



Automation, unemployment, and insurance

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Abstract

How should policymakers respond to the risk of technological unemployment that automation brings? First, I develop a procedure for answering this question that consults, rather than usurps, individuals' own attitudes and ambitions towards that risk. I call this the *insurance argument*. A distinctive virtue of this view is that it dispenses with the need to appeal to a class of controversial reasons about the value of employment, and so is consistent with the demands of liberal political morality. Second, I appeal to the insurance argument to show that governments ought not simply to provide those who are displaced by machines with unemployment benefits. Instead, it must offer re-training programmes, as well as enact more general macroeconomic policies that create new opportunities for employment. My contribution is important not only because it helps us to resolve a series of urgent policy disputes—disputes that have been discussed extensively by labour market economists and policymakers, but less so by political philosophers—but also because my analysis sheds light on more general philosophical controversies relating to risk.

Keywords Unemployment · Distributive justice · Liberalism · Risk

Introduction

Automation brings with it the risk of *technological unemployment*, as employees are replaced by machines that can carry out the same work at a fraction of the cost. We can expect the rate at which this process occurs to quicken as (i) new technologies become available, (ii) their cost continues to decrease, and (iii) the cost of labour continues to rise. Because of this, the corresponding risk of involuntary unemployment is a considerable one. Indeed, some claim that we can expect to the level of disruption to take place ten times faster and at 300 times the scale of the impact of the Industrial Revolution (Dobbs et al., 2015).

Among experts, there is disagreement about the long-term effects of automation. Some predict a future of mass unemployment, sustained by the permanent fact that individuals will become involuntarily unemployed at a pace quicker than we can find new uses for their labour (Keynes,

2010 [1930]). Others argue that these sensationalist forecasts result merely from a failure of imagination regarding the new forms that employment will take (Autor, 2015). Irrespective of this, what is in little doubt is that automation poses a serious risk of involuntary unemployment in the short- and medium-term. It is clear that automation can have adverse consequences for some individuals' employment prospects, as well as for the fate of entire industries (Acemoglu & Restrepo, 2019). Here, I recognize that this threat is a new one. But this acknowledgement is of little consolation, I think, given the disruption and damage caused by previous waves of technological change (Frey, 2019).

Moreover, we should expect the worst hit by this trend to be low- and medium-skilled workers. This is not only because it is the jobs of these individuals that are more straightforwardly automated (Acemoglu, 2002; Acemoglu & Autor, 2011; Frey 2019, chap. 12). It is also because, even if the size of their risk of involuntary unemployment as a result of automation were lower than for others, the threat is much more serious given that these individuals tend to be less employable and even temporary periods of unemployment can be devastating because they're unlikely to have much by way of personal savings. This result is significant because, if our economic system is to be just, it is morally

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imperative that it serves the interests of our society's least advantaged members.

The task of responding to this threat is further complicated by the fact that prevailing accounts of the significance of employment tend to refer specifically to the contribution that it can make to employees' flourishing.¹ This is problematic since it means that any argument for the exercise of political power that appeals to such an account will be vulnerable to a powerful objection. Roughly, this objection holds that we should dispense with these arguments since they require us to appeal to a class of controversial reasons that we cannot expect every reasonable individual to accept, and so therefore violate a fundamental constraint on liberal political morality.²

My main aim in this paper is to outline a procedure for responding to the risk of technological unemployment that is not susceptible to this kind of objection. I achieve this by showing that we should view this threat as one against which individuals may *insure* themselves through the use of public policies. This idea is a politically familiar one, but its philosophical credentials and application to justice in the labour have market have been neglected.³ More controversially, I also contend that reasoning in this way supports the conclusion that governments ought not simply to provide unemployment benefits to those who become or remain involuntarily unemployed as a result of automation. Instead, policymakers ought to take a more hands on role in providing individuals with opportunities for employment.

Importantly, my arguments reveal how a concern for the demands of liberal political morality does not prevent us from recommending extensive government intervention in the labour market. In turn, this helps to defuse the charge against liberals who accept these demands that they are ill-equipped to shed light on these kinds of problems (Muirhead, 2004, p. 24). Because of this, not only do my arguments contribute to our understanding of justifiable labour market regulation, they also partially vindicate those who uphold the demands of political liberalism.

The remainder of the paper unfolds as follows. In section II, I specify more precisely the details of my task, by clarifying the demands of liberal political morality. In section III, I consider and tentatively reject an attempt to respond to the threat of technological unemployment using John Rawls's

difference principle. In sections IV and V, I introduce my *insurance argument*, and then elaborate on its implication for the task at hand. In section VI, I conclude my summarising my headline conclusions and emphasising some limitations of my investigation.

Before proceeding, a final clarification is in order. I do not assume that technological unemployment is a morally distinctive phenomenon, such that my arguments apply only to it and not to other forms of involuntary unemployment, such as cyclical unemployment, or forms that exist as a result of other forces, such as globalization. Does this mean that there is no justification for my narrow focus in this paper? I think not. Rather, my reason for limiting the investigation to technological unemployment is because doing so enables us to direct sustained philosophical attention towards a rich, complex, and politically salient set of questions that warrant closer scrutiny. If my conclusions can be exported to other, similar issues, then I welcome that result.

