

## 2 THE NEXT GENERATION

Sustainability is all about the future, and the sustainable economy is one that has a future. It is about stewardship, about making sure we do not make such a mess of our planet that the next generation's possibilities are curtailed. How we think about the future, and in particular the next generation, is the first building block of the sustainable economy.

I recently gave a lecture to a large international group of students finishing their school education, in which I set out some of the environmental challenges they will face. Aged 15–18, these students are the next generation who are coming of age. A few of them will make it to 2100. It occurred to me that it was like presenting to people born in the years immediately after the First World War and wondering what their world in 2020 would be like.

By 2050, this next generation will be in their mid-30s, many with children of their own and already connected to the generation after themselves. By 2075, they will be contemplating retirement. They are the people we need to look in the eye and account for our stewardship – or lack of it – as we pass the baton on to them. And throughout this chapter, it is this audience who are what the arguments are all about.

If we are going to honour the current generation's obligations to them, we need to ask what their world will look like at these milestone dates – how hot the climate is likely to be; how much biodiversity

might remain; what science they may have; and what technologies might be available to them – from the baseline we are leaving behind.

The next generation will have its own legacy to pass on to the generation that comes afterwards. What matters is that we leave an inhabitable planet, and a robust legacy of assets. We should leave them our houses, our infrastructures, our knowledge and ideas, our institutions and an environment in a fit state, and only so much debt as to be covered by new assets that we have created for them.

What matters is not about making sure they are happy and have lots and lots of utility, and a higher GDP as environmental economists would have us concentrate on. It is about equipping them for their open-ended future, and not mucking up the planet so badly that they lack the basics of an equitable and stable climate and lots of biodiversity, and the core infrastructures and knowledge. We need to treat them as new citizens and not just as the economists' future utility-maximising machines. Whether, armed with these assets, they are happy or sad is not our business, unless that sadness comes from the depleted set of opportunities they confront.

## **Saints and Sinners**

This is what we owe them, and is as far as we can reasonably be expected to go. It is also what we are failing to achieve. The next generation, those people already with us, is as far as our altruism should stretch. To see why this is the realistic limit of our concerns, rather than all future peoples, ask yourself: how much do you really care about the future compared with getting through today? Take a look at what you're going to spend on today. How far have you really thought through whether your choices seriously take much account of the imprint they will make on the next and future generations? You might try to do some recycling, buy less plastic-wrapped stuff and eat less meat, but few really think through the carbon embedded in their daily routines. The finger points to all those foreign holidays, fast fashions and fast foods.

Even if we do care a bit, carrying on as 'normal' remains the default mode of our consumption. Amongst those who claim to be environmentalists, the majority fly just as much as the rest of us, sometimes more so. When I was recently asked to fly to Bali to speak at a conference on climate change, the organisers did not see the irony.

(I did not go.) Ask the many children who joined in the Extinction Rebellion demonstrations what their holiday plans are and what clothes and fashions they follow, and the answers are ‘normal’ too. This is not meant as a personal criticism (though it is good to keep a record of one’s own carbon footprint), but rather to provide an insight into what constitutes the context for designing policies to better meet our obligations. Assuming a world of environmental saints is not going to get us sinners to take the practical and realist steps necessary to provide a decent legacy to the next generation.

This dose of realism stands in stark and remarkable contrast to what some economists and philosophers claim – that there is no obvious reason to discriminate against people on the basis of when they live – and the conclusions they then draw. Since nobody decides when their lives are to be lived, it is argued that there is no good reason to discriminate against those who will live in the future. The policy they recommend is that we should be purely impartial, and forever.

Rather than look at human nature as it is and stretch out our concerns to just the next generation, leading thinkers like Nick Stern (on climate change) and Partha Dasgupta (on biodiversity) would have us follow this impartiality principle.<sup>1</sup> We should not focus more on the needs of those living now and less on those in the future. All are counted as one – now, tomorrow, in 2100 and in 10,000 years’ time. We should be altruistic impartial saints. But we obviously do. We violate this time-invariant impartiality principle all the time. It is basic to our existence. Your spending probably illustrates this, and your carbon and environmental diaries would spell this out. A possible reward in the future is worth less than money in your pocket now. All of us do this discounting of the future, ranking current consumption as more important than postponed consumption, preferring instant gratification to the possibility of our own future happiness, let alone that of other people. This is not a sin, but rather a fact of our human nature.

