

6

Broad Approaches to Moral and Political Philosophy: Converging Perspectives

The nature of the problem of anthropogenic climate change (great scale, complex risks, long lags, and publicness of the cause—the emissions of gases) forces us to go beyond the formulations of economic modeling and of values and ethics that are standard in economic appraisals of policy. The reason is that these formulations generally focus on a description of the consequences of policy based on marginal changes around some given path and where the size and structure of future populations are exogenous. Such formulations of the consequences of action often lead to an ethical approach to the assessment of actions that is narrowly based on examinations of minor perturbations, valued in terms of Pareto improvements and increments to Bergson-Samuelson social welfare functions.¹ They also often go with the claim, as we saw in the preceding chapter and its technical appendix, that the “social values” necessary for social decision-making can be read directly from markets or from government action, without necessarily being clear about the strong assumptions concerning markets, behavior, and ethics that are required for the validity of such a claim.

If applied thoughtfully and well and with an awareness of these problems, the standard approach to welfare economics can, for many problems, be very useful. However, in this context its narrow assumptions are worrying given the scale of the risks involved. And it would be worrying if we relied solely on this standard approach, as we might be missing much that is important in the ethics of the problem. Thus, we will examine a range of possible perspectives on the ethics.

We begin with moral philosophy, which emphasizes individual behavior. The purpose here is not to urge the adoption of one particular

perspective. Indeed, my own inclinations are to follow Isaiah Berlin on the importance of maintaining a pluralistic view: no single perspective has a monopoly of insight or moral suasion. We begin our discussion by assessing the traction and relevance of the most prominent perspectives in moral philosophy in connection with the issues that arise in climate change. The discussion in this chapter will argue, and I think the conclusion is clear, that they essentially all point in the same direction: toward strong action on climate change.

It is important to clarify at the outset that the ethical perspectives and approaches examined in this chapter are drawn from traditions that are largely European. However, notions of merit, virtue, rights, duty, and responsibility for consequences of actions are also key elements of other great philosophical systems of the world.²

We begin by introducing major strands or perspectives, including the Kantian, contractarian, and Aristotelian approaches. In section 6.2 we discuss approaches based on liberty, rights, and justice, and in section 6.3 we look closely at territory more familiar to applied economics, namely consequentialism. On the foundations of these broad philosophical perspectives we examine some basic issues in sustainability and population in sections 6.4 and 6.5. The implications of the basic Pareto inefficiency embodied in the fundamental greenhouse gas externality is examined in section 6.6, while 6.7 examines how many people, economists in particular, have tried to avoid an explicit discussion of ethics in attempting to analyze or propose policy on climate change.

6.1 Perspectives in moral philosophy

Most approaches to moral philosophy evaluate actions or policies in one of two ways. The approach that dominates in economic discussion is to evaluate actions or policies by assessing the desirability or otherwise of their consequences. This is the “consequentialist” approach, of which the Bergson-Samuelson and Paretian welfare analyses are special cases familiar to economists. There are, however, many other well-developed moral theories that do not judge actions or policies by reference to their consequences, or at least do not do so exclusively. The theories in this second category are numerous and diverse; I group them together here to draw the attention of economists to the existence, importance, and diversity

of this large body of important thinking, as these theories and perspectives typically get left out of economic analysis.

Let us begin by looking at some important nonconsequentialist theories; we consider four very briefly, which we might loosely label Kantian, contractarian (such as Rousseau or John Rawls), Aristotelian,³ and “commonsense pluralism.”

6.1.1 Approaches to moral behavior and conduct

Kantian

At the heart of Kant’s framework is a “categorical imperative” which gives a criterion for judgment of moral behavior in oneself or others. Essentially, it invokes the notion of “duty” and examines its bases. One of Kant’s formulations of the categorical imperative is: “Act only according to that maxim whereby you can, at the same time, will that it should become a universal law.” It is an approach to guide the individual. It focuses on the source of action—the will—as the object of moral evaluation, rather than on the possible consequences. For Kant it reflected a strong reaction to utilitarianism, the prime form of consequentialism at his time.

There are difficulties in thinking about “universal law” in the context of climate change, when central to the class of “others” are generations some of whom have not yet been born and whose actions are unlikely to affect ourselves in any direct way other than our interest in their welfare. Further, and of importance in this context, it is unclear who they are and whether they will exist. Nevertheless it is hard to avoid the suggestion that a universal law that allowed each person to emit as much as she or he chose, including at the levels we see in, e.g., the US (around 20 tonnes per capita CO₂e), would be disastrous for the climate. In that case, total emissions would be currently around 150 billion tonnes yearly, compared with the 50 billion we see now and the less than 20 billion we need to see by 2050 to avoid dangerous climate change (defined as a 50–50 chance of holding below 2°C). Thus a Kantian conclusion could be that individuals should radically reduce their emissions.