The Liberal Constraint

One formidable objection to extensive job market regulation is that it wrongfully privileges the pursuit of some ways of life over others and, in virtue of this fact, it is objectionably illiberal. The intuitive force of this objection is illustrated by Richard Arneson, who concludes that:

...implementing the right to meaningful work elevates one particular category of the good, intrinsic job satisfaction, and arbitrarily privileges that good and those people who favor it over other equally desirable goods and equally wise fans of those other goods (Arneson, 1987, pp. 536-537).⁴

Though Arneson is concerned only with the right to meaningful work, a general version of this point applies to any approach to labour market regulation that singles out particular kinds of opportunities as especially worthwhile of protection. We can flesh out the details of this objection in several ways, with varying levels of plausibility. I develop what I take to be its strongest version. This task is important since the constraint to which it gives rise then frames the analysis that follows in the remainder of this paper.

To begin, let me draw attention to three distinct claims, each of which has considerable intuitive appeal (Williams manuscript).

- (1) We should protect certain fundamental liberal rights, such as freedom of conscience and freedom of thought.

¹ The most influential account of this kind is provided by Karl Marx and, in particular, by his account of alienation. See Marx (1977). For other accounts, which are to varying degrees indebted to Marx's, see Gomberg (2007) and Muirhead (2004).

² This relevant constraint is articulated and defended in Rawls (1996). This objection is first presented in Arneson (1987).

³ The notable exception to this is the work of Ronald Dworkin, whose views inspire some aspects of my analysis in this paper. See Dworkin (2000: esp. ch. 9).

⁴ Arneson later abandons this objection, in line with his later rejection of the demands of liberal political morality (Arneson 2009).

- (2) We may appeal to any valid reason to justify the exercise of political power.
- (3) We should protect political autonomy.

Though their precise content is disputed, claims (1) and (2) are both familiar and widely-shared. By contrast, claim (3) requires some elaboration. As I shall understand it, *political autonomy* refers to the condition that obtains when an individual is able to identify freely with the constraints that she faces, such that she can understand and accept the justifications of those constraints.⁵ This condition is valuable for a host of reasons, including because of its intrinsic value, because it facilitates a valuable form of social unity between members of a political community, and because it increases the probability of individuals then conforming to (the demands of) those constraints.⁶

Returning to claims (1)–(3), though we can simultaneously accept any pair of these, we cannot simultaneously accept all three. This is for the following reason. If we accept claim (1), then there will predictably arise irreducible disagreement among individuals about the value of various accounts of human flourishing. This disagreement is the outcome of the free exercise of human reason, and it is explained by empirical claims relating to the fact that no set of individuals are likely freely to reach identical ethical judgments about what it means to flourish (Rawls, 1996, pp. 54–58). As a consequence of this, we must choose between claims (2) and (3). This is because it is overwhelmingly probable that at least some individuals will fail to recognise the validity of certain reasons and, subsequently, form beliefs that are inconsistent with them. Therefore, if we accept claim (2) and therefore permit appeals to any valid reason to justify the exercise of political power, we risk failing to protect the political autonomy of at least some individuals. Accordingly, the only way in which we may simultaneously preserve claims (2) and (3) is by rejecting claim (1). Claims (1), (2), and (3) therefore constitute a trilemma.

Liberals, such as Rawls, contend that we should reject claim (2) to protect claims (1) and (3). In other words, we ought to prioritise the protection of certain fundamental liberal rights and political autonomy, even though a consequence of this is that we may not appeal to certain valid reasons to justify the exercise of political power.⁷ Our

⁵ This idea plays an important role in Rawls, *Political Liberalism*. Moreover, as Rawls notes, the idea also has an important historical tradition, and an embryonic version of it is present in the work of Jean Jacques Rousseau, for example (1999: 426 n. 10) and Cohen (1986).

⁶ For further discussion of these three roles, see §3.1 of Gosseries and Parr (2021).

⁷ Strictly speaking, liberals need not hold that we ought *always* to sacrifice claim (2) in the pursuit of claims (1) and (3). Rather liberals need hold only that we should prioritise claims (1) and (3) over claim

commitment to claims (1) and (3) therefore imposes on us the need to exercise restraint when we justify the exercise of political power. I shall refer to this as the *liberal constraint*.⁸

An implication of the liberal constraint is that we ought to justify the exercise of political power by appeal exclusively to so-called *public reasons*—that is, a subset of valid reasons that we can expect all free and equal individuals to accept in the light of principles and ideals acceptable to common human reason—and that we must set aside *non-public reasons*, which are those that derive from a certain class of sound but controversial claims. Rawls notes this implication of (what I have called) the liberal constraint, when he issues the following clarification:

...those who believe that fundamental political questions should be decided by what they regard as the best reasons according to their own idea of the whole truth – including their religious and secular comprehensive doctrine – and not by reasons that might be shared by all citizens as free and equal, will of course reject [the liberal constraint] (1999, p. 579).

As a result, even its sound reason to believe that employment, or a certain kind of employment, is necessary for a flourishing life, we ought not to appeal to this judgment to justify the exercise of political power. In this respect, the liberal constraint generates a principled inhibition on appealing to a certain class of valid reasons, which we should treat as off the table, so to speak.

