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## Research article

# What do researchers mean when talking about justice? An empirical review of justice narratives in global change research

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## ABSTRACT

The study of planetary justice is an emerging research field that explores questions of justice on a planetary scale, particularly in the context of the profound global environmental and systemic challenges our earth system is facing. The connection between environmental conditions, human well-being, and justice and equity has been established over the past decades through both academic research, and advocacy and campaigning. However, despite the growing attention and priority of this concept, divergences exist between what is meant by 'justice' by different actors in all arenas, including academia. This article uses a framework first developed by Biermann & Kalfagianni (2016, 2018) for empirically analysing what concepts of justice are present in global change research, how this has changed over time, and what patterns or contradictions can be observed. By exploring what concepts, principles and mechanisms of justice emerge from global change research, the paper supports the further development of a 'planetary justice' research agenda in the study of earth system governance.

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## 1. Introduction

In the past decades there has been a hesitancy in mainstream governance research to assess and discuss questions of justice related to global environmental change (Klinsky et al., 2017). This situation might have developed because of the unavoidable links between global science and scholarship, on the one hand, and the concrete politics on justice in negotiations and political processes, on the other. The widely cited statement by Todd Stern in 2011, 'If equity's in, we're out' – referring to the United States' disapproval of terminology of justice in climate agreements (Pickering et al., 2012) – is characteristic of a certain disconcert with justice even in global environmental change research. As a consequence, empirical investigations of justice have been at the periphery rather than the centre of global change research. The reaction of the well-known political scientist Robert O. Keohane (2016) is common: he ended a keynote address in 2016 by saying that 'equity' would be an issue not amenable to academic research because of its strong normative implications.

More recently, however, this situation has changed both in

politics and academia. As for politics, while the 1992 United Nations Framework Convention on Climate Change and its 1997 Kyoto Protocol had referred to 'equity' only in a more general sense, the 2015 Paris Agreement is stronger in its emphasis on equity. The same holds for the 1992 Convention on Biological Diversity, where equity has become more prominent under the Aichi Targets (Dawson et al., 2018). Likewise, the Sustainable Development Goals, agreed by the United Nations in 2015, refer to equality and justice more strongly than the earlier Millennium Development Goals. Justice discourses are also becoming more noticeable within countries, with state constitutions and legal frameworks now more prominently acknowledging the challenge of justice – not the least in the United States (US EPA, 2019).

Also in academia, the 'environmental justice' research community has grown over the years, with separate networks and a new taskforce on Planetary Justice under the global research alliance Earth System Governance Project. For example, researchers have examined the effects of environmental policies on access to resources and sustainable resource use (Gupta and Lebel, 2010), levels of pollution (Clapp, 2001; Pearce and Kingham, 2008) and environmental degradation (Rice, 2009), in each case identifying how justice may differ for individuals and communities according to gender, race, socio-economic class and state of development. Researchers have shown for instance that the poor and

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marginalized are often the main victims of environmental deterioration that affects their livelihoods and chances for survival (Paehlke, 2001; Barker et al., 2008; Comim, 2008; Okereke, 2008). As a result, this literature has pointed out that institutions that further detriment these groups need to be replaced by institutions that better take into account ecological and social justice concerns (Shiva, 1997; Sen, 1999; Hoerner and Robinson, 2008).

In addition, scholars of environmental law and human rights have increasingly been engaging with issues of justice and the environment (Kotzé, 2019). Some examples of this can be seen in transdisciplinary networks like the Global Network for the Study of Human Rights and the Environment and the Center for International Environmental Law. The link between legal scholarship and the increasing momentum and proliferation of case law (such as Kingdom of the Netherlands v. Urgenda Foundation) offer a natural, important research niche for legal concerns about planetary justice.

And yet, what justice concretely means stays often ill-defined, and political and normative disagreement regularly remains invisible under the generic support and endorsement of the need for 'justice'. While the value and inclusion of 'justice' in international, national and local environmental policies and governance becomes increasingly accepted, equity and justice continue to be contested terms. Only few governance studies have tried to engage with what justice means concretely, outside of legal and philosophical scholarship, with most referring merely implicitly to the conceptualizations of justice that are underlying their research.

This is problematic, as policy proposals and conditions that are often analysed in environmental justice research are not simply varying approaches to governance but also diverse ways of viewing the world and different methods of value ranking (Okereke and Dooley, 2010). Making transparent the ways in which alternative values affect long-term environmental and human conditions is critical in negotiating fair and effective governance architectures. Moreover, we have yet to understand how our own conceptualizations of justice and equity are shaped by our regional biases, learned behaviour and our constructed, contextual knowledge and lived experience (Graness, 2015; Engelkamp and Glaab, 2015). It is only when we start to consider the foundations of our conceptions of justice that we can truly come to terms with the impact of our inherent regional or philosophical bias about justice, and the epistemic power that comes with the dominance of any region, concept or foundational assumption in research as well as in politics.

In short, not only is there a multiplicity of definitions in political practice and in different regions and sectors: also in the academic community researchers employ a range of different philosophical conceptualizations and traditions. If we want to further develop academic research on questions of justice, it becomes vital to improve our mutual understanding of what we mean when we talk about justice.