Kant’s second formulation of the categorical imperative is never to treat “humanity” only as a means or instrument. Knowingly harming the prospects and livelihoods of the others by polluting their environment as we pursued our own preferred activities would seem to be using those others merely as a means to our ends.⁴

Contractarian

Approaches based on contractarianism, such as Rousseau's or Rawls's, have a similar problem to that of Kant. With whom is the social contract? In particular, what should be the role of those not yet born who could not be present to participate in the contract, unless we act on their behalf? And we may be uncertain, indeed are likely to be given the potentially catastrophic consequences of unmanaged climate change, as to who and how many will exist in the future and how their presence or absence will depend on our decisions. Interestingly, Rawls largely avoided the issue of future generations in his analysis of social contracts based on an "original position."⁵ Notwithstanding this reservation, a contractarian approach would likely lead to a strong emphasis on the rights of future generations; for example someone in a Rawlsian "original" position would be ignorant of which generation she or he would join and would wish to avoid contracts that discriminate against him or her.

Aristotelian

The Aristotelian approach, or more broadly virtue ethics, differs from other approaches in that it asks not "what ought we to do?" but rather "what sort of person should we be?" It emphasizes the role of moral character, or "virtues," in living an ethical life. It suggests that we can recognize and discuss "good behavior" as we might recognize good playing of the violin. Aristotle in his *Nicomachean Ethics* pointed, for example, to courage, temperance, and magnanimity as key aspects of a virtuous life.⁶ If we apply these ideas to say, drunk driving, we would probably agree that this is irresponsible or unvirtuous behavior. Similar examples would apply to behaving in a way that ravaged the environment and put at risk the lives and livelihoods of many in the future. In recent years, virtue ethicists have turned their attention explicitly to the environment, including climate change; there is a growing subdiscipline of ethics known as "environmental virtue ethics."⁷

Commonsense pluralism

"Commonsense pluralism" embodies the view that "the role for moral philosophy is primarily to explain and justify our everyday moral beliefs and attitudes rather than seriously to challenge them."⁸ Unfortunately,

such an approach does not help us very much if everyday or standard behavior has arisen as a result of ignorance of its broader consequences, in this case of the long-term impact of greenhouse gas emissions. The ethical question on which we are seeking guidance concerns how we should act collectively, collaboratively, or individually in response to the potentially immense risks of unmanaged climate change. Everyday behavior in relation to everyday issues can often or usually allow us to understand consequences in a direct and observable way, so that our actions and the moral beliefs that might underlie them are informed by shared experience of what the consequences might be and how we should think about them. All this is surely much less true in relation to climate change.

Everyday behavior may have arisen in an evolutionary way by producing the kinds of codes and attitudes that allow societies to function better. But in the case of climate change, we simply have not experienced the scale of consequences that might arise from our collective behavior. And the global nature of the causes and effects, the long lags, and the uncertainties make anticipation difficult. Our ability to reason about the consequences may be tested in ways for which evolution has given us limited experience and faculties, other than, crucially, the ability to reason itself, in terms particularly of science and thinking ahead.

6.1.2 Consequentialism

That leaves the second approach used, in mainstream western moral philosophy, to evaluate actions or policies: consequentialism and its special cases such as utilitarianism or the Bergson-Samuelson approach, which sees overall social welfare as being determined (generally via some functional form) by individual utilities or welfare. The consequentialist approach, to express its statement of ethics in a simple way, embodies the idea that we should act to produce the best outcomes or consequences relative to some criterion or criteria which measure overall goodness and badness of consequences.⁹

In the case of climate change, acting together and on a large scale is crucial to having an effect commensurate with the problem. Thus Dale Jamieson argues that the utilitarian (the argument is also relevant to the broader consequentialist approach just described) must ask how best to influence others toward a good outcome.¹⁰ He suggests that a utilitarian

might be more persuasive and effective by eschewing detailed calculation and simply acting in a way that is virtuous, in this case in relation to the environment and climate change, similar to the way one might choose not to buy a carpet made with child labor. Someone who is virtuous in this Aristotelian sense of behaving in a way that appears right and responsible as a human being might in fact be very effective relative to a utilitarian calculus. Thus an approach to behavior and policy based on “virtue ethics” could look consistent with a utilitarian approach and indeed might be an effective way of pursuing that approach.

6.2 Liberty, rights, responsibilities, and justice

Section 6.1 focused for the most part on different perspectives from moral philosophy on what is or is not moral behavior by an individual.¹¹ There is a closely related set of perspectives in political philosophy concerning liberty, rights, responsibilities, and justice which goes beyond the assessment of individual behavior, and which is highly relevant in this context: it will help shape the analyses on intergenerational issues (and chapter 9, on intragenerational issues). These perspectives concern the liberty or freedom individuals should have to take decisions as they would wish, in relation to what they desire or value, and in relation to the effects these decisions might have on others. The relevance of this approach to the impacts of climate change is clear: the questions are usually framed in terms of how far state or political structures do or should define and provide those freedoms. Many of the issues which arise straddle the (fuzzy) borders between moral and political philosophy. It is of no great concern to us where that border might be deemed to lie: what matters to this analysis is the guidance the different perspectives can provide for policy.

A widely discussed perspective in political philosophy is the treatment by Isaiah Berlin of negative and positive liberties. To assert the importance of negative liberty is to assert that the state or other individuals or groups should not constrain or place obstacles in the way of one’s choices. But Berlin recognized that negative liberty was only one value among others, that other values may conflict with negative liberty, and that there are cases in which other values ought to prevail.¹² This recognition is captured in his famous remark “total liberty for wolves is death

to the lambs.”¹³ This conflict between negative liberty and other values (e.g., rights to protection from harm) is particularly pertinent to climate change: our emissions now may place severe limitations on the lives and liberties (for example where people can live) of those living later; indeed our actions can affect who lives and who dies.

