Just Social Risk Imposition and the Demand for Fair Risk Sharing

Yunmeng Cai
Nuffield College, University of Oxford, Oxford, United Kingdom
yunmeng.cai@nuffield.ox.ac.uk

Abstract

Existing accounts of social insurance tend to treat social risks as given and ask whether it is justified for the state to deal with these risks for its citizens. They ignore that many common risks are in fact imposed on citizens as a byproduct of the institutional choices of the society, which call for justification in the first place. In this paper, I use the Scanlonian contractualist framework to develop an account of just social risk imposition which implies a demand for fair risk sharing by all members of a society. In particular, I defend a compensation principle which requires that compensation be paid to victims of risk materialisation. This duty of paying should be shared by all those who benefit from the imposition of the relevant risk. I suggest that this provides a case for social insurance as a way of fairly sharing the burden of social risks.

Keywords

justice – risk imposition – risk sharing – Scanlonian contractualism – social insurance

People living in modern societies face various risks throughout their lives. They may fall ill, have accidents, experience temporary or permanent disabilities, lose jobs, or suffer losses in personal assets. These risks represent a major threat to their ability to live an autonomous and dignified life. Individuals anticipating such risks may choose to share the possible downsides with others by buying insurance policies, thus smoothing out negative shocks to their life projects. The state may also play a role in protecting its citizens against some common risks by mandating universal social insurance. Existing social
insurance schemes usually cover work accidents, unemployment, retirement and healthcare.

While social insurance began to thrive during the first half of the twentieth century, over the last few decades, some countries such as the United States have witnessed a trend of shifting the burden of risk management from the state back to individual citizens.¹ Such a policy shift is often defended by appeal to concerns of efficiency and personal responsibility. It is suggested that, on the one hand, the state should not intervene in the private market when the latter is more efficient in providing a certain type of insurance and, on the other hand, individuals should take personal responsibility in managing their own risk exposures instead of having the state take care of the task for them.

What these arguments share in common is that they tend to treat social risks as given and ask whether it is justified for the state to deal with these risks for its citizens. In fact, even those attempting to defend social insurance often do not attempt to challenge this neutral understanding of social risk. However, many risks commonly faced by members of a society are in fact introduced or retained as a byproduct of the institutional choices made by their political representatives. For example, the unemployment risk is a result of our choice of a market economy over a centrally planned economy; the economic risk of needing to pay for medical care only exists in societies without a universal healthcare system. Since this kind of risk has a significant impact on the background conditions for people to live autonomous lives, it is important to ask whether it is justifiable to subject people to social risks in the first place. The answer to this question, moreover, may bear on how the resulting burdens should be fairly allocated.

In this article, I develop an account of just social risk imposition which implies a demand for fair risk sharing by all members of a society. In Section 1, I explain why many common risks could be regarded as being imposed on members of a society through their collective choice of social institutions. In particular, I argue that, although some risks appear to be natural risks, their impact on individuals is often determined by institutional design, so the moral implication of such choices is analogous to that of humanly imposed risks and is in similar need of justification.

Then, in Section 2, I use the Scanlonian contractualist framework to examine what principles would justify the imposition of social risk. I suggest that a scheme of social risk imposition resembles public goods provision in the sense that it imposes burdens on members of a society for some common benefits, so it may be guided by principles for supplying conventional public

¹ See, for example, Hacker (2008) and Baker and Simon (2002).
goods. To apply such principles, however, I need to address the difficulty of assessing risk-related burdens. The burdens introduced by a scheme of common risk imposition may be assessed based either on the ex-ante state before a risk materializes or on the ex-post state after the risk eventuates into actual harm, and disagreement about which state is relevant for justification leads to a debate between ex-ante contractualists and ex-post contractualists. I look at their arguments as well as Scanlon’s solution to the problem and propose that contracting parties should endorse a version of ex-ante contractualism which includes a just intention principle and a reasonable precaution principle.

I then suggest in Section 3 that the same logic which leads to the endorsement of the reasonable precaution principle would also justify a compensation principle. This principle requires that compensation be paid to victims of risk materialization so as to reasonably alleviate their misfortunes. The burden of paying for compensation should be shared among those who have benefited from the imposition of the relevant risk. The last section considers the fair allocation of this burden. I propose a version of the benefit principle which requires that people who have benefited from a scheme of social risk imposition make a corresponding contribution so as to equalize the net benefit produced by the scheme for each individual. I suggest that such a principle is in contrast with the actuarial principle which guides the pricing of private insurance and this offers a strong case for social insurance embodying the benefit principle as a way of fairly sharing the burden of social risks among members of the society.

1 The Imposition View of Common Risk

To see how common risks are imposed through the choice of social institutions, take unemployment risk as an example. At first sight, it seems that this is an economic risk which naturally exists in most people’s economic lives. However, considering an alternative arrangement of a planned economy in which all those able to work are guaranteed a job and a specific salary, it becomes clear that unemployment risk is in fact a risk imposed through the choice of an economic system. This risk is, moreover, retained for certain benefits. Economic theories as well as empirical evidence have shown that a planned economy not only sacrifices occupational freedom but is also likely to end up with lower economic productivity. Therefore, the risk of unemployment could be seen as a common risk imposed on those living in a market economy for the benefit of better economic prospects and greater freedom in career choices, both of which may enlarge the range of background options available to individuals.
It may be objected that, by treating unemployment risk as a commonly imposed risk, this view ignores the role of personal causes for unemployment. For example, even though every employee is exposed to the risk of unemployment, it seems that a person who loses his job simply because he does not want to work and thus performs poorly should not be regarded as a pure victim hit by a commonly imposed risk. This legitimate worry points to a distinction between the personal and the social component of unemployment risk. In this example, the person should be seen as adding a personal risk of losing his job to the common unemployment risk imposed on everyone by the structure of the labor market. When I refer to unemployment risk as a common risk, I am only referring to its social component, as opposed to the personal component. I will also from now on use common risk and social risk interchangeably.

Unemployment risk is a relatively obvious example of social risk imposition because it is humanly imposed. Other examples of humanly imposed risk include the risk of workplace accidents, the risk of car accidents and the risk of nuclear disasters. In addition to human risks, there are also risks, such as natural disasters and some illnesses and disabilities, which are usually regarded as natural risks but could be similarly treated as cases of common risk imposition—let me explain why they could be categorized in this way.

First, some risks that seem to be naturally caused in fact have a human cause. For example, some illnesses are caused by pollution or bad nutrition; some disabilities are a result of accidents due to lack of safety measures. Even some natural disasters are partially caused by human actions: flood may be caused by inappropriate use of farming lands; wildfires may be caused by bad forest management. Such risks could be regarded as being imposed on members of the society for the economic interests of some people or for the collective benefits of efficiency and could therefore be treated in the same way as humanly imposed risks.