This question is what this paper seeks to contribute to, by analysing narratives of justice that are used in global change research, with a focus on conceptualizations of justice at planetary scale.

To unpack some of these nuances and challenges, we explore the narratives of justice used in parts of the academic literature over the past decade, from 2007 to 2017. Searching through four key publication outlets we show which philosophical traditions underpin the arguments of scholars as they examine questions of justice. In order to do so, we used as an analytical heuristic a research framework developed by Biermann and Kalfagianni (2016, 2018), which condensed the wealth of philosophy on justice down to five justice approaches that can be used to empirically identify, compare and contrast trends and patterns in justice narratives over time.

This paper addresses three questions. First, we analyse which concepts of justice implicitly or explicitly underlie the past decade of global change research on justice, drawing here on Biermann and Kalfagianni (2016, 2018) framework. Second, we assess to what extent such usage has changed over time. Third, we study trends, contradictions and recurrent patterns in research on this subject.

## 2. Research framework and methodology

To investigate the actual academic conceptualizations of justice in global change research, we undertook an in-depth qualitative comparative analysis of 69 articles published in leading international, peer-reviewed journals, based on a larger sample of 8248 journal articles that we quantitatively assessed.

The selection of articles proceeded in four steps.

First, we identified journal articles for our later review through a keyword search in Scopus for articles that were published between 2007 and 2017, restricted to four internationally leading journals in global change research: *Global Environmental Change*, *Global Environmental Politics*, *Ecological Economics* and *Environmental Politics*. These four journals we selected as key outlets in their fields, being leaders – within global change research – from the perspective of political science and public administration (*Environmental Politics*), international relations (*Global Environmental Politics*), ecological economics (*Ecological Economics*) and geography (*Global Environmental Change*). All four journals are open to publishing research on justice and ethical questions (and have done so in the past), while none is focussed on ethical debates as such. Instead, all four are mainstream inasmuch as they publish on a large variety of issues but do not focus on ethical questions specifically. This selection approach introduces, naturally, certain selection biases; in our case, we underreport discourses in highly specialized journals (such as *Environmental Values* or the *Journal of Global Ethics*) and in journals that represent niches in the field even though being relevant, such as *Capitalism Nature Socialism*. Our interest, in this review, is on the mainstream and on those journals that are widely regarded as the top in their field.

From these four journals, we included in our search 2818 articles from *Global Environmental Change*, 1310 articles from *Global Environmental Politics*, 2713 articles from *Ecological Economics* and 1407 articles from *Environmental Politics*.

To search within these journals for relevant articles, we limited our search to three central search terms only: 'justice', 'equit\*' and 'fair\*'. These search terms we chose because together they are the key terminology to describe discussions about justice. They are also often used interchangeably to cover different concepts of justice. We used multiple search terms, rather than simply and exclusively 'justice', because other terms are often more widely used depending on the empirical field under investigation. For example, 'justice' is often mentioned in the context of climate change and 'climate justice', while 'equity' is more often used in the context of ecosystem services and biodiversity.

Overall, our research found in these four journals over a ten-year period 345 articles that mentioned the words justice, fairness or equity (that is, 'justice', 'equit\*' and 'fair\*') in their title, abstract or keywords. This is about 4.2% of the total number of articles analysed. In other words, 95.8% of all articles in these four mainstream journals over the last ten years did *not* refer to questions of justice, equity or fairness in their abstract, title or keywords. This shows, we feel, the broad negligence to such important normative questions in the mainstream discourses in our community.

Second, from these 345 articles, we narrowed the sample down for more intense review. We qualitatively studied the abstracts and keywords of each of these 345 articles identified, and assessed whether the authors may have used our search terms in a different

**Table 1**  
Operationalization of the planetary justice research framework.

	Subjects of Justice	Principles	Mechanism
<b>National liberal egalitarianism</b>	Individuals within the borders of the nation-state; emphasis on boundness by national institutions	Equality of opportunity Difference principle	Creation of national welfare state and institutions to assign rights and duties, provide equal opportunity and redistribute wealth
<b>Cosmopolitanism</b>	Individuals irrespective of affiliation with a particular nation-state; emphasis on boundness by international institutions	Global difference principle	Global redistribution of wealth
Liberal egalitarian	Individuals irrespective of affiliation with a particular nation-state; emphasis on equal moral worth of persons	Needs-based minimum floor principle	Setting up institutions that secure and protect these needs
Sufficientarian	Individuals and communities; emphasis on human dignity	Enabling individuals and communities to live a rich life by fully developing their capabilities and freedoms	Government and policy are necessary to foster human capabilities and freedoms Moral role of state, but institutions should be decentralized, reflexive and adaptable
<b>Capabilities Approach</b>	Individuals and communities; emphasis on self-ownership	Protection of civil liberties	Rejection of a strong role of government and of any redistributive policies enacted by government based on taxation Markets as main exchange mechanisms.
<b>Libertarianism</b>	Individuals, communities, classes; emphasis on identity and status	Free exchange Participatory parity in the economic, cultural and political dimensions of life	Dismantling oppressive institutional structures and establishment of new ones based on parity
<b>Critical Approaches</b>			

field, in a different context, or whether the articles were otherwise not relevant for further study. This step resulted in the further exclusion of 122 articles that we considered not to be sufficiently relevant. Many papers were removed at this point because of the use of the search terms in a different context, for example, the use of 'fair' to describe an amount ('a fair number of') or an economic system 'laissez faire', among others. This led to a remaining sample of 223 articles. In this stage, we also categorized each article by scale and field to allow for a first broad understanding of the time, title, subject, scale and scope of the research that was undertaken with first conclusions in the form of descriptive statistics that we present below.

