

Should I offset or should I do more good?

H. Orri Stefánsson
Stockholm University
Swedish Collegium for Advanced Study
and Institute for Futures Studies
orri.stefansson@philosophy.su.se
www.orrstefansson.is

Abstract. Offsetting is a very ineffective way to do good. Offsetting your lifetime emissions may increase aggregated life expectancy by at most seven years, while giving the amount it costs to offset your lifetime emissions to a malaria charity saves in expectation the life of at least one child. Is there any moral reason to offset rather than giving to some charity that does good so much more effectively? There might be such a reason if your offsetting compensated or somehow benefitted the victims of your emission, since that could mean that you would satisfy the duty not to harm others by emitting and offsetting. But that is typically not true. If your emission harms some person and your offsetting benefits some person, then these are most likely different people. Hence, I conclude, we have a stronger reason to give to effective charities than we have to offset our emissions.

1. INTRODUCTION: THE INEFFECTICACY OF OFFSETTING

Offsetting has been defended as a very cheap way for individuals to act justly despite causing the emission of harmful greenhouse gasses (GHG). ‘If you successfully offset all your emissions, you do no harm by emissions,’ John Broome (2012: 85) for instance claims, before adding: ‘You therefore do no injustice by them.’ This may seem like good news to many morally conscientious individuals. An average American is, for instance, said to emit around 1,200 tonnes of GHG over their lifetime. To significantly reduce that emission would be quite burdensome for most people, since it would, for instance, require them to radically change their consumption and modes of transportation. But the most cost-effective offsetting charities can apparently offset 1,200 tonnes for no more than \$6,000 (MacAskill 2015: 173),¹ which translates into around 20¢ per day.² For many (perhaps most) people, it would be much less burdensome to pay 20¢ per day than to radically change their way of life.

¹ Giving What We Can judged Cool Earth to be the most cost-effective offsetting charity. Giving What We Can’s “best guess estimate” was that it costs Cool Earth \$1.34 to offset a tonne, but with added margins of errors MacAskill ends up with the figure of \$5 per tonne (MacAskill 2015: 170-173). Most serious offsetting providers however charge about \$15 to offset a tonne of CO₂. (See, e.g., <https://cotap.org/offset-co2-by-the-tonne/>, accessed September 2021.) In any case, the conclusion below would still remain even if the “best guess estimate” turned out to be correct: offsetting is not an effective way to do good.

² This assumes the US life expectancy at birth, which is currently 78.43 years. (<https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=US>, accessed September 16 2021).

Offsetting is however a notoriously ineffective way to do good, as Broome in fact acknowledges (e.g., 2012: 66, 81; 2013: 9). As I shall explain in section 3, offsetting the lifetime emission of an average American results in an aggregated increase in life expectancy (for billions of people) of at most seven years and possibly as little as six months. In other words, by buying offsets from the most cost-effective offsetting charity, you can expect that \$6,000 save between half and seven life-years in total.

In contrast, the cost of saving a whole life by giving to the Malaria Consortium is estimated by GiveWell to be \$3,000-\$5,000. (The same is true for the Against Malaria Foundation.)³ The majority of those who die from malaria are children under the age of five living in sub-Saharan Africa⁴ where life expectancy at birth is currently around 62 years.⁵ So, for the \$6,000 that it may cost to offset your lifetime emissions you can expect to save one to two lives by giving the money to the Malaria Consortium, compared to saving in expectation at most 7 life-years if you use the money to offset; moreover, most lives saved from a malaria death result in an expected gain of over 57 life-years. So, even if the above empirical assumptions are not *exactly* correct, it should be evident that you should expect to save many times more life-years by giving \$6,000 to a malaria charity than by using the money to offset.

Now, both offsetting and giving to a malaria charity have expected benefits that are not measured in (human) life-years-saved. For instance, offsetting may benefit non-human animals, while treating and especially preventing malaria infections in children can improve their IQ (Fernando et. al 2010) which might not translate directly into life-years-saved. But, in light of the vast difference in life-years-saved, it seems unlikely that such benefits would reverse the finding that giving to a malaria charity does good more effectively than offsetting. That is not to say that it would necessarily be better if *everyone* gave to a malaria charity than if *everyone* offset their emissions. But I shall take for granted that when engaging in moral reasoning about an alternative, an agent should be asking what would happen if *they* chose the alternative, not what would happen if *everyone* chose a similar alternative.⁶

³ <https://www.givewell.org/charities/top-charities> (accessed August 25 2021). GiveWell is a non-profit organisation that ranks charities in terms of their cost-effectiveness.

⁴ <https://www.who.int/publications/i/item/9789240015791> (accessed August 25 2021).

⁵ <https://www.statista.com/statistics/805644/life-expectancy-at-birth-in-sub-saharan-africa/> (accessed August 25 2021).

⁶ For instance, it is evidently morally permissible to choose to study (only) philosophy at university, even though it would be morally disastrous if everyone did it (as we would then have no doctors, no engineers, etc.).

In light of the above finding, is there any moral reason to offset rather than giving to the Malaria Consortium? More generally, do we ever have a moral reason to offset instead of doing more good? Broome (2012, 2013) argues that we do have such a reason. “Should you not take the money you would have used for offsetting, and instead send it to a charity that will make better use of it?”, Broome (2012: 91) asks. His reply: “You should not. If you did, you would be acting unjustly by emitting greenhouse gas that harms people. True, you would be doing more good, but morality does not normally permit you to act unjustly for the sake of doing greater good” (ibid.).

