

# Do we impose undue risk when we emit and offset? A reply to Stefansson

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## Abstract

We have previously argued that there are forms of greenhouse gas offsetting for which, when one emits and offsets, one imposes no risk. Orri Stefansson objects that our argument fails to distinguish properly between the people who stand to be harmed by one's emissions and the people who stand to be benefited by one's offsetting. We reply by emphasizing the difference between acting with a probability of making a difference to the distribution of harm and acting in a way that worsen's someone's prospect.

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### I. Imposing risk

In our paper 'Offsetting and Risk Imposition', we examine the conditions under which, when an agent accompanies an action of a risk-increasing type (such as emitting greenhouse gases) with a risk-reducing action (such as offsetting), it can legitimately be said that the resulting set of actions makes no risk-imposition for which the agent is morally answerable. We argue that this can potentially be done with the kind of offsetting that pays for greenhouse gas (GHG) to be removed from the atmosphere (offsetting by sequestering), but not with the kind that pays other agents not to emit (offsetting by forestalling). In 'Should I offset or should I do more good?', Orri Stefansson resists our argument for the first of these two conclusions.

Our argument, in outline, is this. The amount of risk an action imposes depends on its prospect—that is, on the possible outcomes the action might have, how much harm occurs in each outcome, and the probability of each outcome if the action is performed. So an action that

changes no one's prospect imposes no risk on anyone. For example, suppose a lottery is conducted to distribute a harm: we assign everyone a number, put a ball with each person's number into a bag, and draw a ball from the bag to determine who will be harmed. Just before the ball is drawn, you shake the bag. Here, shaking the bag will probably change the outcome. But it doesn't alter anyone's prospect. After you have shaken the bag, the range of possible outcomes and the probabilities of those outcomes are unchanged. So shaking the bag imposes no risk. We argue that when a person emits and offsets by sequestering, this set of actions can (provided enough offsets are bought at the right times) carry the expectation of leaving the atmosphere with no greater concentration of GHG than if they had emitted nothing. The set of actions does not leave the state of the atmosphere unchanged, and therefore does carry a probability of making a difference to who is harmed and who is not. But that is just to say it is like shaking the bag. No one is any likelier to be harmed than before: no one's prospect has changed. So no risk is imposed.

In 'Offsetting and Risk Imposition', we illustrate our point about offsetting with a simple analogy. People in an upstream town go boating on the local river; their motor boats produce a toxic discharge that exposes those who live downstream to the risk of harm from ingesting the polluted water. Meg and Peg are upstreamers who each want to go boating, but want not to add to the risk imposed on the downstreamers. Meg's approach is to install a toxin extractor in the river. She goes out in her motor boat, at the same time switching on the extractor, so that the expected level of water toxicity is the same as it would have been if she had not gone boating at all. Peg's approach is simpler: she just goes rowing and discharges no toxin.

Perhaps there is some respect in which Meg's action is worse than Peg's. Perhaps, for example, it matters that there is a sense in which she is joining in with the other boaters whose pollution harms the downstreamers. But in boating and extracting, Meg does not herself add to the *risk* imposed on the downstreamers, any more than Peg does. Both of them perform actions that carry a probability of making a difference to who ends up getting harmed downstream: Meg, by putting

toxin into the river at one place and taking toxin out at another; Peg, by redistributing the toxin in the river when she stirs it with her oars. So both of them make the kind of difference that you make in shaking the lottery bag. But neither changes anyone's prospect, so neither imposes any risk.

Of course, there are many disanalogies between this and the real-world case of GHG offsetting. GHGs are not toxic chemicals that harm people by being ingested into their bodies; and the risk associated with them is calculated by working out the expected effects of emissions that remain in the atmosphere long into the future. However, the disanalogies do not prevent it from being true that if a person's emissions are accompanied by enough offsetting, the overall set of actions can impose no additional risk, just like Meg and Peg.

