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Environmental Inequalities and Democratic Citizenship: Linking Normative Theory with Empirical Research*

Abstract: The aim of this paper is to link empirical findings concerning environmental inequalities with different normative yard-sticks for assessing whether these inequalities should be deemed unjust, or not. We argue that such an inquiry must necessarily take into account some caveats regarding both empirical research and normative theory. We suggest that empirical results must be contextualised by establishing geographies of risk. As a normative yard-stick we propose a moderately demanding social-egalitarian account of justice and democratic citizenship, which we take to be best suited to identify unjust as well as legitimate instances of socio-environmental inequality.

1. Introduction

Within the literature on environmental justice one can find a wide variety of claims concerning the relationship between people's socio-economic status, their natural and social environment, and impacts on their health and well-being. These claims cover the entire spectrum from sceptical to alarmist, since there exists significant disagreement regarding the indicators, measures and results different empirical studies on environmental justice produce. While the majority of researchers agree that certain forms of environmental inequalities exist, it is a contested issue both whether these inequalities are harmful and thus unjust and whether existing empirical research allows us to draw any general conclusions from rather localised studies. In fact, even the name of the field of study is somewhat a misnomer, since most studies in the literature investigate environmental *inequalities* and environmental *factors* as well as their effects, rather than environmental *(in)justice* per se.

Moreover, the normative concepts used are also ripe with controversy. In many cases it is utterly unclear what states of affairs on the basis of which grounds should be labelled injustices, or how different normative concepts such

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as well-being, equality and justice are connected to each other. However, as long as we do not clearly identify the normative yard-sticks we use, any normative assessment of existing empirical research ultimately will be flawed.

This paper is an attempt to provide one possible answer to the question of when certain environmental inequalities should be considered unjust. Our aim is to link empirical research with normative theory in order to critically analyse the possible impact of environmental inequalities on people's right to democratic citizenship. As we will argue, harmful environmental inequalities can be identified by contextualising empirical findings and by paying special attention to people's often multiple and cumulative social vulnerabilities, which are indicators for existing geographies of risk. Moreover, some environmental inequalities can indeed infringe upon people's right to democratic citizenship. However, in order to decide whether different environmental inequalities and their effects present cases of injustice, we need to set out the normative criteria we are operating with, since different theories of justice and democratic citizenship will yield very different results.

The paper will first flag up some key caveats which make answering the question of whether environmental inequalities negatively affect people's right to democratic citizenship so difficult. Second, we will review some of the key findings from the empirical literature concerning the negative effects of environmental inequality on health. As will become clear, in order to fully grasp the extent and complexity of existing environmental inequalities we need to contextualise the environmental justice debate within wider inquiries on socio-economic inequality and its harmful effects, establishing distinct geographies of risk. Third, we will briefly review different conceptions of justice and democratic citizenship, as well as their underlying normative requirements. As will become clear in *section 5*, the normative assessment of geographies of risk through our democracy-theoretic lens very much depends on the normative ideal of democratic citizenship and its underlying conditions of justice we employ. We will use three different readings of justice and democratic citizenship in order to assess when environmental inequalities become environmental injustices. In so doing, we will argue that a moderately demanding theory of justice and democratic citizenship is best suited for this endeavour and that it allows us to distinguish unjust environmental inequalities from unobjectionable ones.

2. Linking Empirical Research and Normative Theory: Some Caveats and Notes of Caution

Empirical research offers normative theorists a wide set of results on the existence and possible impacts of environmental inequality, while normative theory provides empirical researchers with a well-stocked tool-box for evaluating results. However, as noted in the introduction, significant disagreement exists over the correct interpretation of existing data sets and the nature of different normative concepts. Therefore, before analysing the existing literatures and trying to

link them, it is necessary to highlight some issues and caveats concerning both empirical research and normative accounts of justice and democratic citizenship.

With regard to the empirical literature on environmental (in)justice we can distinguish at least three areas of controversy which should be interpreted as notes of caution against drawing hasty conclusions: definitional issues, measurement issues and issues of particularism. Similarly, normative theory faces definitional issues, too, as well as issues concerning its tendency to overgeneralise and abstract. Let us briefly explain the nature and scope of these issues.

2.1 Definitional Issues in Empirical Studies and Normative Theory

The field of environmental justice research faces a range of controversial definitional issues, since even the basic parameters of the debate are contested. What do we for instance mean by ‘environment’ and ‘environmental factors’? Environmental factors can include a wide range of things and phenomena, including ‘pollutants, toxins, noise, and crowding as well as exposure to settings such as housing, schools, work environments, and neighbourhoods’ (Evans/Kantrowitz 2002, 303). Depending on which factors we see as environmental, our analysis will vary.

The same holds true for our conception of what counts as justice and injustice. Within the literature on environmental inequality justice as a concept is used loosely and inconsistently (an observation also made by Walker 2012; 2009; Downey 2005). However, this is in part due to the ambivalence in the normative literature, as well as the variety of partially contradicting definitions and conceptions of justice available (which we will return to in *section 4*). This definitional uncertainty obviously matters significantly, since the justice framework we employ for our analysis determines our assessment; a strictly distributional understanding of justice will pick up on other factors than a justice framework which includes procedural issues, well-being, or recognition (Schlosberg 2009; 2004; Ikeme 2003).

Moreover, many empirical studies seem to equate inequality with injustice, which is problematic from a normative point of view (Walker et al. 2005, 361). In fact, as mentioned earlier, even though the field of research is commonly called ‘environmental justice’ research, we think it is better to speak in the first instance about environmental (in)equality, since most studies deal with differences in environmental quality, vulnerability and the distribution of risk. Whether all these empirical inequalities are unjust is a different question. Thus, in the interest of analytical clarity, for the remainder of the paper, we will use the term environmental inequality rather than environmental justice.

2.2 Measurement and Particularism Issues in Empirical Research

Empirical studies on environmental inequality differ widely in what they measure, how they measure it, how they frame the indicators and results, and what kind of conclusions they allow for. That is to say, not only is it difficult to compare results because of an absence of standardised study designs (Sahsu-

varoglu/Jerrett 2007, 243), but studies also are of varying quality and scientific rigour (Bowen 2002). Under the overarching motto of environmental justice studies look at a wide array of phenomena and indicators, including the distribution of potentially and actually hazardous sites, the distribution of so-called risk factors, spatial differences in environmental quality, health impacts, correlations between varying factors, such as socio-economic status and exposure to toxins, to name but a few. Thus, these studies offer a wealth of information but it is necessary to critically question what kind of inequality exactly the different studies measure, since proximity to a waste site is very different from exposure to toxins, which in turn is different from observable health impacts (Walker et al. 2005, 361).