In section 5, I criticise Broome’s argument. I argue that since, on Broome’s account, we have a duty to limit our GHG emission grounded in the general duty (of justice) not to harm others—a duty that is owed to specific people—this duty cannot be met by emitting and offsetting. In a nutshell, the argument against Broome is that we have no reason to believe that *if* we harm someone by our emission, then our offsetting will compensate nor more generally benefit that same person. So, we fail to do what we owe to that person, even though we offset all of our emissions.

My examination of Broome’s argument leads me to the conclusion that, first, we do not meet our justice-based climate duties by offsetting, and, second, given what Broome argues, we have no reason to offset *rather than* doing good in ways other than offsetting. The reason is that, contrary to what Broome claims, it seems to follow from his argument that any moral reason we have for offsetting is (almost) entirely based on our consequentialist duty to do good (which Broome calls our “duty of goodness”), which is independent of whether or not we happen to have emitted. Moreover, as explained above, there are charities that do good *much* more effectively than offsetting does. Thus, although we may have *a* reason to offset, we seem to have a *stronger* reason to give to a more effective charity. After considering Broome’s argument I briefly respond to a recent argument by Christian Barry and Garrett Cullity (2022), which, I argue, leads to a similar conclusion.

It might be worth emphasising that my argument assumes that we hold fixed the amount that you emit. Thus, the two (related) questions that this article seeks to answer is, first, given that you emit, can you satisfy your duty of justice not to harm others by offsetting? Second, given that you emit, do you have a stronger moral reason to offset your emissions than you have to give to charities that do good more cost-effectively than offsetting does? My conclusion is that since the answer to the first question is “no”, the answer to the second question is also “no”. In other words, independently of whether you have emitted GHG or

not, you have a stronger moral reason to give to effective charities than you have to pay for GHG offsetting.⁷

2. OFFSETTING

Before discussing the ethics of offsetting in more detail, it is useful to get clear on what offsetting is.

When we offset the greenhouse gas emission caused by an activity, we pay someone to do things to ensure that the amount of GHG in the atmosphere remains the same as what it would have been had we not engaged in the activity in question. Several companies offer this type of service, and promise to offset everything from an individual flight to a whole life. In theory we could do the offsetting ourselves, rather than paying someone else to do it, but in practice that is infeasible for most of us.

There are two types of GHG offsetting. One type, which Barry and Cullity (2022) call *offset by sequestering*, consists in removing GHG molecules from the atmosphere. The most common way to do so is by planting trees. It is possible to mechanically remove carbon dioxide from the atmosphere and turn it into rocks, but that is still very expensive and too water-intensive to be feasible in most parts of the world. The other type, which Barry and Cullity (2022) call *offset by forestalling*, consists in preventing others from emitting GHG. Examples include funding green energy, paying others to use clean energy when they otherwise would not have done so, and providing households in developing countries with energy efficient cooking facilities.

Offsetting is currently very cheap. There are two main (related) reasons for this (Broome 2012, Spiekermann 2014). On the one hand, many of the projects that offsetting pays for take place in developing countries, where for instance labour and land is cheaper than in richer countries. On the other hand, and relatedly, there is still very little demand for offsetting, which keeps the price low. If more people chose to offset, then it would no longer be possible to meet the demand with only cheap offsetting projects, e.g., in developing countries, and the price would rise. But given the current low demand one can, for instance, offset a return flight between London Heathrow and Stockholm Arlanda for as little as \$18, and an average American can offset their lifetime emission for as little as 20¢ per day.

⁷ I will only be considering offsetting by individuals, not by companies or countries, and I will not discuss the related practice of engaging in a cap-and-trade system.

It is important to keep in mind (since it will prove important for the below argument) that when you offset, say, a Sunday drive, you do not prevent emission from *that* drive. Moreover, even if you offset the emission from a Sunday drive, there will inevitably be some time (in particular, immediately after the drive) during which there is more GHG in the atmosphere than there would have been had you not gone for the drive (keeping everything else fixed). Nevertheless, by offsetting, the hope is that in the long run, or on balance, you cause no more GHG to be added to the atmosphere than had you not gone for the Sunday drive. The issue is somewhat more complicated when it comes to financing already started (perhaps even completed) offsetting projects (that were, say, originally financed by loans). But the hope is that by doing so, you contribute to the continuation of the offsetting market, and encourage companies to continue selling offsets. So, by offsetting all your emissions, the hope is that you cause no more GHG to be added to the atmosphere than had you never existed; thus, you cause zero *net* GHG emission (and achieve ‘carbon neutrality’).

3. YOUR EMISSIONS RISK HARMING OTHERS

The perhaps by now best-known defence of the ethics of offsetting is developed by Broome (2012, 2013), and is based on the harm that you cause others, or at least risk causing others, when you emit greenhouse gas. Now, some philosophers question the claim that the GHG emissions associated with a typical person’s actions harm others (e.g., Sinnott-Armstrong 2005, Sandberg 2010, Kingston and Sinnott-Armstrong 2018, Budolfson 2019). I shall assume (for the sake of the argument) that these ‘individual denialists’, as Broome (2019) calls them, are wrong. In fact, I shall take for granted that many of our individual actions—such as flying to Paris for the weekend or going on a Sunday drive in a gas guzzling SUV—*unjustly* risk harming others, due to their associated GHG emissions.