Positive liberty concerns the ability to realize individual potential, or some “higher” purpose, and thus concerns the presence or absence of constraints. Negative and positive liberty overlap but are not the same. The former is often read, for example, to imply strong limitations on state action and the role of the state more generally; it can be taken as emphasizing the importance of protecting individual freedom from state interference. The latter can sometimes be argued to require strong state intervention, for example to ensure that good education and health care are available to enable individuals, or to enhance their ability, to shape their lives. In development economics, versions of positive liberty have played a strong role.¹⁴

Similarly on the environment and climate change, the distinction between positive and negative liberties is reflected, sometimes very strongly, both in political discussion and in the ethical assumptions which seem to underlie them. There are some, misguided in my view, who would argue that individuals have a right, and the state should not be able to restrict them, to do whatever they like, unless there is an overwhelmingly powerful case that what they are doing is inflicting serious damage on others: a focus on negative liberty. And to bolster that argument, there is a temptation to rubbish the evidence that their actions do actually damage others.¹⁵ On the other hand, in the spirit of negative liberty, one can argue that the rights of a young person now to enjoy life and property in the future are being violated by the emissions of the current generation.¹⁶ Arguments for limiting the role of the state, or for example for libertarianism as a political philosophy, are not the same as arguments that each group or generation has the unfettered right to damage the opportunities and freedoms of others.

Relatedly, there are some who argue that if the current generation of voters attach small weight to future generations then that should, as a matter of democracy, be decisive. That position, of course, would violate rights of future generations and would amount to asserting that one group, if it has power to do so, is entitled to damage others as it wishes.

Those who might emphasize positive liberty might speak of a right to development. Or they may see development objectives in terms of the expansion of potential.¹⁷ They would thus argue that to fail to manage climate change is unacceptable because such failures would restrict the opportunities and rights to development of future generations. Arguments from the perspectives of negative and positive liberties are not necessarily in conflict, but they can be. In the case of climate change, I think they point the same way, and they should, in my view, be seen as of central relevance in the discussion of the ethics of and policy toward climate change.

Ideas of rights also appear in relation to “division of carbon space”: see chapter 9 (also below in this chapter on justice). They might also appear in the context of, for example, wind farms where neighboring individuals might object to the wind farms’ “damage” to their local environment. And they can appear in policy reform, which might force firms to bid for carbon permits after having made earlier plans on the basis that such permits might not exist: some might argue that investments or commitments made in good faith under previous rules establish some right to continue on the same basis. For example, we often hear strong objections to “retrospective taxation.” Thus some emissions rights are sometimes grandfathered, in the sense of being a free allocation.

The pluralistic perspective, as argued by Berlin, is one that greatly broadens the economist’s normal approach to the ethics of economic policy and decision-making. That is not to try to diminish or blur the economists’ positive/normative distinction, which is often key to the clarity of what we are doing when we try to offer policy analyses. But tying our normative analyses down to a narrow Paretian or Bergson-Samuelson approach in which individuals are fully aware of their preferences, and those preferences have a particular structure, is akin to tunnel vision and should not be seen as defining the “economists’ approach,” still less as defining “rigor.” Indeed, Sen’s book *The Idea of Justice*, in the spirit of Berlin, sees pluralism as a step toward “objectivity.”¹⁸ If a set of actions can be plausibly argued to be right relative to a range of ethical perspectives, we can be more confident in suggesting the rightness of those actions than if they “fit” with one perspective but conflict with a number of others.

Policy analyses by economists should, and many do, contain basic calculations of gainers and losers from policy reform, and these calculations will generally be of great value for a whole range of political or ethical approaches. Such calculations are also crucial to an analysis of the political economy of vested interests. But we are much more productive in assembling and structuring analyses and presenting conclusions if we are aware of the broad range of political and ethical perspectives that might be brought to bear. And we can contribute strongly to public discussion if we can show how these different perspectives might complement, contradict, or contrast with each other.

Some of those working on climate change have emphasized the idea of “climate justice.”¹⁹ Among moral philosophers, the notion of justice has often been seen in terms of the realization of a legitimate or moral claim on some object, opportunity, or right; injustice is then seen as the inability to realize that claim. Thus justice and rights are closely linked ideas.

The discussion then turns to what constitutes, and what are the criteria for, a legitimate or moral claim. Sen’s *The Idea of Justice* gives the example of three girls who might be given one flute: child A is the only one who can play the flute; child B is the only one who, because of poverty, has no other object which could entertain or occupy her; and child C made the flute. Who has the most compelling claim? The biblical Solomon, in adjudicating between potential mothers or guardians for a child, rules on grounds of the love for the child, which is revealed by the woman who would choose to forgo her claim on the child rather than accept the division of the child into two; in *The Merchant of Venice*, the “judge” ruled that Shylock could have his pound of flesh as in the contract but could not shed a single drop of blood as the latter did not appear in the contract. These are all different perspectives on the notion of the legitimacy or moral foundation of a claim. The idea of justice forces direct consideration of these issues.