Furthermore, most studies are limited in scope since they use particular indicators within a particular space. In other words, many studies look only at a particular city or a municipality and they use data sets which are easy to access such as average income (as a short-hand for socio-economic status), postcodes (as a short-hand for socially stratified groups), or mortality rates (as a short-hand for severe health impacts). Needless to say, many of these data sets are somewhat arbitrary and they operate at a certain level of abstraction, grouping individuals into larger clusters. Therefore, it would be dangerous to generalize results from a particular municipality to an entire country (Bowen 2002). Similarly, some studies seem to commit a fallacy by trying to infer generalisations about the status of individuals from data sets which are limited to specific groups or neighbourhoods (Anderson 2009).

Most people doing empirical research on environmental inequalities are of course aware of these issues, and we did not mention them in order to discredit empirical research; not at all. Instead, our aim was to highlight the difficulty of using individual empirical studies in order to arrive at sound normative judgments concerning the possible existence and status of environmental inequalities and injustices.

2.3 Generalisation and Abstraction Issues in Normative Theory

While empirical studies in the field of environmental justice thus are often rather limited in their scope, many normative theories suffer from the opposite problem; normative accounts are often based on abstraction and are aimed at establishing universal principles. The problem with this mode of operation is twofold and similar to the caveats mentioned before concerning empirical inquiries: first, since most normative theories utilise several sub-concepts for establishing their definition of justice, or democratic citizenship, or whatever, the resulting theory is loaded with definitional assumptions and abstractions; second, using universal principles, for instance, for distinguishing between unjust actions and just actions can run into problems if each action is assessed individually without taking its context into account. Here are two examples to illustrate both these points.

First, if one were to define an injustice as an action which harms another person, one has a host of questions to address, or one needs to buy into rough and ready answers to these questions which means buying into a whole range of

assumptions and abstractions. Thus, in the case of ‘injustice is harming another person’, the questions one would need to answer would include (but are not limited to): What do we mean by harm; is there a difference between action and inaction; does it matter whether one intended to harm the other, or not? So, using the above mentioned definition of injustice does not deliver—as some authors assume—a clear normative yard-stick, but it is in many ways only the top of the iceberg.

Second, often the deontic status of an act depends on the circumstances of that act. A universal principle like ‘an action is only unjust if it *directly* harms somebody’ might prove unhelpful if we deal with cases of cumulative harm, such as environmental pollution or greenhouse gas emissions. First, it is not at all clear that pollution and emitting as such is an injustice. Every human being must emit at least to a minimal amount to fulfil its everyday needs and to survive. Second, individual acts of pollution and emissions by one individual do in most circumstances not lead to any harm. It is the over-accumulation of both which harms. Third, these harms, however, are not necessarily harms befalling currently living persons. In several cases they concern future not yet existing persons which might or might not come into existence. This raises another obvious (but difficult to answer) question: is it really possible to harm future people?

Both these examples show why it is good to carefully analyse the normative categories one wants to use for assessing empirical results, since subscribing to simple one-principle solutions will often prove detrimental to the overall validity of one’s argument. Normative theory is a linguistic minefield and it is crucial to be aware of normative theory’s shortcomings before passing judgment on whether a particular state of affairs presents an injustice or not.

More generally speaking, when empirical researchers want to learn from normative theorists and vice versa, they should be careful not to oversimplify the contributions available in the other field or to look for answers which normative theory / empirical research just cannot provide. With these caveats in mind, let us take a look at some key findings we can take away from the existing empirical literature on environmental inequalities.

3. Insights from Empirical Research on Environmental Inequalities

As mentioned earlier, empirical research provides such a wide range of results that it would be impossible to discuss all of them here. Instead, within our analysis of existing empirical research on environmental justice we will focus on studies which investigate the nexus between people’s socio-economic status (SES), environmental quality and discernible health and well-being impacts. While the study of the complex nexus between SES, environmental factors and health still faces many challenges (Bell et al. 2005), highlighting the interrelationship between people’s SES, environment and health allows for interesting cross-fertilisation with research on social epidemiology, social vulnerability and

the social gradient in health. As we will see, our framing of the literature is conducive to identifying the multiple and cumulative effects of different socio-environmental factors on people's overall vulnerability, health and well-being.

3.1 Environmental Inequalities and Health

The nexus between environmental factors and health is well established. For example, air quality and exposure to particulate matter air pollution have significant effects on people's health, including the respiratory system and heart diseases (Kampa/Castanas 2008; Koton et al. 2013; Myers et al. 2013). A wide range of studies shows (Anderson 2009, 145; Hoffmann et al. 2009; Chaix 2006; O'Neill et al. 2003; Kingham/Pearce/Zawar-Reza 2007) that an inverse relation exists between a neighbourhood's socio-economic position and its air quality, though there are differences with regard to the strength and reliability of this inverse relationship, depending on the geographical space the study refers to and the measures it employs. Moreover, there are some exceptions to this rule (e.g. Forastiere et al. 2007), which established that higher SES actually meant higher exposure to air pollution. Interestingly though, the study showing these exceptions still found that areas with lower SES were particularly vulnerable to higher particulate air pollution.¹

What is important for our analysis here, though, is that the nexus SES-air quality seems to be well enough established to be a mere coincidence. In fact, there seems sufficient evidence to claim both "that those with lower education, income, or employment status have higher risk [of cumulative and multiple exposure to environmental impacts and] of death" (Bell/Zanobetti/Dominici 2013, 865) and that across the European Union a social gradient in air pollution exposure exists (Kohlhuber et al. 2006), even though available data sets are somewhat incomplete and limited in scope.

3.2 Geographies of Exposure, Vulnerability and Risk

Several studies show that environmental inequalities often cut across a whole range of factors, including (multiple) proximity to waste and hazardous sites, exposure to toxins and pollution, increased vulnerability due to lower and/or inadequate safety mechanisms and infrastructure, as well as higher social and biological susceptibility (Jerrett/Finkelstein 2005; Walker 2009; Walker et al. 2005; Hornberg/Pauli 2007). Against this background, rather than exclusively focusing on particular environmental inequalities, then, we should be sensitive to existing *geographies of risk* (Jerrett/Finkelstein 2005; Walker 2009), or 'risk-scapes' (Morello-Frosch/Shenassa 2006; Morello-Frosch/Pastor/Sadd 2001), and engage in careful cumulative risk-assessment factoring in socio-economic inequalities, social vulnerabilities, exposure to environmental risks and hazards, as well as biological susceptibility (Morello-Frosch et al. 2011).

¹ The study by Forastiere et al. 2007 raises the issue of the difference between exposure, risk, susceptibility and health impact (Walker et al. 2005; O'Neill et al. 2003). This is an issue we will discuss further below.

Geographies of risk are established by combining the results of two other geographies: *geographies of exposure* and *geographies of vulnerability*. In other words, in order to properly identify complex patterns of unequal risk distribution and their associated negative impacts, we have to construct *geographies of exposure* alongside with *geographies of vulnerability* which in conjunction allow us to establish *geographies of risk* (Jerrett/Finkelstein 2005).² But what exactly is meant by these geographies, what do they track and tell us, and why do they matter for our normative analysis?