Short-termism myopia is not without merit on an individual basis. It is quite rational. Taking that holiday now rather than when you are older and possibly dead makes a lot of sense. Better spend it now than regret it later, or no longer have the opportunity to do so at all. Many of our major personal decisions are complicated by not

<sup>1</sup> See N. Stern (2007), *The Economics of Climate Change: The Stern Review*, HM Treasury, Cambridge: Cambridge University Press; and P. Dasgupta (2021), ‘Final Report – The Economics of Biodiversity: The Dasgupta Review’, 2 February.

knowing when we will die and not knowing how long our health will hold up. Savings for pensions and putting aside something for a rainy day postpone consumption. Take a look at your bank statements, and the trade-offs you have made. How precautionary are you when it comes to pensions, health risks and possible future rainy days?

For most of human history this myopia has been a pretty successful strategy. The battle against nature, the battle for resources and consumption now, has confronted a forgiving natural world, rich in the cornucopia of the natural capital we have inherited. The battle against nature has been pretty successful so far, but no longer. The problem with building the sustainable economy on our own myopia, our discounting the future to prioritise the present, is that it might (and probably will) lead to environmental disaster. The interests of society are not the same as the sum of the interests of the individuals who make it up. It is not at all clear why society as a whole should follow our individual myopic paths. Instead, rules are needed to keep us on the straight and narrow.

## Climate Change and Nuclear Power

To see why myopia is no longer going to work, take a very practical question: is tackling future climate change a good economic investment to make now from the perspective of our own personal interests? For many people the answer is ‘yes’ if it does not cost them much (demonstrating a bit of altruism), and ‘no’ if it does require them to pay a bit more now for their energy. That is what opinion polls indicate: most people say they think climate change is very important, but very few are prepared to sacrifice income now to address it.<sup>2</sup>

The ramp-up of oil and gas prices in 2022 led politicians in the US, the European Union (EU), China and India to roll back on measures to phase out fossil fuels. Joe Biden reverted to encouraging onshore and offshore US oil and gas production, Germany turned back to coal and nuclear, China and India both turbocharged coal, and the UK opened up drilling licences for North Sea oil and gas and even tried (and failed) to lift the ban on onshore fracking. Many countries cut fossil-fuel energy taxes and moved to subsidies of energy bills (funded

<sup>2</sup> See, for example, YouGov polling which asks what steps people are prepared to take. Note that none of these has an explicit cost attached to it: [https://docs.cdn.yougov.com/hdemoi825d/Internal\\_ClimateChangeTracker\\_220720\\_GB\\_W.pdf](https://docs.cdn.yougov.com/hdemoi825d/Internal_ClimateChangeTracker_220720_GB_W.pdf).

by borrowing) on a scale that puts it into the category of the Covid interventions. As soon as the costs showed up on consumers' bills, the climate change measures took a back seat. At the first whiff of gunfire in Ukraine, net zero policies went into retreat.<sup>3</sup>

This is what discounting the future looks like in action. In 2022, US President Biden, German Chancellor Olaf Scholtz, Chinese President Xi Jinping and the then UK Prime Ministers Boris Johnson and Liz Truss all prioritised the present over the future. Burning coal now was prioritised over the consequences of the emissions to the climate later on.

A more sophisticated argument for acting on climate change is frequently advanced: that although there will be costs to decarbonisation now, these will be smaller than the costs of global warming that would be avoided. In other words, it is a good economic investment to head off something worse.

The obvious problem with this argument is that your actions (incurring the costs now) will have very little impact on global warming if others do not follow (and they are mostly not), with the result that you will pay *both* for the costs of mitigation *and* the costs of global warming. More importantly, the costs are very much now, whereas any benefits (if they materialise) are mainly later, accruing to the next generation. And this is regardless of whatever spin is made on every negative weather event being declared evidence of climate change now, without the balancing offset of the benefits now of warmer winters, long growing seasons and new ice-free sea lanes in areas of the world where most of the wealth (and quite a lot of the warming) is concentrated.

This climate change example illustrates why the question of whether to discount the future is anything but arcane and academic. It goes to the very heart of how to shape economic policies – with costs now to head off the damage (and hence costs) later on. Even at a very low positive discount rate, things that happen later this century to those students attending my recent lecture have little significance to decisions made now.

Let's illustrate this discounting issue with a much simpler example than the big picture of climate change. Consider nuclear

<sup>3</sup> See D. Helm (2022), 'The Retreat from Net Zero', 4 July, [www.dieterhelm.co.uk/energy/climate-change/the-retreat-from-net-zero/](http://www.dieterhelm.co.uk/energy/climate-change/the-retreat-from-net-zero/).

power, one of the ‘answers’ to climate change that some advance. A new nuclear power station may take around a decade to build (most recent ones take longer). Once built it should run for say sixty years. All the while it produces nuclear waste in the form of spent fuel, and at the end of the sixty years there are a lot more radioactive materials to be dealt with as the power station is decommissioned. The costs of nuclear waste are large, but this is where discounting magics them away. Assuming an admittedly implausible low cost of dealing with the waste of £10 billion in 2090 when the station closes, if we discount at say 5 per cent, then £10,000,000 in sixty years’ time is a minuscule £500,000 today. In other words, it is so small as to be irrelevant to the decision on whether to build the power station.