Second, while some risks have a pure natural cause, the extent to which victims suffer bad consequences is a result of social arrangements. For example, while floods are sometimes purely caused by nature, how many people would be impacted and how much loss they would suffer is partly a result of civil planning which determines the building of houses and flood control infrastructures in high-risk locations. Moreover, there are also cases where the initial bad consequences suffered by individuals are natural, but the extent to which such harm would then be alleviated is impacted by institutions. For example, while some physical disabilities are genetic, how they may hinder people’s opportunity to move around freely and to take up certain jobs partly depends on the design of public spaces in their society. Similarly, for naturally
caused illnesses, how much medical cost is needed to restore an ill person to a sufficient level of health and how soon he will be provided with the required medical service depends on the healthcare system of his society.

The recognition of these two types of cases, especially the second type, also blurs the distinction between risks that are actively imposed and risks that are retained because people choose not to remove them or not to neutralize their negative impact. Some may question why the latter could also be labeled as risk imposition. While it is true that such cases could be more generally described as cases of choosing among various schemes of social arrangements which carry higher or lower levels or impacts of social risk, I choose to label both types of cases as risk imposition because they are structurally similar. That is, when social institutions choose to retain a certain level of risk rather than eliminate it, the implication of such a choice is similar to cases of active risk imposition. In both types of scenario, the risk is allowed to exist for the sake of achieving some benefits. If a society chooses not to safeguard all its members against the risk of flooding by allowing some of them to live in potential flooding areas or by not spending all its resources on building flood infrastructure, it retains a level of flood risk for the benefit of more flexible or more efficient civil planning. Or, if a society chooses not to cover all citizens by providing free healthcare, it allows a level of healthcare risk for the possible benefit of higher efficiency or quality of healthcare services.

Because of this structural similarity, treating the latter as risk imposition also emphasizes that social arrangements which deal with natural risks also need to be justified. That is, leaving people exposed to natural risks for the sake of efficiency, flexibility, or productivity requires justification in the same way as does actively subjecting people to risks in order to achieve such benefits. It may be objected that a distinction should be drawn between actively imposing a risk and merely allowing a risk to exist, the former requiring stronger justification. While this may be true for interpersonal morality, the line is in fact blurred in institutional design and public policymaking – whether to leave individuals exposed to the risk of healthcare or natural disasters is a decision that requires active policy selection just like the choice of permitting car driving. Besides, since the justification of active risk imposition is the focus of a growing literature in philosophy,2 using the term ‘risk imposition’ also points toward the possibility of drawing upon this literature to identify just social arrangements which involve common risks, whether or not they are actively imposed.

2 See, for example, Lenman (2008), Frick (2015), Kumar (2015), and Oberdiek (2017).
Scanlon's contractualism has been suggested by many as the most promising approach to dealing with risk imposition.\(^3\) It is an approach which assesses the permissibility of an action according to whether a principle which regulates the type of actions in question is one that cannot be reasonably rejected by each party in the contracting position.\(^4\) To make sense of why a principle that permits certain kinds of risk imposition (such as car driving) may be justifiable to every contracting party, all of whom know that they could end up being the victim when the risk materializes, Scanlon appeals to the idea of intrapersonal aggregation.\(^5\) That is, for every affected individual, the benefit made possible by the imposition of the risk may aggregate throughout their life to an amount that outweighs the expected burden of risk materialization.

The fact that a scheme brings net benefit to everyone, however, does not automatically justify the imposition of the corresponding burden on people. A person, especially if he is risk-averse, may reasonably wish to avoid the burden of risk exposure even though it generates net benefit. This problem is in some sense analogous to the general problem of public goods provision. Like a public good whose provision is costly, a social risk imposes an involuntary burden on society's members for some common benefits. The person who wishes to object to such an arrangement may quote the famous objection raised by Nozick about public goods that “one cannot ... just act so as to give people benefits and then demand (or seize) payment.”\(^6\)

However, many people, unlike Nozick, do believe that the funding of at least some public goods could be justified. For example, it has been suggested that it may be justifiable to provide public goods which are presumptively beneficial (that is, no one could claim in good faith that he wishes to avoid the relevant benefits) or which represent essential goods whose availability is required by justice, provided that the benefits sufficiently outweigh the corresponding costs and that the benefits and costs are fairly distributed.\(^7\)

While the contractualism literature has not said much about the issue of public goods provision,\(^8\) it seems that parties in the Scanlonian contracting

\(^3\) Hayenhjelm and Wolff (2012, pp. 39–41); Oberdiek (2017, Chapter 5).
\(^4\) Scanlon (1998, p. 4).
\(^5\) Scanlon (1998, pp. 237–38).
\(^6\) Nozick (1974, p. 95).
\(^7\) For presumptive public goods, see Klosko (1987). For essential public goods, see Miller and Taylor (2018, pp. 564–66).
\(^8\) Except Rawls who briefly mentions that “assuming that the public good is to everyone's advantage, and one that all would agree to arrange for, the use of coercion is perfectly rational from each man's point of view”. See Rawls (1999, p. 267).
position may reasonably accept principles which permit public goods provision of this kind. I will therefore assume, for the purpose of this article, that contracting parties could reasonably accept the following two principles for providing conventional public goods — the presumptive worthiness principle requires that, in order to justify mandatory contribution to the provision of a public good, its benefit must be presumptively beneficial or essential for all and sufficiently outweigh the corresponding burden for each individual; the fair distribution principle requires that the relevant benefits and burdens be allocated in a fair way. The question is whether these principles could similarly justify a scheme of social risk imposition.

2.1 Presumptive Benefits of Social Risk Imposition

To treat a scheme of social risk imposition as a public good, it needs to be established that its benefit is non-excludable. A social risk is often imposed for benefits such as increased economic efficiency, greater freedom in occupational choices, and so on. These benefits are generally non-excludable, but they are not non-excludable in the sense that, theoretically, institutions cannot be designed in a way so that some people are completely excluded from the burden of risk exposure together with the enjoyment of these corresponding benefits. Rather, they are non-excludable in the sense that, as a matter of fact, social and economic institutions usually could not be organized in such an exclusive manner at a reasonable cost. There could hardly exist, for example, a parallel closed economy alongside the free market, which implements central planning and guarantees job allocation, within the same society. Even when it is possible to design institutions or infrastructure in such a way that those unwilling to participate are excluded, they, by being members of the same society, still cannot be prevented from enjoying the direct and indirect benefits of an expanded range of goods, services, and life possibilities. It is in this sense that a scheme of social risk imposition resembles the provision of a public good.