The estimates differ as to how much expected harm is caused by a typical person’s emissions. And, of course, any such estimate will be highly uncertain. To take a few prominent examples, Nolt suggests that the ‘average American’ causes, through their lifetime GHG emission, ‘the serious suffering and/or deaths of two future people’ (Nolt 2011: 9).⁸ Broome (2021), however, finds that the ‘amount of killing’ done by an average American’s

⁸ Strictly speaking, Nolt only made the following *conditional* claim, without explicitly defending the antecedent: ‘If over the next millennium as few as four billion people (about 4%) are harmed (that is, suffer and/or die) as a result of current and near-term global emissions, then the average American causes through his/her greenhouse gas emissions the serious suffering and/or deaths of two future people.’ (Nolt 2011: 9)

emission amounts to between 0.5 and 7 life-years. In earlier work, Broome pointed out that based on some prominent estimates of the social cost of carbon, ‘the harm [due to GHG emission that] you do over a lifetime ranges between \$19,000 and \$65,000’ (2012: 75). In that same work he also estimated the ‘amount of killing’ to be six months. Finally, a recent study finds that the lifetime emissions of 3.5 average Americans is expected to cause one excess death globally between 2020-2100 (Bressler 2021).

I do not know which of these estimates are correct, or most relevant, when evaluating the harm done by your emissions.⁹ In fact, the precise estimate does not matter much for my argument. So, I shall simply assume that Broome is right in that the expected harm associated with your lifetime emission is *at least* the loss of six months of life, and possibly up to seven life-years. Now, these months are very thinly spread. The assumption is not that your emission is likely to cause someone to die, say, half a year earlier than they otherwise would. Rather, the assumption is that your lifetime emission is expected to cut lives short by at least six months *in total*, that is, when your emissions’ effect on the length all people’s lives has been aggregated. Most likely your emissions will not kill anyone, but possibly it will end up killing several people, for instance by causing a storm or a drought.

Some might think that since the *expected* harm for each person is tiny, if the above assumption is correct, the expected harm in question is morally insignificant and can be ignored. I shall assume, for the sake of the argument, that that is not correct. Note that I need not assume that *imperceptible* harms are morally significant (nor that there are imperceptible harms).¹⁰ For even a shortening of a life by only a few seconds is perceptible. Nor need I assume that if only one person imposes a tiny expected harm, then that is morally significant. When it comes to the expected harms associated with your emissions, you are not alone. We who for instance travel and drive non-electric cars are all causing such harms. My assumption is that each of these expected harms is morally significant, but I shall remain agnostic about whether each such expected harm would be morally significant if only one person inflicted such a harm.

On the face of it, at least, many of these harms seem *unjust*. In general, justice requires that we neither harm nor risk harming others except in special circumstance that don’t seem

⁹ For the sake of simplicity, I shall use the phrase ‘your emissions’ to refer to the emissions that you cause, and I will try to sidestep any controversies about the metaphysics of causation.

¹⁰ For discussion, see, e.g., Parfit (1984), Kagan (2011), Nefsky (2011), and Broome (2019).

to apply to most of our GHG emission (Broome 2012: 54-59).¹¹ One fact that makes our GHG emission particularly hard to justify, is that the people who suffer most from climate harms do certainly not deserve them, namely, poor people in developing countries who do not imposing a similar risk of harm on us. Another fact that makes our emission hard to justify is that the aforementioned harms are often associated with actions that we do merely for our own pleasure (e.g., going for a Sunday drive or flying to Paris for the weekend), and these acts could be avoided at little cost to us. This is not true of *all* emission, however. But, to keep things simple, I shall not attempt to draw a sharp distinction “luxury” emissions and sustenance emissions. Most of what I say will however be most applicable to the former type of emission, informally, emission that a person could reasonably avoid.

Moreover, *pace* Nefsky (2021), I do not think that any particular act of (luxury) emission is any less unjust even though the actor acts justly most of the time, or “*enough* of the time” (2021: 212), as she puts it. Nor would such an act be any less unjust even though the actor generally acted more justly than, say, other people like her (e.g., other westerners). When evaluating the permissibility of an individual act of emission, what is relevant is not how the actor in general compares to others nor how she generally acts, but whether and to what extent the act in question harms others or can be reasonably expected to harm others who have a right not to be harmed (see, e.g., Hiller 2011: 360). In general, we wouldn’t say that a person who typically behaves morally correctly, even supererogatory, is justified in occasionally harming others for her own pleasure.

4. BROOME ON JUSTICE AND OFFSETTING

Because of the above-discussed harms caused by the emissions of greenhouse gasses such as carbon dioxide, Broome (2012) argues that we have a *justice-based duty* to have a zero-carbon footprint.¹² Justice demands that we do not harm others and that we do not risk harming

¹¹ As Avram Hiller (2011: 352) puts it: ‘it is *prima facie* wrong to perform an act which has an expected amount of harm greater than another easily available alternative’. As Hiller argues, this principle implies that much of our daily emission is wrong, but it does not imply that all emission (e.g., that caused by boiling a pot of water) is wrong, neither *prima facie* nor all things considered.

¹² Although Broome claims that we have a duty of justice to have a *zero-carbon* footprint (see, e.g., 2012: 81), other remarks he makes may suggest that he thinks that we could justly have some positive carbon footprint. For instance, he seems to suggest that the those very poor people ‘who cannot help releasing the meager quantity of greenhouse gas that they do release’ and who ‘have to burn fuel to survive’ (2012: 58-59) are justified in doing so even if the associated GHG emission risks harming someone. Perhaps the most charitable reading of his demand that we have zero-carbon footprint is that we have zero-carbon *luxury* footprint. (I thank a reviewer for this journal for making me see the need to address this.)

others—except given certain conditions that (as previously explained) most of our emissions do not satisfy. Therefore, justice demands that we be carbon neutral.