The liberal constraint is particularly relevant to our task since it prohibits us from responding to the threat of technological unemployment by invoking the idea that employment, or a certain kind of employment, is in itself more valuable to an individual than unemployment. To repeat, this is because justifications of this kind must rely on a controversial account of human flourishing that at least some individuals will reject. This includes those who think that, from the perspective of human flourishing, there is no reason to privilege employment over free time or other kinds of work (e.g. domestic labour or unpaid care work), as well as those who believe that we should privilege free time or other kinds of work over employment.⁹

Footnote 7 (continued)

(2) in standard or non-extreme cases. See Rawls, *Political Liberalism*, 152.

⁸ In this vein, Rawls famously writes: ‘Our exercise of political power is fully proper only when it is exercised in accordance with a constitution the essentials of which all citizens as free and equal may reasonably be expected to endorse in the light of principles and ideals acceptable to their common human reason’ (1996: 137).

⁹ The same worry animates Gina Schouten when she discusses the injustice of the gendered division of labour, as well as the justifiability of measures whose purpose is to erode it (2019, esp. chs 2 and 3). For a response, to which I’m sympathetic, see Quong (forthcoming).

Rawls's Difference Principle

In recent years, there have been a number of contributions attempting to illuminate the justifiability of a variety of forms of labour market regulation using Rawls's justice as fairness. For the most part, the aim has been to extend or to amend the difference principle in ways that yield more plausible and determinate conclusions concerning the just arrangement and distribution of work (e.g., Arnold, 2012; O'Neill, 2008; Rose, 2016). It makes sense to begin with these views since their proponents claim to accept the liberal constraint, or at least some close cousin of it.

Very roughly, the difference principle holds that, subject to protecting prior rights, social and economic inequalities are acceptable only if they maximally benefit society's least advantaged members (Rawls 2001, p. 42). The principle measures advantage and social and economic inequalities in terms of an index of *social primary goods*, where these refer to all-purpose means that every reasonable individual is presumed to need or want.¹⁰ As Rawls notes, the task of identifying social primary goods therefore 'rests on identifying a partial similarity in the structure of citizens' permissible conceptions of the good' (Rawls, 1988, pp. 256–257). By this reasoning, we can identify 'income and wealth' and 'powers and prerogatives of offices and positions of authority and responsibility' as social primary goods.

At first blush, Rawls's difference principle seems to offer a helpful tool for analysing the injustice of involuntary unemployment. This is for two reasons. First, when an individual is made redundant, what she loses is not only a source of income, but also a position of authority and responsibility. As a result, the downward change in her circumstances will be registered by the difference principle. We should then regard this as unjust if the social and economic inequalities that emerge fail maximally to benefit the least advantaged. In turn, this opens the door to more extensive regulation in the labour market. Second, part of the motivation for the principle's reliance of social primary goods is that these are supposedly goods whose value we can reasonably expect all individuals to accept. The fact that the value of the social primary goods is capable of widespread public acceptance is essential to the appeal of the difference principle, precisely because it ensures that it operates in a way that is consistent with the liberal constraint (Rawls, 1999b, pp. 358–387).

Whether we can appeal to the difference principle to condemn the putative injustice of technological unemployment

depends on whether the inequalities that it generates are necessary to maximise the position of the least advantaged. Some defenders of automation may seek to justify the disruptive effects caused by this process by pointing to the unique efficiency gains that it makes possible.¹¹ On this view, though automation exacerbates inequalities in the distribution of income and positions of authority and responsibility, this maximally benefits the position of the least advantaged because (i) this arrangement of institutions generates economic gains that would otherwise not be possible, (ii) these economic gains compensate for the disadvantages that automation brings about, and (iii) it would not be possible for the least advantaged to enjoy any more of the economic gains (say, because this would jeopardise the productive efficiency from which they benefit). Though I do not find this reply compelling (at least in a large range of cases), it is vital that those who appeal to the difference principle take seriously this line of reasoning and specify where it goes astray.

My reservations about appeals to the difference principle enter at a later point. Specifically, even if the injustices that technological unemployment creates are articulable in terms of the difference principle, it is unclear how appeals to that principle can guide our response. This is a consequence of the *index problem* (Arneson, 1990). This problem arises because the difference principle requires us to make complex judgments concerning the comparative weightings of distinct social primary goods.

To illustrate the concern, let's suppose that a government has sufficient resources to introduce only one of two policies whose purpose is to improve the situation of those low-skilled employees displaced by automation: either it may expand the availability of skills retraining programmes *or* it may boost the level of welfare benefits to which those who are involuntarily unemployed are entitled. The former policy affects the distribution of positions of authority and responsibility, and the latter policy affects the distribution of income and wealth. How should we decide which to adopt?

In some cases, the choice may be straightforward because one policy straightforwardly delivers more bang for your buck than the other policy. For example, let us suppose that the government must choose between (a) an expansion of skills retraining programmes that would enable vast swathes of the population to find new forms of employment *or* (b) only a marginal increase in the level of welfare benefits to which those who are unemployed are entitled. However, in reality, the choices we face are seldom so clear-cut. In the overwhelming majority of cases, it is somewhat unclear which policy will most benefit a given group of individuals

¹⁰ There are further conditions on the definition of social primary goods, which are less relevant to our current purposes. For example, social primary goods must also be *public*, such that their distribution must be both capable of effective regulation and epistemically accessible. See Rawls (1996, p. 182).