If we take our bearings from the empirical literature on the nexus SES—air pollution, we can see that socio-economic inequalities and their associated vulnerabilities have a huge impact on people's vulnerability and social susceptibility to environmental risks (Fairburn/Butler/Smith 2009). On top of that, it is a fact that many vulnerable groups are exposed to multiple and cumulative risks which leads to a strong socio-environmental gradient in health and well-being (Morello-Frosch et al. 2011; Fairburn/Butler/Smith 2009; Evans/Kantrowitz 2002; Walker 2009). However, any mono-causal analyses of this nexus would fall short, since proximity does not determine health impacts, and exposure must be analysed in conjunction with and not separate from susceptibility and vulnerability (Makri/Stilianakis 2008).³ Since the causes of most social and environmental inequalities are multifactorial, we argue that any normative assessment should be sensitive to all three issues; *exposure*, *vulnerability* and *overall risk* (which includes susceptibility issues). First, we establish who is exposed and who is vulnerable, giving us geographies of exposure and vulnerability. Then we use these insights to establish geographies of risk.

Geographies of exposure map out to what kind of environmental factors a person is, or groups of people are (depending on the level of one's analysis), exposed to. Geographies of exposure track factors such as air and water quality, noise pollution, levels of radiation and the like. This suggests that geographies of exposure focus primarily on actual environmental factors a person or group is subject to. In addition, geographies of exposure also record proximity to high-risk sites, such as toxic waste facilities. However, as we will see in our discussion in *section 5*, exposure is unlikely to be relevantly tracked by one's normative theory, unless one subscribes to an overly rigid account of equal democratic citizenship. Actual geographies of exposure, meanwhile, provide an important indicator for establishing—in conjunction with geographies of vulnerability—geographies of risk.

Geographies of vulnerability, meanwhile, map out a person's or a group's combined social, economic and political vulnerabilities. We propose to treat vulnerability as such a wide category in order to get a better understanding of the various factors and circumstances which influence a person's or group's capacity to deal with harms and unexpected changes. In so doing, our conception of ge-

² While our analysis concerning geographies of risk is indebted to Jerrett's and Finkelstein's work, it is important to note that we define the different geographies in a slightly different way than Jerrett and Finkelstein and with an alternative purpose in mind. We will come back to this point below.

³ Similarly, those who emit do not necessarily suffer the consequences in terms of reduced air quality and health impacts (Mitchell/Dorling 2003).

ographies of vulnerability goes beyond mere geographies of susceptibility, which are used in classical environmental inequality research. Social inequalities are complex and multi-factorial, spanning a wide spectrum of issues such as housing quality, access to health care, availability of social capital, wealth and income. These social inequalities significantly affect people's susceptibility, as well as people's capacity to avoid exposure in the first place, because economic and political inequalities often go hand in hand with other social inequalities. Vulnerability, then, is a function of a person's (or group's) (in)capacity to respond—in light of her (or its) social, political, biological and economic status—to harms, unexpected changes and negative outcomes. Establishing geographies of vulnerability allows us to track this complex and multifaceted nexus.

Geographies of risk, meanwhile, pick up on overlaps and correlations between geographies of exposure and geographies of vulnerability, creating thus 'risk-scapes', that is, detailed mappings of a person's or a group's socio-political and environmental vulnerability and exposure to risk. In short, geographies of risk allow us to see which groups in a given society/region/municipality are particularly at risk to suffer or *de facto* do suffer from the adverse effects of socio-environmental inequalities. By contextualising the data from environmental inequality research within wider research on socio-economic inequalities and political disenfranchisement, geographies of risk deliver a clear picture of the nature and scope of inequalities in societal risk distribution and its associated ill-effects on factors such as health and well-being.

For policy-oriented normative theorists these empirical findings and their associated geographies prove invaluable. As Breena Holland (2008, 319) observes, exposure and vulnerability to environmental risks influences factors such as health which might significantly impact on what a person does and can be, especially if we factor in the possibility of premature death. However, in order to distinguish between trivial inequalities in exposure and risk (since perfect equality seems simply unattainable) and objectionable unjust inequalities, theorists need a normative yard-stick against which to measure empirical studies and their often tentative normative terminology. From our viewpoint of justice and democratic citizenship the question arises of which inequalities prove objectionable and on which grounds. Phrased differently, having established geographies of risk we now need well justified normative theories which clarify whether certain socio-environmental inequalities undermine people's status as free and equal citizens (e.g. through undermining people's right to political participation or misrecognizing people's claims to equal citizenship) (Schlosberg 2004, 529).

4. Clarifying Normative Theory: Three Accounts of Justice and Democratic Citizenship

In order to assess in *section 5* which socio-environmental inequalities prove objectionable from the viewpoint of justice and democratic citizenship we must first determine what we mean when we use the terms 'justice' and 'democratic

citizenship'. Before we do so, however, we should explain why we choose for our analysis a democracy-focused angle. On our view there are four good reasons to approach the issue of environmental inequalities through the lens of democratic citizenship. First, the environmental justice literature had from its very birth a deep concern with the unequal distribution of environmental risks and burdens along racial and class lines, criticising established practices as treating racial minorities and socially lower classes as second-class citizens or worse. Second, an explicit analysis of how and why the right to democratic citizenship can be undermined by environmental inequalities is most often missing in this debate. Third, social psychological justice research suggests that in many instances—depending on context—procedural aspects to decide the distribution of benefits and burdens bears greater relevance than the degree of rightness of the eventual outcomes (e.g. Brockner/Wiesenfeld 1996; Hauenstein/McGonigle/Flinder 2001). Furthermore, it can be argued that in cases in which, due to technical or safety reasons, no fully just distribution of risks is possible legitimacy is key for securing acceptance of the distributive outcome (Krütli et al. forthcoming). Therefore, democratic citizenship seems to be a promising lens for investigating environmental inequalities.

However, as stated in *section 2*, we need to be aware of the caveats concerning normative theory, particularly the contentious issue of defining concepts like justice and democratic citizenship. We need to be careful not to subscribe blindly to a particular conception of justice and democratic citizenship, which in a question begging manner predetermines which socio-environmental inequalities are deemed unjust. Therefore, prior to answering the question of whether a certain state of affairs is unjust it is important to introduce some vocabulary and to make clear what different understandings of justice and of the interrelation between justice and the entitlement to free and equal citizenship can be found in the literature. Since the literature on these topics is too wide to be adequately covered in this section, we will focus on three paradigmatic accounts of justice and democratic citizenship. Before that, however, we must explain in a bit more detail wherein the contested definitional issues concerning justice and democratic citizenship lie.