Before we turn to Stefansson's objections, it is worth emphasizing four important points about this argument. First, it is framed in terms of risk, not harm. Complaints about risk-imposition are the moral complaints that are ordinarily expressed in talk of recklessness or negligence. Such complaints are independent of whether any harm results from a risky action. An action can be risky without causing harm; and, conversely, an action can make a difference to who is harmed without increasing anyone's risk-exposure: shaking the lottery bag shows that. Secondly, the probabilities that are relevant to moral assessments of risk-imposition as negligent or reckless are epistemic probabilities: they are not objective chances, or mere subjective credences, but rather those probability assignments that are rationally supported by the evidence it is reasonable to require an agent to be aware of. If you fire a gun recklessly in a crowded street, it might be the case that, given the exact orientation of the gun when you pulled the trigger, an omniscient ballistics-scientist could have predicted in advance that your bullet would not hit anyone. But it is the information available to you, not the information available to the omniscient observer, that makes your action recklessly risk-imposing. Thirdly, when we say that accompanying your emissions with enough offsetting can produce an overall set of actions that imposes no additional risk, we are not

saying that this can be achieved simply by calculating your emissions, and later buying a matching quantity of offsets. We return to that point in Section IV. And fourthly, although we argue that there can be forms of emitting and offsetting that impose no risk, we do not claim that this suffices to make such sets of actions morally unproblematic.

## II. Populations

To appreciate our disagreement with Stefansson, we can next contrast Meg's situation with her neighbour Greg. Greg goes boating in the same river as Meg, making the same toxic discharge; but he runs an extractor in a different river. Greg's actions differ from Meg's in a morally significant way. Provided Meg does enough extracting, her actions leave every downstreamer's prospect unchanged. The same is not true of Greg. He increases the toxicity of the first river and reduces the toxicity of the second; so he increases the likelihood that people who live downstream on the first river will be poisoned while reducing the likelihood that people who live downstream on the second river will be poisoned. And it's not clear how he can justify the risk-imposition on the first population by appealing to the risk-reduction he confers on the second.

Stefansson thinks that our treatment of offsetting is incorrect because he thinks that the actions of someone who emits and offsets are analogous to Greg's.<sup>1</sup> He quotes the passage in our paper where we say: '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.'<sup>2</sup> Stefansson considers this inference to be dubious, in the way that it would be dubious for Greg to reason, 'By extracting, I can act in a way that carries the expectation of leaving the rivers with no greater toxin concentration than if I had not gone boating. If so, I expose those living downstream to no extra risk.' If Greg says this, he is

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<sup>1</sup> 'Should I offset or should I do more good?', p. 18, n. 30.

<sup>2</sup> 'Offsetting and Risk Imposition', p. 372.

indiscriminately lumping together the two different downstream populations: the one whose prospect he worsens and the one whose prospect he improves. So too, according to Stefansson, our claim about emitting and offsetting fails to distinguish the people who stand to be harmed if I emit and offset from the people who stand to be benefited. And when we 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’,<sup>3</sup> he objects that this is only true if it means that there is no increased aggregate harm in the long run; it is ‘not true if by “extra harm” [we] mean harm that otherwise would not have occurred’.<sup>4</sup> He says, ‘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.’<sup>5</sup>

However, there is an important scope ambiguity here. ‘My actions make it more likely that some people will experience harm they would not otherwise have experienced’ can be interpreted as either:

(1a) My actions increase the likelihood that there will be people who experience harm they would not otherwise have experienced<sup>6</sup>

or:

(1b) There are some people for whom my actions make it more likely that *they* will experience harm they would not otherwise have experienced than that they will avoid harm they would otherwise have experienced.

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<sup>3</sup> ‘Offsetting and Risk Imposition’, p. 372.

<sup>4</sup> ‘Should I offset or should I do more good?’, p. 19.

<sup>5</sup> ‘Should I offset or should I do more good?’, p. 19, italics in original.

<sup>6</sup> This is true of any action that carries some non-zero probability of making a difference to whether someone is harmed; so it seems true of anything that anyone ever does.

Likewise, when Stefansson says: ‘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)’,<sup>7</sup> this can be interpreted as either:

(2a) It is predictable that the times and places at which any benefits from my offsetting are realized will be different from the times and places at which any harms from my emitting are realized.

or:

(2b) There is a time and place such that it is predictable that any benefits from my offsetting will be realized *there*, and a different time and place such that it is predictable that any harms from my emitting will be realized there.

In each case, the distinction between (a) and (b) is the distinction we pointed out in Section I: the distinction between acting with a probability of making a difference to who is harmed, and acting in a way that worsens some people’s prospect. This is the distinction illustrated by the examples of shaking the lottery bag, Meg’s boating-and-extracting, and Peg’s rowing: these actions all do the first thing but not the second. Only when we come to Greg do we have a set of actions that worsens the prospect of one population and improves the prospect of another, different population.