¹¹ Though he is not concerned with automation in particular, a position of this kind is sketched in Tomasi (2012).

since the comparative value of the associated benefits are difficult to assess. Because of this, it is often unclear which policy the difference principle recommends. This lack of clarity in the institutional prescriptions of the difference principle means that it effectively abrogates its responsibility to provide ‘guidance where guidance is needed’ (Rawls, 1999a, p. 18).

The index problem cuts deeper than it may first appear. The point is not merely that there is an epistemic difficulty in determining how best to improve the situation of the least advantaged. Perhaps this problem could be overcome by the collection of more data or the use of averaging. Rather, as Arneson emphasizes, the point is that even if an individual responsible for implementing the difference principle had ‘complete knowledge of all pertinent information, she still would not know how to arrange institutions to satisfy a primary goods standard, in the absence of an index’ (1990, p. 446). At the heart of the index problem, therefore, is the claim that the difference principle is insufficiently fine-tuned to be able to yield helpful institutional recommendations in a large range of cases (Dworkin, 2000, p. 113). Given how the justifiability of so many labour market policies depends on judgments concerning the comparative weightings of distinct social primary goods, this problem is a particularly pressing one.¹²

To be sure, the index problem is not a new one. It has been levelled against advocates of the difference principle for many years. However, I believe that it applies with *particular* force to the cases we are considering, namely those involving the threat of technological unemployment. This is because opportunities for employment affect the distribution of multiple goods that feature within the index of social primary goods, including income and wealth and positions of authority and responsibility. The index problem is even more acute for those defenders of the difference principle that (in my opinion, sensibly) broaden the index further by including within it an array of additional goods beyond those mentioned so far, such as job complexity and discretionary time (Arnold, 2012; Rose, 2016).

Martin O’Neill suggests a response to this problem that warrants some detailed commentary. He suggests that we can overcome the index problem ‘through the deliberations of democratic processes at the legislative stage of government’ (2008, p. 52). This promises to offer a solution that is both non-arbitrary and consistent with the liberal constraint, as it dispenses with the demand for governments to stipulate

the comparative weightings of distinct social primary goods. We can call this the *democratic solution*.¹³

One immediate issue with this view, however, is that it seems to conflate justice and legitimacy. While it may be *legitimate* to implement a policy when and because it is democratically-mandated, it does not follow that this policy is *just*, strictly speaking. The simple reason is for this is that we can have reasons to uphold democratic decisions and outcomes, even when they depart somewhat from what justice requires (Rawls, 1996, p. 428). On this view, while democracy might constitute a valuable mechanism for resolving various political disputes in an appropriate fashion, it does not determine the demands of justice. Thus, in so far as we hope for the difference principle to provide guidance about what justice demands in response to the technological unemployment, the democratic solution may seem unhelpful.

But on reflection, this analysis is a little too quick. This is because a proponent of the difference principle could maintain that there is no single just outcome and, instead, that there is a range of just outcomes that could arise from a democratic process. On this alternative view, democracy does not merely serve legitimacy. Rather, it partly defines the demands of justice. Moreover, it does so in a way that honours individuals’ interests in political autonomy. This is because ‘the arrangements of democracy enable a people—a distinct collective agent, with shared history and sentiments—to govern itself by expressing in law and policy its shared commitments’ (Cohen, 2003, p. 101).

One way in which to deepen this defence of the democratic solution is by invoking the idea of incommensurability. As I shall use the term, two items are incommensurable when they are on a par, such that neither is better or worse than the other, and nor are they equally good (Chang, 2002). For example, let us suppose that you are choosing between a job that involves higher wages but less free time and one that involves lower wages but more free time. The former may be better in some respects and worse in others, such that neither is better than the other all things considered. But we may want to resist the claim that this makes the two options equally good since this gives rise to the implication that, if you were then offered an extra dollar to take the first job, this must tip the balance in favour of that option, thus necessarily making it the better one. But this seems very hard to believe. Despite the promise of an extra dollar, it might remain the case that neither is better or worse than the other. For this reason, it is better to deny that the two options are equally good, and instead insist they are on a par. This result is important to our analysis because it suggests a solution to the index problem. In particular, it reveals the possibility of

¹² Indeed, Rawls concedes that in these cases ‘we admittedly rely upon intuitive estimates. But this cannot be avoided entirely’ (1999a, p. 80).

¹³ For Rawls’s own reservations about solutions of this kind, see Rawls (1982, pp. 182–183).

two outcomes, each supported by a different weighting of social primary goods, being *incommensurably just*.

If this is correct, then what exactly is the role of democracy here? Is it merely an impartial procedure for selecting between incommensurably just outcomes? Perhaps not. Rather, we might think that, when voters and their representatives endorse one incommensurably just outcome ahead of the others, they commit to it and, in turn, this exercise of their collective will may give them special reasons further down the line to continue to value that outcome ahead of the others.¹⁴ These individuals are akin to someone who has committed to learning to play the piano rather than the violin, and who now has special reasons to practice the piano in virtue of that commitment, despite piano-playing and violin-playing being incommensurably valuable activities.