Such justice-based duties are owed to specific persons.¹³ In this they differ from what Broome calls ‘duties of goodness’, that is, general duties to do good. For instance, I owe you that I don’t harm you. Correspondingly, you have a right not to be harmed. Therefore, I cannot satisfy this (justice-based) duty by harming you while preventing your friend from being harmed. ‘Your duty to have zero carbon footprint does not derive from your duty of goodness,’ Broome (2012: 81) says. ‘You must do it to avoid injustice’. As such, he argues, the duty in question is a duty owed to specific persons.¹⁴ Moreover, when it comes to the actions of individuals, duties of justice are typically weightier than duties to do good, Broome thinks. So, you are generally not permitted to harm another person for the sake of improving the world (e.g., 2012: 91).

On the face of it, this demand of justice might seem very strong. Most things we do and consume require GHG emission, so not causing any emission at all would seem near impossible. However, as previously mentioned, Broome thinks that one can easily meet this demand by offsetting everything one emits. By doing so, one satisfies one’s justice-based duty to be carbon neutral: ‘If you successfully offset all your emissions, you do no harm by emissions. You therefore do no injustice by them’ (2012: 85). He also claims that by doing so, your emissions do not harm *anyone*: ‘If you offset all your emissions [...], you make sure that your presence in the world causes no greenhouse gas to be added to the atmosphere. You therefore do no harm to anyone through your emissions’ (2012: 87). William MacAskill has similarly suggested that ‘offsetting prevents anyone from ever being harmed by your emissions’ (MacAskill, 2015: 174).

In the next section I shall argue that Broome and MacAskill are mistaken. Even if you offset all your emissions, you may well harm some people, without compensating them,

¹³ Now, some of the people who might be harmed by the effects of your emission are people who are not yet born and whose existence might depend on your emissions, which means that we have to face Parfit’s (1984) *non-identity problem*. (I thank a reviewer for this journal for encouraging me to address this issue.) But although this problem to some extent complicates the picture, it doesn’t completely change it, since *many* of those who might be harmed by your emission do not owe their existence to your emissions. In fact, many of them are already born! (See, e.g., Bressler 2021.)

¹⁴ Actually, Broome (2013: 6) also seems to suggest that the duty to not harm people is a duty owed to specific persons *whether it is a duty of justice or not*. That would mean that it is not really important for my argument whether we classify the duty not to harm (and the duty not to risk harming) as a duty of justice or as a duty of goodness. What matters, for my purposes, is that the duty not to harm is a duty owed to specific persons. Nevertheless, I shall continue to assume that the duty in question is a duty of justice, which implies that it is a duty owed to specific persons; but strictly speaking I only need to make the weaker and implied assumption.

through your emission. Therefore, I argue, *if* you have a justice-based duty, grounded in your duty not to harm others, to be carbon neutral, then you don't act justly when you emit and offset.

5. AGAINST BROOME ON OFFSETTING

As discussed in detail by, e.g., Morgan-Knapp and Goodman (2015)—and, in fact, recently discussed by Broome too (in his 2019)—even comparatively small differences in the concentration of greenhouse gas can cause extreme and potentially harmful weather events, such as storms, floods, droughts, etc. Another way to put this, is that the distribution of extreme weather events is surprisingly sensitive to small difference in GHG. Some (e.g., Morgan-Knapp and Goodman) like to describe this in terms of ‘meteorological thresholds’: when GHG concentration, or the corresponding temperature, passes a threshold, it causes some extreme weather event. Such a description is possibly a bit misleading, though, since it may give the impression that the event in question is sure to occur if the threshold is passed. But that is not true. Rather, for each increase in the concentration of GHG in the atmosphere (at least given the current and relevantly close levels), there is a chance that *that* increase causes an extreme weather event. But this relationship between extreme weather events and greenhouse gas is probabilistic, and it is not true that some particular act of emission will or will not *for sure* cause such an event.¹⁵

Importantly, however, the risk from, say, going on a Sunday drive in a gas guzzling SUV is *asymmetric*, in the sense that it is more likely to cause a climate-related harm than it is to prevent such a harm (Morgan-Knapp and Goodman 2015). Increased GHG concentration is correlated (at least given the current and relevantly close levels of concentration) with extreme weather events, such as storms, floods, and droughts. Therefore, although we cannot know whether a particular emission will cause such an event, or instead prevent such an event, or have no effect on any such event at all, we do have reason to believe that the emission is more likely to cause such an event than to prevent it. Acts that emit GHG are thus different from an act such as going for a walk, which *in theory* could (some think) cause an extreme weather event, but which is just as likely to prevent such an event, and where, moreover, the set of potential victims of the two events is the same.

¹⁵ I am grateful to Frida Bender for an enlightening discussion of the issues in this paragraph.

Furthermore, recall that by offsetting an individual action, one is not preventing emission from *that* action. By emitting and offsetting you can in fact be almost certain that there is a period (in particular, immediately following the emission) at which there is greater concentration of GHG in the atmosphere than there would have been had you not emitted. If the offsetting is successful, it nevertheless means that in the long run your being in the world leaves the concentration of GHG unaffected. But since your emission and offsetting affects the concentration of GHG in the atmosphere, even if only periodically, it changes a state of the atmosphere that, due to the previously discussed sensitivity, may well affect the weather in some way; causing some extreme weather events and preventing others. This in turn will affect the occurrence or not of later extreme weather events. As a result, the pattern of such events over, say, the next hundred years will be different from what it would have been without your emission and offsetting. Therefore, the distribution of *harm* caused by such events will also be different. So, some people will be harmed who would not have been harmed had you not emitted and offset.¹⁶

It might be worth emphasising that the above is true even if the offsetting takes place *before* your emission. To take an extreme case, suppose that a conscientious super baby decides to offset all of their future emissions (and successfully does so). Twenty years later, they go for a Sunday drive. Because of the aforementioned sensitivity, and, in particular, due to the probabilistic relationship between the occurrence of extreme weather events and the amount of greenhouse gas in the atmosphere, it is possible that the Sunday drive causes an event that harms someone. And, of course, this may well happen despite the fact that there was less concentration of GHG *before* the Sunday drive than there would have been had the offsetting not taken place. It is possible, though, that the baby's offsetting had already prevented some harmful weather event, that is, some harmful event that would have occurred before the Sunday drive in question had the baby not offset. But that doesn't change the fact that the emission due to the Sunday drive may end up harming someone who would not have been harmed had it not been for this drive. Moreover, there is no reason to think that those who would have been harmed had it not been for the baby's offsetting and those who are harmed by the Sunday drive (if anyone is harmed by the drive) are the same people.