Third, the remaining 223 articles we then reviewed twice to ensure the selection of articles was correct. We placed greater emphasis in the selection also on whether the article addressed justice in a planetary context (eliminating here about 40 papers that focussed exclusively on local governance without recognition or connection to the planetary); and on whether the article had the potential to meaningfully include concepts of justice or just uses this language to simply describe some aspect of the research. An example of this is Barrett (2013) paper about adaptation finance in Kenya, which, while discussing access and allocation of finance, it is about institutional change and the effectiveness of new institutions to support adaptation finance, rather than about equity or justice. This further screening left us with a shortlist of 120 articles.

Fourth, each of these 120 articles we analysed using a coding framework that we developed, based on the conceptual work by Biermann and Kalfagianni (2016, 2018). The coding framework can be seen in Table 1 and is discussed in some detail below. During this review we removed more articles from the sample because justice was not systematically used in their analysis or because they focused purely on an isolated, local case without connecting into broader concepts of justice. Examples of such exclusion is where the term justice was used only superficially but was not operationalized or engaged with thoroughly, as well as several theoretical articles that discussed varying frames, categorizations and theories without any application. An example of the papers removed at this stage include Druckman and Jackman's (2008) article on equity and the Gini coefficient; while this paper is about an equality indicator, it only discussed the equations and processes of calculation of the indicator with no discussion from which a concept of justice could be extracted. In the end, after all these stages, the final number of papers that we analysed in depth was down to 69.

These 69 remaining empirical papers<sup>1</sup> we reviewed in depth in order to more thoroughly analyse the complexities of which concepts of justice were applied: when, where and how. In addition, we made a final categorization based on the empirical field and scale of the analysis in the article.

We conducted qualitative discourse analysis on the 69 remaining empirical studies using a coding framework developed based on Biermann and Kalfagianni (2016, 2018) Planetary Justice research framework. This framework condenses the wealth of philosophical traditions on justice into five broad theoretical approaches that can be used to identify empirically the use of the concept of justice in a variety of arenas. Using the framework in this way achieves two things. First, it allows us to distil initial trends from a large number of papers to make explicit what is too often left implicit in research. Second, it offers an example of a framework and method for unpacking what is meant when we use the word 'justice' in our research. Utilizing this framework, as opposed to qualitative or narrative exploration of ideas of justice in use, brings some of its own limitations, however: it does not allow for deeper discussion of the ways in which authors theoretically elaborate and develop nuanced ideas of justice. We acknowledge that this deep exploration will hence need a further step beyond the work we have done here to frame discussions.

These five theoretical approaches we draw on are national liberal egalitarianism, cosmopolitanism, the capabilities approach,

<sup>1</sup> These papers are, in alphabetical order, Angelovski and Martínez Alier (2014); Anthoff et al. (2009); Barrett (2013); Beuchelt and Zeller (2011); Bina and La Camera (2011); Börner et al. (2010); Bulkeley et al. (2013); Bulkeley et al. (2014); Carlsson et al. (2011); Carruthers (2007); Ciple (2014); Ciple and Roberts (2017); Ciple et al. (2013); Coolsaet and Pitseys (2015); Corbera et al. (2007); Cory and Rahman (2009); Davidson (2012); Dearing et al. (2014); Dellink et al. (2009); Di Chiro (2008); Duus-Otterström and Jagers (2012); Farbotko and Lazrus (2012); Farley et al. (2015); Fry et al. (2015); Gabrielson and Parady (2010); García-Amado et al. (2011); Grasso (2010); Groves (2015); Hammar and Jagers (2007); Harris and Symons (2013); Hill et al. (2015); Holland (2017); Holland et al. (2017); Kalfagianni (2015); Kaup and Casey (2016); Klinsky et al. (2012); Loft et al. (2017); Lyster (2017); Ma (2010); Maltis (2008); Marion Suiseeya and Caplow (2013); Martin et al. (2014); Martinsson and Lundqvist (2010); Mason (2010); McLaren et al. (2016); Nakazawa (2016); Nicholson and Chong (2011); Paaola (2008); Page (2008); Page (2007); Pascual et al. (2010); Pelletier (2010); Phelan et al. (2017); Roberts (2011); Rootes and Leonard (2009); Schlosberg and Carruthers (2010); Schlosberg et al. (2017); Schuppert (2011); Shammin and Bullard (2009); Siciliano and Urban (2017); Sommerville et al. (2010); Stalley (2013); Steininger et al. (2014); Suiseeya (2014); Vanderheiden (2011); Veland et al. (2013); Venghaus and Selbmann (2014); Vojnovic and Darden (2013); Warlenius et al. (2015).

libertarianism and critical perspectives (Biermann and Kalfagianni, 2016, 2018). Again, the purpose of the framework is to enable empirical social science research on justice rather than to engage in theoretical debates about the meaning of justice. We recognize the invaluable role of philosophical debates in exploring the nuances in understandings of justice and seek here to build on this work in a way that can hopefully be useful to empirical governance research. For that reason, although the framework aims to accurately reflect theoretical approaches and their boundaries it may lack the detail of a philosophical exposition on justice. We now briefly outline the key characteristics of the selected approaches and our operationalization.