In regard to climate change, justice issues are usually centered on notions of rights to emit, to carbon space, to energy, to development, or to a “healthy environment.” These are discussed in chapter 9, which, among other things, examines the notion of “rights” to emit or to carbon space and suggests that such claims have a flimsy ethical basis. A right to energy as essential to living is different, although energy does not

require greenhouse gas emissions. Many would regard a right to development, as the opportunity to change one's life and in particular find a way out of poverty, as fundamental.²⁰

I follow here, in the main, the approach proposed by Sen in terms of seeing the idea of justice in relation to public action, in terms of the identifying and overcoming of examples of injustice, where injustice is defined along the lines described above. He argues that we can make improvements, i.e., find alternatives which are less unjust than the status quo, without necessarily specifying an "ideal" system or theory. He contrasts this approach with that of Rawls in *A Theory of Justice*, which examines justice in terms of social constraints or rules that might be proposed or accepted by potential participants in an "original position" where they do not know what role or identity they will have in a society.

The outcome of this unavoidably brief review is that consequentialism/utilitarianism (i.e., the starting point for much of economics), virtue ethics, rights-liberty approaches, and ideas of justice are all highly relevant as ethical frameworks here, both for understanding moral behavior and for the principles of policy. For all of them—and we shall develop the consequentialist approach in the next section—wreaking severe damage on the prospects and lives of future generations would likely be regarded as immoral; all appear to point to strong action on climate change.

The relevance of the Kantian and contractarian approaches is qualified by the difficulty of incorporating within them the consequences of our actions for the possible *existence* of others in the future. If our actions shape how many and who may exist, then ideas of "universalism" or "society," which are crucial to these approaches, become difficult to apply. Notwithstanding that qualification, both of these approaches would indicate the immorality of being casual about the lives and livelihoods of future generations, in the sense of arguing that consequences for them, even if very large, should not weigh heavily in our decisions now.

6.3 Applying consequentialism

Having argued for the importance of considering moral perspectives beyond those standard in economics, let me reemphasize the centrality

of consequentialism in assessing policy and action on climate change. In this section we consider analytical issues that arise in applying the consequentialist approach in the context of climate change, focusing particularly on ethical issues that arise in analyzing the externality associated with GHG emissions. In so doing I define what I mean by the standard or narrow approach to cost-benefit analysis. In the subsequent sections I focus on its application to other ideas and issues: sustainability, population, Pareto efficiency, ideology, and attempts to dodge the ethics. In so doing I discuss perspectives other than consequentialism on these issues and how the science and ethics together structure the economic analysis.

As a foundation for these analyses, let us begin by reminding ourselves how standard theory deals with policy in terms of market failures and conventional cost-benefit analysis. The criteria invoked in such standard theory require us to examine how much the welfare or utility of the individuals involved, directly or indirectly, rises or falls as a result of some decision or project; utility increments are then usually added across individuals using a procedure for the social weighting of increments in utility or income.

If my actions damage the prospects of others and I consider in choosing my actions only my own welfare, then I will push the damaging action “too far” in the following sense: I push it to the point where on the margin the net benefit to me is zero (e.g., the benefit to me on the margin is just equal to the price I pay or the costs I incur for the last unit). Then a small reduction in that activity has zero net marginal effect on my welfare but increases the welfare of the people damaged by the activities. Thus a small reduction in the activity results in a Pareto improvement, in the sense that one person is better off and none is worse off. The state of affairs without the corrective action to reduce the activity on the margin is described as “Pareto-inefficient” in the sense that it would be possible to make someone better off without making anyone worse off. The damage to others from the activity is the externality, and the misallocation or inefficiency reflects the failure of the market to signal the damage. I argued in *The Stern Review* that the emissions of GHGs and the associated climate change represent the biggest market failure the world has seen because of the potential magnitude of the damage for so many people and the involvement of almost all in causing the externality.

In policy toward climate change there are other important potential sources of market failure (examined in chapter 3): the public-goods nature of ideas and technological innovation; networks, including public transport and electricity grids; the ability of capital markets to handle risk; asymmetric information; and unpriced benefits such as biodiversity and energy security. It is a serious analytical and practical mistake to speak and act as if correcting the greenhouse gas externality itself is all that is necessary for the making of good policy on climate change. Of course, that externality is absolutely central and its correction has to be at the heart of policy.

It is interesting to note that in some applications, for example to crime, there are issues concerning which benefits should be counted and which included in any social evaluation.²¹ In particular, should the pleasure of a sadist count as a benefit in assessing policy toward crimes of violence? Perhaps relatedly, there are debates about whether certain sorts of goods should be traded on a market. Being able to buy permits to pollute, for example, implies that pollution is socially acceptable so long as compensation is paid, but some have argued that a more censorious approach to pollution may be more morally appropriate; one might argue that dumping chemicals in a river is not morally acceptable whether or not it might be formally permissible.²² It has also been argued that trading in certain goods, blood for example, changes the motivation and behavior of the agents themselves.²³ In thinking about what is or is not admissible in “counting net benefits,” some difficult decisions arise.