The attractive upshot of these conclusions is that the populations of two societies may have special reasons to weight social primary goods differently, despite the presence of incommensurability. This enables us to make sense of the intuitive verdict the first population may have special reasons to value one outcome ahead of the others and that it would be a mistake for them to fail to do so, while the second population may have special reasons to value another outcome ahead of the others and that it would also be a mistake for them to fail to do so. What justice requires in a society of income-lovers may differ from what it requires in a society of free-time-lovers.

As we shall see in section IV, I am highly sympathetic to views of justice in the labour market that require us to consult the attitudes, judgements, and values of the individuals over whom political power is exercised. To this extent, I acknowledge the appeal and promise of the democratic solution. However, I believe that this position suffers from a significant defect. To see this, let us start with the fact that, as I have characterized the view, democracy serves as a mechanism for committing to one incommensurably just outcome ahead of the others. But why think that we should rely on democracy when selecting only between incommensurably just outcomes? For example, let us suppose that a population unanimously prefers one outcome (say, slightly higher wages) but only because they overlook decisive reasons to prefer another outcome (say, much more free time). Intuitively, however, the absence of incommensurability makes no moral difference. If the population democratically-mandates one option, then, for supporters of the democratic solution at least, that should be sufficient. If our favours this general view, then its intuitive that what matters is that a

society governs itself in accordance with its shared values and commitments, and that whether the outcome to which the procedure leads is on a par with others, in terms of justice, is neither here nor there.¹⁵

Given this result, it may be tempting to unmoor the democratic solution from any claims about incommensurability. But I fear that doing so comes with considerable theoretical costs. After all, even ideally-designed democratic procedures will occasionally and inevitably produce somewhat wild results. In large part, this is because voters and their representatives must grapple with highly complex empirical evidence and hypotheses, and so the resulting risk of error is ineliminable. However, it is hard to believe that the demands of justice (as distinct from legitimacy) are contingent to empirical mistakes in this way.

In response to this concern, a defender of the democratic solution might insist that we should not take voters' preferences at face value, and, instead, that, when deciding how to act, governments must be guided by how individuals would have voted if they were to reason in a way that is free from such errors. This move limits the risk of wild results arising, and so it strikes me as very appealing. However, doing this moves yet further from Rawls's difference principle and, as we shall soon see, much closer to my favoured insurance argument.

It bears emphasizing that the concerns I have canvassed in this section regard the difference principle in particular, rather than Rawls's justice as fairness in general. I have said nothing to dispute the claim that we can appeal to other aspects of Rawls's view, such as his claims about the way in which labour market affect individuals' self-respect, to shed light on the potential injustice of technological unemployment, as well as how labour market policymakers should act in response. My ambitions have been more modest, focusing solely on the prospects of the difference principle to illuminate the problem we are considering.

The Insurance Argument

In the remainder of this paper, I develop and defend an alternative a procedure for responding to the risk of technological unemployment. This approach is consistent with the liberal

¹⁴ To make sense of this, we need suppose only that some reasons are *voluntarist*, in the sense that they exist in virtue of the exercise of will. For defences of the possibility of such reasons, see Chang (2009) and Chang (2013). See also Raz, *Engaging Reason* (1999, chaps 4–5).

¹⁵ Here is a further way in which to make this point: if one accepts the democratic solution, then it is hard to believe that we could have reasons of justice to overturn the outcome of a democratic procedure if we were later to discover that the unanimously preferred outcome were worse than the alternative (rather than on a par with it). The constrained version of the democratic solution implies that we should disregard the democratic verdict, since the case falls beyond the appropriate remit of the democratic solution, but this result strikes me as counter-intuitive.

constraint and provides more guidance than Rawls's difference principle. For reasons that will become apparent, I call it the *insurance argument*.

The insurance argument has its philosophical roots in Ronald Dworkin's resource egalitarianism and, specifically, in his model of fair insurance. Stated in a rough and incomplete way, the model of fair insurance holds that each individual should enjoy at least the opportunities she would have had, if she had enjoyed access to a fair insurance market (Dworkin, 2000, pp. 73–83). Given the complexity of this idea, it will help for me to spend some time clarifying this claim. In the next section, I then elaborate on its relevance for the problem of technological unemployment.

Insurance markets operate by offering protection against risk and, in the case of the model of fair insurance, the risk of suffering disadvantage as a result of the varying impact of brute luck.¹⁶ When an individual purchases insurance, she agrees to pay a premium and, in return, she becomes entitled to a corresponding indemnity if the risk that she insures against materialises. The indemnity mitigates or eliminates the disadvantage she would otherwise suffer and so, in effect, the insurance policy offers protection against a certain level of risk.