Moreover, the benefits generated by the scheme could generally be regarded as presumptively beneficial because they enlarge the range of valuable life options available to individuals. Even when a specific individual chooses not
to exercise the additional options, the background condition for this person to live an autonomous life is still improved compared to a life with very limited exercisable options. If, for example, the person revises his life goals later, it is more likely that he can adapt his life to the new plan when he has a larger set of options to choose from. Therefore, if we agree that individuals have a general interest in securing a background condition that is conducive to autonomy, we could regard the benefit produced by a scheme of social risk imposition to be presumptively beneficial when its net impact on autonomy is positive.

Therefore, to justify imposing a social risk on members of a society, there should be a requirement to satisfy the following two principles, similar to those that have been argued for public goods provision –

*The presumptive worthiness principle*: the benefit for which a common risk is imposed should be presumptively beneficial in terms of its impact on autonomy for each impacted individual and sufficiently outweigh the burden introduced by the risk.

*The fair distribution principle*: benefits and burdens resulting from a case of risk imposition should be allocated fairly among those subject to the risk.

The major challenge in applying these two principles, however, is to decide how the burden of risk imposition should be evaluated. Unlike a standard public good, there are two different states relevant to a case of risk imposition based on which its burden may be assessed – the ex-ante state when the risk is introduced but has not yet materialized and the ex-post state when the risk has produced bad consequences. Ex ante every affected individual faces a likelihood of a bad outcome whereas ex post a few of these individuals will have been hit by the risk and suffered the actual bad consequence of physical harm or material loss. How should such burdens be properly accounted for when assessing the permissibility of a case of risk imposition? In answering this question contractualists are divided into two camps. I will now turn to this debate between ex-ante and ex-post contractualists.

2.2  **Ex-ante vs. Ex-post Contractualism**

Ex-ante contractualism assesses the relevant benefit and burden of risk imposition based on the state when the risk is imposed but has not yet materialized, that is, when the identity of the victims is still unknown. Each contracting party calculates the burden by multiplying the level of potential harm by the probability that they will be hit by the risk throughout their life course. Ex-ante contractualism therefore captures our intuition that the lower the severity of
harm and/or the probability of risk materialization, the more likely that the expected burden will be outweighed by the corresponding benefit brought about by risk imposition and hence the more likely that the case will be justifiable based on the presumptive worthiness principle.

Ex-post contractualism, on the other hand, holds that a case of risk imposition can only be justified if the actual distribution of burden after risk materialization is justifiable to each individual including the victims. The rationale underlying this position is that, when imposing a risk on a large population, it is almost statistically certain, due to the law of large numbers, that some unknown people will eventually suffer the bad consequence and such harm should be fully accounted for in assessing its justifiability. As stated by Moreau, “as long as we know that acceptance of a principle will affect someone in a certain way, we should assign that person a complaint that is based upon the full magnitude of the harm or benefit, even if we cannot identify the person in advance.”

However, both types of contractualism in the form stated above are problematic because they may lead to the endorsement of some intuitively unacceptable cases. The difficulties they face may be illustrated by comparing the following examples.

**Vaccination with Deadly Side Effect:** The state makes it compulsory for all society’s members to take a vaccination, which is effective for 99.999% of the population in preventing an infectious disease with paralyzing effect. However, there is a 0.001% chance that the vaccination will cause immediate death. Because of the law of large numbers, it is almost statistically certain that a number of unknown individuals (say X individuals in this society) will experience this bad outcome as a result.

**Medical Experiment:** The state randomly selects X individuals in this society to be killed for medical experiments. Such experiments could achieve a level of health benefits for the whole population equivalent to the effects of vaccination in *Vaccination*.

**Doing Nothing:** The state could also choose to do nothing. Let us suppose that, in this case, because the disease is highly infectious, ultimately the whole population (or a very high percentage of it) will be paralyzed.

---

12 See Moreau (1998) and Fleurbaey and Voorhoeve (2013).

13 Moreau (1998, p. 304). Note that it does not mean that the ex-ante burden of risk exposure such as the psychological burden of fear and anxiety and/or the burden of managing the exposure is not to be accounted for – they could be added to the ex-post outcome so as to get the overall distribution. See Fleurbaey (2008, p. 158) on this point.

14 Similar examples are first discussed by Scanlon (1998, pp. 208–09).
For ex-post contractualism, probability numbers in these cases do not matter. To assess their acceptability, all we need to compare is the ex-post distribution of outcome. In both Vaccination with Deadly Side Effect and Medical Experiment, X individuals will suffer death and the rest of the population will be healthy. In Doing Nothing, all the population will be paralyzed. An ex-post contractualist would therefore grant that the X individuals, whoever they turn out to be, could reasonably reject Vaccination and Medical Experiment because the burden of death is much more significant than paralysis. The rejection could be accepted as reasonable because their complaint is stronger than the complaint of becoming paralyzed that might be issued by anyone in Doing Nothing.15

This conclusion is, however, counter-intuitive. Consider a person who is currently paralyzed. There is some medical treatment which is 99.999% likely to completely cure her but has a 0.001% likelihood of causing immediate death. It seems entirely reasonable for this person to accept the treatment. If she does accept, we would not, after she realizes that she is about to die and feels regretful, then deny the reasonableness of her prior choice. Why, then, is it not acceptable to apply this single-person choice to everyone in the society? It seems the problem ex-post contractualists are concerned with is the certainty of death the treatment causes when applied to a large population. However, as rightly pointed out by Frick, this kind of reply would imply a preoccupation with the overall shape or distribution of outcome.16 Being concerned with such patterns of distribution is not the right motivation for contractualists who should be focused on personal reasons in assessing the acceptability of principles.17

In fact, if the ex-post distribution of outcome needs to be reasonably acceptable to each contracting party, then no risk imposition with potentially

---

15 This criterion for reasonable rejection could be more formally stated as the following – it is unreasonable for contracting parties “to reject a principle because it imposes a burden on you when every alternative principle would impose much greater burdens on others.” See Frick (2015, p. 177). Frick labels this the Greater Burden Principle.

16 Frick (2015, p. 197). Frick also considers another reply that may be made by ex-post contractualists – see ibid., Section V for a detailed discussion.

