defended here. It is flawed for at least two reasons. The first problem is apparent once we recall the distinction between discounting the ‘moral worth’ of persons, on the one hand, and discounting ‘resources’ on the other. I have defended a zero discounting approach to persons’ moral worth (and in particular to their rights) but the third argument simply does not speak to this. Its focus is on how much ‘resources’ should be allocated to present and future people and it makes a case for spending more sooner rather than later. Nothing that it says, however, can show that the rights (or indeed interests) of future people are of a lesser worth and should be discounted. All it says is that spending resources on earlier generations will result in higher preference satisfaction (because each unit of wealth will boost preference satisfaction

when spent on poorer rather than richer people) and it cannot establish that the interests of future people are less valuable than those of present people. To put the same point in a different way: one can accept this argument and still hold that the rights (and interests) of future people not to suffer dangerous climate change should be treated as having the same weight as the rights (and interests) of present people.

Second, suppose that we set the first point aside. Even then the argument is flawed. For the argument assumes that future people will be wealthier than current people. However, as Schelling (1995, pp. 398–400) notes, it is important to disaggregate future generations and not treat them as a unitary group. It might be true that future members of some countries (e.g. the USA or Britain) will be wealthier than the current members of those same countries. This, however, does not establish that an analysis of global climate change should employ a positive social discount rate. Consider, for example, some of the likely victims of climate change – the Bangladeshis of the twenty-second century. It seems highly likely that they will be poorer than the current inhabitants of the USA. In this kind of case the argument from diminishing marginal utility clearly cannot vindicate a positive social discount rate. One cannot then defend a policy of discounting the interests of the future people affected by climate change on the grounds that they will be wealthier than those who will currently bear the burdens, for that is simply not true of some future people. So the fifth argument does not even support a positive discount rate for spending resources. In fact, if future Bangladeshis are poorer than contemporary Americans there should be a negative discount rate.

So to conclude this section we can see, first, that the argument adduced in support of a right not to suffer from climate change entails that that right is held equally by all. Its premises contain in them no room for a positive pure time discount rate. Furthermore (and this is the second point) we have seen that the five challenges that we have considered fail to undermine this view.

## Conclusion

Some affirm a very minimal set of rights and would be sceptical of extending this set to include ‘environmental’ rights of any kind. Others do not take such a hostile approach but do ask why we should accept a right to a safe environment. The Stern Review, for example, insists quite rightly that rights ‘should be argued rather than merely asserted’ (Stern 2007, p. 47). In this paper I hope to have provided such an argument. The kinds of considerations that we normally invoke to defend human rights, I maintain, entail that persons have a human right not to suffer from the ill-effects of global climate change. Climate change undermines persons’ human rights to a decent standard of health, to economic necessities, and to subsistence.<sup>18</sup> I have, moreover, argued that this right should not be discounted. Its moral importance does not diminish over time. In doing so, however, I have defended a scope-restricted view with respect to discounting. That is to say, I have defended a view which (1) holds that basic



rights should not be discounted but (2) allows for the possibility that that other values might be subject to a positive pure time discount rate.

More needs to be done – including, most notably, providing an analysis of who should bear the burdens of global climate change (see Caney 2005, 2008; and the contributions of Page and Jagers and Otterström in this volume) before we have a complete theory of climate justice. In the meantime, however, I hope that I have provided the beginnings of an argument for the injustice of global climate change.

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### Notes

1. See <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1503>.
2. This was agreed at the seventh session of the Human Rights Council on 26 March 2008 (A/HRC/7/L.21/Rev.1).
3. For an important ‘non-rights’ based analysis see Page (2006).
4. For scepticism about the rights of future people see Beckerman and Pasek (2001, pp. 11–28). For excellent discussion of the rights of future people see Elliott (1989), Feinberg (1980, pp. 180–183), and Meyer (2003). A longer version of this paper, which includes a section arguing that future people have rights, is available on request.
5. The importance of the discount rate is attested to by the response to the Stern Review’s use of a low discount rate (2007, pp. 35–37). For the responses which single out this issue as a key element in Stern’s Review see Dasgupta (2007), Mendelsohn (2006–2007, especially pp. 42–43), Nordhaus (2007); and Weitzman (2007).
6. See Broome (1992, p. 52). Broome distinguishes between discounting for ‘wellbeing’ and discounting for ‘economic commodities’ (1992, p. 52).
7. For a brilliant modern discussion of discounting see Parfit (1986, pp. 480–486).
8. This is the formula conventionally employed in the literature. See, for example, Stern (2007, p. 52). I thank Dominic Roser for helpful discussion.
9. Nordhaus and Boyer (2000, p. 15) defend their original discount rate of 3% on the grounds that it is ‘consistent with historical savings data and interest rates’. See also Nordhaus’ (1997) rather confusing discussion of pure time preference. He begins by saying that the rate of time preference should be informed by people’s actual behavior but then writes, quite correctly, that ‘we should be careful not to

- commit the naturalist fallacy of ethically equating what is with what should be' (1997, p. 317).
10. For discussion of both of these two points see Sen's influential discussion of the 'isolation' paradox and 'assurance' problems in Sen (1961, especially p. 487ff, 1967, 1982, p. 328).
  11. For similar points see Beckerman and Hepburn (2007, pp. 203–204).
  12. On the irrationality of pure time preference see also von Böhm-Bawerk (1930 [1888], Book V, especially chapter 3).
  13. The spectre of 'philosopher kings' is also raised by Beckerman and Hepburn (2007, pp. 205–206).
  14. Kenneth Arrow also makes a similar point (1999, pp. 14–16). He invokes Samuel Scheffler's (1982) 'agent-centred prerogative' to claim that each generation should favour itself and then treat all the others the same (1999, p. 16).
  15. For a related point see Parfit (1986, p. 486). See also Broome (1992, pp. 107–108), Davidson (2006, especially pp. 59, 66) and de-Shalit (1995, pp. 13–14, 63–64).
  16. See also Broome (1992, p. 106). As he notes, this point has also been made by Parfit (1986, pp. 484–485), and by Rawls (who argues that the problem is with a maximising view and to add discounting is just an 'ad hoc' solution: 1999, p. 262).
  17. Again see the illuminating comments on this by Broome (1992, p. 106), Parfit (1986, pp. 484–485) and Rawls (1999, p. 262).
  18. Note that I am *not* claiming that this is the only reason why anthropogenic climate change is morally unacceptable. My arguments here are compatible with many other lines of critique.

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