In order for an insurance market to be *fair*, it must satisfy several conditions (Dworkin, 2000, pp. 77–78). Most importantly, each individual must enjoy an equal opportunity to take out insurance on equal terms. We can model this by assuming that (i) each individual has an identical sum with which to insure, and (ii) every insurance firm must offer the same packages on identical terms to every individual, described in ways that each individual can comprehend. Without these assumptions, those with less wealth and those believed to have a greater likelihood of becoming a victim of bad brute luck would find it more costly to take out insurance, or not understand the options available to them, and so the insurance market would unfairly disadvantage them. We must also assume that (iii) though each individual is aware of the average likelihood of any individual becoming a victim of bad brute luck, she is unaware of her own specific likelihood of becoming a victim. Without this assumption, it would be possible for an individual to exploit her epistemic position, and so insurance firms would soon either go bankrupt or fail to offer much insurance. Finally, we must also assume that (iv) both insurers and insurance firms have (near) perfect information about the costs and effects of different policies. Without this assumption, insurance firms could not accurately determine which offers to make, and insurers could not know which policies best serve their interests.

Crucially, in allowing each individual's level of protection against risk to depend partly on the premiums that she pays, the model of fair insurance ties each individual's entitlements to the liabilities that she is willing to bear. As Dworkin notes, the model therefore 'allows people to make decisions about the relative importance of various risks for themselves, so that they can tailor their use of their own resources to their own judgments, ambitions, tastes, convictions, and commitments' (2000, p. 344). As a result, it provides a justification for responding to risks that appeals to reasons that individuals themselves accept.¹⁷ In doing so, it dispenses with the need to defend further interventions by referring to the kind of controversial reasons that we cannot expect every reasonable individual to accept. This result is significant since it ensures that the model of fair insurance is consistent with the liberal constraint.

To concretise what I have said so far, let us consider an example that illustrates the way in which the model of fair insurance identifies the just response to the fact that some individuals have less valuable opportunities than other individuals:

The Luck of the Draw: Imagine a disabling disease that is in no degree either genetic or class biased, and that strikes people randomly but only after the age of forty, and suppose a community in which wealth is distributed fairly and all citizens are below that age. The insurance approach requires the community to offer insurance against contracting the disease, at market rates, either privately through commercial insurers or publicly through a state program, so that citizens can decide for themselves whether to buy such insurance and at what level of coverage (Dworkin, 2000, p. 342).

Each individual may take out a different level of insurance cover. These differences reflect the differences both in attitudes towards risk and in attitudes towards the various states of affairs that they may encounter. Whereas one individual may gamble by taking out only minimal insurance, another may play it safe to guarantee a much higher level of advantage. Similarly, whereas one individual may be indifferent to contracting the disease, and will therefore not take out any insurance, another may pay costly premiums to protect herself against the risk. Defenders of the model of fair insurance maintain that, if differences and inequalities then arise after the age of forty, we must tolerate these, given that each individual enjoyed a fair opportunity to insure against the risk.

It is worth emphasising another attractive feature of the model of fair insurance, namely that it determines not only

¹⁶ For a defence of this restriction, see Williams (1999, p. 103).

¹⁷ This feature of resource egalitarianism is emphasised in Baumol (1986, p. 18) and Clayton (2002).

the *extent* of the level of risk-prevention or compensation to which individuals are entitled, but also the *form* that the risk-prevention or compensation should take.¹⁸ In particular, the model directs us towards each individual's own insurance decisions to arbitrate between the various measures available. In *The Luck of the Draw*, insurers may be free to select between precautionary measures, invasive surgery, and compensation, financial or otherwise, as they see fit. In this respect, the model of fair insurance is more informative than rival approaches, such as the difference principle, that seek to determine only the extent of (but not form of) risk-prevention or compensation. This result is especially striking given that the model of fair insurance plays this role in a way that is consistent with the liberal constraint.

Of course, neither the real world nor any attractive and feasible world resembles *The Luck of the Draw*. This is because we do not live, and do not wish to live, in a society in which each individual has an identical sum with which to insure, and in which each individual is unaware of her own likelihood of suffering bad brute luck (Dworkin 2000, p. 77). For these reasons, we can seldom, if ever, use actual insurance markets to serve these purposes. Our alternative is to engage in counterfactual speculation to determine the entitlements that an individual would have had, if she had access to a fair insurance market. Thus, we have reasons to mimic the outcomes that would have come about under fair conditions.¹⁹

No doubt, it is impossible for any government perfectly to perform this task. This is because it is infeasible to determine how each individual would have insured under fair conditions and then to personalise policies to each individual in the light of that information. For this reason, it will normally make sense to proceed in a generalized and statistical fashion. One familiar option, mentioned by Dworkin, is to enact the policies that would favoured by the average insurer. On this view, if we were to construct a distribution of individuals based on their attitudes towards risk, for example—with the most risk-averse at one end and the most risk-loving at the other—then governments should enact the policies that would have been chosen under fair conditions by the individual in the middle of that distribution. Results such as these will strike some readers as unsatisfactory, and I agree that resorting to the use of generalized and statistical information is less than ideal (Arneson, 2018; Macleod, 1998, chap. 5). However, it is important not to over-emphasise

these costs, especially given the lack of obviously preferable alternatives, nor to lose sight of the approach's clear merits.