17 It may be suggested that pattern of distribution matters when the parties need to choose between, for example, saving one life and saving two lives (or preventing a hundred cases of paralysis). While I do not have space to elaborate here, I believe that even in such cases, the reason for rejecting a principle which permits saving one life rather than two lives (or preventing a hundred cases of paralysis) is not based on a concern about the overall distribution. Rather, it is based on the complaint that may be issued by any individual belonging to the latter group which states that the value of his life or his physical health is not properly counted in evaluating the cost of saving one life.
disastrous consequences could ever be acceptable to actual victims\(^{18}\) (unless there is no better alternative should the risk not be imposed – this is often the case in examples of vaccination and medical operation, on which most papers endorsing ex-post contractualism are focused). Requiring justifiability of this kind would prohibit most cases of common risk imposition like driving because few of them can completely rule out serious consequences ex post.

Ex-ante contractualism, on the other hand, could successfully explain our intuition that Vaccination with Deadly Side Effect is more justifiable than Doing Nothing. Even though the harm of death is significant, it is discounted by its small probability compared to the certainty of paralysis. However, ex-ante contractualism faces the different worry that its reasoning may also justify Medical Experiment. If Vaccination is acceptable because expected harm is outweighed by the corresponding health benefit for each individual, then the same could be said about Medical Experiment in which the expected harm of being selected to be killed can be outweighed by the expected benefit. This concern is what motivates Scanlon’s discussion of risk imposition in *What We Owe to Each Other*. While he only intends the case as an illustration of how his contractualist framework might be applied and is quite vague in terms of the specific principles that he thinks could justify risk imposition in general, his brief discussion has inspired many subsequent papers on this topic and is therefore worth closer analysis.

2.3 Scanlon’s Account of Risk Imposition

On the basis of his argument in distinguishing between Vaccination and Medical Experiment, Scanlon seems to reject the employment of expected value calculation and has in mind a different form of ex-ante contractualism. According to him, when looking at a case where risk is involved, the probability of harm is morally relevant in assessing permissibility “not as a factor diminishing the ‘complaint’ of the affected parties” (discounting the amount of harm by the likelihood of their suffering it), “but rather as an indicator of the care that the agent has to take to avoid causing harm.”\(^{19}\) What he seems to be proposing here is an alternative principle for assessing the permissibility of risk imposition, namely the requirement of due care or reasonable precaution. Let me call this the *reasonable precaution principle*, which could be stated as follows –

\(^{18}\) Oberdiek (2017, pp. 143–44); Frick (2015, p. 185).
\(^{19}\) Scanlon (1998, p. 209).
*The reasonable precaution principle:* a risk must be imposed with a reasonable level of precaution. That is, its potential harm should not be a result of recklessness or lack of care.

He then goes on to explain the difference between cases like Vaccination with Deadly Side Effect and cases like Medical Experiment. He argues that Medical Experiment is unjustifiable because the harm is directly inflicted on particular people rather than “occurring by accident despite the fact that reasonable precautions have been taken.”20 This argument is a bit obscure because what it is primarily concerned with seems to be less about the taking of precaution. Rather, it is more related to the intention of risk imposition – the justifiability of the two cases differs because the resulting harm is merely unavoidable in Vaccination but is intended in Medical Experiment. Let me call this the *just intention principle.* It could be stated as follows –

*The just intention principle:* a risk should not be imposed in such a way that the bad consequence is intended.21

While Scanlon does not further elaborate, it seems that both principles play a role in his argument and the just intention principle is not meant to replace the reasonable precaution principle. To see why the latter has independent justificatory force, consider two cases of vaccination – both carry the same risk of side effect (that is, the same probability of causing potential harm of the same level) but one vaccination has gone through proper testing while no medical trial has been performed for the other. Here the side effect of either vaccination is not intended to harm people, so they both satisfy the just intention principle. The reasonable precaution principle, on the other hand, may work to approve the former case while rejecting the latter because, in the latter case, it fails to implement the risky scheme with a reasonable level of precaution.

---

20 Scanlon (1998, p. 209).
21 Lenman calls this the aim consistency principle. See Lenman (2008, pp. 104–05). He is concerned that referring to intention may cause confusion that the principle applies to the intention of the actor. This worry is worth clarifying. Lenman is right in arguing that, for example, it is justifiable to allow a person to work as an ambulance driver as long as he follows due care rules even though his real intention in taking up this risky job is to enjoy high-speed driving. It should therefore be noted that my just intention principle is concerned with the nature of the action and the harm it involves rather than the intention of the actor. In fact, what Lenman is referring to may be more properly counted as motivation rather than intention.
By referring to principles like just intention and reasonable precaution, Scanlon’s approach to risk imposition differs from both ex-ante and ex-post contractualism in the simplistic form I described at the beginning of this section. Instead of assessing the permissibility of an action based solely on its outcome, either expected or actual, Scanlon’s arguments focus on the nature or characteristics of the action. Two actions may produce the same outcome (or probabilities of outcomes) but differ in their justifiability because, for example, one action carries a risk due to limits in human capacity while the other carries a risk with the same probability and level of potential harm due to lack of care. Intuitively the former is more likely to be justifiable than the latter. This is a crucial aspect of risk imposition that needs to be taken into consideration by contractualists in assessing their justifiability. As rightly stated by James, “we judge what others have done to us based not on worldly outcomes per se but on what they knew or could have known would happen and the risks they took with our lives.”

This focus on the nature of actions does not necessitate the abandonment of the presumptive worthiness principle. Scanlon seems to be suggesting in some places that he intends principles like just intention and reasonable precaution to replace expected value calculation altogether in assessing the permissibility of risk imposition. However, it seems highly implausible that expected benefits and costs do not factor in the assessment at all. Intuitively, the smaller the probability of harm, the less burdensome it is to be exposed to the risk, thus making the imposition more likely to be worthwhile. Moreover, while the just intention and the reasonable precaution principle do rule out some unacceptable cases of risk imposition, they are not sufficient because, surely, not all imposed risks satisfying those demands are presumptively worthwhile for all. Imagine, for example, a high-speed automobile which, even when operated with reasonable precaution, causes accidents with a likelihood of 50%. This risk is imposed for convenience without intending any harm and is implemented with due care. The fact that the new technology is unlikely to be justifiable, while a normal type of car is, can only be explained by referring to their different probabilities of causing accidents which act as the discounting factor in expected burden evaluation.

In fact, Scanlon later admits that rejecting ex-ante discounting was a mistake on his side. He explains that his original intention was to rule out cases

---

22 James (2012, p. 274).
23 See, for example, Scanlon (1998, p. 209).
24 Kumar (2015, pp. 23–24).
25 Scanlon (2013, pp. 510–11).
like Medical Experiment in which, at the time of decision-making, it is already certain that the bad outcome will occur, but, as I have argued, such cases could be covered and rejected by appealing to an additional principle like the just intention principle. The just intention principle is, moreover, not incompatible with probabilistic discounting. Kumar, for example, comes quite close to this approach of combining expected value calculation with the requirement of just intention in his contractualist account of risk imposition. He acknowledges the legitimacy of weighing discounted cost and benefit while insisting that risk cannot be imposed in a way that violates an individual’s authority in using his own body and disrespects him as an autonomous agent, thus ruling out the case of Medical Experiment. This latter requirement can largely be accounted for by the just intention principle – imposing such a risk fails to respect the victim’s agency over his own body exactly because the bodily harm is intended rather than merely foreseen.