Lest you think this is a highly contrived and implausible outcome, let me disabuse you. This is very much what happens. Few countries have any serious plans to start dealing with the waste of existing nuclear generation, and even for already decommissioned nuclear power stations, other than to dig big holes at some future date and bury it. The analogy with climate change is obvious: all the waste that carbon emissions are putting up in the atmosphere from burning fossil fuels has been allowed to build up because this carbon waste is in effect discounted. The nuclear waste and the carbon waste are treated as future problems, and of little current economic value. This sort of discounting is at the heart of our environmental problems, mirroring our myopia, itself the reflection of our generational selfishness, our partiality.

Since whether, why and how the future is discounted is such a fundamental dimension of the sustainable economy, let’s take a more forensic look at the underlying arguments for and against discounting. Is there any justification for this sort of discounting that lies at the heart of our neglect of the future? Are we just uncontrolled sinners, or is there more to discounting and our relationship and responsibilities towards the next generation than meets the eye?

There are at least three distinct arguments in play: (i) we *should not* discount future utility at all because future people are just as important as current people; (ii) we *should* discount because economic growth means that future people will be better off; and (iii) because of distributional reasons and a special concern about the poor, we *should* discount to make current poor people better off as the rising tide of economic growth, in theory, lifts all the boats.

## The Pure Impartiality Argument

Let's unpack each bit in turn, concentrating on the first, about utility and consumption. It is the one that raises the most profound ethical questions. Whether to discount utility, our future happiness (if that is what we are worried about), and, if so, at what rate, is perhaps the most important single issue in designing the rules of the sustainable economy. The famous economist and mathematician, Frank Ramsey, remarked that to discount the future 'arises merely from the weakness of the imagination',<sup>4</sup> viewing the future through the lens of utility and implicitly the utilitarian ethic of the greatest happiness to the greatest number.

Let's see why this is so misguided. Just in case you are seduced by the argument that seemed so obvious to Frank Ramsey (and most utilitarians) that we should take pure utility impartiality as a central plank for the sustainable economy, making the future as important as the present, especially when it comes to environmental issues, think again. Recall that the ethical assumption, which pure impartiality relies upon, is that we should treat each and every individual equally, and hence any individual's utility is as important as anyone else's. This means that future people are just as important as current people, however far into the future they live, and all people now, wherever they live, are as important as each other.<sup>5</sup>

Superficially, this might sound good and reasonable, and, in particular, pretty environmentally benign. It might be something both economists and environmentalists could agree upon. But now think of a couple of consequences. You should not care about your own children more than about a child living in poverty in the slums of Lagos, for example, and you should not care about your neighbour, your town or your country more than about people in a Sudanese village, for example. It is a generic impartiality between individuals, and it includes the time dimension, but it also applies at any point in time. This moves us a long way away from maximising our own utility, our

<sup>4</sup> F.P. Ramsey (1928), 'A Mathematical Theory of Saving', *Journal of Economics*, 38(152), 543–59, at 543.

<sup>5</sup> This ignores the problem Jonathan Glover highlights of the determination of what sort of people there will be. Once the full consequences of artificial intelligence (AI) are taken into account, those people may be very different from us. It is not obvious why we should care about people in the future given these considerations. See J. Glover (1984), *What Sort of People Should There Be?*, Harmondsworth: Penguin Books.

own personal preferences (like our preference for our own children over others), to the requirement to care for all and everyone equally, anywhere and everywhere.

This demands too much of us and human nature. It is hopelessly idealistic and never going to happen. As we move away from our immediate circle of family, friends and those who share our localities, countries and cultures, we care less. We have different preferences about people *now* in our own countries than about people abroad, especially when they do not share our language and culture. Migrants from poor countries are often resented, borders are policed and it is even deemed appropriate by, for example, the UK government to send some of them to Rwanda. We care less about people not yet born whom we do not know, and even less about people in hundreds and thousands of years in the future. We do not care much about which people will live in this distant future. Our actions now may cause these people to exist, or not. We choose contraceptives and abortions in order to limit family size, changing the chances of being born.<sup>6</sup>

Discounting the utility of future people at a point in time is just a part of our human nature, open to modification, but not complete rejection. It is why we vote for politicians who will look to our immediate problems, preferring, in the above example, the short-term boost of coal burning in the energy crisis of 2022 over the longer-term impacts on the climate, and tax cuts and more spending, funding by debts that future taxpayers will confront as a result of our myopia.