- (a) National liberal egalitarianism is an approach broadly defined by John Rawls and others, combining values of individual freedom, equality and responsibility in a 'liberal society'. We refer here in particular to Rawlsian liberal egalitarianism and specifically his understanding of justice as fairness as the foundation of this approach to planetary justice. Rawls's understanding of justice rests on two main principles. First, each person has the same claim to a fully adequate scheme of equal basic liberties. Second, social and economic inequalities are to satisfy two conditions: (i) they are to be attached to offices and positions open to all under fair equality of opportunity, and (ii) they are to be to the greatest benefit of the least advantaged members of society (difference principle) (Rawls, 1971: 42–43). Society in Rawls's view is a 'well-ordered' society, that is, a society in which all citizens accept the principles of justice, know that their fellow citizens also do so, and recognize the basic structure as just (Rawls, 1971: 68–69). Such a society, according to Rawls, is confined to the borders of the nation state as only national institutions can bind citizens together. In line with this tradition, then, planetary justice is best served when the two principles are satisfied within the borders of a nation state.
- (b) Cosmopolitanism has many variations, but all are concerned with justice beyond the boundaries of the nation state. In this article we focus on two variants of cosmopolitanism: liberal-egalitarian cosmopolitanism and sufficientarianism. Liberal-egalitarian cosmopolitanism extends the two basic principles of national liberal egalitarianism mentioned above to the global level. Attention is paid in particular to a global difference principle according to which social and economic inequalities are to be to the greatest benefit of the least advantaged members of global society (e.g. Beitz, 1979; Caney, 2001, 2005). This is because, in contrast to Rawls's understanding, the rise of international cooperation and related international institutions bind citizens of one state together with citizens of another state, creating an obligation of justice beyond borders. Sufficientarians, on the other hand, are less concerned with equal distribution and more with meeting basic needs (e.g. Brock, 2009). In line with this approach, planetary justice is best served when all individuals worldwide can satisfy basic human needs necessary for survival.
- (c) The capabilities approach instead emphasizes the human dignity of each individual, focussing on the effects of institutions and mechanisms on individual livelihoods, well-being and capabilities (Nussbaum, 2000, 2011; Sen, 1999). In line with this tradition, planetary justice is best served when all individuals can live a life 'worth living' that goes beyond basic needs, and includes among others education, play, and relation with other species (e.g. Nussbaum, 2006). Although the capabilities approach can also fall under cosmopolitan approaches, we treat it separately primarily because its main

proponents, Martha Nussbaum and Amartya Sen, see the nation-state as the main locus of responsibility towards fostering human capabilities and freedoms.

- (d) Libertarianism focusses on the rights of individuals to liberty, ownership and free exchange without interference from the state. We draw here on Nozick's approach to libertarianism (Nozick, 1974). From this perspective it is not the outcome per se that matters – for example, whether individuals receive goods in accordance with a certain principle such as need – but rather the process. This process, however, is not democratically defined as in Rawls; rather it is considered just as long as it has been based on free exchange by lawful means and processes. In that case, wealth inequalities, for instance, are not considered unjust and wealth redistribution is only justified to the extent that this is initiated by individual choice, such as charity. Nozick recognizes that many historical processes yielding contemporary holdings have been unjust, in which case he argues in favour of rectification in the form of monetary compensation.
- (e) Critical perspectives finally highlight the structural conditions that create injustice, in particular by lack of parity in terms of: recognition of individuals and collectivities on the basis of their identity and status, participation of such individuals and collectivities in the political and economic sphere, and wealth distribution (specifically: Fraser, 2000, 2008, 2009). Theories such as feminism and Marxism are two examples of critical perspectives concerned with the structural conditions that create inequality and injustice. Critical perspectives emphasize the need to dismantle oppressive structures so that all individuals are recognized and able to participate as equals in public life.

Biermann and Kalfagianni (2016, 2018) then broke down their framework to study justice further into three aspects: (a) the subject of justice, that is, the sort of entities that are included within a system of justice or normative relations between people; (b) the principles, or metrics, of justice, that is, what the end goal of justice means in different approaches; and (c) the mechanisms of justice that different approaches suggest to implement justice. These three categories we operationalize in the table below to show how each of the five theoretical approaches see justice:

The definitions found in this table we used to code the 69 articles identified above, classifying them according to the conceptualization of justice they used across the three categories.

