



# Sharing remaining carbon emissions: what is fair?

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*This paper is based on a round table discussion with the following participants: Andrew Smith, Cameron Hannah, Chris Sutton, Colin Wilson, Esther Rousay, Gowri Kotur, Mike Clark, Roelof Coertze and Tim den Dekker. It was reviewed by the round table participants.*

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## Introduction

In order to meet the net zero goal that supports the Paris Agreement, global emissions will have to be drastically reduced over the coming years. In fact there is a limit on the remaining amount of emissions that the atmosphere can absorb before the global temperature rise will move above the agreed bounds – this limit is the remaining carbon budget<sup>1</sup>. Global emissions will have to be cut drastically to stay within the budget.

The question that this paper considers is how the remaining carbon budget should be allocated, and what might be considered “fair” in this context.

## Fairness isn't simple

Most people would agree that the allocation should be fair but wouldn't necessarily agree on what would constitute fairness in this context. For example, are the following scenarios fair or unfair?

- Until now, the lion's share of global emissions has come from the global north, and it is those countries and the people in them that have primarily benefited from them, while the

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<sup>1</sup> See [https://en.wikipedia.org/wiki/Carbon\\_budget](https://en.wikipedia.org/wiki/Carbon_budget) . Of course, we have only estimates of the carbon budget, and it may already be zero (or even less).

countries and people in the global south are now suffering as a result. The global north should therefore make drastic cuts to its emissions, allowing the global south to continue emitting at current rates in order to make up some of the lost ground.

- Climate change affects us all, so we should all play our part in preventing it. Every country should therefore cut its emissions by the same proportion.
- People in the global north are used to their current lifestyles, and it would be unfair to expect them to downscale their expectations if people in the global south made no equivalent sacrifice.

It is clear that there are a number of approaches to fairness<sup>2</sup>. The possibilities include:

- Equivalence of outcome
- Equivalence of contribution
- Equal access to benefit
- Allocation according to need
- Allocation according to merit
- Consideration of relative costs or absolute costs

The point is that these are all more or less important depending on both the context and the perception of the observer. In addition, the timescale over which fairness is considered is important. Is it fair to expect sacrifices now for benefits in the future, or indeed the past? And it is the perception of fairness that matters. When your child complains “That’s not fair!” they are probably right in some sense, as it is generally speaking impossible to be fair along all possible dimensions.

## Fairness between whom?

Fairness is often considered in the context of different groups of people – such as fairness between different generations, different socio-economic categories, or people living in different geographic locations – but perceptions of fairness aren’t necessarily consistent with those groups. People can feel that they are being treated unfairly with respect to people in the same group, or treated unfairly even though the group as whole is treated fairly.

In life insurance and pensions, for example, fairness is often considered in the context of fairness between groups of policy holders or scheme members determined by characteristics such as age, membership duration, or policy type. Typically, the median outcomes for the various groups will be compared in order to determine fairness. But of course there are members of each group for whom the outcomes are very far from the median – is it reasonable for an outside observer to say that they are being treated fairly? Moreover, there are usually many possible groupings that could be used.

In the context of carbon emissions, there are also many possible groupings that we could use, including most obviously countries – but even within a single country, emissions vary widely by income.

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<sup>2</sup> See, for example, *Readjusting the rations: Report of the financial inequality working party 2014*, paper presented at GIRO <https://www.actuaries.org.uk/system/files/documents/pdf/b2-wp-inequality-full-paper-final.pdf> which identifies two conflicting fairness benchmarks in the context of intergenerational fairness in actuarial funds, and *Revolutionising fairness to enable digital insurance: “think” paper* by Duncan Minty published in January 2023 <https://actuaries.org.uk/media/z5rh5jhl/revolutionising-fairness-to-enable-digital-insurance.pdf> which identifies five dimensions of fairness to consider in insurance.

## Fairness in society

In the eighteenth and nineteenth centuries philosophers such as Adam Smith, Jeremy Bentham and John Stuart Mill advocated utilitarianism<sup>3</sup>, which aims to maximise well-being and happiness for the greatest number of people. Utilitarianism focuses on outcomes, but does not necessarily result in fairness. Indeed, it could be seen as inherently unfair, in that it can require sacrifice by the few for the good of the many<sup>4</sup>.

More recently, John Rawls proposed a theory of “justice as fairness” that essentially characterises fairness as maximising the position of the worst off<sup>5</sup>. This approach is certainly consistent with many peoples’ intuition but does not necessarily specify the dimension along which fairness should be considered (though consideration of outcomes is possibly implied). A similar problem arises with a definition from Angie Hobbs: fairness consists of attributing to each his or her due – each person is of equal worth and should have the opportunity – ideally, an equal opportunity – to access goods, but most of the goods themselves will be proportionally distributed, according to need in some cases and merit in others<sup>6</sup>.