4.1 Justice, Democracy and Three Accounts of Citizenship

Most normative political theories of justice and democratic citizenship subscribe to the basic idea that a just society is a society in which all members are free and equals. As Ronald Dworkin (2000, 1)—amongst others—has famously pointed out, treating others as equals should not be mistaken for postulating that we should always treat all people equally (in a strict materially distributive sense). Accordingly, we centrally have to distinguish between equal treatment and treatment as equals; simply giving everyone an equal slice when distributing a cake without any regard for needs or desert or any other criterion would mean to treat all equally. If we were to distribute the cake on the basis of how well-off people are, or how much they have contributed to baking the cake, we would—in some way at least—treat all as equals. However, what it exactly means that

all members of a society are treated as equals is a contested issue in normative theory, since there exists disagreement over the criteria with regard to which all members of society should be treated as equals.

Similar disagreement exists with regard to the institutional requirements of a functioning democracy and the basis for democratic citizenship. That is to say, even though most theories in normative political philosophy agree with the above-mentioned definition of a just society, i.e. that it is a society in which all are free and equal, what this entails with regard to the political institutions of that society and the socio-economic basis of citizenship is highly controversial. Moreover, while most theories also agree that democracy provides us with a political system in which—at least in theory—all are not only equal but also free, the exact definition of democracy and its preconditions are the subjects of heated debates. In its most basic form, democracy can be defined as a system in which all members of society (should) have an equal say or be able to participate as equals in collective decision-making. This status of each individual to be able to participate as an equal in collective decision-making is referred to as democratic equality, or democratic citizenship.

On top of these definitional controversies within theories of justice and theories of democracy, there also exists disagreement over the exact relationship between justice and democracy.⁴ Is democracy prior to justice, in that only democratic decisions among equals can determine what should count as just? Or is democracy derivative of justice, meaning that democratic decisions can only claim legitimacy as long as these decisions do not conflict with the basic principles of justice?

For our discussion here we take the idea that each and every member of society should enjoy equal social status as our starting point, since it seems to act as a common denominator amongst the most convincing and important existing theories of justice and democratic citizenship. In so doing, we assume that justice and democracy are intricately linked, since a just society is a society of equals, which entails that all members of society should have a say in collective decision-making. At the same time, democratic decisions—even though all had their say in arriving at a certain decision—should not undermine the basic equal status of all members of society. Thus, for the purpose of the following discussion of the three paradigmatic accounts of justice and democratic citizenship we will presume that a) all members of a society should be respected and treated as equals, and b) that differences in basic social status, as in caste societies or in slavery-based societies, are unjustifiable or illegitimate, as well as c) that all members of society should have—qua democratic citizenship—the right to participate as equals in collective decision-making.

As will become clear, though, despite this basic agreement, the three possible accounts we discuss arrive at very different conclusions. So let us now turn our

⁴ Even though for most readers it is probably somewhat intuitively clear that justice and democracy should go hand-in-hand, in normative theory the analysis of the relationship between justice and democracy is not only controversial but it has also been somewhat neglected. Important exceptions include van Parijs 1996; 2011; Dowding et al. 2004; Christiano 2004; 2010; Gould 2004; Wall 2007; Pettit 2012; Valentini 2012.

attention to three paradigmatic accounts of justice and democratic citizenship, namely, the *formal-procedural account*, the *comprehensive-substantive account*, and the moderately demanding *social-egalitarian account*. While these three accounts are obviously abstractions and so-to-speak ideal types, analysing their normative underpinnings and consequences will allow us to assess in *section 5* which environmental inequalities, respectively which geographies of risk should be considered unjust and for which reasons.

4.2 The Formal-Procedural Account

The formal-procedural account of justice and democratic citizenship focuses on the protection of a range of basic rights as well as people's associated liberties. Thus, for champions of this account equality is best understood as referring to the formal and legal rights each and every citizen enjoys, such as the right to life, the right to vote, and all the other rights which are normally considered basic rights.⁵ The underlying idea is that these equal rights are an essential aspect of securing people's basic liberties. In other words, most champions of the formal-procedural account base their theory on and around the commitment to people's liberty in the sense of the absence of unjustified interference.⁶ Hence, defenders of the formal-procedural account commonly argue against major state interventions since that would interfere with people's liberty to live their own life according to their own conceptions of the good.

The formal-procedural account assumes that once people's basic rights and associated liberties are protected and as long as every member has the right to vote and participate in political decision-making all ensuing states of affairs are legitimate and just. The formal-procedural account of justice thus holds to a rather libertarian understanding of what it means to treat and respect all members of society as equals. Accordingly, this account claims that all are treated as equals as long as their basic formal rights and liberties are protected and equality before the law is secured, since it is only these forms of equality which are needed in order to protect every citizen's liberty to live as he/she sees fit.

Similarly, the formal-procedural account holds that democratic citizenship for all amounts to safeguarding every citizen's right to vote and to participate in collective decision-making. Since the underlying normative commitment of most champions of the formal-procedural account is to individual liberty, securing democratic citizenship is chiefly seen as an issue of ensuring equal legal status for all. In other words, the legitimacy of democratic decisions is primarily determined procedurally; if all members of society had the right to vote and the right to participate in the decision-making process democratic decisions are

⁵ Other rights which are commonly assumed to be basic rights include the right to freedom of thought, the right to freedom of association, the right to freedom of expression, the right to freedom of movement, the right to due process and the like.

⁶ This way of specifying the understanding of liberty used in this paradigmatic account is based upon Isaiah Berlin's description of so-called 'negative liberty' (Berlin 1969).

deemed legitimate as long as they do not violate the equal legal status of all, as defined above.⁷

In short, the formal-procedural account emphasizes the formal equal status of all citizens and it advances a libertarian understanding of the institutional requirements of a just society. As long as people's basic formal rights and liberties are secured, people should have the freedom to decide for themselves and the state should stay out of it. In consequence, democratic decision-making is limited to the sphere which does not infringe upon individual liberties.⁸ At the same time this account puts high emphasis on the formal legitimacy of political decisions. As long as all had the formal right and possibility to participate in decision-making and their formal rights and liberties are protected by the decision taken, any decision must be accepted as legitimate irrespective of whether the inequalities it establishes could be considered harmful or objectionable.

4.3 The Comprehensive-Substantive Account

While the formal-procedural account advances a 'hands-off' mentality, the comprehensive-substantive account is at the other end of the spectrum. Champions of the comprehensive-substantive account are normally first and foremost committed to ensuring each and every citizen's substantive social equality, a task which can only be accomplished if democratic processes and people's free interactions are effectively regulated (van Parijs 1996; 2011; Arneson 2004; Wall 2007).⁹ However, this is not to say that defenders of the comprehensive-substantive account would be subscribing to an illiberally paternalist state or anything the like. Instead, champions of the comprehensive-substantive account are most often relatively strict (comprehensive) egalitarians, that is, they argue that a just society only treats its members as equals if all achieve more or less equal living conditions, and if all enjoy equal opportunities and control roughly equal amounts of resources.¹⁰

⁷ Put differently, what is important for equal citizenship according to the formal-procedural account is that all can express their interests in a non-discriminatory voting procedure. Aggregating these different interests to find where the majority lies within society then leads to legitimate policy decisions. Classical statements of this view have been established by Bobbio 1987 and Dahl 1989.