While it is easier to see how the just intention principle and the presumptive worthiness principle work together, it may be questioned why the reasonable precaution principle is separately needed when presumptive worthiness is already satisfied. To see why neither principle is redundant, imagine the following case. A patient was diagnosed with a disease which has a death rate of 50% in one year’s time. He was informed that a certain operation could cure the disease with a likelihood of 99% but with a 1% chance of causing permanent disability. The patient agreed to the surgery because, based on expected cost and benefit, he considered the risk to be worth taking. After the surgery he unfortunately suffered the consequence of becoming permanently disabled. Later, he learnt that, by the time the operation was performed, research had already discovered that the major cause of disability is genetic, and the risk could have been easily reduced to 0.1% through pre-operation screening. In this example, supposing that this piece of information was easily available, the doctor could be said to have failed to take reasonable precaution by ignoring it. If this is so, then the patient may reasonably regard the risk as being unjustly imposed even though the 1% risk is worth taking in terms of expected return.

To briefly summarize what I have argued so far, in order for a scheme of social risk imposition to be reasonably acceptable to contracting parties, it

---

26 Kumar (2015, p. 37). Frick objects that Kumar’s argument cannot explain the unacceptability of other cases of risk imposition where harm does not take the form of violating bodily integrity but reflects the failure to take a lower risk when it is available as an option. See his argument in Frick (2015, pp. 237–40). However, what Frick fails to recognize is that Kumar’s principle concerning bodily autonomy is not intended as the sole principle for risk imposition and is to be combined with expected benefit and cost analysis. The example he is considering can therefore be successfully dealt with by the combination of these principles.
needs to satisfy, first of all, two principles concerning the nature or character of the risky action – it should not involve harm that is intentionally inflicted (the just intention principle) or harm resulting from lack of adequate precaution (the reasonable precaution principle). With these conditions met, its expected benefits and burdens are then to be assessed by the presumptive worthiness principle and the fair distribution principle. The scheme may be justifiable if it yields presumptive benefits that significantly outweigh the expected burden for each affected individual and the benefits and burdens are distributed in a way that is considered fair.

3 The Compensation Principle and the Demand for Risk Sharing

In the last section, I proposed two principles for determining the justifiability of risk imposition. While the case for the just intention principle is made quite clear by the comparison between Vaccination and Medical Experiment, the rationale underlying the reasonable precaution principle is worth closer examination. Why would contracting parties demand that a scheme of risk imposition should be regulated by the reasonable precaution principle? This relates to the fact that the same type of risk may be imposed in various ways with different levels of burden for the affected individuals.

In considering the justifiability of a typical case of public goods provision, it is implicitly assumed that the cost of provision is fixed. The presumptive benefit principle and the fair distribution principle then come into play to assess whether the fixed cost is outweighed by the corresponding benefit and whether it is fairly distributed. When it comes to a scheme of risk imposition, however, the fact that its cost may vary depending on how the risk is imposed becomes centrally important. For the same level and type of benefit, if a risk could be imposed in a way that the probability or the magnitude of the potential harm is lower, then a higher level of risk would no longer represent the inevitable cost that individuals must bear in order to produce the corresponding benefit for all.

For example, consider reasonable precautions that may be required for allowing car driving. They are likely to include regulations such as a speed limit and a prohibition on drunk driving as well as the requirement for a regular quality check for automobiles and road maintenance. If drunk driving is not prohibited, then the practice of car driving could be reasonably rejected by contracting parties because the increased likelihood of accident brought about by drunk driving is not the inevitable cost of convenience and higher efficiency made possible by driving. The fact that an accident is not occurring,
in Scanlon’s words, “despite the fact that reasonable precautions have been taken” shows that it is disrespectful to those subject to the potential harm of the risk. Contracting parties could reasonably reject such a scheme because it imposes an unnecessary threat to their autonomy.

To be sure, these possible measures of precaution are themselves burdensome as they may take up resources or restrict individual behavior. So it would not be reasonable to demand all possible precautions be taken so as to minimize the probability or magnitude of a bad outcome regardless of cost. Therefore, what is required by the reasonable precaution principle is that, in order for a scheme of risk imposition to be justifiable, its burden, including the probability and magnitude of its potential harm, should be reasonably reduced. When a similar benefit could be achieved with a lower level of risk, it is reasonably rejectable if the risk is not reduced to this level.

If this is the case, then the taking of precaution is not the only implication of this demand for reasonably reduced burden. It also points to an additional requirement which could similarly reduce the burden of risk imposition – the requirement of ex-post compensation for victims of risk materialization. Compensation can effectively alleviate burden in two ways. First, it helps to restore the condition of autonomy for victims of risk materialization. In most cases, harm resulting from common risks, either physical or economic, can at least be partially rectified with external resources (including the payment of monetary compensation or the provision of services such as medical care). In such cases, compensation serves to reduce the magnitude of the burden to be borne by victims. Deadly risk may be an exception here because it cannot be compensated for. In fact, in discussing the justifiability of risk imposition, there is a tendency for philosophers to choose to focus on deadly risks. While it helps to provide the strongest case that even the imposition of a lethal risk may be permissible, this focus has probably led many to overlook the importance of compensation. When harm can be rectified, individuals may reasonably reject a scheme of risk imposition because it fails to rectify the harm, thus reducing the actual burden for victims, by providing compensation.

Second, even before a risk ripens, the guarantee of compensation would help to reduce fear and anxiety for all those who are subject to the risk in question. This also applies to deadly risks because compensation may serve to assure people that, in the case of risk materialization, their families or loved ones will be provided with financial support. In addition, with the guarantee of compensation, people are also relieved of the burden of taking risk management decisions for commonly imposed risks. Since social risks are not voluntarily taken on by individuals, having to assess and manage their exposure represents an additional burden for people and may distract them from their main
life projects. Hence, by reducing the burden of risk anticipation and management, the guarantee of compensation also makes the scheme more likely to be justifiable to contracting parties.

Since compensation, like the taking of precaution, could reduce the burden of risk imposition, it is justifiable for contracting parties to insist that the scheme has to guarantee that compensation will be paid if the risk materializes. This would be an additional principle for just risk imposition which I will call the compensation principle –

*The compensation principle*: a risk must be imposed with the guarantee that victims of risk materialization will be compensated in such a way that the harm they suffer is reasonably reduced.