### 3. Results

The analysis of the 69 journal articles as outlined above allowed us to see how justice is understood when applied in research and to 'unpack' what is meant in research practice when scholars write about justice. The analysis examines the perspective of authors as they conduct their analysis and focuses on crucial aspects such as how terms are defined and operationalized; how recommendations and conclusions are drawn; and in some cases, where authors explicitly state which perspective on justice they hold. Often, definitions are introduced and used for identifying subjects in the early sections of an article, while later in the paper – when operationalization is outlined or recommendations are being stated – the principles and mechanisms of justice became more explicit. Not all articles followed this pattern though. Unsurprisingly, almost no articles used the exact terms of our framework neither did they explicitly state their theoretical approach. One exception is the capabilities approach; here scholars are more explicit about this being their approach, even though they still do not always fully clarify the different aspects of justice. Overall, most articles



explicitly defined justice as they used it in their article but were rather implicit about what this meant in terms of the subjects, principles and mechanisms of justice. This might be interpreted as a certain lack of dialogue between political philosophy and empirical social science research (we will return to this point later).

More specifically, we came to the following conclusions.

3.1. Justice is discussed differently and inconsistently

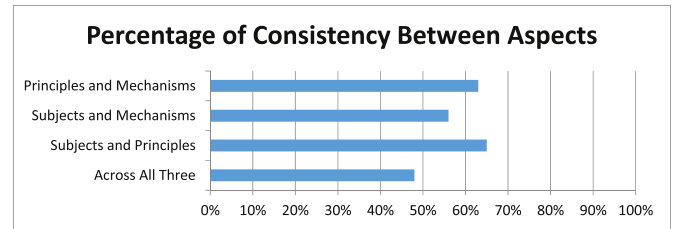
The first dynamic we observe is that justice is discussed differently by different scholars and inconsistently. With consistency, we refer here to whether authors employed within one study the same concept of justice across the aspects of justice that we outlined above. The results in Table 2 show that authors often employ different theoretical approaches when they discuss subjects of justice as compared to discussions of principles or mechanisms of justice. This can be seen in more detail in Graph 1, which shows the degree of consistency across different binary combinations of the three dimensions of justice, that is, the percentage of papers that use theoretically consistent approaches across the dimensions of subjects, principles and mechanisms. The fourth bar indicates that less than half (48%) of all articles that we studied use one theoretical approach of justice consistently across subjects, principles and mechanisms.

Given this inconsistency shown in Graph 1, it is important to narrow down on how and where different theoretical approaches were employed. We show this in Table 2 below. Importantly we note a tendency towards a cosmopolitan approach when authors define the subjects of justice, but more towards a critical approach when principles and mechanisms of justice are discussed. In contrast, a libertarian approach to justice is not used in any case. In addition, aside from a dominant cosmopolitan understanding of the subjects of justice, this perspective is not applied to further aspects of justice. (Please note that the totals do not add up to 69 papers because some papers did not contain enough information regarding all dimensions of justice.)

Both Graph 1 and Table 2, however, suggest a stricter dichotomy between approaches than often exists. This is particularly the case with cosmopolitanism, where we delineated two strands under this characterization. These data are not to be read as suggesting that theories of justice are isolated islands, but instead meant to show where emphasis has been placed in the current mainstream literature that we systematically reviewed.

3.2. Cosmopolitanism is dominant when it comes to the subjects of justice

Second, our analysis, presented in Table 2, shows that regarding the subjects of justice, there is a clear emphasis on a cosmopolitan approach, with a larger share of all papers seeing justice as not being limited by the boundaries of a state but instead accepting a global aspiration with all regions considered equally. Following this, there was equal spread between three other approaches, with no examples, however, of a libertarian approach to justice.



Graph 1. Consistency between dimensions of justice within single studies.

3.3. The capabilities approach is dominant when it comes to the principles of justice

Thirdly, the data in Table 2 also reveal that on the principles of justice, cosmopolitanism is much less dominant. Here, the capabilities approach appears most often, followed closely by critical approaches and then liberal egalitarianism (Table 2). The comparison across the third row of Table 2 shows that a cosmopolitan approach aligns most closely with broad perspectives of who is involved in the context of planetary justice. Principles and mechanisms, which address how justice is to be operationalized in practice, often do not follow a cosmopolitan approach.

3.4. The mechanisms of achieving justice are dominated by critical and capabilities approaches

Fourth, regarding mechanisms of achieving justice, a dominance of critical and capabilities approaches is found in the literature (Table 2). Liberal egalitarian approaches are less emphasized when it comes to mechanisms of justice.

