

# **Climate Change in Sociology**

## **Still Silent or Resonating?**

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### **Authors**

Jens Koehrsen, University of Basel

Sascha Dickel, University of Mainz

Thomas Pfister, Zeppelin University

Simone Rödder, University of Hamburg

Stefan Bösch, RWTH Aachen

Björn Wendt, University of Münster

Katharina Block, University of Oldenburg

Anna Henkel, University of Passau

## **Abstract**

Since Lever-Tracy's call for stronger sociological engagement with climate change in 2008, the number of climate-related contributions to leading sociological journals has increased. Yet, we show that they still represent a small percentage of contributions overall. Reviewing the 37 articles published in eight top-ranked sociology journals until 2018, we identify five main subfields of research: (a) reflections on the role of the social sciences, (b) politics, (c) economy and consumption, (d) media and public perceptions, and (e) global flows. We conclude that the rise in contributions since 2008 indicates that climate change creates some resonance in the disciplinary core of mainstream sociology but that most sociological climate change research is undertaken and published in inter- and transdisciplinary spaces beyond the boundaries of the discipline. Emphasizing that climate change research can provide important epistemic resources for the discipline, the article argues that sociology would benefit from being more responsive to it.

**Keywords:** Climate Change, Sociology, Sustainability, Disciplinarity, Low Carbon Transitions, Global Warming.

## **Introduction**

In 2008, Lever-Tracy prominently criticized that sociology had remained silent with regard to climate change. Searching for the terms “Climate Change”, “Global Warming”, and “Greenhouse Gas” in titles and abstracts of contributions in sociological mainstream journals, she noticed that there “was not a single finding in titles or abstracts, not one article focused on the subject” (Lever-Tracy, 2008a: 451). Lever-Tracy’s criticism led to a controversy about the role of sociology (Brechin, 2008; Grundmann and Stehr, 2010; MacGregor, 2009; Yearley, 2009) with regard to the climate issue. Yet, there was little doubt that the topic had received sparse attention in mainstream journals. Similarly, other scholars such as Redclift (2009) highlighted the potentials of sociology and agreed that “the shift from carbon dependence [had] (...) not benefited from much thoughtful sociological analysis” (Redclift, 2009: 383).

These arguments about sociology missing an opportunity were not entirely new. Already back in 1998, Passerini (1998: 59) had warned with regard to the more general topic – “sustainability” – that “sociologists are ‘missing the boat’”. One year later, Becker et al. (1999) expanded the criticism to the social sciences in general, noticing that sustainability had remained an “uncommon ground” for them. In retrospect, it seems that little had changed in the decade between Passerini’s warning in 1998 and Lever-Tracy’s contribution in 2008. Now, ten years after Lever-Tracy’s controversial statements, the question resurges: How does sociology relate to climate change? Is the topic still absent

in mainstream sociological journals? This question might be surprising, because many sociologists are intensively engaged in research on climate change. However, this research does not necessarily take place within the boundaries of the discipline. Rather, sociologists working on climate change discuss and publish research related to climate change in interdisciplinary spaces.

This article explores how climate change resonates within eight leading sociological journals because, other than sociologists in general, these journals might remain “silent” and may be “missing the boat”. The analysis shows an increase in contributions since 2008. Moreover, it identifies five subfields of research: a) reflections on the role of the social sciences, (b) politics, (c) economy and consumption, (d) media and public perceptions, and (e) global flows. After discussing each of these subfields, we ask whether and how this take-up of climate change produces epistemic resources and critical self-reflection in the discipline. We argue that sociological debates can benefit from relating more strongly to climate change research, allowing for intellectual innovation through an exchange with the interdisciplinary debates.

The article is structured as follows: The next section provides a brief overview of climate change-related research in sociology and the involvement of sociology in interdisciplinary climate change research. Moreover, the section also discusses the role of disciplinarity and outlines why it is relevant to explore the presence of climate change research in the core-journals of the discipline. Section three and four present the methods

of this review and portray how the debate has evolved in numerical terms over the last years and in different journals. In section five, we present an overview of the research in each of the five subfields. On this basis, section six considers how climate change resonates within the discipline and how the discipline itself can benefit from this research. The concluding section discusses the results of this review and highlights the importance of disciplinary debates about climate change.