Project appraisal, cost-benefit analysis, or the evaluation of net benefits on the margin for an investment program or set of policies generally compares the world without the programs and the world with. If the program creates only marginal changes around some future specified path and markets work reasonably well, then in standard procedures we make calculations on the basis that the value of an extra unit of a good or service is reflected in its market price. Variants of market interest rates or rates of return are often used as a basis for discounting future benefits. Nonmarketed goods are often ignored, or receive just a mention. Sometimes, but far from always, income distribution is brought in by attaching “welfare weights” in the sense that gains or losses to poorer people have a higher weight. Welfare weights can be set to be equal across individuals on one of two grounds: by direct assumption, effectively ignoring the

ethics of income distribution; or by suggesting that transfer policy has set them to be equal²⁴—that would formally involve an optimum set of lump-sum transfers, which on informational grounds is generally impossible (hence we have the theory of optimum income taxation à la James Mirrlees, built on asymmetry of information between individuals and those doing the taxing). Taken together, the description in this paragraph characterizes the framework or method that might be summarized as “narrow standard cost-benefit analysis.”

In this context climate change impacts are nonmarginal, there are many relevant market imperfections, the future path depends strongly on our actions, market rates of interest are poor guides (see chapter 5), and there are many important unpriced effects. These are the reasons why the standard approaches are misleading. Having presented the standard economic approach to applying consequentialism, and some of its difficulties, we turn now to a set of issues which are often or usually excluded from standard approaches, but which may loom large for climate change.

6.4 Sustainability

There are ways of assessing consequences which do not necessarily proceed as we have just described, i.e., by evaluating programs solely or primarily in terms of whether and by how much the welfare of different individuals or households rises or falls, and then aggregating in some way. There are many who would wish to argue that this generation has an obligation to provide for “sustainability,” formally defined as enabling the next generation to be no worse off than ourselves, in such a way that the same can also be true of subsequent generations in relation to their successors.²⁵ They may make a mess of their own decisions, but we should leave them with opportunities no worse than we had.

One way of assessing whether sustainability has been made possible by this generation is to look at the set of capital goods (built, created, environmental, natural, human, social, etc.) passed on, to see whether they can sustain standards of well-being no worse than our own. That does not necessarily mean more capital on every dimension, but that taken together the set of capital goods which we leave them allows opportunities for the new generation at least as good as ours.

Sometimes the definition in formal models is that of nondecreasing “utility” from one generation to the next.²⁶ There is some formal discussion in the literature²⁷ relating sustainability to two axioms, Paretianism and anonymity, together with an assumption on the productivity of investment. And there has been a related discussion (which does not invoke ideas of sustainability) of theorems that show that, in infinite-horizon models, adopting these two axioms implies that corresponding social orderings may be incomplete: this result is connected to the issue of discounting of lives and discrimination by date of birth (violating the anonymity assumption), as we saw in section 5.4.

The broad definition of sustainability is sometimes made tighter, for example via notions of stewardship, in terms of specific aspects of our natural environment or biodiversity that it is asserted should be left to future generations as we find them ourselves, or indeed that we should try to restore them to what we know they were prior to our damage. The creation of national parks is in this spirit.

These notions of sustainability can be derived from some of the ethical perspectives discussed above. They could be seen as part of a version of rule utilitarianism,²⁸ based on the idea that there may be a systematic failure to understand as individuals the consequences of our actions for future generations, so that a rule which binds us all might lead to gains for future generations much larger than any loss we might suffer. A Paretian perspective can lead to an argument and conclusions that are close in spirit, although not identical, as discussed below.²⁹

As the literature on environmental virtue ethics argues, sustainable behaviors could be seen as virtuous—as behavior that recognizes and acts on the idea of sustainability as part of the makeup of a virtuous citizen, just as an individual or society might feel that it is right or virtuous to educate children, or create human capital for them similar to or better than our own. Or it might be seen as part of a social contract with future generations (although as we remarked above, the argument encounters the difficulty of applying this approach to “citizens” who do not yet exist or who may not exist).

Because the idea of sustainability is, I think, derivative of the more general approaches, albeit an interesting idea which is widely embraced, it is presented here as an application or example of logically prior

viewpoints, such as rule utilitarianism or virtue ethics, rather than as a broad perspective in its own right.

6.5 Population

One key application of this discussion of ethical perspectives is population: climate change can, and does, kill people, either directly or through the conflict it can cause. It can also prevent people from coming into existence,³⁰ such as the “lost children” of those who might be killed or otherwise die prematurely. And these premature deaths are likely to be extremely unpleasant—from conflict, starvation, dehydration, inundation, and so on. The scale of the potential consequences means that those who think about policy, including economists, cannot avoid the issues. The first question we have to face here is trying to value premature (and very unpleasant) deaths and the prevention of future lives. A second question concerns population as a determinant of climate change in that more people imply more emissions. Thus we should examine arguments concerning the limitation of population. We take these two questions in turn.

On the problem of valuing life in the context of climate change, the leading contributor has been John Broome.³¹ He focuses on issues arising from the possibility of extreme catastrophe, represented in particular here by extinction (he associates the question with the “catastrophic tails” of distribution emphasized by Martin Weitzman). Unmanaged climate change might result in temperature rises of 8–10°C or more, with a small probability.³² Very high temperatures might well involve the extinction of all humans, thus wiping out 9 or 10 billion people, say. If the probability is between 0.1% and 1%, Broome argues, that would be equivalent to an expectation of, say, 9–90 million people killed, perhaps 100 or 200 years from now. Everybody dies sometime; what we are talking about is premature and unpleasant deaths.