3.5. Narratives of justice changed over time

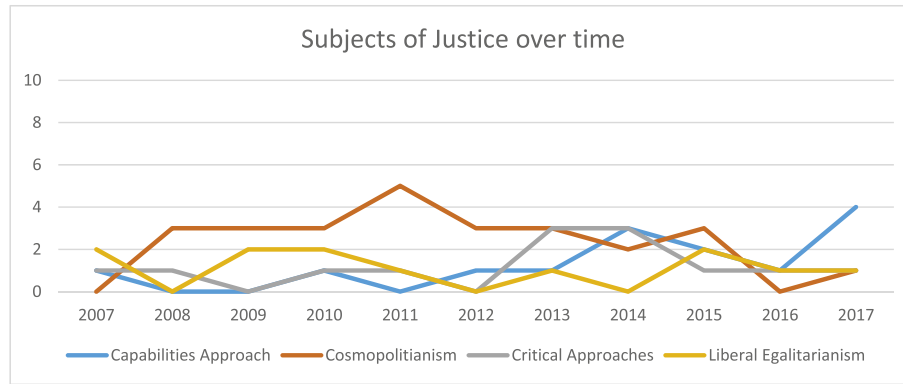
Fifth, our research shows that narratives of justice seem to change over time. This is illustrated in Graphs 2, 3 and 4. In all three aspects of justice, we see an increase in the capabilities approach towards the end of the period of study, and a slight decrease in a cosmopolitan approach. We also see a peak in the use of critical approaches between 2013-2015 in all three aspects. This result needs to be seen with some care, however, given the small number of papers per year in our final sample; it needs substantiation in further research for example by means of scientometric analysis.

3.6. Cosmopolitanism dominates in articles with a global-scale focus

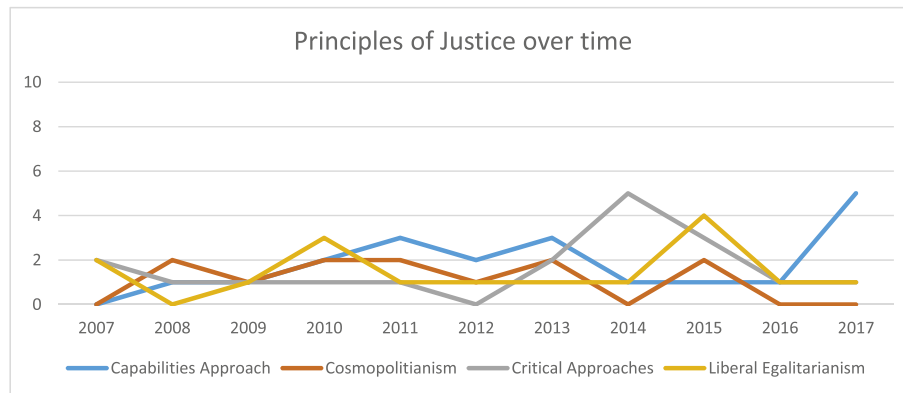
Sixth, in order to consider whether the empirical scale has an influence on perspectives of justice, we also looked at the subject of justice in articles that focused on global-scale empirical areas. It is important to clarify that planetary justice does not refer only to issues of global justice, which in their nature would tend towards cosmopolitan approaches, but includes local concerns which are contextualized in the earth system (as opposed to research which considers

Table 2 Number and percentage of article employing each theoretical approach.

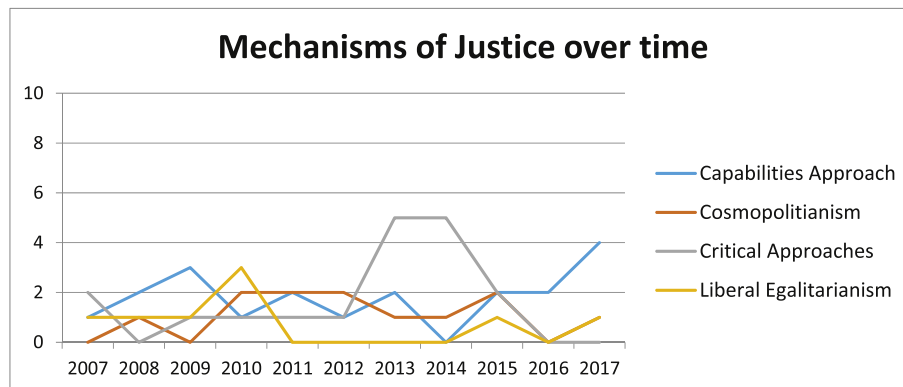
Theories of Justice/Characteristics	Liberal Egalitarianism	Cosmopolitanism	Libertarianism	Capabilities	Critical Approaches	Total
	<i>Number of papers [%]</i>					
<b>Subjects</b>	12 [18%]	26 [39%]	0 [0%]	15 [23%]	13 [20%]	66 [100%]
<b>Principles</b>	16 [25%]	12 [18%]	0 [0%]	20 [31%]	17 [26%]	65 [100%]
<b>Mechanisms</b>	7 [12%]	13 [22%]	0 [0%]	20 [34%]	19 [32%]	59 [100%]



**Graph 2.** Changes in subjects of justice in use over time.



**Graph 3.** Changes in Principles of Justice in use over time.



**Graph 4.** Changes in Mechanisms of Justice in use over time.

local cases in isolation). Here, a cosmopolitan conceptualization of subjects of justice was used in 55% of all studies; a conceptualization closer to the capabilities approach in 21%, to critical approaches in 14% and to liberal egalitarianism in 10%. (Still, no article relied on libertarian notions of subjects of justice.) It is unsurprising that research which takes a global scale in its empirical approach often employed a cosmopolitan approach to justice. However, this also shows the role that decisions such as empirical focus can have on the approach taken in one's research. In contrast, for locally focused articles, just under half employed a liberal egalitarian perspective of the subjects of justice and around one quarter used a critical approach and a capabilities

approach, with even less a cosmopolitan approach.