### **The inter/disciplinarity of sociological climate change research**

Climate change research in sociology traditionally relates to environmental sociology. This sub-discipline has strongly engaged with the topic, evolved own sections within the major sociological associations and created specific publishing outlets such as the journal *Environmental Sociology* (Bell and Ashwood, 2016; Brand, 2010; Dunlap and Brulle, 2015; Gross and Heinrichs, 2010; Pellow and Nyseth Brehm, 2013; Telešienė and Groß, 2016; Weingart et al., 2000; Wendt et al., 2018). Environmentally interested scholars have described the anthropocentrism inherent in sociology and its distinction from nature as an obstacle for moving the topic to the core of the discipline (Buttel, 1986; Dunlap and Catton, 1994; Dunlap and Martin, 1983; Foster, 1999a; Newby, 1997). Accordingly, environmental sociology with its “new environmental paradigm” challenged the sociological neglect of non-human aspects of society and the distinction between nature and society by perceiving humans as part of the natural environment (Catton and Dunlap, 1978, 1980). Yet, the impact of environmental sociology on mainstream sociology

remained modest (Buttel, 1987; Foster, 1999b; Murphy, 1995; Redclift, 2009). While the topics of environmental sociology have stayed somehow remote from the core issues of the discipline, most sociological climate change research currently participates in inter- and transdisciplinary debates outside the boundaries of the discipline.

### *Sociology in inter- and transdisciplinary climate change research*

Climate change by now is subject to intensive inter- and transdisciplinary research efforts. There is a vast array of journals and research networks, bringing together researchers from various disciplines, including the social sciences (e.g., *Energy & Society Network*, *Future Earth*, *World Sustainability Forum*, *European Council for an Energy Efficient Economy*, *Sustainability Transitions Research Network*, University of Hamburg's Cluster of Excellence *Climate, Climatic Change, and Society*, University of Oxford's *Environmental Change Institute*). It is impossible to do justice to the richness of ongoing inter- and transdisciplinary discourses about climate change in this paper (Hadorn et al., 2006; Horlick-Jones and Sime, 2004; Russell et al., 2008; Sovacool, 2014). Hence, we briefly exemplify the development of interdisciplinary research by using one forum where sociologically informed research is particularly visible: the *Sustainability Transitions Research Network*. Launched in 2010, the network has steadily grown, counting 1,740 members at the end of 2018, and has become an important hub for researchers from different domains such as innovation studies, economics, geography, sociology, and political sciences. The network publishes its own academic journal *Environmental*

*Innovation and Sustainability Transitions* (EIST) which first appeared in 2011 and, in 2018, received an impact factor of 7.514. In comparison, the impact factor of the highest ranked sociological journal in the Social Science Citation Index, the *Annual Review of Sociology*, was 6.773 in 2018. As such, EIST constitutes a highly attractive publication outlet for sociologists and other researchers involved in this interdisciplinary field.

A search focussing on research articles that appeared between 2011 and 2018 in EIST and include the term «sociology» leads to 41 results, representing 17.3% of the journal's overall 236 articles published in this time period. The results include theoretical contributions that undertake, for instance, epistemological reflections on the governance of transitions (Avelino and Grin, 2017), address deep transitions (Kanger and Schot, 2018) and the role of religion in transitions (Koehrsen, 2018b). Additionally, the results cover many empirical contributions that draw upon sociological theories, applying, for instance, the sociology of expectations to hybrid and fuel cell vehicles as well as electric vehicle recharging (Bakker, 2014; Budde et al., 2015). While the contributions clearly draw upon sociological knowledge, their authors are not necessarily affiliated with the discipline or have a sociological background. Therefore, we can speak, in wider terms, of sociologically informed contributions that make use of and develop some of the knowledge resources that the discipline offers. We will return to this aspect below.

Apart from EIST, sociologically informed contributions have appeared in numerous other interdisciplinary journals such as *Energy Policy*, *Energy Research and Social Science*,

the *Environment and Planning* journals, *Environmental Politics*, *Global Environmental Change*, *Organization and Environment*, *Minerva*, *Public Understanding of Science*, *Sustainability*, *Sustainability Science*, *WIREs Climate Change*. Moreover, there is also a trend to publish smaller contributions in the policy forums and opinion pages of multidisciplinary journals such as *Nature* and its subsidiary journals (Geden, 2018; Grundmann, 2016; Sarewitz, 2011b). In addition to academic publication outlets, social scientists are increasingly included in assessment exercises such as the Intergovernmental Panel on Climate Change (IPCC) assessment reports (Victor, 2015).

Sociology has broadly engaged with inter- and transdisciplinary debates about climate change and low carbon transitions (Sovacool, 2014) and induces a relevant import of sociological knowledge to the interdisciplinary research field. Drawing upon the knowledge resources of the discipline, sociologically informed research enriches this interdisciplinary field with empirical insights and provides alternative theoretical viewpoints by drawing, in addition to the theories mentioned above, on practice theory (Shove and Walker, 2007, 2010), differentiation theory and boundary analysis (Koehrsen, 2017; Rödder, 2017), discourse analysis (Aykut et al., 2012; Weingart et al., 2000), role theory (Wittmayer et al., 2017), and sociological field approaches (Fuchs and Hinderer, 2014; Koehrsen, 2018a).