¹⁶ I am very grateful to John Broome for having helped me improve my criticism of his argument by suggesting (something close to) the formulation of the argument in this paragraph.

Here is another way to argue for the same conclusion. When you emit and offset it is the case that (and you moreover have reason to believe that) there is some (presumably quite fine-grained) partition \mathbf{P} of the possibility space into events such that:¹⁷

- There is a (presumably fine-grained) weather event¹⁸ E (e.g., some storm, flood, drought, ...) in that partition \mathbf{P} , which seriously harms someone, and a probability $p > 0$ that your emission causes event E .
- There is *zero* probability that your offsetting prevents event E : *if* your emission-without-offsetting causes event E , then your emission-and-offsetting also causes event E .
- There is however some probability $q > 0$ that your offsetting prevents some weather event F (e.g., a storm, flood, drought, ...) in partition \mathbf{P} , which seriously harms someone if it occurs.
- The people who would be harmed by E are not those who would be harmed by F .

There may be exceptions to the claim defended above. That is, it may sometimes be possible to offset your emissions *before they cause any harm* and in a way that prevents *the same* harm as your emission otherwise would have caused. For instance, imagine that just as you are about to go for a Sunday drive, you notice that your neighbour is about to do the same, in a similar vehicle. You know that he happens to like to drive the same circle that you do at the same speed. So, you have reason to believe that his drive would produce the same amount of GHG as yours and will spread it roughly over the same area at the same time. You take advantage of this exceptionally good opportunity to offset and pay him to stay home. In this case it may be that if your offsetting prevents a harm, then it is the same harm as your emission would otherwise have caused. But most cases are not like this. In other (more realistic) cases, the truth is that if you harm someone by emitting without offsetting, then you also harm that same person by emitting and offsetting.

¹⁷ A reviewer for this journal asks whether my argument doesn't either have to assume a strange theory of reference or an unusual application of probability theory. It does not. The standard procedure in decision theory is to specify states of the world sufficiently finely such that they determine which outcome each available act results in. We can then specify a (non-null) state under which some extreme weather event occurs if and only if you emit. Similarly, we can specify another (non-null) state under which some other extreme weather event occurs unless you offset. This assumes no particular theory of reference and a standard application of probability.

¹⁸ Note that this weather "event" would typically be classified as an *outcome* (so, not a set of states of the world) of a (Savage 1954-style) decision model, since it is contingent on the decision-maker's actions.

Now, recall that Broome argues that your duty to have zero carbon footprint is grounded in the justice-based duty not to harm others. As such, it is a duty owed to specific persons. In fact, it is a duty owed to *each* person. Correspondingly, each person has a right not to be harmed. Since a duty not to harm is a duty owed to specific persons, I cannot—except in special circumstances—justify harming one person by preventing another person from being harmed; each person has a right not to be harmed, which cannot be violated *merely* for the sake of preventing another person from being harmed.

In light of the above, I find it hard to see how emitting and offsetting could be a way of satisfying a justice-based duty not to emit GHG.¹⁹ By emitting and offsetting you may harm some person while preventing someone else from suffering harm; and you have no reason to believe that these will be the same people. Thus, it is hard to see how your offsetting would in *any* way compensate the victims of your emission. Similarly, if those who are harmed by the emission that we offset have a *right* not to be harmed, then that right cannot be justifiably violated *merely* on the grounds that one will prevent someone else from suffering a similar harm. In sum, *if* the duty to be carbon neutral is grounded in a justice-based duty not to harm, that is, grounded in a duty owed to each person—as I have been assuming, following Broome—then it is not true that we can satisfy this duty by offsetting our emissions, contrary to what Broome suggests.

Moreover, the conditional ‘If you offset all your emissions [you] do no harm to anyone through your emissions’ (Broome 2012: 87) is false. Even if you offset all of your emissions, you *might* still harm someone.²⁰ The same holds for MacAskill’s (2015: 174) claim that ‘offsetting prevents anyone from ever being harmed by your emissions’. The *aggregate harm* due to GHG emission in the long run *may* be no greater if you offset all your emissions than it would have been had you not emitted (and not offset) at all. Similarly, *ex ante*, your existence in this world *may* not increase anyone’s risk of climate harm if you offset all the emission that you cause.²¹ But that does not, of course, mean that your emissions do not harm *anyone*. In fact, when you emit and offset, you may well harm someone while preventing someone else from being harmed.

¹⁹ Torpman (2014: 194) comes to a similar conclusion, as does Timothy Campbell (ms.).

²⁰ Here I assume that, at least as far as indicative conditionals are concerned, “If A then B” is undermined by “If A then B might be false”. There may be reasons to believe that the same is not true for counterfactuals. See, e.g., Stefánsson’s (2018) response to Hájek (ms.).

²¹ This is not always true, though, since the potentially beneficial effect of offsetting is often predictably realised at a different time and place than the potentially harmful effect of the action that is being offset.