⁸ This is the reason why this account can also be labelled—following David Held—protective democracy or legal democracy (Held 2006, chap. 3, 201ff.). Champions of the protective view are thought to include such classical authors as Thomas Hobbes, John Locke and Charles Montesquieu. The most prominent champions of legal democracy are, according to Held, Friedrich von Hayek 1960 and Robert Nozick 1974 both libertarian theorists of justice. This is the reason why this account has a close affinity with libertarianism. In democratic theory, however, the views we have in mind here are often treated under the label 'liberal democracy' which is in tension with how liberalism is understood in the domain of social justice research.

⁹ In fact, in some parts of the egalitarian literature one gets the impression that achieving just distributions takes precedence over concerns for whether bringing about these distributions had been democratically legitimised in the first place.

¹⁰ To be sure, proponents of such an account disagree on how the three forms of equality mentioned must be understood and whether or not all three forms are necessary for a just society. The main point, though, is not that champions of this account favour all of these three kinds of equality but that they advance a more comprehensive and substantive vision of a just society than champions of the formal-procedural account.

What is important for our discussion here is that the comprehensive-substantive account construes the range (or scope) of justice to be much wider and deeper than the formal-procedural account. For defenders of the comprehensive-substantive account treating all members of society as equals and respecting their equal status requires much more than protecting every person's basic formal rights and liberties. Accordingly, the comprehensive-substantive account holds that people cannot interact as equals if they are not substantively equal, that is, also with respect to the material holdings they have, the opportunities they enjoy, the welfare they achieve and the relationships they stay in. Obviously this is a very tall order and to make people in a comprehensive way substantively equal requires large-scale redistribution and would—with regard to existing political institutions—demand major institutional changes.

Moreover, this commitment to a strongly egalitarian ideal also influences this account's conception of democratic citizenship. According to the comprehensive-substantive account, democratic citizenship does not only require that people enjoy the right to vote and to participate in collective decision-making, but it also requires that people enjoy shared control, as well roughly equal authority and influence. However, because of its demanding conception of justice, the comprehensive-substantive account also restricts the scope of democratic decisions more heavily than the formal-procedural account, since any decisions which undermine the comprehensively and substantively equal status of all members of society will be deemed either illegitimate or at least in need of revision (van Parijs 1996; 2011; Arneson 2004).

4.4 The Moderately Demanding Social-Egalitarian Account

The moderately demanding social-egalitarian account holds that the equal social status of all members of society is only protected if people do not only enjoy equal rights, but if they also enjoy sufficient resources and if people stand in broadly egalitarian relationships to each other. Similarly, people only enjoy equal democratic citizenship if they do not only enjoy the formal rights to vote and participate in collective decision making, but if they also are not subject to socio-political domination or status-undermining structural inequalities.¹¹

In contrast to the comprehensive-substantive account, however, champions of this account leave more room for collective decision-making. According to their view, most claims about justice and its principles depend on whether or not they can be legitimated through processes of collective decision-making. But as these processes presuppose an equal standing of all citizens, policy decisions are strictly restricted by the substantive conditions necessary to secure free and equal citizenship.¹² On the other hand, according to this account many claims of justice must depend on the consent of citizens, that is, many questions regarding justice must be settled through procedurally fair democratic mechanisms, under conditions of equal citizenship.

¹¹ See for instance Anderson 1999.

¹² Variations of this view include Gould 2004; Brettschneider 2005; Christiano 2010; Pettit 2012.

Therefore, equal respect for individual interests can only be ensured if not only an authority (some citizens) determines which political decisions are taken, but if all citizens ‘on whom the rules have a major impact’ are equally involved in determining political decisions (Christiano 2010, 56). This means that decisions about distributing burdens and benefits within society must be, in some way or other, justifiable to all members of a society, for instance through satisfying the demands of public reason (Rawls 1993; Habermas 1997). Put differently, what is important for democratic citizenship is that no-one is arbitrarily dominated by someone else (Pettit 1997, 69). Thus, in collective decision-making political power must be shared and all must have effective opportunities to influence policy decisions. This makes it necessary that respective substantive conditions of equality are secured for all citizens.

The moderately demanding social-egalitarian account thus has two important parts; on the one hand, it sees a whole range of socio-economic inequalities as incompatible with the ideal of equal democratic citizenship, since socio-economic inequalities often go hand-in-hand with domination, unequal political influence and harmful differences in social status. On the other hand, the moderately demanding social-egalitarian account also places certain limits on the range of possible outcomes from democratic decision-making, namely, in cases in which democratic decisions undermine people’s status as free and equal citizens. This feature of the moderately demanding social-egalitarian account is particularly interesting since the account also affirms the authority of democracy, by arguing that ‘socially not unjust’ inequalities can be legitimated through democratic consent.¹³

Viewed in light of these three paradigmatic accounts of justice and democratic citizenship it becomes clear that whether or not multiple socio-environmental risks are objectionable does not only depend on whether they undermine the entitlement to free and equal citizenship; it also highly depends on the normative framing, that is, which account of justice and democratic citizenship one employs. How these differences in assessing socio-environmental inequalities bear relevance, and what—if any—standards of socio-environmental justice can be argued for as fundamental to guarantee free and equal citizenship, are the questions to which we now turn.

5. Assessing the Normative Status of Socio-Environmental Inequalities

Depending on what normative convictions back the assessment of socio-environmental inequalities and their impact on the entitlement to free and equal democratic citizenship, the interpretations of empirical results will vary. In this section, we will apply the three accounts of justice and democratic citizenship in-

¹³ We used here the somewhat awkward term ‘socially not unjust’ rather than just, in order to show that not all inequalities which are not as a matter of principle unjust must be on the social-egalitarian account fully just. In fact, leaving room for debate on issues such as this is, in our view, one of the core strength of the social-egalitarian account.

troduced in *section 4*, in order to assess the empirical results we introduced in *section 3*. As we will see, the results vary significantly.

In *section 3* we argued that the assessment of environmental inequalities is best done through the identification of geographies of risk comprising the significant overlaps between exposure to environmental impacts and socio-economic vulnerability. For our normative assessment these overlaps are most significant because if disadvantage in exposure and disadvantage in socio-economic status coincide we have good reasons to assume that we indeed have identified an *environmental* injustice. In other words, while socio-economic segregation in a society might be objectionable from the viewpoint of social justice more generally speaking, in order to call something an *environmental* injustice, we obviously will have to link socio-economic inequalities to environmental issues, such as for example high exposure to pollution.