What if temperature increases were 2, 3, or 4°C as a result, in part, of a given set of policies on emissions? As long ago as 2000 the WHO suggested that around 150,000 deaths a year might at that time be attributed to climate change, and this as a consequence of an increase of less than 1°C.³³ It is plausible that 2, 3, or 4°C could entail half a million

deaths a year or more; this could continue over many decades, and the probabilities of temperature increases of over 2°C are very high under unmanaged climate change, perhaps 80–90%, and around 50% even with strong policy. Thus one might argue that, cumulating these deaths over time, the expectation of the number of deaths associated with temperature increases of this magnitude is probably also in the tens of millions (in addition to the “Broome/Weitzman extreme event” of very high temperatures). The precise number of millions does not matter here. But it does seem reasonable to argue that (1) the subject of the treatment of deaths in the calculus of consequentialism is central and unavoidable, and (2) it is not dominated only by the tail end of the distribution.

Killing or damaging human lives and causing premature death are crucial potential consequences of badly managed climate change. Age-specific death rates are a central determinant of population size, as are demographic structures, age-specific birth rates, and fertility rates. The different elements feed into each other. Thus, arguments about causing death lead us to a discussion of population size and of the relevant ethics, particularly in the sense of how we value populations of different sizes.

The ethics of population size encounters deep difficulties. Without the idea of a “neutral level” of well-being we have little guidance, where neutral means that more people above that level is “good.”³⁴ But if we invoke this idea we run into the difficulties illustrated by Derek Parfit’s “Repugnant Conclusion.” His original formulation asked us to think of a planet where “for any possible population of at least 10 billion people, all with a very high quality of life, there must be some much larger imaginable population whose existence, if other things are equal, would be better even though its members have lives that are barely worth living.”³⁵ He argued that such a conclusion is “repugnant” and unacceptable. But it is not easy to find a theory that avoids this conclusion. Many exit routes from the repugnant conclusion have been explored, but they run into serious problems. For example, we can try to drop “transitivity” as a requirement for an ordering, but as Broome argues, transitivity is basic to our idea of rationality.³⁶ Thus the theory of the ethics of population is not in a state that gives us strong direct guidance.³⁷

My own broad-brush conclusion from this chain of reasoning is that we should think of questions of policy for climate change in terms of strategies for risk management, describing risks and uncertainties as best

we can in terms of the nature and scale of impacts and how likely they may be. Trying to understand decision-making regarding possibly immense effects in a broad strategic way does not require us to quantify formally or precisely the value of lives that are likely to be at risk. It does mean that we try to include the magnitude of death and physical harm in an understanding of consequences. We will find that we can go a long way in examining policy by asking how we can radically reduce the likelihood of catastrophic outcomes, without necessarily demanding explicit calculation or valuation of consequences. If we find that innovating, investing, and changing how we do things can have strong inherent attractions while radically reducing the risk of catastrophe, then we could conclude that such actions are well worthwhile, for a whole range of plausible assessments of catastrophic damages. Indeed we may well make this judgment on the basis of an understanding of possible consequences, including large-scale loss of life, without any attempt at formal valuation of life.

Let me stress that this does not mean jettisoning the expected utility approach, the much-used workhorse in economics for analyzing risky choices, but it does mean recognizing that we are likely to do the analytics and ethics of the problem grave damage if we confine ourselves only or overwhelmingly to that approach. A narrow attempt to force the problem into a form where we can apply such a technique risks so simplifying it for tractability that we discard in our analysis the essence of the issues at stake. An attempt at more precision can end up with less rigor.

Thus far on population we have been discussing fatalities as a result of climate change. How should we think about policies that try to influence population as part of policy toward climate change? World population in 1900 was around 1.6 billion, in 1950 around 2.6 billion, in 2000 around 6 billion, now (2014) around 7 billion, and in 2050 is likely to be around 9 billion. There is little doubt that the challenge of holding down emissions would be easier if population were smaller: for given production and consumption patterns and levels, emissions are roughly proportional to population.

What are the ways in which population can be limited? From the accumulated work on demographic change,³⁸ six key variables influencing population include: education of girls and women; overall levels of

income; opportunities for women in the workforce; infant mortality rates; women's rights in the household to income and assets; and women's access to reproductive and other health services. These are all dimensions where there would be powerful arguments for action, many based on women's rights, without any reference to climate change. And, in large part as a result of progress on these dimensions, fertility rates (the number of children per woman) have fallen dramatically over the last 40 years or so across the developing world.³⁹ In India, fertility rates are likely to fall to steady-state replacement levels in the next ten years. Global population increase will be driven between now and 2050 largely by the fraction of women of childbearing age in the population and by the fact that the fall in fertility rates in Africa is lagging behind other continents, even though they are falling there also.