Note that compensation justified in this way differs from the idea of compensation as a result of rights violation for imposing a risk or for causing a risk to materialize. In the contractualist framework, contracting parties do not assume such an existing right against risk imposition. Rather, they consider principles of risk imposition that no one could reasonably reject and any right they may have concerning risk imposition is derived from such principles. The compensation principle stated here, for example, may be regarded as generating a right against imposing a risk without guaranteeing compensation.

The implication of this distinction is two-fold. First, it breaks the otherwise tight link between the payment of compensation and the individuals who actually carry out the risk-related activities and/or cause a risk to eventuate. If compensation is required due to a rights violation, then the person who has violated the victim’s right against being exposed to risk will be required to bear the full burden. Under my account, however, compensation, like the taking of precaution, is for the purpose of reasonably reducing the actual costs for potential victims so as to make the scheme justifiable to all ex ante. The payment of compensation is part of the overall burden of the scheme that is to be fairly allocated among all those impacted by risk imposition.

In fact, as acknowledged by Scanlon, it is unreasonable for contracting parties to reject a fairness principle which requires those who have benefited from an arrangement or a scheme of cooperation to make a corresponding

---

27 For accounts of risk imposition and compensation, see Nozick (1974, pp. 73–78) and McCarthy (1997).

28 This is what leads to Nozick’s concern about the risk imposers’ ability to pay in his discussion of risk imposition. See Nozick (1974, pp. 78–84).
contribution. Since common risk imposition is presumptively beneficial for almost all members of society, the fairness principle implies that they should all make a contribution and bear a share in paying for compensation. This is effectively a demand for risk sharing by all.

Second, using compensation to reasonably reduce the burden of risk imposition also means that compensation need not always be full. If compensation is justified as a result of rights violation, then it is clear that full compensation should be paid or, where impossible, the situation should be rectified as far as possible. However, in my account, similar to the reasonable precaution principle, the compensation principle only requires that the burden for victims be reasonably reduced. This may imply full compensation when paying full compensation does not create unreasonable burden for those who need to bear a share. This seems often to be the case when the risk in question exhibits a low and stable probability of materialization and is not highly correlated among individuals (that is, the risk is similar to those insurable in the private market). In such cases, because of the law of large numbers, the amount of compensation required at any given time would be limited and predictable. If this amount is to be shared by all individuals subject to the duty of fairness, it is likely not to be significant for each person even when full compensation is required.

Moreover, since the total amount of contribution can be estimated beforehand, it can also be transformed into a series of small regular payments similar to the arrangement of private insurance schemes. While this commitment to regular contribution still restricts people’s range of options at any given time, its impact on their overall condition of autonomy is likely to be much more limited than sudden, lump-sum payments and can usually be sufficiently outweighed, over their life course, by the benefit of avoiding disastrous consequences plus the opening up of valuable options made possible by risk imposition.

On the other hand, if the risk deviates from a typical insurable risk, that is, if it is difficult to estimate in terms of likelihood or is expected to affect a large group of individuals at the same time, then it seems that the demand for full compensation for all victims is more likely to impose significant burdens on duty bearers. Consider, for example, the risk of nuclear disaster or the risk of a great economic recession. In such cases, instead of demanding a one-off payment of full compensation for all victims, a less than full amount of compensation, or compensation to be paid over a longer time horizon after

---

29 Scanlon (1998, p. 212).
risk materialization, may be optimal in smoothing disruptions without significantly undermining everyone's life prospects.

At this point, a question may be raised – by arguing that a risk is socially imposed and its victims should therefore be compensated by those who benefit from its existence, does my account implicitly assume a baseline of no risk? If so, it leads to a further concern – while referring to a state of no risk as the baseline seems natural for risks that are plainly introduced into human society as a result of human decision (such as the risk of car accidents and the risk of nuclear disaster), should the hypothetical state of no health risk or no natural disaster also be treated as the baseline for justifying compensation of victims?

To answer this question, let me start from risks imposed through human actions. In such cases, a state of no risk may provide a natural starting point for assessing the justice of risk imposition, but it does not mean that any state without the existence of the concerned risk can serve as a baseline to justify fair risk sharing. The no-risk baseline has to be a state that is itself just. For example, imagine a society without car driving. This society may endorse justice as equal prospects of autonomy or some other conception of justice. When its institutions are arranged in a way that meets the demands of justice (call this State 0), this state can then be treated as the baseline for assessing the justice of introducing the risk of car driving. Because it is a no-risk state, we do not need an account of how to justly deal with the concerned risk in order to claim that it is a just baseline. So starting from this kind of case is especially useful when we are developing an account of just risk imposition.

On the other hand, to apply the account of social risk imposition, the state of no risk need not be the only acceptable baseline. To illustrate, let me continue with the above example. First, suppose that this society wants to introduce a small risk of car accidents by allowing only emergency driving. In order to do so justly, it imposes the risk according to principles outlined by my account (call this State 1). If the society then considers imposing an even higher level of risk by allowing convenience driving in addition to emergency driving, this new case of risk imposition can be assessed either against the baseline of no risk (State 0) or the baseline where the lower level of risk has been justly imposed (State 1, which already demands a level of compensation for victims of the existing risk). Through either way of justification it will arrive at the same level of total compensation owed to victims.

However, things would get more complicated when it comes to cases involving risk that naturally exists in human life, especially when it is the kind of risk that cannot be eliminated through human intervention. In such cases, applying the no-risk baseline no longer seems appropriate. This is not because the no-risk state represents a hypothetical scenario but because it is infeasible
(unlike, for example, the elimination of the unemployment risk, which is hypothetical but theoretically possible). Since we cannot achieve a state of no health risk no matter how we arrange our society, it does not make sense to consider how to justly move from this inaccessible state to a scenario in which we then choose to impose (that is, retain) a level of health risk.

Note that what I have said so far does not prevent us from dealing with natural risks from the perspective of social risk imposition because, as I have argued, institutions can be designed in ways that affect their likelihood and magnitude of impact, so retaining a higher rather than lower level of a natural risk may still be treated as a case of social risk imposition. The challenge is to choose an appropriate baseline in order to apply my account. It seems that, in such cases, what may serve as a baseline would be an arrangement where the relevant risk is reduced as much as possible with the constraint that other demands of justice that have priority over the elimination of the risk are being met. This baseline represents the scenario where best efforts have been made to eliminate the risk without violating other more urgent demands of justice, so a level of risk that is higher than this baseline can be treated as being socially imposed through collective choices.30 Let me illustrate using the example of the current pandemic.