We give very little of our income to those with less than us if they are remote from us. Foreign aid is very low, and even its low level is controversial. The maxim ‘charity begins at home’ appears to be politically popular. Aid budgets are soft political targets.<sup>7</sup> We spend great efforts on gender equality at home, but not so much in Afghanistan or Iran. At the 26th Conference of the Parties (COP26) in Glasgow in 2021, it was a struggle to get world leaders to commit to a climate fund of \$100 billion per annum – a bit more than the annual dividend of the oil company, Saudi Aramco, in that year. Delivering even this sum has so far eluded the donors.

<sup>6</sup> Derek Parfit’s non-identity problem gives an example of the choice between depleting and conserving natural resources. This choice affects who lives in the future. D. Parfit (1984), *Reasons and Persons*, Oxford: Oxford University Press, p. 362.

<sup>7</sup> The priority for home use of vaccines first, cuts in foreign aid and the small sums transferred to assist developing countries and address climate change are all such examples.

Advocating policies based upon pure impartiality when it comes to future generations runs into this brick wall of human nature. Any credible environmental ethic, and the policies that follow, is unlikely to have much chance of changing behaviours if it does so much violence to our basic human instincts, such as preferentially caring for your own children or deciding how many children to have.<sup>8</sup>

The pure impartiality approach runs into a further problem: since the future is open-ended and might go on to infinity, there may be an infinite number of people to care about in the distant future. It is a point that Stern noticed in his 2007 review on the economics of climate change, and he implausibly truncated his analysis by assuming a 10 per cent chance of extinction by 2100.<sup>9</sup> Otherwise, there is no limit to the demands on us of future people. For utilitarians from Jeremy Bentham onwards, it is even worse: they will want the greatest number of people if each additional person at the margin gains positive net utility.<sup>10</sup> Indeed, not only should you care about other children as much as your own, and probably even more so because a little extra income to poorer children would disproportionately increase their utility, but you should also have as many children as possible as long as they are expected to live a life with net positive utility, even if they are lives barely worth living. If that means that the average utility falls, then so be it.

The utilitarian's population is open-ended, until additional people are either net-negative utility machines, or they reduce everyone else's utility so much as to offset all their gains. This is the 'repugnant conclusion', as stated by Parfit: 'For any possible population of at least ten billion people, all with a very high quality of life, there must be some much larger imaginable population whose existence, if other

<sup>8</sup> When Jean-Jacques Rousseau took his children to an orphanage rather than raise them himself, or at least take responsibility for them, we are naturally appalled by his departure from what most would regard as the essential partiality of parents to their own children. See J.-J. Rousseau (1782), *The Confessions of Jean-Jacques Rousseau*.

<sup>9</sup> See also H. Greaves and T. Ord (2017), 'Moral Uncertainty about Population Ethics', *Journal of Ethics and Social Philosophy*, 12(2), 135–67.

<sup>10</sup> There are two separate justifications of utilitarianism given that are relevant here: the empirical and the purely ethical, and between the economists as they divide between them. The first is derived from empirical claims about human nature: utilitarians, from Bentham onwards, assumed that pain and pleasure are facts of human nature. When David Hume and Adam Smith grounded economics in the context of the wider search for a science of human nature, they were firmly in the first category. But when it comes to Stern's and Dasgupta's impartiality and not discounting future utility, it is obvious that this is not grounded in human nature. It is not a fact.

things are equal, would be better even though its members have lives that are barely worth living.’<sup>11</sup>

For environmentalists who worry that there are already too many people on the planet, it is the quality of lives well lived, not the quantity that matters. For them, having too many people may harm the quality of lives now and in the future. Better to have fewer people living better lives. It is for them ‘repugnant’ as well as inimical to sustainability.

In summary, the Ramsey view is wrong in so many ways – in its focus on utility and happiness (the sustainable economy focuses on assets); in its failure to come to terms with human nature and its limits (the sustainable economy takes citizens as they are, and not as utility-maximising consumers); and in its failure to make any distinction between different time horizons from now to infinity (the sustainable economy focuses on the next generation). It is another ethically ‘repugnant conclusion’.

## The Economic Growth Argument

The second argument advanced for discounting is economic growth. Future people will be better off because economic growth (in GDP terms) leaves them a bigger economy (a bigger pie) and hence the opportunity for more consumption. It is what lies behind governments setting GDP growth targets (as if governments can magic up specific levels of GDP growth). This might be called the ‘Chinese model’: set a target, make people better off in GDP terms, irrespective of the debts piled up on the next generation.