To be clear, my reason for drawing attention to the option of mimicking the choices of the average insurer is merely to illustrate one pathway available to us. But it is far from the only game in town. To this extent, the insurance argument refers not to a single view, but to an extended family of views that are united by their ambition-sensitivity—that is, by their commitment to regulating individuals' exposure to risks in ways that are sensitive to the attitudes of those over whom political power is exercised. But proponents of the insurance argument may disagree about precisely how best to do this. Here, two sources of dispute stand out as especially significant. First, when acting on behalf of another, should we strictly defer to how she would have chosen or should we depart from this, perhaps by displaying a measure of risk-aversion? Second, when acting on behalf of a set of individuals with heterogeneous preferences, should we choose as the average would have done or should we place a thumb on the scale in favour of one side, such as those who are more risk-averse? There are sophisticated and rapidly developing scholarly literatures associated with each of these two questions, and, depending on how we resolve these philosophical controversies, the insurance argument may produce somewhat different results.²⁰

Fortunately, for the purposes of this paper, we need neither resolve these complex matters, nor even commit to any specific version of the insurance argument. This is because, in terms of the practical recommendations that they support in the cases of technological unemployment with which we are concerned, there is a significant measure of convergence between competing versions of the view. Or, more specifically, there is sufficient convergence for us to make progress with the political task of determining how policy-makers should respond to the risk of technological unemployment that it is brought by automation. This is because, as we shall soon see, we should expect a certain class of insurance choices to be very popular among large parts of the population. With this background in mind, let us now turn to the content of those choices.

¹⁸ I draw special attention to this feature of the view since it is often overlooked or neglected. For example, see Olson (2020: chap. 5). See also Parr (2022).

¹⁹ In this way, the approach employs a localized veil of ignorance. I discuss and defend this feature of the model in Parr and Williams (2021).

²⁰ For sophisticated discussion of these questions, see Buchak (2017; manuscript); Goodin (1982: chaps 8–9); and Thoma (manuscript). It bears noting that the implications for our topic of many of results in this literature are far from obvious and require further philosophical work. This is for at least two reasons. First, these authors tend to focus on limit cases in which we have either no information about individuals' preferences or perfect information about individuals' preferences, and they tend to set aside more realistic cases in which we have partial information. Second, these authors assume that governments act on behalf of others, but in so far as governments enjoy democratic support, it may be more accurate to characterize the situation as one in which individuals act on behalf of themselves, and merely use political representation as a tool for doing this.

Insurance and Unemployment

The risk of technological unemployment is not evenly distributed throughout the population. Rather, it is skills-biased, meaning that we should expect low- and medium-skilled workers to be hit worse by this trend than high-skilled workers.²¹ This is important because the level and kind of skills that an individual possess are to a large extent (though admittedly not entirely) a matter of brute luck, depending on her native talents, the family into which she is borne, and the school that she attends, the neighbourhood in which she lives, and so on. This is crucial for our purposes since it makes it appropriate to appeal to the model of fair insurance.

According to the insurance argument, the just response to the threat of technological unemployment is to regulate the labour market in a manner that grants individuals the entitlements they would have had, if they had enjoyed fair opportunities to insure against that risk. For the reasons I have given, our best option to proceed in a generalized and statistical fashion, paying special attention to values and preferences that are widely-shared throughout the population.

Plainly, the chief reason that most individuals seek employment is in order to have an income.²² An implication of this fact is that, when insuring against the risk of technological unemployment, these individuals will prioritise measures that provide an income should the threat of technological unemployment strike. One potentially appealing option, therefore, is for insurers to select an income-tax-funded policy of *unemployment benefits*—that is, regular cash payments paid to those who are unemployed. Those who sign up to this policy agree to pay a higher level of income tax so as to receive protection against the risk of the complete loss of income that technological unemployment would otherwise bring (Dworkin, 2011, p. 361). In this way, the policy effectively redistributes income from those who are high-skilled to those who are low-skilled.

However, though a concern for income provides the main reason to seek employment, it is far from the only reason. As an empirical matter, nearly all individuals value employment for additional reasons, say, because it enables them to achieve excellence and self-realisation, to realise valuable forms of community, to boost their social standing, to

receive honest validation from others, and so on.²³ Unemployment benefits protect against the risk of a complete loss of income, but this will be little comfort to someone whose redundancy also strips him of opportunities to practice a difficult skill, to socialise with work colleagues, and to obtain approval from customers. To this extent, we should expect the overwhelming majority of individuals to insure against *more* than the complete loss of income that technological unemployment would otherwise bring.

More specifically, when insuring against the risk of technological unemployment, we should expect most individuals to sign up to policies whose purpose is to provide them with new opportunities for employment. Only in this way will they gain protection against the range of losses that come with technological unemployment, rather than only the complete loss of income. On this basis, we can identify a pair of policies to which very many insurers will be drawn: (i) programmes through which employees who are displaced by automation can acquire new skills; and (ii) more general macro-economic policies that create new opportunities for employment for those who acquire the relevant skills (Scanlon, 2018, p.148). Precisely what is required for these two kinds of policies to operate effectively is a matter of intense empirical dispute. It may be that this is an issue that we can resolve only at the level of policy implementation, and not in any more general way.²⁴

Critics of this response will point out that, no matter how effective, these policies can only imperfectly compensate those who become technologically unemployed. New opportunities for employment may be a good second-best, but arguably insurers would select policies that enable them to retain their current forms of employment. One possibility of this kind is to introduce measures to decelerate the pace of automation, thus slowing down the rate at which employees are replaced by machines. Automation taxes provide one such example. As an insurance policy, this proposal operates by reducing the size of the risk of technological unemployment, rather by providing compensation. We might say that it is *proactive* rather than *reactive*.