The coronavirus disease itself is naturally caused and seems impossible to eliminate at least in the short run, but we can imagine that the risk of contracting the virus may be reduced to the lowest possible level by enforcing a strict lockdown which prohibits anyone from leaving their homes. However, this cannot be a just state because in this hypothetical scenario all public services will have to stop and, as a result, the lives of many dependent or vulnerable individuals will fall below sufficiency, which violates the demands of most conceptions of justice. Hence, it seems that the baseline for assessing the justice of risk imposition is more likely to be a state where the society lowers the risk as much as possible but still fulfills the basic demands of justice which it endorses. This may be achieved by, for example, enforcing a reasonably strict lockdown while providing basic public services. Whether the society can justly move to a higher level of Covid risk from this baseline can then be evaluated based on the principles of just risk imposition which I have proposed, and the

---

30 This is consistent with our intuition that we should adopt a lower baseline when the risk entails more severe consequences and when the risk is easier to reduce – in such cases keeping the existing level of risk requires stronger justification (and more compensation). Also note that the baseline of the lowest possible level of risk compatible with other demands of justice can naturally incorporate the scenario of no risk for cases where the risk is introduced through human action, so it is consistent with my earlier argument that both types of cases are structurally similar.
additional risk may be considered as being socially imposed and its resulting burden on victims calls for fair sharing by all.

Some may object that, in this example, there may be other reasons for the society to pay for the treatment of Covid, whether or not we treat contracting the virus as a socially imposed risk. Indeed, in many cases of illnesses and diseases, due to the special moral importance of health, other considerations of justice may require a society to provide some level of universal healthcare, in which case there is no need to appeal to social risk imposition to justify the sharing of medical costs. However, treating the pandemic (as well as other diseases with a natural cause) as at least partially a case of social risk imposition may still be useful for two reasons. First, it provides a case for societies which do not otherwise recognize universal healthcare as a demand of justice to share part of the cost of medical treatment. Second, even for societies which already provide universal healthcare, recognizing the risk as partly a socially imposed risk may additionally justify compensation for other burdens as a result of falling ill, such as the temporary loss of income.

Now, with a reasonable level of compensation justified, the final question is how the burden should be fairly allocated among those who bear the duty of compensation. I will turn to this question in the next section. In particular, since I have argued that the justification for a scheme of social risk imposition resembles that of public goods provision, I will examine if existing literature on the fair allocation of burdens in providing public goods may shed light on my account of fair risk sharing.

4 Fair Social Risk Sharing

In the general case of public goods provision, two different principles have often been proposed for fair burden allocation. One proposal is allocation based on the ability to pay. By demanding more from those who could afford to pay more, this principle is deemed fair by some people because it implies the requirement of equal sacrifice. However, as pointed out by Murphy and Nagel, such reasoning treats the burden of funding public goods as if the scheme itself were merely a common disaster which is to be shared by all society members.31 It ignores that what matters is not burden allocation per se but whether the scheme of public goods provision as a whole, which includes not only burden but also benefit, is overall fair and thus justifiable to all.

31 Murphy and Nagel (2002, p. 25).
This leads to the other popular proposal — the proportional benefit principle, which requires that, against a background of just distribution, the funding of public goods be arranged according to some standard of proportionality to benefit.\textsuperscript{32} Benefit could be measured by, for example, each individual’s reserve price for the public good. Intuitively, this principle is likely to be justifiable to contracting parties because reserve price represents what people would voluntarily pay for the goods themselves.

One objection to this principle is concerned not with its spirit but with how it could be operationalized, especially how each person’s reserve price could be measured. In the context of risk imposition, reserve price may in fact not be a good term because people gain from the scheme of social risk imposition mainly through the improved set of life options rather than the enjoyment of a particular good which they could in theory buy from a market. So, instead of referring to reserve price, the proportionate benefit principle may be stated in a way that makes burden proportional to each individual’s enhanced life prospects.

Of course, this restatement does not in itself solve the problem — improvement in life prospects is still difficult to measure, especially when a particular risk is singled out for assessment. However, it seems that some rough evaluation could be made. For example, the institution of a market economy as a whole imposes various economic risks on individuals compared to the no-risk scenario (for example, a centrally planned economy with need-based pay, universal healthcare, etc.). The extent to which each individual benefits from this choice may very roughly be represented by the difference in income and wealth they would receive in the market economy and under central planning. If this is an acceptable proxy, then the proportionate benefit principle would require those who possess more income and/or wealth to bear a relatively larger burden of paying compensation to the victims of economic risks. In such cases, its implication may in fact be similar to that of the ability-to-pay principle in allocating the burden of economic risks.

Note, however, that there is a wrong way of specifying the proportionate benefit principle, which treats the principle to mean that those who benefit more, more in the sense of greater improvement under the current state by comparison with the state of nature, should make a proportionally larger contribution. This understanding would lead to absurd conclusions such as that those who are in greater need of government support should bear more tax burden.\textsuperscript{33} This interpretation is wrong because the proportionate benefit

\textsuperscript{32} See, for example, Murphy and Nagel (2002, Chapter 4, esp. p. 85) and Fried (2018).

\textsuperscript{33} Murphy and Nagel (2002, pp. 16–17).
principle should apply to an otherwise just background distribution rather than to the state of nature. That is, what could serve as a benchmark for evaluating relative benefit should be a state of affairs that is itself justifiable to contracting parties. The equivalent of this common misunderstanding in the context of social risk is that the principle would require those who are subject to higher risk and are therefore more likely to receive compensation to make a proportionally higher contribution. This interpretation treats the state where every individual bears their natural risk exposure as a benchmark for the assessment of relative benefits. However, as I have discussed, it is not a just benchmark because leaving people exposed to existing risks is a state that calls for justification in the first place.

A different worry about the proportionate benefit principle is that it is not egalitarian in nature. If an equal overall distribution is what is reasonably acceptable to contracting parties, then the proportionate benefit principle is not necessarily going to preserve such equality. Miller gives an example for this objection: suppose that the state could choose between two schemes, one generating 40 units of benefit for individual A and 20 units of benefit for individual B at a total cost of 30 units and the other generating 40 units of benefit for each at a total cost of 50 units. The principle merely requires that the first scheme allocate 20 units of cost to A and 10 units to B and 25 units to each for the second scheme. It does not require the state to prefer the second scheme over the first. If the first scheme is chosen, A would enjoy a net benefit of 20 while B enjoys 10. If they start with an initial equal distribution, then such equality is undermined by the scheme of public goods provision.34

In fact, what the proportionate benefit principle attempts to replicate is the result of voluntary exchange in the free market. Therefore, unless the contracting parties regard any distributive result of a free market economy (or a market economy with, for example, a safety net) to be just, applying this principle will not produce or retain a just distribution. If what contracting parties endorse is a certain kind of egalitarian distribution, then it would only be justifiable that the scheme of public goods provision preserves such distribution as far as possible.35 This leads to Miller's proposal of the equal net benefit principle, which requires that each individual's net benefit from the supply of the public goods provision be equal. It is not justifiable to allocate different amounts of cost to different individuals.