Let us now, with these considerations in mind, look at how the three paradigmatic accounts of justice and democratic citizenship will assess the environmental inequalities discussed in *section 3*. We will see that our democratic-theoretic lens proves most helpful if we adopt the moderately-demanding social-egalitarian account. The formal-procedural account by contrast allows, in most cases, only for a limited critical assessment of any environmental inequalities since as long as people's basic formal rights are not undermined these inequalities prove—from the viewpoint of formal-procedural justice and citizenship—unobjectionable. The comprehensive-substantive account on the other hand is too demanding; it takes virtually all environmental inequalities to be unjust and it leaves too little room for differences arising from legitimate forms of democratic decision-making.

5.1 Assessing Environmental Inequalities Based on the Formal-Procedural Account

As mentioned in *section 4*, proponents of the formal-procedural account are chiefly worried about the protection of people's basic rights and their associated liberties. Thus, the formal-procedural account only objects to inequalities, no matter whether social or environmental, which directly undermine a person's formal status and rights. In other words, our geographies of risk, which we outlined in *section 3*, are often—from the viewpoint of a formal-procedural understanding of justice and democratic citizenship—of very limited use unless they directly undermine a citizen's basic formal rights and liberties.

That is to say, if some members of society suffer from higher exposure to non-lethal toxins and bad air quality, a defender of the formal-procedural account would not call such a state of affairs unjust, unless this exposure directly undermined the people's ability to exercise their most basic formal rights and liberties, for instance through causing premature death. Of course, existing theories can be more or less strict with regard to upholding their formal-procedural understanding of justice, meaning that some theories might object to all those environmental inequalities which (in a meaningful manner) statistically correlate with lower life expectancy. However, even if one were to include such cases (and

they are extremely difficult to prove, i.e. to show beyond the shadow of a doubt that unjust exposure to a toxin on its own caused premature death), overall, on a purely formal-procedural reading most environmental inequalities and their associated geographies of risk would prove normatively unobjectionable.

The formal-procedural account does not see the correlation of geographies of exposure and geographies of vulnerability as a worrisome indicator for the existence of distinct geographies of risk, which unearth the cumulative effects of environmental and socio-economic disadvantage. This is especially true if disadvantaged members of society had the possibility to vote, for example, on where to place a waste-site, since if they had the formal possibility to take part in such decision-making any decision being a result of majority voting would have to be seen as legitimate. In other words, the formal-procedural account worries about the (non)existence of people's formal rights to democratic citizenship but not the substantial quality and value of these rights (Daniels 1975).

While a formal-procedural position is of course logically consistent and legitimate, we think that such an assessment of the deontic status of socio-environmental inequalities would in many cases add insult to injury for those suffering from multiple and cumulative forms of disadvantage, exposure and vulnerability. To claim that everything is fine unless people are—due to environmental exposure—too sick to vote or more generally speaking too sick to perform their basic formal rights and liberties seems rather cynical. Moreover, there seems to be something objectionable about vast environmental inequalities which negatively impact people's lives and their well-being, even if these inequalities were legitimised through a democratic vote. This is particularly true in cases in which certain minority groups in society would suffer from political domination by a majority.

5.2 Assessing Environmental Inequalities Based on the Comprehensive-Substantive Account

Assessing environmental inequalities through the lens of the comprehensive-substantive account leads to problems at the opposite end of the scale. The preconditions for democratic citizenship which the comprehensive-substantive account sets out are simply too demanding, since the idealistic conception of justice it is based upon calls for a far-reaching re-invention of society. To ensure free and equal citizenship it would not only be necessary to correct most social-economic inequalities but from an environmental justice perspective to change most past policy decisions on how to allocate the benefits and burdens (including risks) of different environmental factors, such as exposure to toxins and the like.

This is especially problematic in the case of environmental decisions concerning the distribution of waste-sites or exposure to toxins. Since it is due to technical or safety reasons nearly impossible to geographically distribute these sites in a way not being in conflict with comprehensive egalitarian principles of distributive justice, any slightly unequal distribution across a society's geographies of risk would have to be deemed initially objectionable, meaning that a society which distributes some risks unequally would have to compensate its disadvan-

tagged citizens through other means.¹⁴ This is problematic for two reasons: First, assessing environmental inequalities from the perspective of the comprehensive-substantive account becomes almost impossible, since it calls for more or less constant re-distributions within and beyond geographies of risk, which might simply not be realizable in practice. Second, even if one were able to constantly re-distribute, such a scheme seems to call for a huge state apparatus to administer the measurement of seemingly small socio-environmental differences and the ensuing re-distribution.

Therefore, while the comprehensive-substantive account might give us an attractive account of what an ideal society of equals in socio-economic and environmental terms could look like, its normative vision is too ideal and demanding in order to provide a good basis for normative assessment of real world socio-environmental inequalities. Since the aim of this paper was to bring together empirical research with normative theory, in our view it would seem odd to argue for a normative framework in which virtually all inequalities, no matter whether social or environmental, would prove objectionable and unjust. What seems to be more plausible in order to assess social and environmental inequalities, therefore, is a less demanding account than the comprehensive-substantive account, but an account which is substantive enough not to render all social and environmental inequalities irrelevant.

5.3 Assessing Environmental Inequalities Based on the Moderately Demanding Social-Egalitarian Account

The moderately demanding social-egalitarian account offers us a normative framework which works well with our geographies of socio-environmental risk, since it allows us to differentiate between different forms of inequality and their effects. The reason why the moderately demanding social-egalitarian framework is most useful is that it is, on the one hand, demanding enough, since it lays out quite strict conditions for protecting people's equal social status and especially their right to free and equal citizenship, while on the other hand, it is flexible enough to allow for both democratic self-determination and the existence of legitimate inequalities.

If, for instance, all members of society took a vote on where to build a new waste treatment facility, and if the background conditions for this vote had been just and all citizens had indeed been able to participate as free and equal citizens, then moderately demanding social egalitarians would have no issue with the facility being built in location A rather than location B, even if the eventual building site was located close to a socio-economically disadvantaged part of town. If however the result of the vote on where to build the waste treatment facility had been compromised by underlying socio-economic inequalities, such as strong lobbying efforts by the rich to build the facility on a site close to

¹⁴ In fact, defenders of the comprehensive-substantive account see already differential geographies of exposure as objectionable, independent of whether unequal exposure tracks socio-economic inequalities and vice versa.

a disadvantaged part of town, moderately demanding social egalitarians would argue that such a vote's result is illegitimate.

Since members of the disadvantaged part of town had neither the means to campaign for their interests nor adequate information on the long-term effects of the facility on health, according to moderately demanding social egalitarians these equal democratic citizenship undermining differences must be deemed unjust. Moreover, moderately demanding social egalitarians would object to the fact that the disadvantaged are already amongst the most vulnerable and susceptible members of society, a state of affairs exacerbated by the result of the vote and thus heightening existing inequalities with regard to the geography of risk, since exposure would now seem to track socio-economic disadvantage. Therefore, on a moderately demanding social-egalitarian reading, in this second case, the vote as well as the placement of the waste treatment facility would be considered unjust.