The argument runs as follows. You are almost certainly better off than your parents, and therefore, if anything, your parents should have consumed more to even up the utility between them and you. If the same happens for your children (and those school students in my lecture), you should get stuck into consuming more today to compensate for the fact that they will be better off.

The flaw in this argument is pretty obvious. It depends upon the assumption that economic growth actually occurs, that the next generation can be safely assumed to be better off, which in turn depends

<sup>11</sup> On the repugnant conclusion, see Parfit, *Reasons and Persons*, pp. 381–8. See also H. Sidgwick (1874), *The Methods of Ethics*, London: Macmillan and Co., Book IV, chapter 1, section 2.

upon whether it is *sustainable* economic growth. Where there is an enhancement of the core assets that we pass on to future people, and in particular growth in ideas and technologies, there may be a case for applying a positive ‘economic growth’ discount rate representing that expected economic growth, but only *after* allowance has been made now for the damage to the environment, and the investments to remedy some of the past damage. As will be explained in setting out the accounting for the sustainable economy, sustainable economic growth is likely to be significantly lower than GDP growth. Given the scale of the remedial damage that we need to address, it is likely to be at a very low rate. Using GDP economic growth to discount is wrong. Worse still, pursuing a GDP growth target, and in the process disregarding the environmental impacts, is incompatible with the sustainable economy. Discounting of genuinely sustainable economic growth is fine.

### The Distributional Argument

A third argument for discounting, given particular importance by Dasgupta,<sup>12</sup> concerns the distribution of income at a point in time. If there is lots of inequality now, and if economic growth lifts the position of the poorest, this might be a reason to prioritise the poor now over the (assumed) less poor in the future (provided the economic growth is sustainable and actually happens). Dasgupta is of course right to recognise that concern for the next generation, and the current one, has a distributional dimension. If we should treat future people on the same utility basis as current people (and hence be purely impartial over time), we should also treat all people now as of equal concern in the (and his) utilitarian calculus.

There are great inequalities, and those in developed countries treat people in poorer countries very differently from those in rich ones, and within each country treat the rich differently from the poor. No amount of ‘trickle-down’ economics will provide an excuse. Turning away obviously very poor people migrating in small boats is witness to strong discrimination. As long as sustainable economic growth happens, and that it benefits the poorest, higher consumption now is justified at the expense of the next generation because the poorer in

<sup>12</sup> Dasgupta, ‘Final Report – The Economics of Biodiversity’, pp. 260–73; and P. Dasgupta (2019), *Time and the Generations*, New York: Columbia University Press, especially pp. 79–86.

this generation are poorer than the poor will be in the next. But only if these assumptions hold.

The above discussion tells us that what we assume about discounting goes to the heart of the sustainable economy and how it should be designed. It tells us that sustainable economic growth is the main reason why we can have higher consumption over time, and hence that this is a justification for discounting, because sustainable economic growth will make the next generation better off. It tells us that we will have to dig deeper into what causes sustainable economic growth, and later on we will see that this is overwhelmingly about new ideas and technologies. It tells us that not to discount utility is a demand for sainthood, but at the same time we should have rules that help us to be more than purely selfish when it comes to future people. Finally, the above discussion tells us that we should be serious about the poorest in any generation over and above the average, that social justice at any point in time matters in the sustainable economy.

### Limited Realistic Impartiality

The sustainable economy harnesses *limited* impartiality, working with people as they are, and not with the utopia of pure impartiality. Opting for a more limited element of impartiality opens up the path to define the ethical foundations of the sustainable economy in a more practical, do-able and partial way. Looking forward through time, trying to make all the future people happy, stretches both our sympathies and our ability to predict what they will want. We need something less demanding and more achievable. A more parsimonious ethical assumption is to focus on the *next generation*, and to ensure that this next generation inherits a set of assets at least as good as we did.

There is, of course, nothing magic about the next generation, other than our direct connectivity with it. The next generation overlaps with us, and they are our children and grandchildren. They are those students in my lecture whom we met at the start of this chapter. It is easier to see why we might, as a matter of fact, care more for them than for subsequent generations.

By structuring our concerns in this way, a chain letter is created through the future generations, each concerned with its successor, giving something immediate and tractable to work with. We can be partial and at the same time take future generations into account,

going with the grain of human nature. We can assume with the philosopher David Hume that, for our practical purposes of designing the sustainable economy, human nature is pretty invariant, whilst at the same time not closing off the opportunity to shape future human nature through the way we educate the next generation.<sup>13</sup>

It is true that some decisions we should take now will have less of an impact on the next generation, but rather more on much later ones, like what we choose to do with our nuclear waste in the example above. It is notable that we are very bad at taking these very long-term decisions: nuclear waste remains largely unaddressed.