34 Miller and Taylor (2018, pp. 568–69).
35 If not possible, then something like Rawls' difference principle may be adopted which requires that we prioritize the worst-off and maximizes their preconditions of autonomy. This should be reasonably acceptable to contracting parties in the Scanlonian framework based on the Greater Burden Principle.
goods be equal. So, for my account, the equal net benefit principle implies that, starting from a condition of equal opportunity or equal autonomy, a fair scheme of social risk sharing would allocate the burden in a way that preserves such equality as far as possible.

On the other hand, even if we cannot agree about the content of the benefit principle (whether it should require proportionate benefit or equal net benefit), as long as we agree that contracting parties would reasonably accept a version of the benefit principle, this would justify compulsory risk sharing by all members of the society in a form that is different from private actuarial insurance. This is because the benefit principle, regardless of its specific content, contrasts with the actuarial principle which allocates burden according to the size of the risk that each insurance buyer carries and requires those with higher risk to pay a larger premium. This provides a strong case for fair risk sharing through universal social insurance programs because the state could design such programs in a way that deviates from actuarial insurance and allocate the burden of compensation according to the benefit principle.

It may be suggested that sometimes fair risk sharing could also be achieved by mandatory participation in the private insurance market. The state could regulate the pricing of private insurance so as to prohibit discrimination based on gender, age, genetic information, and so on. However, regulations are often not sufficient for the private market to replicate the benefit principle because, even when risk classifications are prohibited, it is still difficult to require private insurers to price their policies based on equal net benefit generated by the scheme of social risk imposition. Note, however, that social insurance justified in this way should only aim to cover the social component of a common risk, so it may often need to be supplemented by private insurance when some individuals need additional coverage for their higher risk exposures due to personal choices.

5 Conclusion

I have argued that the justification of social risk imposition requires not only principles concerning the potential outcomes of the risk in question (such as principles requiring that the benefit of the scheme sufficiently outweigh its burden for each individual and that benefits and burdens be fairly allocated) but also principles concerning the nature or the characteristics of the risk – whether its potential harm is merely foreseen rather than intended and whether its burdens have been reasonably reduced. The latter requirement
implies not only the demand for taking reasonable precaution but also the duty to pay compensation to victims, which is to be fairly shared among members of the society.

It should be noted that this is not the argument that existing social risks such as the risk of unemployment and the risk of needing healthcare must be justifiable as long as they are accompanied by a scheme of fair risk sharing. It is perfectly possible that, given the stage of economic, technological, and social development, members of a society decide that the benefit of a free labor market is outweighed by the burden of unemployment risk, so that they actually prefer an alternative economic arrangement in which, for example, society members have guaranteed jobs with equal pay. What it does mean is that, when unemployment risk is actually imposed on members of the society, justice requires that the imposed risk be accompanied by a reasonable level of precaution in the form of labor law and a guarantee of compensation in the form of, for example, unemployment insurance, whether or not it further requires economic reform in the long term to reduce or eliminate the risk.

Acknowledgements

I am grateful to David Miller, Stuart White, Chong-Ming Lim, Jakob Moggia, participants at the Nuffield Political Theory Workshop and MANCEPT 2019 Workshop, and the anonymous reviewer for their valuable comments on this paper.

Biographical Note

Yunmeng Cai is a DPhil student in political theory at Nuffield College, University of Oxford.

References

Baker, Tom and Jonathan Simon. 2002. Embracing Risk: The Changing Culture of Insurance and Responsibility. Chicago: University of Chicago Press.
Fleurbaey, Marc. 2008. Fairness, Responsibility and Welfare. Oxford: Oxford University Press.
Fleurbaey, Marc and Alex Voorhoeve. 2013. “Decide as You Would with Full Information!” in Inequalities in Health: Concepts, Measures, and Ethics, eds. N. Eyal et al. New York: Oxford University Press.
Frick, Johann. 2015. “Contractualism and Social Risk.” Philosophy and Public Affairs 43 (3): 175–223.

Fried, Barbara. 2018. “The Case for a Progressive Benefits Tax” in Taxation: Philosophical Perspectives, eds. Martin O’Neill and Shepley Orr. Oxford: Oxford University Press.

Hacker, Jacob. 2008. The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream. New York: Oxford University Press.

Hayenhjelm, Madeleine and Jonathan Wolff. 2012. “The Moral Problem of Risk Impositions: A Survey of the Literature.” European Journal of Philosophy 20 (1): 26–51.

James, Aaron. 2012. Fairness in Practice: A Social Contract for A Global Economy. Oxford: Oxford University Press.

Klosko, George. 1987. “Presumptive Benefit, Fairness, and Political Obligation.” Philosophy and Public Affairs 16 (3): 241–59.

Kumar, Rahul. 2015. “Risking and Wronging.” Philosophy and Public Affairs 43 (1): 27–51.

Lenman, James. 2008. “Contractualism and Risk Imposition.” Politics, Philosophy and Economics 7 (1): 99–122.

McCarthy, David. 1997. “Rights, Explanation, and Risks.” Ethics 107 (2): 205–25.

Miller, David and Isaac Taylor. 2018. “Public Goods” in The Oxford Handbook of Distributive Justice. Oxford: Oxford University Press.

Moreau, Sophia Reibetanz. 1998. “Contractualism and Aggregation.” Ethics 108 (2): 296–311.

Murphy, Liam and Thomas Nagel. 2002. The Myth of Ownership: Taxes and Justice. Oxford: Oxford University Press.

Nozick, Robert. 1974. Anarchy, State, and Utopia. Oxford: Basil Blackwell.

Oberdiek, John. 2017. Imposing Risk: A Normative Framework. Oxford: Oxford University Press.

Olsaretti, Serena. 2013. “Children as Public Goods?” Philosophy and Public Affairs 41 (3): 226–58.

Rawls, John. 1999. A Theory of Justice. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

Scanlon, T. M. 1998. What We Owe to Each Other. Cambridge: Harvard University Press.

Scanlon, T. M. 2013. “Reply to Zofia Stemplowska.” Journal of Moral Philosophy 10 (4): 508–14.