6. DEONTOLOGICAL RESPONSES

In this section, I respond to four arguments each of which is intended to show that, despite the above argument, we do have a (possibly weak) deontic reason to offset the emissions that we cause rather than to give the money that it costs to offset our emissions to some charity that does good more effectively.

The first argument is based on the claim that even a truly trivial action such as going for a walk has some theoretical possibility of causing a storm, say, which ends up harming someone. The weather system is so chaotic, some think, that any event that has a physical impact comparable to or greater than the flapping of a butterfly's wings could cause an extreme weather event.²² Now, in contrast to acts that emit greenhouse gas, the risks associated with acts such as going for a walk are *symmetric*, in the sense that a walk is just as likely to harm someone as it is to prevent someone from being harmed.²³ Similarly, we have no reason to believe that the harms that a walk might result in are greater than the harms it might prevent. So, such a walk carries no expectation of harm. Going for a walk might thus be in morally important respects analogous to the combined act emit-and-offset. And, one might think, since going for a walk is (we can assume) morally permissible, emitting-and-offsetting must be morally permissible too.²⁴

What should we make of the above argument? One thing to say is that while there is a *theoretical* possibility that going for a walk harms someone due to the instability of the weather, there is a well empirically established risk that the emission caused by a drive, say, harms someone; that is, although the *exact magnitude* in the latter case has not been (and maybe cannot be) empirically established, we have empirically established *that* there is such a risk. In contrast, while the possible harm done by a walk's effect on the weather is implied by

²² See, e.g., Lorenz (1963, 1969). Broome (2019) discusses the importance of this hypothesis for climate ethics.

²³ However, Mogensen and MacAskill (2021) argue that acts such as going for a walk are very likely to cause *some* harm *in the very long run*. One might view Mogensen and MacAskill's argument as a *reductio* of the idea that we have a justice-based duty not to harm others. After all, if there is such a duty, then it would seem to follow from their argument that we have a duty to as little as possible in our lives. However, one can also view their argument as supporting my conclusion, by vindicating a more general claim from which my conclusion follows. If Mogensen and MacAskill's argument is sound, then it is in general pretty much impossible to satisfy our justice-based duty not to harm others. The only way to satisfy it is to do 'nothing'. But if that is the case, then it would seem to follow that we cannot satisfy our justice-based duty not to harm others by emitting and then offsetting. After all, by emitting and then offsetting we do something. Therefore, one can view Mogensen and MacAskill's argument as supporting my main claim, by vindicating a much stronger claim. However, the converse is not true; Mogensen and MacAskill's general claim—that is, that the only way in which one could possibly avoid harming others, in the long run, is by doing nothing—does not follow from my more modest claim—that is, that by offsetting we do not satisfy our duty not to harm others. So, even those who do not accept Mogensen and MacAskill's argument might be sympathetic to mine.

²⁴ An argument like this was put to me by John Broome (personal communication).

some theoretical models of the climate, the relationship is less empirically established. So, even if both going for a walk and emit-and-offset carry the same (subjective) expectation of harm (namely, none), the two differ in that we should be more confident that the latter harms someone (but also correspondingly more confident that the latter prevents someone from being harmed).

But more importantly, even if the above argument shows that since going for a walk is morally permissible emitting-and-offsetting must be morally permissible too, that does not undermine the main claim of this paper, namely, that we have *stronger* reason to give to effective charities than we have to offset. When considering whether to offset an emission that we have caused or will cause, we have a choice between (for instance) the two combined acts: emit-and-offset and emit-and-give-to-effective-charity. (Recall, from the introduction, that I am taking the emission to be fixed.) Even if we grant that the analogy with going for a walk establishes that emit-and-offset is morally *permissible*, it could still be true, as I have been arguing, that we have moral reason to choose emit-and-give-to-effective-charity over emit-and-offset. Even when an act is morally permissible, we can, of course, have stronger moral reason to choose another act.

A different deontic response that someone might make in light of my argument in the last section, is to point out that *if* it is true that by offsetting all of your emissions you do not impose *expected* harm on *anyone*, then that might give you *some* deontic reason to offset rather than to give to some charity. (Actually, it is unlikely that you do not impose expected harm on anyone by offsetting all your emissions, since—as previously alluded to—the benefit of your offsetting will in most cases predictably be realised in a different time than the time in which the harm from your emission is realised. But let's set that issue aside for now.) In reply, I would contend that this possible deontic reason to offset is much weaker than the deontic reason that you would have to offset if your offsetting would actually compensate whoever happens to be harmed by your emission (if anyone is harmed by your emission). After all, the *expected* harm that you do impose on any person if you don't offset is tiny (unlike the *actual* harm that you *may* cause with your emissions). So, the deontic reason that you do have to offset, in light of the expected harm you otherwise impose on others, is plausibly outweighed by the (consequentialist) reason you have to instead give the money to charities that do good much more efficiently than offsetting does (examples of which were discussed in the introduction). Thus, even if you may have a (weak) deontic reason to offset,

and a (weak) consequentialist reason to offset, you have a stronger all-things-considered reason to give to charities that do good more efficiently.

Yet another potential deontic response would be to argue that even though your emission may harm some person and your offsetting prevent some other person from being harmed, you would *also* have been at least partially responsible for the harm that would have befallen the person whom your offsetting protects from harm.²⁵ The thought would be that since the harm that your offsetting is preventing is a result of *global* emissions, you share responsibility for that harm too. Therefore, you do have a deontic reason to use your money to offset rather than using it to do more good by giving to, say, a malaria charity.