As this example shows, in contrast to the formal-procedural account the moderately demanding social-egalitarian conception of justice and democratic citizenship allows to distinguish between different grounds on the basis of which we might deem certain inequalities objectionable, or not. At the same time, the social-egalitarian framework is not as idealist and demanding as the comprehensive-substantive account. Therefore, according to the moderately demanding reading not all environmental inequalities undermine free and equal citizenship. This is a crucial point which relates back to the discussion of the empirical literature in *section 3* and shows why we think it is important to identify distinct geographies of risk, rather than just isolated inequalities of exposure or proximity.

Through combining the results of empirical studies on differential exposure and on complex and multiple socio-economic vulnerability, geographies of risk highlight the nexus between 'purely' environmental aspects and social, political and economic aspects, which in combination can very much undermine a person's status as a free and equal citizen. The moderately demanding social-egalitarian account is uniquely able to pick up on the existence of harmful geographies of risk by problematizing instances of unequal political influence, socio-economic domination and illegitimate differences in risk exposure. The moderately demanding social-egalitarian account is interested in both the substantive conditions for free and equal citizenship and the legitimate authority of democracy, that is, the justifiability of political decision-making to all relevant parties. It is because of this twofold scope that the moderately demanding social-egalitarian account is not only best suited to assessing the normative status of existing environmental inequalities, but also to explaining why—if we take our bearing from existing empirical research—we should consider many environmental inequalities to be indeed unjust but others to be legitimate

6. Conclusion

The aim of this paper has been to link empirical findings concerning environmental inequalities with different possible normative yard-sticks for assessing these inequalities and to judge whether certain environmental inequalities should be deemed unjust, or not. As we pointed out in *section 2* such an inquiry must necessarily take into account some caveats regarding both empirical research and normative theory. We argued that contextualising the results found in the empirical literature within the wider research on inequality and social disadvantage, and studying significant overlaps between geographies of exposure and geographies of vulnerability allows us to derive normatively relevant geographies of risk, which track relevant inequalities across different dimensions.

We then shifted our attention to the question of what kind of normative accounts of justice and democratic citizenship might help us in evaluating which environmental inequalities represent socio-environmental injustices. After reviewing three paradigmatic accounts, we argued for utilising a moderately demanding social-egalitarian account of justice and democratic citizenship for identifying unjust instances of socio-environmental inequality. As our analysis in *section 5* showed, a moderately demanding social-egalitarian framework enables researchers to carefully disentangle the different grounds on which geographies of risk, respectively which socio-environmental inequalities, might be deemed unjust and under what conditions they must be accepted as legitimate.

Moreover, establishing distinct geographies of risk allows researchers to uncover the often harmful nexus between multiple and partially cumulative forms of social, economic and environmental disadvantage. It is only by combining results on differences in exposure with results on varying vulnerability that we arrive at a proper understanding of social and environmental risk, which in turn enables us to make, based on a suitable normative framework, an informed and critical assessment of an inequality's deontic status.

Bibliography

- Anderson, H. R. (2009), Air Pollution and Mortality: A History, in: *Atmospheric Environment* 43, 142–152
- Anderson, E. (1999), What's the Point of Equality, in: *Ethics* 109, 287–337
- Arneson, R. J. (2004), Democracy Is Not Intrinsically Just, in: Dowding, K. M./R. E. Goodin/C. Pateman/B. Barry (eds.), *Justice and Democracy: Essays for Brian Barry*, Cambridge, 40–58
- Bell, M./L. Marie/S. O'Neill/L. A. Cifuentes/A. Braga/C. Green/A. Nweke/J. Rogat/K. Sibold (2005), Challenges and Recommendations for the Study of Socio-economic Factors and Air Pollution Health Effects, in: *Environmental Science & Policy* 8, 525–533
- /A. Zanobetti/F. Dominici (2013), Evidence on Vulnerability and Susceptibility to Health Risks Associated With Short-Term Exposure to Particulate Matter: A Systematic Review and Meta-Analysis, in: *American Journal of Epidemiology* 178, 865–876
- Berlin, I. (1969), Two Concepts of Liberty, in: *Four Essays on Liberty*, Oxford

- Bobbio, N./R. Bellamy (1987), *The Future of Democracy: A Defence of the Rules of the Game*, Cambridge
- Bowen, W. (2002), An Analytical Review of Environmental Justice Research: What Do We Really Know? In: *Environmental Management* 29, 3–15
- Brettschneider, C. (2005), Balancing Procedures and Outcomes Within Democratic Theory: Core Values and Judicial Review, in: *Political Studies* 53, 423–441
- Brockner, J./B. M. Wiesenfeld (1996), An Integrative Framework for Explaining Reactions to Decisions: Interactive Effects of Outcomes and Procedures, in: *Psychological Bulletin* 120, 189–208
- Chaix, B. (2006), Children's Exposure to Nitrogen Dioxide in Sweden: Investigating Environmental Injustice in an Egalitarian Country, in: *Journal of Epidemiology & Community Health* 60, 234–241
- Christiano, T. (2004), The Authority of Democracy, in: *The Journal of Political Philosophy* 12, 266–290
- (2010), *The Constitution of Democracy: Democratic Authority and Its Limits*, Oxford
- Dahl, R. (1989), *Democracy and its Critics*, New Haven
- Daniels, N. (1975), Equal Liberty and Unequal Worth of Liberty, in: Daniels, N. (ed.), *Reading Rawls*, Oxford, 253–281
- Dowding, K. M./R. E. Goodin/C. Pateman/B. Barry (2004) (eds.), *Justice and Democracy: Essays for Brian Barry*, Cambridge
- Downey, L. (2005), Assessing Environmental Inequality: How the Conclusions We Draw Vary According to the Definitions We Employ, in: *Sociological Spectrum* 25, 349–369
- Dworkin, R. (2000), *Sovereign Virtue: The Theory and Practice of Equality*, Cambridge
- Evans, G. W./E. Kantrowitz (2002), Socioeconomic Status and Health: The Potential Role of Environmental Risk Exposure, in: *Annual Review of Public Health* 23, 303–331
- Fairburn, J./B. Butler/G. Smith (2009), Environmental Justice in South Yorkshire: Locating Social Deprivation and Poor Environments Using Multiple Indicators, in: *Local Environment* 14, 139–154
- Forastiere, F./M. Stafoggia/C. Tasco/S. Picciotto/N. Agabiti/G. Cesaroni/C. A. Perucci (2007), Socioeconomic Status, Particulate Air Pollution, and Daily Mortality: Differential Exposure or Differential Susceptibility, in: *American Journal of Industrial Medicine* 50, 208–216
- Gould, C. (2004), *Globalizing Democracy and Human Rights*, Cambridge
- Habermas, J. (1997), *Between Facts and Norms*, Cambridge
- Hauenstein, N. M. T./T. McGonigl/S. W. Flinder (2001), A Meta-Analysis of the Relationship Between Procedural Justice and Distributive Justice: Implications for Justice Research, in: *Employee Responsibilities and Rights Journal* 13, 39–56
- Held, D. (2006), *Models of Democracy*, Stanford
- Hoffmann, B./B. Kolahgar/K. Rauchfuss/G. Eberwein/I. Franzen-Reuter/M. Kraft/M. Wilhelm/U. Ranft/K.-H. Jöckel (2009), Childhood Social Position and Associations between Environmental Exposures and Health Outcomes, in: *International Journal of Hygiene and Environmental Health* 212, 146–156
- Holland, B. (2008), Justice and the Environment in Nussbaum's 'Capabilities Approach': Why Sustainable Ecological Capacity Is a Meta-Capability, in: *Political Research Quarterly* 61, 319–332