The question arises whether globally-focussed research almost always employs a cosmopolitan theory of justice. This is not necessarily the case, however. In fact, 45% of our globally focussed research articles did not employ a cosmopolitan perspective. If concepts of justice can be influenced by empirical scale, this may be another way in which our choices as researchers influence the concepts of justice we use in our work implicitly. It is possible that employing a more nuanced framework of planetary justice, or being more explicit about concepts of justice, may open up complexities and enable deeper understanding.

3.7. Dominance of few OECD countries in research on justice

Finally, our research showed a dominance of a few OECD countries in the literature that we reviewed; researchers from the United States, the United Kingdom and Australia are most dominant (Graph 5). Some of this can be explained by the inherent language-bias in the selection of journals; by the sheer volume of English-language academic outputs in the United States; and by the fact that major research groups focussing on justice exist in both the United Kingdom (e.g., University of East Anglia) and Australia (e.g., University of Sydney), which might have an impact given the relatively small sample size. The research community in the United States has also been pioneering with regards to environmental justice research, here often related to injustice related to race, class or geography (e.g. Bullard, 1994).

However, one can also surmise that the acceptance policies and peer-review cultures with English-language mainstream scholarly journals tend to exclude other voices, and privilege scholarship from the core basis of such journals, which is the United Kingdom and – especially for *Global Environmental Politics* – the United States. Maybe papers on planetary justice from scholars based in developing countries experience more resistance in the academic peer review, which is dominated by reviewers who are based, again, in a few industrialized countries. Maybe outspoken Southern voices are more easily rejected as being activist, unsurprising, unpractical, or radical in mainstream academic review processes. However, to systematically analyse such bias would require opening the review process of mainstream top journals for an independent analysis of their practices and inherent biases, which has not yet been done so far to our knowledge.

Importantly, it seems that our findings not only cut across the four journals but might indicate a broader trend: that scholars from the Global North publish the vast majority of articles in these four publications and that the Global North dominates environmental scholarship in the social sciences. It seems that from a normative perspective, for scholarship to represent the full spectrum of perspectives around the world – related to justice but also across every other field – we need more perspectives from the Global South in mainstream academia.

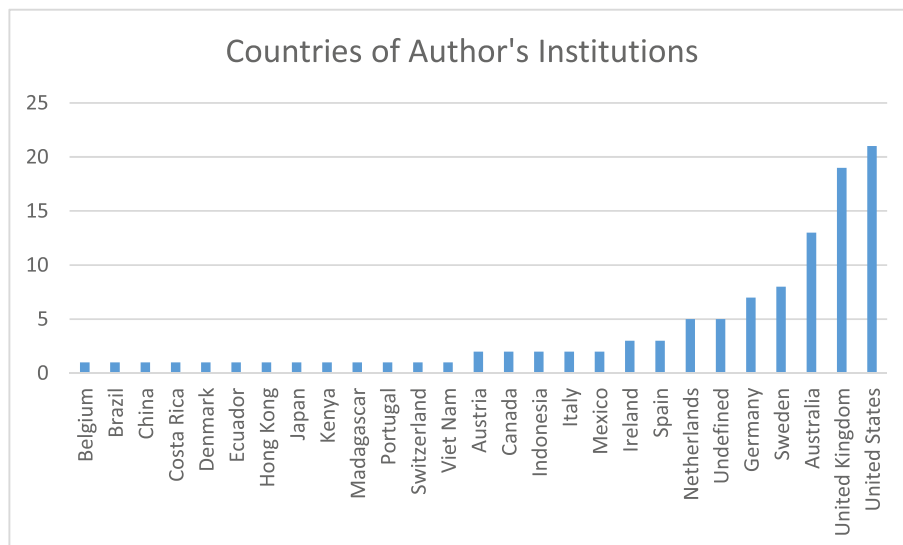
Yet regardless of the causes of such biases and whether the cause of these dynamics lies in the history of the field, the

concentration of research centres or any other aspect: we need to conclude that the narratives about planetary justice in academic top journals are currently created by a research community that is 84% based at institutions in the Global North. This empirically confirms the argument of Álvarez and Coolsaet (2018) that discourses about justice are often defined by scholars based in the North. They describe this as potentially perpetuating injustice through the way in which narratives are dominated by a region or a group. This is particularly interesting when one compares this to the finding that around 60% of all papers that we studied focussed empirically on a case at the global scale. This comparison shows us that perhaps scholars in the Global North are steering narratives and conceptualizations of justice in a certain direction which may or may not reflect proportionately the full spectrum of scholarship or ideas. This is problematic when one tries to investigate specifically non-northern perspectives, such as in the work of Graness (2015) in outlining a unique African perspective on justice.