When I emit and offset, (1a) and (2a) are true: in acting with a probability of making a difference to who is harmed, I make it more likely that there will be people who experience harm they would not otherwise have experienced; and it can be predicted with a high degree of confidence (given the chaotically complex causal relationship between GHG-emitting and -removing activity, weather phenomena, and harm) that any benefits produced by my offsetting will occur at different times and places from any harms produced by my emissions. However, provided I buy enough

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<sup>7</sup> ‘Should I offset or should I do more good?’, p. 18.

offsets at the right times, (1b) and (2b) will be false. At the time I act, there will be no climate-vulnerable people for whom my actions make it more likely that *they* will be harmed by those actions than that they will be benefited by them. And there will be no two sets of times and places  $S_1$  and  $S_2$  for which it is any likelier that either benefits from my offsetting or harms from my emitting will be realized at  $S_1$  than  $S_2$ .

It is true that this line of argument relies on attaching importance to our epistemic position at the time we act. It is only our ignorance of how things will turn out that makes us unable to identify different groups whose welfare is likelier to be affected negatively or positively by our actions, and thus allows us to say that no one's prospect—assessed according to the epistemic probabilities—is affected. But that is how the moral evaluation of risk-imposition works: epistemic probabilities are indeed the probabilities relevant to assessing whether an agent has acted negligently or recklessly by imposing undue risk.

### III. Duties of Justice

Stefansson also phrases his objection to our argument in terms of duties of justice. He says: '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'.<sup>8</sup>

As we have now seen, there *is* a sense in which this is false. When you emit and offset, this carries a probability of making a difference to who is harmed; so when you emit and offset, you cannot say that there is no person who will end up being harmed as a result of what you do, and no risk that this will happen. However, this is equally true of the person who shakes the lottery bag, or of Peg the rower, who changes the position of the toxin molecules in the river. Indeed, it

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<sup>8</sup> 'Should I offset or should I do more good?', p. 18.

is true of much of what we ordinarily do, given how much accidental harm there is, and how dependent it is on a great many contingencies involving the conduct of many people. When you push the button on a pedestrian crossing, thereby changing the timing of many drivers' journeys, you make it likely that, in the subsequent history of the world, harm will not fall exactly where it would have fallen without your action.

One reaction to this would be to treat it as a *reductio* of Stefansson's view. It's absurd to think that pushing the pedestrian button lessens the extent to which you are fulfilling your duties of justice. He discusses a reaction of this kind in connection with the action of going for a walk, which one might suppose carries some probability of redistributing harm.<sup>9</sup> His reply to this is that going for a walk differs from emitting-and-offsetting 'in that we should be more confident that the latter harms someone.'<sup>10</sup> This reply apparently commits him to distinguishing between the example of going for a walk and the case of shaking the lottery bag, where you can be *very* confident that the result of your action will be that someone is harmed when they would not otherwise have been. If there are a hundred lottery subjects, then the probability that shaking the bag will cause a different person to be harmed can be 99%; if there are more, it can be higher.

However, we don't ourselves make the *reductio* argument. Maybe shaking the lottery bag could be morally objectionable in some way ('playing God', perhaps). Maybe that could even be true of pushing a pedestrian crossing button. Our point is different: even if there is some moral objection to be raised about acting with the probability of redistributing harm, there is a *further*, and surely more serious, complaint to be made about reckless or negligent action that exposes people to additional risk, worsening their prospect. This further complaint applies to the boaters in our example who do no extracting; it applies to Greg, who worsens the prospect of those who live downstream on the first river; and if Broome and others are right, it applies to emitters who do

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<sup>9</sup> 'Should I offset or should I do more good?', pp. 13-14.

<sup>10</sup> 'Should I offset or should I do more good?', p. 14.



not offset. But it doesn't apply to Meg, who boats and extracts; and it doesn't apply to those who accompany their emissions with enough offsetting, at the right times.