Continued progress along the six dimensions described is in my view highly desirable. Scope for policy action on population beyond this seems somewhat limited unless one goes immediately, and across the globe, for something like the one-child policy of the last 30 years in China. Such policies (though this is not my focus here) raise their own ethical issues. There is, however, an important practical point: in some countries such policies can cause such reaction that over time they might have a contrary effect. The revulsion in India, for example, at the excesses of apparently forced sterilization and other pressures during Indira Gandhi's emergency of 1975–1977 was intense.⁴⁰ And I have heard such reaction directly myself in the village of Palanpur (in western Uttar Pradesh in India) which I have been studying (with colleagues) over the last four decades.

Thus from the point of view of ethics, development more broadly, and women's rights, the arguments for action on the six dimensions described would seem to be powerful. Thinking about climate change could reinforce them, but the arguments already seem strong.

6.6 Pareto efficiency and “the most important thing about climate change”

There are many, particularly in richer countries, who see the subject of ethics in relation to climate change as largely about intergenerational values. In developing countries discussion often stresses intragenerational

issues and obligations of richer countries. But before embarking on a discussion of intergenerational or intratemporal distributional issues and tradeoffs, we should emphasize a basic lesson from standard welfare economics which has already been explained above (including section 6.3): market failures that are left uncorrected are generally associated with outcomes that are Pareto-inefficient. In the usual formal sense in economics, emissions of greenhouse gases are an externality (i.e., the production or consumption of an individual or group directly affects the production or consumption possibilities of another individual or group).⁴¹ If an externality is unpriced or unregulated, we have a market failure. From a position of uncorrected (or partially corrected) externalities, we should therefore be able to identify a Pareto improvement, in this case one that improves the welfare of future generations while leaving the current generation no worse off.

A simple example makes the point in a fairly general way. Consider two consumers corresponding to two generations, identified with periods (N and L) which we call “now” and “later,” with utility functions $u_N(\cdot)$ and $u_L(\cdot)$ depending only on their own consumption. Suppose there are two goods A and B, and two production sectors, one associated with each of them. Suppose further that the production of A by this generation pollutes the next period’s environment and damages the ability of the next generation to enjoy their consumption, but that the production of B does not (or less so). And suppose that without any policy to correct the externality, we have an equilibrium where the relative price of A and B is one in the first period. In this equilibrium, the marginal rate of substitution in N’s utility function and the marginal rate of transformation between A and B in the production sector are both equal to one.

The following change generates a Pareto improvement: produce on the margin, in the current period, one unit less of A and one more of B (we can do this keeping overall inputs unchanged because the marginal rate of transformation is one), and adjust first-period consumption by corresponding amounts. The first generation is no worse off, since the marginal rate of substitution in preferences given by $u_N(\cdot)$ is one. And the next generation is better off, since the inherited pollution is less. We could, of course, adjust the example so that the first generation makes the same change in production but leaves a small amount, ϵ , less to the

next generation in terms of bequests or grants. We could choose ε so that both generations are better off.

A second example could be constructed by reducing, on the margin, production of the damaging good in period N by applying less labor. If labor has been applied up to the point where the disutility on the margin is equal to the marginal utility of its product, then generation N is no worse off and generation L is better off. However, both the examples do require more than one good in the first period (in the second example it was labor). Examples which, say, simply produce less, bequeath less, and hold consumption the same in period N do not necessarily imply a Pareto improvement. Will the enhancement of the environment in the later period be enough to offset the reduced bequest? To show that it can be, we have to say something more about the choice of consumption and production in the first period. That is how the two examples work.

Put in fairly general terms, the examples show that starting from a situation in which the climate externality is uncorrected, this generation could adjust its consumption and production in this period, and its bequests, to leave both itself and future generations better off. It simply does a little less of the polluting activity and a little more of the nonpolluting activity (more of B in the first example and of leisure in the second) in amounts that are both feasible on the production side and leave the current generation no worse off on the consumption side. For this type of change one need not embark on agonizing reflections and discussions on intertemporal values. We did, however, embark precisely on such discussions in the previous chapter because the subject goes beyond this type of Pareto improvement—for the usual reasons, one cannot suppose that decision-making processes and political economy are such that all Pareto improvements are realized. And even if they were, there would still be questions of intergenerational choice.

John Broome has called this observation on Pareto improvements “the most important thing about climate change.”⁴² It is surprising that it has been so underemphasized in the economic discussion of climate change, given the centrality of externalities to that subject and to its analysis. It is an argument that has been widely understood for some time—essentially when we are speaking of market failure we generally embody the idea of Pareto inefficiency.⁴³

To indicate the importance in this context of the idea of market failure is not to say that if we focus there we deal with all the issues. Intergenerational distribution is fundamental to policy and climate change; so too are intragenerational issues. We return to the latter subject in detail in chapter 9.

6.7 Ideology and attempts to dodge the ethics

Given the potential severity of the consequences of emissions for the welfare of others, why is it that so many economists try so hard to avoid an examination of the ethics? What techniques or arguments are used to sustain their avoidance?

One possible reason that some may find discomfort in allowing an ethical perspective to enter the argument is that putting the externality and the ethics together provides a reason for government intervention in markets. Thus some see it as a return to the command economy of a socialist or communist era but with government officials in green hats rather than red. And they see all the problems of officialdom, intrusiveness, and corruption that might be associated with such intervention. These problems should indeed be part of any careful discussion of policy, but they cannot in logic be seen as a reason for avoiding the ethical issues in economic analysis which arise from the presence of severe externalities, i.e., great damage to other people from emissions.