4. Conclusion

Our study has shown that global change research has engaged very little with questions of justice. To the extent that it does, it uses a variety of justice approaches as exemplified by publications in four leading social-science journals. There is one big exception: libertarian understandings of justice are virtually absent from the papers that we studied. This is unsurprising. When social science research pays any attention to justice in the first place, this tends to be a critique of the political structures that created injustices, and such structures are often associated with libertarian perspectives of market liberalization. However, the results also show that there is often not an explicit effort to clearly articulate a particular justice approach and to do so consistently. Indeed, there is a discrepancy between how empirical social science research employs political philosophy around the subjects, principles and mechanisms of justice.

Some of this can be seen as a part of the broader struggle with cognitive dissonance in research programmes. For example, the subjects and principles of justice more closely relate to values, while the mechanisms of justice more closely relate to practice. Thus, relatedly while some scholars may idealize a cosmopolitan vision of global justice for all, they may find it more difficult – also



Graph 5. Locations of authors of articles that discuss justice.

possibly in light of academic standards of peer review in a Northern-based research community – to argue for the practical applicability of cosmopolitan mechanisms, some of which – like global tax dividends – might seem politically radical, for instance.

Importantly, our framework has its limitations. In our pursuit of building a parsimonious categorization framework that is useable for empirical research such as ours, we had to simplify complex and nuanced theoretical discussions. As a consequence, it is not possible to fully delineate and isolate each theory from others. We recognize that there are not always clear lines that separate different theories of justice, and our framework is not meant to develop these lines on a theoretical level. Instead, the framework is meant to help identify and clarify theoretical underpinnings of justice in order to use them in social science research. We also recognize the limitations of our sample size, both regarding journal selection and the relatively small number of articles we eventually qualitatively reviewed. Also, our conclusions may not apply to other research fields. Overall, however, we are confident that our key conclusion – that much more precision and transparency is needed in applying often implicit theories of justice in empirical social science research – is sufficiently supported by our analysis.

Hence, we argue that the plurality of perspectives and the values and norms underpinning them need to be better recognized and become more transparent in empirical research. This also means recognizing this plurality of perspectives in the empirical subjects of our research as well. As researchers, we might analyse a policy or legal framework through our understanding of justice; and through this assessment we might then consider it to be unjust. There is a risk, then, that without recognition of different perspectives taken by a researcher and their nuances, that this could result in a plurality of assessments with little comparability between studies and a lack of clarity about what is really emerging in this field of research. This process might also take place without considering what concepts of justice are employed by policy-makers and citizens, and what the norm is within the system or society that is studied. It is only with more transparent recognition of the plurality of concepts of justice that we can truly start to understand what is meant by justice in the empirical topics that we study.

This is why we find it helpful to use the concept of 'planetary justice', as a way to recognize the plurality of meanings and the interconnectedness of different scales of justice concerns. Rather than defining and employing one concept of justice, our framework can be a way to facilitate further explorations of justice issues, in all their diversity of perspective, scale, empirical field, and scope.

The framework employed here helps researchers towards that direction, that is, to clarify the normative positions on justice when they evaluate any policy proposal, text, document or research programme that has 'justice' as its object of research. But it can also help clarify researchers' own possible normative positions when these underpin their research. It is impossible to take the normative aspects entirely out of this field of research. Instead of idealizing impartiality in our research on justice, we rather should better recognize our own philosophical underpinnings and how this affects our work more clearly. A recent paper by van der Hel (2018), for instance, describes this dilemma by saying that questions of values and norms underpinning the work of the environmental governance research community 'no longer ... can be ignored'. Our study gives further evidence of this dynamic. In fact, as Engelkamp and Glaab (2015, p. 202) emphasize, 'dominant narratives ... that normalize particular readings of global politics at the expense of others still prevail. Writing norms, in this respect, is not politically innocent but may be complicit in subtly influencing academic and even political practice'. This may be just as true in how we write about justice as it is true about narratives of neoliberalism, which environmental governance research often problematizes and

criticizes. By not recognizing what conceptualization of justice we use in our research, we may be accidentally assuming that one definition supersedes others.

In short, justice-related research in the academic community working on global change is pluralistic. And we see this as positive. Yet, to develop a planetary justice research agenda, empirical social science must engage more closely with more abstract political philosophy and must make normative assumptions and approaches more explicit, transparent, and also more consistent. This article is only a first step in that direction. More focussed research on differences between studies from authors based in the Global North and Global South, studies that cover a longer time period, and studies that compare across fields of research would be important next steps to increase our understanding of these nuances of justice as applied in research practice. Only this will improve both sophistication and transparency about which conceptualizations of justice are used in policy and practice, as well as researchers' own implicit or explicit recognition of normative underpinnings in empirical research.

### Declaration of competing interest

There are no conflict of interests which could influence or bias this work. There was also no financial support to conduct this research.

### CRediT authorship contribution statement

**Elizabeth Dirth:** Formal analysis, Investigation, Data curation, Writing - original draft, Conceptualization, Methodology, Validation, Visualization. **Frank Biermann:** Writing - review & editing, Supervision, Conceptualization, Methodology, Validation, Visualization. **Agni Kalfagianni:** Writing - review & editing, Supervision, Conceptualization, Methodology, Validation, Visualization.

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