Until recently, this category of longer-term decisions included climate change and biodiversity loss. But that is no longer true. Climate change is already happening, and although it might get worse for subsequent generations after the next one, in practice the damage by 2050 and 2100 will be very significant unless dramatic actions are taken now by this generation. It is very real and very immediate.

Similarly with biodiversity loss. The Amazon is drying and dying, as are most of the other great rainforests. The tundra is thawing and the great rivers and oceans are heavily polluted. The time horizon to really serious consequences is concertinaed back to us and the next generation. If we fixed all these things for just the next generation, think what a massive achievement that would be. Expecting more is utopian.

This shortcut of focusing only on the next generation fits with the approach to many of our current environmental problems, and more generally in the provision of education and health and making sure we properly maintain and enhance the physical infrastructures. It makes the 2050 climate change target for net zero more appropriate (even if badly defined and unlikely to be achieved), and it encourages twenty-five-year environment plans. It is a timeframe we can make a difference within, and hence gives grounds for hope that environmental progress can be made.

The focus starts at home, with the nation, and hence on what can be done on a unilateral basis, and for the next generation, closer to us and linked through family and children, rather than in, say, 100 generations' time. However much Frank Ramsey might think that it

<sup>13</sup> Hume thought our natural generosity was limited in scope. See J.A. Harris (2015), *Hume: An Intellectual Biography*, Cambridge: Cambridge University Press, pp. 126–7.

should not matter when or where an individual lives, in fact it does to us in this generation. It is not a lack of imagination, as Ramsey claims, to treat future people as less important. On the contrary, it is a lack of understanding human nature *as it is* and the possibilities and limits to influencing it. Trying to construct an ethical theory and, worse, to propose actions and policies on the basis of it, without regard to human nature, is a serious mistake. Utopia can wait whilst we sort out the legacy for the next generation.

### Citizens and Their Capabilities

In narrowing the focus to the next generation, some things matter more than others. The utilitarian framework yields a narrow and simplistic vision of what makes people tick, and how they should behave, and underpins the consumerist approach to the economy and the environment. The sustainable economy treats people as *citizens*. Its citizens are not autonomous. Citizens are part of somewhere, of their specific society, and have entitlements, rights, duties and obligations from and to that society, now and in the future. Citizens have a location and a nationality. In democracies, they have an equal vote, and participate in political processes through some form of representative democracy. Consumers, by contrast, are ‘agents’ and have budgets, and income and wealth that define how much they can consume. They have these unequally.

Citizens’ human nature may be given, but their outlook is conditioned by the society in which they are embedded and is reflected through its history, its education system and its institutions. Germans save more and worry more about balanced budgets than the British because they have the historical experience of hyperinflation, defeat and destitution before, during and after two world wars. Many Americans still carry the concepts inherited from their puritan ancestors, whether they realise this or not.<sup>14</sup> Citizens exist in time and the history that has gone before them. They are not abstracted from time and history. Attitudes towards the environment and future people are similarly conditioned.

Our behaviour is not best understood by abstracting from time, as science does. Economics, despite its science envy, is not a science.

<sup>14</sup> See G. McKenna (2007), *The Puritan Origins of American Patriotism*, New Haven: Yale University Press.

There are no genuine controlled experiments: counterfactuals are always hypothetical. Behaviour happens in historical contexts and citizens' reactions vary over time according to their culture and society. They are not abstracted from time such that they can match Ramsey's impartiality between any point in time, and the state cannot be fully impartial between citizens now and at any future time.

If the culture turns towards being consumer-oriented, as was encouraged in the 1980s and 1990s with 'greed is good', yuppies, Porsches and get-rich lifestyles, citizens are likely to behave in more short-term and selfish ways, and quite differently to how they would have behaved had they had recent experience of war, as for example in the 1940s and 1950s. Consumption is a fashion which thrives in the context of low social capital. Famously, the behaviours of the super-rich of the Gilded Age in the pre-First World War US led Thorstein Veblen to describe their behaviour as conspicuous consumption,<sup>15</sup> an echo of Adam Smith's comment on the pursuit of baubles in eighteenth-century Britain by the very rich.<sup>16</sup> Think of the differing attitudes to slavery and women's rights at different times. Culture, media and political leadership do shape our behaviour.