Would a policy such as automation taxes be popular among insurers? Except in extreme cases, I do not think

²¹ Acemoglu (2002) and Acemoglu and Autor (2011).

²² Throughout this section, I focus on the decisions that insurers would make in the light of their interests in being employed. But of course, we have interests in others being employed as well, especially when these are individuals close to us, such as our parents or our neighbours. I believe that a concern for these positive externalities bolsters the case for policies whose purpose is to create new employment opportunities, but I do not defend that conclusion here.

²³ For evidence in support of these claims, we can consult the testimonies of those who are unemployed or who return to employment after a period of away, many of whom emphasize the goods I have mentioned (Crosby 1987; Jahoda 1982).

²⁴ For what it's worth, my sense is that basic income will also emerge as a popular policy choice among insurers in addition to the pair of policies that I mention above. This is in part because basic income provides individuals with resources that they can invest in re-training. For related discussion, see Van Parijs and Vanderborght (2017, pp. 115–116).

so.²⁵ This is because interventions of this kind come with serious economic costs, which would be reflected in the policy's premium. Chief among these is the fact that, when we discourage automation, we forego the benefits associated with more efficient and more enjoyable production, including the fact that technology can make otherwise unpleasant jobs much more tolerable. This is not to say that technology is *always* used in this way, but only that this is often the case, at least with appropriate oversight. These concerns about automation taxes are especially significant when the benefits in question are large and widely dispersed, as is the case with many technological advances.²⁶ Even though automation taxes may be attractive in some respects, it is unlikely that many insurers would be willing to bear these considerable costs, unless the pace of automation is especially rapid (far beyond current levels), and so we can be confident that choices leading to their adoption would not be widespread. This bolsters the case for the measures that I defended above.

To conclude this section, let me emphasise two points. First, the insurance argument offers a procedure for responding to the risk of technological unemployment that consults, rather than usurps, individuals' own attitudes and ambitions towards that risk. In this way, it dispenses with the need to appeal to a class of controversial reasons about the value of employment that we cannot expect every reasonable individual to accept. It is this feature of the argument that renders it consistent with the liberal constraint. This is a considerable advantage over rival arguments, at least for those of us who are moved by Rawls's response to the trilemma that I described in section II.

Second, I have sought to vindicate the judgment that the insurance argument can justify a much more extensive range of policies than mere unemployment benefits. More specifically, I argued that we can appeal to this procedure to justify effective re-training programmes, as well as more general macro-economic policies that create new opportunities for employment. This conclusion is noteworthy since some critics of this style of argument worry that it lacks such flexibility (Macleod, 1998, pp. 105–109; Mason, 2006, p. 152).

Conclusion

Rather than rehearse my conclusions, I shall finish by briefly highlighting one limitation of my inquiry, which serves as a fruitful line of future research. In particular, it is vital

²⁵ For further discussion of the appeal of such policies, see Parr (forthcoming).

²⁶ For this reason, Atkinson labels automation taxes a 'progress-killing idea'. He levels the same charge against basic income, though his grounds for doing are unclear, especially given what I say in footnote 24 (2015: 187).

to stress that the insurance argument sets the *minimum* response to the threat of technological unemployment. It is for this reason that I maintain that each individual should enjoy *at least* the opportunities she would have had, if she had enjoyed access to a fair insurance market. This qualification matters because it reveals how the insurance argument is consistent with the existence of *other* reasons, unrelated to insurance, to increase the level of protection that individuals enjoy. These reasons might be based in social equality, political equality, paternalism, or a host of other values or ideals.²⁷

My own view is that some of these reasons, for example ones relating to the importance of self-respect, may provide a sound basis on which to increase individuals' protection from the risk of technological unemployment beyond that justified by the insurance argument. The challenge, however, is for us to get more precise about the kinds of policies that this point licenses. Among other things, this requires developing a greater understanding of the content and weight of these reasons, as well as their specific implications. All that matters for the purposes of this paper is that we see arguments that proceed on this basis as working in tandem with the insurance argument, rather than as a substitute for it.²⁸

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²⁷ Strictly speaking, these reasons might not be unrelated to the insurance argument since they might constrain, as well as complement, the line of reason that I defend in this article. For further discussion, see Parr and Williams (2021, pp. 75–82).

²⁸ Work on this article received funding from the European Union's Horizon 2020 research and innovation program under Marie Skłodowska-Curie grant agreement 890,434. I presented some of the arguments that appear here at workshops on 'Justice and Work' at the University of Manchester and on 'Economic Liberties, Human Fulfilment and Human Rights' at the University of Arizona, as well as at one of the Meetings on Ethics and Political Philosophy at the University of Minho, Braga, and at a panel on 'Economic Justice: A Structural Perspective' at the ECPR General Conference in Prague. I am grateful to participants at these events for their insights and questions. Thanks also go to Will Abel, David Axelsen, Clare Burgum, Simon Caney, Matthew Clayton, Anca Gheaus, Lisa Herzog, Martin O'Neill, Julie Rose, Liam Shields, Adam Swift, Andrew Walton, Andrew Williams, Peter Wilson, and especially to an anonymous referee for this journal who made several astute suggestions for improving this article.

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