An interesting aspect of Rawls’s theory is that he doesn’t privilege the outside, unbiased observer. Often we discount the views of the people actually affected, by saying that they clearly have a conflict of interest and thus are not in a position to judge the fairness or otherwise of a proposal or event. But if everyone involved is satisfied that it is fair, there seems no reason for anyone else to say that it is not – that is, for example, the basis of the “I cut you choose” cake-cutting method<sup>7</sup>. When looking at a proposal, Rawls suggests that you should imagine that your worst enemy assigns you to a group. The idea is that you would then try to maximise the position of the worst affected group. You could see this as trying to minimise the maximum level of disgruntlement.

## Why fairness is important

The reasons that fairness is considered in insurance and pensions include legal and regulatory requirements, reputational and commercial issues, and, especially in the case of mutual insurers and pension schemes, the moral and ethical responsibilities of the directors or trustees. An insurer that is consistently perceived as treating groups of policyholders unfairly is unlikely to remain in business over the long term.

In the context of carbon emissions, there are no legal or regulatory drivers for fairness. However, there is strong link between fairness and the long term sustainability of our planet. There is no reason to suppose that groups of people who perceive the emissions levels that are demanded of them as unfair

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<sup>3</sup> See <https://en.wikipedia.org/wiki/Utilitarianism> or *Utilitarianism: A Very Short Introduction*, by Katarzyna de Lazari-Radek and Peter Singer (OUP).

<sup>4</sup> An extreme example is described in Ursula K Le Guin’s short story *The ones who walk away from Omelas*, in which the prosperity and happiness of a utopian city depend on a single child being tortured and kept in misery.

<sup>5</sup> See, for example, [https://en.wikipedia.org/wiki/John\\_Rawls#A\\_Theory\\_of\\_Justice](https://en.wikipedia.org/wiki/John_Rawls#A_Theory_of_Justice), [https://en.wikipedia.org/wiki/Justice\\_as\\_Fairness#Difference\\_Principle](https://en.wikipedia.org/wiki/Justice_as_Fairness#Difference_Principle), <https://contemporarythinkers.org/john-rawls/introduction/> and an excellent “In Our Time” episode (<https://www.bbc.co.uk/programmes/m001h4bz> )

<sup>6</sup> See [http://news.bbc.co.uk/today/hi/today/newsid\\_9079000/9079254.stm](http://news.bbc.co.uk/today/hi/today/newsid_9079000/9079254.stm)

<sup>7</sup> See [https://en.wikipedia.org/wiki/Divide\\_and\\_choose](https://en.wikipedia.org/wiki/Divide_and_choose) .

will actually deliver those emissions levels. Any proposal that is seen as unfair by significant numbers of people is thus unlikely to achieve the desired outcome.

## Conclusion

Given the complexities surrounding fairness, as outlined above, there is often no simple answer to questions such as “what would be a fair allocation?” or even “is this allocation fair?” and this is certainly true in the context of the carbon budget. However, there is often agreement on the need for fairness, and frequently an agreement that some allocations are definitely unfair – in other words, there is frequently a (possibly very wide) range within which it is agreed that fairness lies. Decisions thus become political at the societal level, and strategic at the corporate level: what approach to fairness is desirable, and what the trade-offs are between fairness and other considerations such as cost and risk.

Actuaries can contribute to the discourse around these decisions by analysing the fairness of the various options along different dimensions and by looking at the perceptions of fairness from the points of view of different participants. To do this we need to develop a framework that we can apply to questions of fairness in whatever context they arise, building on the work that we currently do in pensions and insurance. Given the importance of perception of fairness, we must recognise the range of possibilities for all the people under consideration, and present decision makers with clear summaries of who might consider themselves unfairly treated in various scenarios. Actuaries can also have a role in educating decision makers and others about the wider impact of unfairness. Unless there is widespread understanding that fairness is a necessary component of any viable course of action there is a danger that our planet will remain unsustainable.

One aspect that is especially important is that society as whole, and hence those who make the decisions, changes its view of fairness over time. We are increasingly seeing a broader range of people who are considered to be stakeholders, and whose fairness should therefore be considered to a greater or lesser extent. Our established legal, political and other systems do not always keep pace with societal attitudes, and this has implications for future verdicts on the fairness of current decisions. Those making those decisions, and those advising them (including actuaries), may therefore wish to take a forward looking view.