Context dependency shapes the choices people make, and social capital is the way this can be framed. The liberal tradition leaves it to individuals to choose how to live their lives, and keeps the state out of trying to make them happy. Happiness is one dimension of a life well lived, and it is for each of us to choose how to go about this. This is John Stuart Mill's *On Liberty* negative concept of freedom from the state.<sup>17</sup> The trouble with this classical liberal tradition is it leaves out the questions of the capability of its individuals to make these choices in the specific historical and cultural contexts they find themselves in, and hence is insufficient to underpin citizens in the sustainable economy. Citizens need the resources, including the social capital, to be able to enjoy their freedom. Enabling citizens to choose

<sup>15</sup> T. Veblen (1899), *The Theory of the Leisure Class: An Economic Study of Institutions*, New York: Macmillan.

<sup>16</sup> A. Smith (1776), *An Inquiry into the Nature and Causes of the Wealth of Nations*, republished 1976, Oxford: Oxford University Press. See especially A. Smith (1759), *The Theory of Moral Sentiments*, republished 1976, Oxford: Clarendon Press, Part IV: 'Of the Effect of Utility upon the Sentiments of Approbation'.

<sup>17</sup> Mill wrote *Utilitarianism* at around the same time as *On Liberty*. The former can contradict the latter, as famously demonstrated in A.K. Sen (1970), 'The Impossibility of a Paretian Liberal', *Journal of Political Economy*, 78, 152–7.

requires positive freedom, following Isaiah Berlin's distinction set out in his *Two Concepts of Liberty*.<sup>18</sup> This is further brilliantly developed by Amartya Sen in his concepts of capabilities.<sup>19</sup>

The basic idea of positive freedom (as opposed to an exclusive focus on economic efficiency) is that the state has to do stuff to facilitate the capabilities, but not go further to guarantee equality of outcomes, and in doing this, the state should not focus on utility alone.<sup>20</sup> In this it is parsimonious: what the sustainable economy should do is make sure that citizens have the capacity to live good lives, and not focus on trying to make people happy.

The feature that the sustainable economy adds is to try to sort out which are the most important capabilities citizens need and how they can be delivered. These are the primary assets: housing, heating, energy, water, broadband, transport and so on. All of these depend upon a combination of public and private initiatives, and all depend upon the environment. The environment is not just another provider of goods and services (eco-services), to be consumed to make people happy (in utility terms). Rather, it is the essential building block for the citizens' capabilities, and one that the state should ensure is protected and enhanced. It is ensuring an equal entitlement to all these capabilities, and hence the assets that deliver them, that defines the economic objective of the state, not GDP.

It would be a great advance to make sure that all citizens just have access to some basic minimum level of these primary assets. There would be a health service and an education system that grants all citizens basic healthcare and basic education. It requires equality of access to these minimum thresholds necessary to have the capability to function, and that does turn out to be incompatible with the sorts of inequality that have emerged in the last forty years. It is a strictly limited impartiality, focused on these basic capabilities, and thereby addresses inequality and social justice obliquely.<sup>21</sup>

In the sustainable economy, these assets need to be provided not just to the current generation but to the next one. Sorting out how

<sup>18</sup> I. Berlin (1958), *Two Concepts of Liberty*, Oxford: Clarendon Press, reprinted in I. Berlin (1969), *Four Essays on Liberty*, Oxford: Oxford University Press.

<sup>19</sup> A.K. Sen (2009), *The Idea of Justice*, London: Allen Lane.

<sup>20</sup> A.K. Sen (1980), 'Equality of What?', reprinted in A.K. Sen (1982), *Choice, Welfare and Measurement*, Oxford: Basil Blackwell.

<sup>21</sup> See J. Kay (2010), *Obliquity: Why Our Goals Are Best Achieved Indirectly*, London: Profile Books.

to do this is at the heart of the design of the sustainable economy, and what the subsequent chapters set out.

## The Next Generation's Inheritance

Now that we have a focus on the next generation, and on citizens rather than consumers, we are in a position to set out what the underlying ethic of the sustainable economy is – what it is for and what it aspires to deliver.

A good starting point is the United Nations' (UN) 1987 Brundtland Report's definition of sustainability, which set the scene for the focus on sustainability and the great burst of UN activity on climate change.<sup>22</sup>

The Brundtland Report famously defined sustainability as: '[meeting] the needs of the present without compromising the ability of future generations to meet their own needs'.<sup>23</sup> As befits a UN report, this definition is wide-ranging and all-embracing. To drive the sustainable economy, it needs to be narrowed down. The sustainable economy focuses on the needs of the present without compromising the ability of the *next generation* to meet their own needs, and interprets the 'needs' as capabilities to choose how to live their lives. This first principle of the sustainable economy is what should be incorporated into its constitution.