Although this response may seem *prima facie* plausible, I think that it gains plausibility due to a tempting but false assumption about the non-stochasticity of the weather system. For this argument to establish that you have a strong moral reason to offset, it would have to be the case that the harm that your offsetting prevents would not have occurred had it not been for your (and, in this case, many other people's) emissions. This would be true if the threshold description which I briefly mentioned in section 5 were literally true. But it is not. Instead, the truth is that a weather event E that is caused by some act A given the current concentration of GHG—which includes your, say, 1,000 tonnes of lifetime emission—might *also* have been caused by act A given a concentration that is like the current concentration except for your 1,000 tonnes. In other words, an extreme weather event that is caused by someone else's Sunday drive might also have occurred without your lifetime emission. So, your actions were not a necessary part of the cause of the particular event in question. Now, as Joseph Bowen (2020) has pointed out (drawing on a distinction by Parfit 2017), it seems in general to be the case that a right not to be harmed is less stringent in the *conflicts-of-right* sense when it is preempted. Similarly, a duty not to perform a potentially harmful action is plausible weakened in a *conflicts-of-duty* sense when the harm will occur even without the action. Thus, any deontic reason that the argument under consideration may give you to offset will be weakened when it comes into conflict with the duty to do good. So, even if you may have a deontic reason to offset, I think you have a stronger consequentialist reason to use the money to do more good.²⁶

Finally, perhaps the fact that there is a sense in which the harm you can prevent by offsetting is of the *same type* as the harm that you might cause by emitting gives you a deontic

²⁵ I thank Göran Duus-Otterström for bringing this objection to my attention.

²⁶ I am grateful to Joseph Bowen for a helpful discussion of this issue.

reason to offset rather than to give to some other charity.²⁷ Note though that this requires us to be quite liberal about “types of harm”, since your offsetting might, say, prevent harm due to a heatwave whereas your emission causes harm due to flooding. (Unless, that is, one thinks that it is meaningful to talk about harms to the climate or to the atmosphere, which I do not. I shall get back to this issue below.) First, I should say that I think that *if* this argument is sound, then it leads to the same conclusion as the one last considered: it would seem that this deontic reason is much weaker than the deontic reason that you would have to offset if it were true that your offsetting would benefit those who are actually harmed by your emission (if anyone is harmed by your emission). This weak deontic reason is, I think, plausibly outweighed by the strong consequentialist reason to instead donate the money to, say, a malaria charity, which, as explained above, does good *much more* efficiently than offsetting does. So, again we reach the same conclusion: You may have *a* moral reason to offset, but a *stronger* moral reason to instead give to an effective charity.

In addition, I think that the intuitive force of the argument now under consideration may rest on a mistake (which calls in question its soundness). Many people seem to have the intuition that: “If you break it, you should fix *it*”, the thought being that doing some other good deed does not allow you to avoid fixing the thing that you have broken. And that is what gives the argument in the last paragraph some intuitive force.²⁸ The thing that you “break” when you emit GHG is presumably the atmosphere. So, the idea is that you should fix *the atmosphere*, not some other problem. And one way to fix the atmosphere is to offset.

For this analogy to work, however, we need to assume that that the atmosphere has some sort of moral status and that “breaking” it is bad not only due to the harm it brings sentient beings. If I break Abel’s window I should fix *it*, and fixing Beatrice’s bike doesn’t get me off the hook—nor does fixing Abel’s car, for that matter (unless Abel asks me to do so instead of fixing the window). But that is because, having broken Abel’s window, I owe it to *him* that I fix that property of his which I broke. And this once again illustrates the challenge of giving a deontic justification for offsetting. What corresponds to Abel’s window when I wrong someone by my emission is something that a person (or animal) is entitled to, say, her body or her property. So, if my emissions “break” Carlita’s body, or property, then

²⁷ Thanks to Krister Bykvist for pointing this out in personal communication. (I should emphasise that Bykvist’s point was not that this may give us an all-things-considered reason to offset instead of doing more good, but simply that this may be *a* deontic reason to offset.)

²⁸ Thanks to Olle Torpman for pointing this out.

I owe it to her that I fix *it* or at least compensate her. But, as we have seen, offsetting does not do that.

7. BARRY AND CULLITY ON OFFSETTING

Although Barry and Cullity (2022) criticise Broome’s justification for offsetting,²⁹ they argue that by offsetting all of one’s emission (by sequestering), one can act in a way that is ‘risk imposition permissible’ (op. cit.: 374). They do admit that emitting and offsetting is ‘not a way of ensuring that my emissions make no difference to who is harmed’ (op. cit.: 372). Nevertheless, they think that: ‘By paying for offsets, I can act in a way that carries the expectation of leaving the atmosphere with no greater concentration of GHG than if I had emitted nothing. If so, I expose climate-vulnerable people to no additional risk’ (ibid).

Does the second sentence follow from the first sentence in the last quotation? Suppose that by offsetting ‘I can act in a way that carries the expectation of leaving the atmosphere with no greater concentration of GHG than if I had emitted nothing’. Does it follow that ‘I expose climate-vulnerable people to no additional risk’?

The second sentence does follow from the first if understood as the claim that my lifetime behaviour causes no net increase in expected harm to climate-vulnerable people *as a time-extended population*—which is in fact precisely what Barry and Cullity are claiming, as I further discuss below. In other words, take the set of all climate-vulnerable people who will ever exist, from today onwards. If I successfully offset all my behaviour, then my being in the world does not expose this population to any more net expected (climate) harm than had I never existed.