- Hornberg, C./A. Pauli (2007), Child Poverty and Environmental Justice, in: *International Journal of Hygiene and Environmental Health* 210, 571–580
- Ikeme, J. (2003), Equity, Environmental Justice and Sustainability: Incomplete Approaches in Climate Change Politics, in: *Global Environmental Change* 13, 195–206
- Jerrett, M./M. Finkelstein (2005), Geographies of Risk in Studies Linking Chronic Air Pollution Exposure to Health Outcomes, in: *Journal of Toxicology and Environmental Health, Part A* 68, 1207–1242
- Kampa, M./E. Castanas (2008), Human Health Effects of Air Pollution, in: *Environmental Pollution* 151, 362–367
- Kingham, S./J. Pearce/P. Zawar-Reza (2007), Driven to Injustice? Environmental Justice and Vehicle Pollution in Christchurch, New Zealand, in: *Transportation Research Part D: Transport and Environment* 12, 254–263
- Kohlhuber, M./J. Heinrich/P. Hazel/M. Zuurbier/M. L. Bistrup/J. G. Koppe/G. Bolte (2006), Children's Environmental Health: Why Should Social Disparities Be Considered, in: *Acta Paediatrica* 95, 26–30
- Koton, S./N. Molshatzki/V. Myers/D. M. Broday/Y. Drory/D. M. Steinberg/Y. Gerber (2013), Cumulative Exposure to Particulate Matter Air Pollution and Long-Term Post-Myocardial Infarction Outcomes, in: *Preventive Medicine* 57, 339–344
- Krieg, E. J./D. R. Faber (2004), Not So Black and White: Environmental Justice and Cumulative Impact Assessments, in: *Environmental Impact Assessment Review* 24, 667–694
- Krütli, P./K. Törnblom/I. Wallimann-Helmer/M. Stauffacher (forthcoming), Distributive vs. Procedural Justice in Nuclear Waste Repository Siting, in: Taebi, B./S. Roeser (eds.), *The Ethics of Nuclear Energy: Risk, Justice and Democracy in a Post-Fukushima Era*, Cambridge
- Makri, A./N. I. Stilianakis (2008), Vulnerability to Air Pollution Health Effects, in: *International Journal of Hygiene and Environmental Health* 211, 326–336
- Mitchell, G./D. Dorling (2003), An Environmental Justice Analysis of British Air Quality, in: *Environment and Planning A* 35, 909–929
- Morello-Frosch, R./M. Pastor/J. Sadd (2001), Environmental Justice and Southern California's 'Riskscape' The Distribution of Air Toxics Exposures and Health Risks among Diverse Communities, in: *Urban Affairs Review* 36, 551–578
- /E. Shenassa (2006), The Environmental 'Riskscape' and Social Inequality: Implications for Explaining Maternal and Child Health Disparities, in: *Environmental Health Perspectives* 114, 1150–1153
- /M. Zuk/M. Jerrett/B. Shamasunder/A. D. Kyle (2011), Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications For Policy, in: *Health Affairs* 30, 879–887
- Myers, V./D. Broday/D. Steinberg/Y. Drory/Y. Gerber (2013), Exposure to Particulate Air Pollution and Long-Term Incidence of Frailty after Myocardial Infarction, in: *Annals of Epidemiology* 23, 395–400
- Nozick, R. (1974), *Anarchy, State, and Utopia*, New York
- O'Neill, M. S./M. Jerrett/I. Kawachi/J. Levy/A. Cohen/N. Gouveia/P. Wilkinson/T. Fletcher/L. Cifuentes/J. Schwartz (2003), Health, Wealth, and Air Pollution: Advancing Theory and Methods, in: *Environmental Health Perspectives* 111, 1861–1870
- Pearce, J./E. A. Richardson/R. J. Mitchell/N. K. Shortt (2010), Environmental Justice and Health: The Implications of the Socio-Spatial Distribution of Multiple Environmental Deprivation for Health Inequalities in the United Kingdom, in: *Transactions of the Institute of British Geographers* 35, 522–539

- Pettit, P. (1997), *Republicanism. A Theory of Freedom and Government*, Oxford
- (2012), *On the People's Terms: A Republican Theory and Model of Democracy*, Cambridge
- Rawls, J. (1993), *Political Liberalism*, New York
- Sahsuvaroglu, T./M. Jerrett (2007), Sources of Uncertainty in Calculating Mortality and Morbidity Attributable to Air Pollution, in: *Journal of Toxicology and Environmental Health, Part A* 70, 243–260
- Schlosberg, D. (2004), Reconceiving Environmental Justice: Global Movements and Political Theories, in: *Environmental Politics* 13, 517–540
- (2009), *Defining Environmental Justice: Theories, Movements and Nature*, Oxford
- Schweitzer, L./M. Stephenson (2007), Right Answers, Wrong Questions: Environmental Justice as Urban Research, in: *Urban Studies* 44, 319–337
- Shortt, N. K./E. A. Richardson/R. Mitchell/J. Pearce (2011), Re-Engaging with the Physical Environment: A Health-Related Environmental Classification of the UK, in: *Area* 43, 76–87
- Valentini, L. (2012), Justice, Disagreement, and Democracy, in: *British Journal of Political Science*, Online First
- van Parijs, P. (1996), Justice and Democracy: Are they Incompatible, in: *The Journal of Political Philosophy* 4, 101–117
- (2011), *Just Democracy. The Rawls-Machiavelli Programme*, Colchester
- von Hayek, F. A. (1960), *Constitution of Liberty*, London
- Walker, G. (2009), Beyond Distribution and Proximity: Exploring the Multiple Spatialities of Environmental Justice, in: *Antipode* 41, 614–636
- (2012), *Environmental Justice: Concepts, Evidence and Politics*, Abingdon
- /G. Mitchell/J. Fairburn/G. Smith (2005), Industrial Pollution and Social Deprivation: Evidence and Complexity in Evaluating and Responding to Environmental Inequality, in: *Local Environment* 10, 361–377
- Wall, S. (2007), Democracy and Equality, in: *The Philosophical Quarterly* 57, 416–438