This principle needs operationalising, to sort out what this all means for the design of the sustainable economy. Primary assets necessary to meet this requirement have to be identified, and especially the basic natural capital which underpins the economy. It is all about assets, not utility, as enablers for citizens by giving them the capability to choose how to live their lives, consistent with not undermining the opportunities for the generation that follows.

The place to start is with the assets that matter most, and upon which everything else depends. This is natural capital. Natural capital is what nature gives us for free. It is not practical or sensible to

<sup>22</sup> This activity included the setting-up of the Intergovernmental Panel on Climate Change and culminated in the UN Framework Convention on Climate Change (the UNFCCC) and all the COPs since then, from Kyoto (in 1992) to Glasgow (in 2021).

<sup>23</sup> United Nations (1987), 'Report of the World Commission on Environment and Development: Our Common Future' (the Brundtland Report), Part 1, section 3, para. 27, <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.

keep every bit of natural capital intact, and to do no damage. Humans' very existence involves doing damage. To date, we have pillaged and raped nature to our own short-run advantage, with little or no concern about the longer-term consequences. That will not do anymore. In the sustainable economy, we need to make sure that when damage is done, something else has to improve, so the overall state of the climate and biodiversity does not go backwards. Attaining zero emissions is implausible, and so is zero loss of biodiversity. It is the *aggregate* of natural capital that has to be protected.

As set out in detail in my book, *Natural Capital*, the rule that follows is that the aggregate level of renewable natural capital should be kept at least constant, and there should be *general* primary asset compensation for the depletion of non-renewables. Renewable natural capital is the stuff that is alive, and which reproduces itself, whilst non-renewables are things like minerals, which are dead and non-regenerative.

We could go further, demanding not only that the aggregate level of renewable natural capital should be kept at least constant, but also that the value of the economic rents from the depletion of non-renewable natural capital should be re-invested in renewable natural capital.<sup>24</sup> Aggregate natural capital rules require special attention to be paid to the maintenance and enhancement of renewable natural capital.

The two types of natural capital are crucial determinants of the assets that provide the capabilities of the next generation to choose how to live their lives. Without a stable climate and without lots of biodiversity, human life is going to be tough, and the next generation rule will not be met. But these two types of capital are not the only ones. They are necessary but not sufficient.

The next generation will need the other capitals too, all ultimately dependent on natural capital. These include energy systems, water and sewerage systems, transport systems and fibre and broadband communications systems. They will also require educational and health systems, a supporting research and development (R&D) infrastructure and human and social capital. Together with natural capital,

<sup>24</sup> Helm, *Natural Capital*, chapter 3, and especially p. 64. There is considerable overlap between these two rules and the concepts of strong sustainability and weak sustainability in the wider environmental literature. See R.M. Solow (1993), 'An Almost Practical Step towards Sustainability', *Resources Policy*, 16(3), 162–72; and J.M. Hartwick (1977), 'Intergenerational Equity and the Investing of Rents from Exhaustible Resources', *American Economic Review*, 67(5), 972–4.

these give the next generation access to participating in their society and economy. An economy is made up of these systems, and it is the sustaining of these systems that provides the main obligation on this generation to the next.

Combining the other capitals with natural capital makes the rules of the sustainable economy more comprehensive so that all the aggregate levels of all the primary capitals should be kept at least constant. Because it is about aggregates, it means that, where there is damage, it must be compensated for.

If these rules are met, the environment will be in a much better state, and the citizens of the next generation will have the main capabilities to choose how to live their lives. Yet even this is not enough: citizens of the next generation also need income to cover the necessities and a social infrastructure. Some element of basic income has to be added.

All of these capitals need to be properly defined, as does basic income, to turn these abstract requirements into practical economic policies. Subsequent chapters explain how the capital assets are selected, how they are accounted for and what it means to maintain them to meet our obligations to the next generation, and how a basic income can contribute to social justice.

## **A Radical Departure**

The sustainable economy requires a radical departure from conventional economics. The approach is not based upon utility and utility-maximising agents, but rather on citizens. It is not based upon GDP and flows, but rather upon assets and capabilities. It is not based upon pure impartiality, but rather it is parsimonious in the assumptions it makes about the future. It is parsimonious too in its focus: it is not focused on all possible future people, just the next generation. It is this scaffolding upon which the components of what it takes to meet the first principle can be constructed, requiring us to ensure that the next generation has capitals at least as good as those we inherited, and especially renewable natural capital. The need to be parsimonious is further necessitated because of our uncertainty about what the future holds for us and the next generation, and this uncertainty reinforces the focus on assets and capabilities rather than on utility and happiness. It is this uncertain context to which we now turn.