#### IV. Time lags

Now let us introduce a complication. Our view is that, provided enough offsets are bought at the right times, emitting-and-offsetting can worsen no one's prospect. But how often is that proviso met? When people emit and offset, don't the effects of offsetting typically happen *after* the effects of emitting? If so, most actual cases of emitting and offsetting will tend to worsen the prospect of people who live earlier and improve the prospect of people who live later. So then, doesn't that make emitting-and-offsetting, in the form in which it is usually practised, relevantly analogous to Greg in the two rivers case, after all, just as Stefansson claims?

We agree that if a person engages in emitting activity first, then calculates their emissions and buys offsets some time afterwards, then the earliest time at which their emissions may produce harm will be earlier than the earliest time at which their purchase of offsets may reduce it. If I drive a car or burn gas for heating, I immediately add GHG to the atmosphere; if I buy offsets, the expectation is that extra trees will be planted sometime later. In fact, when I buy offsets, I am paying others for actions they have already performed (I buy a certificate giving me credit for trees already planted): the expected benefit associated with my offset purchase relies on what it does to incentivize offset-sellers to do more GHG removal in future. It is worth pointing out that the same applies to many of the emissions that are part of my carbon footprint too: the food miles associated with the products I buy have been travelled before I buy them, so here the expected harm associated with my action also comes from what it does to incentivize future emissions. However, it does seem right that for most agents who emit and offset, there will be a period during which the expected level of GHG in the atmosphere is higher with their activity than the expected level would be without, before those two levels converge.

The question is whether this effect is large enough affect our main conclusion. Here, the numbers matter. Broome estimates the expected harm associated with a lifetime of emitting-and-not-offsetting at around 6 months of life lost in total.<sup>11</sup> But this calculation relies on assuming (in line with IPCC projections) that our current emissions remain in the atmosphere for more than 1,000 years.<sup>12</sup> So suppose I am responsible for 75 years of emissions, and the expected effects of my offsetting lag on average a year after the expected effects of my emitting. Then the total expected harm associated with my lifetime of emitting-and-offsetting is that of one year's worth of emissions for 75 years: it is one thousandth of the previous amount. Broome's estimate of 6 months of life lost in aggregate reduces to 4 hours. This is not zero; but is it the case that an activity that carries this aggregate expectation of harm *over the course of a lifetime* cannot be justified by reasons of convenience or enjoyment? This figure is now lower than the expected harm associated with other routine activities for which we accept such justifications—for example, a lifetime of (electric) car-driving.<sup>13</sup>

## V. Conclusion

The moral problem about emissions is not that they make it likely that there is extra harm in the sense that the distribution of harm is different from what it would otherwise have been. It is rather that GHG emissions worsen the prospect of climate-vulnerable people to a morally significant degree. But offsetting by sequestering can (we don't say, usually does) produce a set of actions that lacks the latter feature. By offsetting in this way, most of us can reduce the expectation of harm

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<sup>11</sup> Broome, *Climate Matters*, p. 74.

<sup>12</sup> IPCC, *Climate Change 2007: Synthesis Report* (New York: Cambridge University Press, 2007), p. 47.

<sup>13</sup> Figures are available for the annual number of years of potential life lost in the US through motor vehicle injuries to pedestrians aged 0-19 in the period 2000-2010. Using these figures, together with the average contribution each US driver makes to the total miles travelled, a 50-year driving career carries an expectation of 80 hours of life lost amongst that subset of motor vehicle accident victims alone. (Sources: [www.fhwa.dot.gov](http://www.fhwa.dot.gov), [www.cdc.gov](http://www.cdc.gov).)

associated with our actions to the point where the risk imposed ceases to give rise to criticisms of recklessness or negligence.

As we've stressed, it doesn't follow from this that emitting-and-offsetting is morally unproblematic. In particular, Stefansson's question, 'Why aren't you doing more good?' doesn't go away. However, our argument affects how the force of that question is felt. In general, if you can perform an activity either in a seriously risk-imposing way or without imposing that risk, you don't get to justify doing the former by saying that you have spent the cost of removing the risk on doing more good to others. When your emissions will be the side-product of something you want to do just for fun, you will have three options: (a) go ahead and do it, and spend money on offsetting; (b) go ahead and do it, and use the money the offsetting would have cost to do more good instead; or (c) find some other way of having fun that doesn't emit as much, and use the money saved to do good to others. If non-offset emissions are seriously risk-imposing, it may be hard to justify (b) over (a); but Stefansson's question still needs to be answered to have a justification for (a) over (c).

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