However, the second sentence does *not* follow from the first if understood as a claim about the harm—nor, in fact, if understood as a claim about the risk of harm—inflicted on *specific* climate-vulnerable individuals. Recall, from section 5, that when I emit and offset, I may harm some people (by causing event *E*), but, in terms of the total harm from GHG emission, I may leave things as they would have been had I not emitted, since I prevent other people from experiencing harm (by preventing event *F*). Moreover, as previously discussed, the set of people who are subject to *risk* of harm when I emit will often not be identical to

²⁹ In particular, they discuss an example where an agent acts unjustly, due to their (toxin) emission, even though their act of emission coupled with their act of offsetting does not raise the risk of harm with which anyone is faced. In contrast, I am arguing that Broome’s explanation fails since even though emitting-and-offsetting may leave a population-risk unaffected it will raise the risk with which some people in the population are faced.

the set of people whose risk of harm is reduced by my offsetting. After all, the possible benefit of my offsetting will often be predictably realised (if realised) at a different time and place from when and where the harm of my emission is realised (if realised).³⁰ So, while the two sets of people may overlap to a great extent, they need not be identical.

If the duty to be carbon neutral is a duty of justice, the latter interpretation of the second sentence would, I think, have to be true for offsetting to satisfy that duty. In other words, since duties of justice are owed to specific persons, you could only fully satisfy your duty of justice by emitting and offsetting if by doing so there would be no person whom your emission would harm nor risk harming. But that is false, or so I have argued. Hence, I contend, you don't satisfy this duty by emitting and offsetting.

Barry and Cullity of course think otherwise. The main reason for our disagreement, I think, is that in their view, what we should be assessing, when it comes to the ethics of individuals' GHG emission, is the effect of their *lifetime* emission on whole *populations*. I find it hard to fit in particular the first part of this—i.e., Barry and Cullity's focus on lifetime emission—with their claim that 'there is no risk so small that it could not lack an adequate justification' (op. cit.: 356). Suppose someone goes for a Sunday drive on day n and then at the end of their life, on day m , they offset their lifetime emission. Assuming that it is true that even an individual act of emission does raise the risk of climate harm imposed on others—as Barry and Cullity seem to be assuming, at least for the sake of argument³¹—it follows that climate vulnerable people are exposed to increased risk of harm in the period between day n and day m . This risk, however small, could 'lack an adequate justification,' as Barry and Cullity say. And it is hard to see how the fact that someone really wanted to go for a Sunday drive, and couldn't be bothered to offset until $m-n$ days later, provides such a justification.

Perhaps more importantly, it seems to me that Barry and Cullity's reasoning contains a false assumption, and that, once corrected, we see why it is problematic to merely focus on individuals' lifetime emission and the whole population of climate-vulnerable people, rather than also considering individuals' isolated actions and their effects on specific climate-vulnerable persons. Before claiming that by successfully offsetting all of my emissions, 'I

³⁰ Hence, I think that, often at least, emitting-and-offsetting is importantly similar to an example Barry and Cullity call "Two Rivers", in which an individual adds toxin to one river, thus increasing the risk of cancer for one population, while removing toxin from another river, thus lowering the risk of cancer for another population.

³¹ See, for instance, page 354, where they say that, at least for the purpose of their paper, they will take Broome's 'argument from expected harm' seriously.

expose climate-vulnerable people to no additional risk’, Barry and Cullity say that ‘if my emitting is accompanied by a sufficient amount of offsetting [...] my overall set of actions may be such that it is no likelier that any extra harm will occur than if I do nothing’ (op. cit.: 372). But this is not true if by ‘extra harm’ they mean harm that otherwise would not have occurred; which, I contend, is how we would have to interpret ‘extra harm’ for Barry and Cullity’s argument to establish that by emitting and offsetting one can satisfy one’s duty of justice not to harm. If by ‘extra ham’ they instead mean increased aggregate harm in the long run, then I may well violate the duty not to harm even though I cause no ‘extra harm’, as argued in previous sections.

So why is Barry and Cullity’s claim not true if by ‘extra harm’ they mean harm that otherwise would not have occurred? It may be true that ‘if my emitting is accompanied by a sufficient amount of offsetting’, then my overall set of actions may be such that it causes no more *aggregated expected harm* than if I do nothing. But it does not follow—nor is it true that—my overall set of actions may be such that it is *no likelier* that any extra harm will occur than if I do nothing. Instead, the truth is that when my emission is accompanied by sufficient offsetting, my overall set of actions makes it more likely that *some* (groups of) people experience ‘extra harm’ (i.e., harm that they wouldn’t have experienced had it not been for my emissions) while also making it more likely that *other* (groups of) people avoid having to experience harms that they would (had it not been for my offsetting) have experienced as a result of other people’s emissions. But that means that our justice-based duty not to harm others through our emission is not satisfied even though our emitting-and-offsetting, when taken together, causes no expectation of harm to the (time-extended) population of climate vulnerable people.

In sum, we have not yet seen an argument that by offsetting all your behaviour you ‘do no harm to anyone through your emissions’, as Broome claims, nor that you then ‘expose [*no*] climate-vulnerable people to [*any*] additional risk’, as Barry and Cullity would, I think, have to establish to show that offsetting satisfies your duty of justice not to risk harming others. In fact, even though you offset all your emission, you may inflict harm on *some* climate-vulnerable people, and it is moreover likely that you impose additional *risk* of harm on some of them. So, by offsetting, you do not satisfy your duty not to harm (nor your duty not to risk harming) these people.

It seems to me, as previously stated, that we would only have a stronger reason to offset than to give to charities that do good more efficiently than offsetting does, if by

offsetting we could—despite our GHG emissions—satisfy our duty of justice not to harm others. But, as I have been arguing, by emitting and offsetting, we do not satisfy that duty of justice. Therefore, I conclude that even if we emit, we have stronger reasons to donate to charities than we have to offset our emissions.³²

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