We saw fierce examples in the 1980s and 1990s of this ideological aversion to government intervention, an aversion sometimes described, not unreasonably, as market fundamentalism.⁴⁴ But economists should surely understand and argue that it is pro-market, not anti-market, to recognize market imperfections and look for policy to assist the effective functioning of markets: to fail to act on gross market failures is to grossly distort markets. The basing of policy on the recognition of market failure where it exists is surely the approach that respects and understands the ability of markets to give good results. And when we proceed in this way we encounter the ethics, particularly because the effects are so large, the distributional effects so strong, and the relevant imperfections so pervasive.

Of course, ethics can be dodged by denying the existence of the externality, essentially denying the science, or suggesting that it is too small

or uncertain to bother with given the perceived “dangers” of government intervention. In suggesting the cure is worse than the disease, part of the argument is to suggest that the disease is trivial. We have dealt with this kind of distortion of the scientific evidence in chapter 1.

A further way of dodging a discussion of the ethical issues is to suggest that any ethical parameters we may need can be read off from the markets, thus suggesting that all the relevant ethical positions can be derived solely on the basis of revealed preferences. We showed in our discussion of intertemporal discounting in the previous chapter that this argument is riddled with basic mistakes in economic analysis. This is not to make a generalized attack on the idea of revealed preferences (it does indeed carry valuable insights), but to show the plethora of important errors in many applications to the case of intertemporal policy and ethics in relation to climate change.

The final cop-out is to argue that the ethics are best left to the imams, pandits, priests, rabbis, moral philosophers, and politicians. This, in my view, as someone who has spent some years in the “kitchen” of economic policymaking, is to misread or be ignorant of the mechanisms and logic of policymaking in practice. Those whom society has determined should have obligations to decide do not necessarily have experience in assembling or assessing empirical evidence. Similarly for those who may feel that because of their positions in religious structures they must offer moral perspectives. And they would not usually know the theoretical constructs that could provide a method for organizing the evidence in ways that could inform decision-making relative to the ethical perspectives they may bring. On the other hand, economists have experience and skills in working out how to specify and apply different principles, objectives, or social welfare functions, and they have skills in understanding what evidence might be relevant and helpful and how to assemble and use it. That does *not* mean that analytical economists take over the ethical discussions from politicians or moral leaders, but it does, in my view, mean that they have a duty to participate in an active and constructive way.

John Stuart Mill⁴⁵ saw clearly that ethical or moral perspectives themselves adapt and change when exposed to the logic of evidence and the process of discussion and scrutiny of policies and values. That understanding is central to his emphasis on the idea of public discussion as a key element in democracy.

Thus, economists, and scientists too, are badly underperforming in relation to their potential contributions, or indeed a social obligation to be useful, if they simply try to deliver their positive analysis without thinking hard about its relevance to the issues, criteria, principles, and political processes that might be brought to bear in taking decisions. Unless they think in this way, the evidence they offer is likely to be ignored because its questions and conclusions may not be expressed in ways a decision-maker can see as useful. Or the conclusions and analyses may be misused or distorted because ethical positions are buried below the surface. To be effective, some economists and scientists may have to become directly involved in the processes of practical decision-making and advice. It is, of course, a challenge to do this and retain some objectivity, but the alternatives may be irrelevance or gross misuse of the work.

6.8 Conclusions

In summary, the lessons we have learned from this chapter are:

- Economists generally approach normative issues, including those raised by climate change, within a consequentialist framework, which evaluates actions by reference to their consequences. The Paretian approach and Bergson-Samuelson social welfare functions are special cases of consequentialism most familiar to economists, and the careful application of both point clearly to the need for strong climate action. However, their common focus on marginal changes around a given path can be misleading here if applied uncritically. We should look to a formulation of the ethical choices on the basis of perspectives or models that recognize the potential scale of risks, including to life. The problem is one of strategic choices in the face of immense risk and cannot sensibly be examined in terms of minor adjustments. By recognizing and focusing on the scale of the issues and the strategic choices involved, such an analysis is deeper, broader, and more rigorous than a narrow cost-benefit approach which excludes or diverts from the big choices. It is better consequentialism in the sense of better capturing the consequences at issue.
- The broad range of consequences studied in the context of climate change must include implications for loss of life and population. Such a focus strengthens still further the strong case for action relative to much standard modeling which makes population exogenous.

- Drawing more widely from moral and political philosophy, including from nonconsequentialist moral theories, and from the analysis of political ideals such as justice, rights, and liberty, we find yet further normative support for strong action on climate change.
- Climate change presents a range of normative moral and political questions that cannot be dodged. Unfortunately many, particularly economists, are greatly tempted to dodge the ethical issues. For economists this often involves an appeal to the idea that we can read values from behavior, particularly market behavior. We showed in the preceding chapter how misguided that can be. Those who engage in debates about climate policy should be prepared to engage constructively, transparently, and logically in discussion and reflection on underlying ethical positions.

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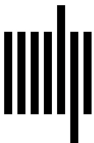
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