Applying sociological knowledge to interdisciplinary climate change research also makes it possible to further elaborate sociological knowledge, which can help sociology in



grasping social transformation processes in different social fields (e.g. food consumption, urban transitions). For this, knowledge from the interdisciplinary debates has to be transferred back to sociology. However, given Lever-Tracy's (2008a) critical observation that sociology has remained silent about climate change, it is not clear to what extent this transfer of knowledge has been taking place in the past decade.

*Interdisciplinarity and disciplinarity. A resource perspective*

In response to Lever-Tracy's call for a stronger sociological engagement with climate change research, one could state, on the one hand, that sociologists have taken up this challenge by participating in broader academic and political debates. Researching the social dynamics of climate change now constitutes an accepted aspect of climate change research. On the other hand, in order to do so, sociologists have moved beyond the boundaries of their discipline towards interdisciplinary spaces.

Disciplinarity has long been described as rather problematic. For example, it is criticized as overspecialization requiring similarly specialized audiences who are able to evaluate the quality of research (Turner, 2000). Moreover, this compartmentalization implies self-referential sub-cultures or intellectual cartels (Frodeman, 2013). It is often argued that research needs to be inter- or transdisciplinary in order to be capable of understanding complex problems and to generate knowledge that is relevant for society at large (Fazey et al., 2018; Hadorn et al., 2006; Horlick-Jones and Sime, 2004; Scholz and Steiner, 2015). From this perspective on disciplinarity as exclusionary specialization and inward-

looking, sociologists should pursue climate change research in interdisciplinary spaces, especially if they have made the experience that sociology has never given much room to environmental questions. Consequently, disciplinarity could be easily, and deliberately, ignored as conducting research in interdisciplinary spaces appears more promising.

However, questions about disciplinarity remain relevant in this context. To begin with, disciplinarity is a core element of the social order of modern science (Abbott, 2010; Stichweh, 1992). Universities and professional associations are still organized mainly along disciplinary principles. Despite increasing job opportunities in temporary interdisciplinary research centres and networks, most permanent academic positions are still located within disciplinary contexts. As such, sociologists seeking permanent positions will largely be judged on the basis of disciplinary standards (e.g., Lamont, 2010; McBee and Leahey, 2017). Moreover, interdisciplinarity typically draws upon the knowledge resources of disciplines. In the case of interdisciplinary climate change research, sociologically informed researchers bring in conceptual, empirical and methodological knowledge from the discipline to enrich this research.

From this perspective, disciplines are not only organizational frameworks for academic practice but also important spaces where scholars develop and share epistemic resources. It constitutes a loss for the discipline – as well as the interdisciplinary debates in which sociology is involved – if sociologists move to interdisciplinary spaces without feeding back their newly gained knowledge to the discipline. Participating in interdisciplinary

research can provide new knowledge and important impulses for reflexivity that allow for developing the epistemic resources of and for the discipline.

Taking insights and questions back from interdisciplinary spaces to the centre of the discipline can help to identify hegemonic bodies of knowledge as well as intellectual challenges worth working on. This fosters diversity and inclusiveness but, even more important, it can promote intellectual innovation. By being receptive for arguments, questions, and challenges stemming from interdisciplinary spaces, sociology can not only train sociologists' ability to participate in these spaces but also to reformulate questions of climate change in terms of broader theoretical puzzles for sociology and, thereby, create insights with regard to other sociological fields of inquiry.

## **Methods**

Our review focuses on contributions about climate change in leading sociological journals that were published until the end of 2018. For the analysis, the eight highest ranked sociological mainstream journals from the Social Citation Index 2016 were chosen, resulting in the following selection: *American Journal of Sociology*, *American Sociological Review*, *Annual Review of Sociology*, *British Journal of Sociology*, *Current Sociology*, *European Sociological Review*, *Sociology*, and *The Sociological Review*. Each journal was searched for the following terms, appearing in the title, keywords, or abstract of an article: "climate change", "global warming", or "greenhouse gas". These terms were chosen based upon Lever-Tracy's (2008) original search and led, after the elimination of

book reviews, to 37 results. As the results depend on the search terms, relevant contributions that did not use any of these terms may have stayed out.

A first analysis led to preliminary categories to order the contributions along their subjects (e.g. consumption, representations of climate change, policy instruments). For this, we drafted short summaries reflecting the research topics of each contribution. We compared these summaries in order to identify overlaps and to determine shared research fields. Subsequently, each of the contributions was assembled into one or several of these research fields. A second reading allowed for revising the categorization, more clearly distinguishing the preliminary research fields, and for attributing the articles to one specific field. A few studies touched on different fields and were subsumed to the subfield the article in question primarily referred. This method led to the following subfields in the sociological debate about climate change: a) reflections on the role of the social sciences, (b) politics, (c) economy and consumption, (d) media and public perceptions, and, (e) global flows.

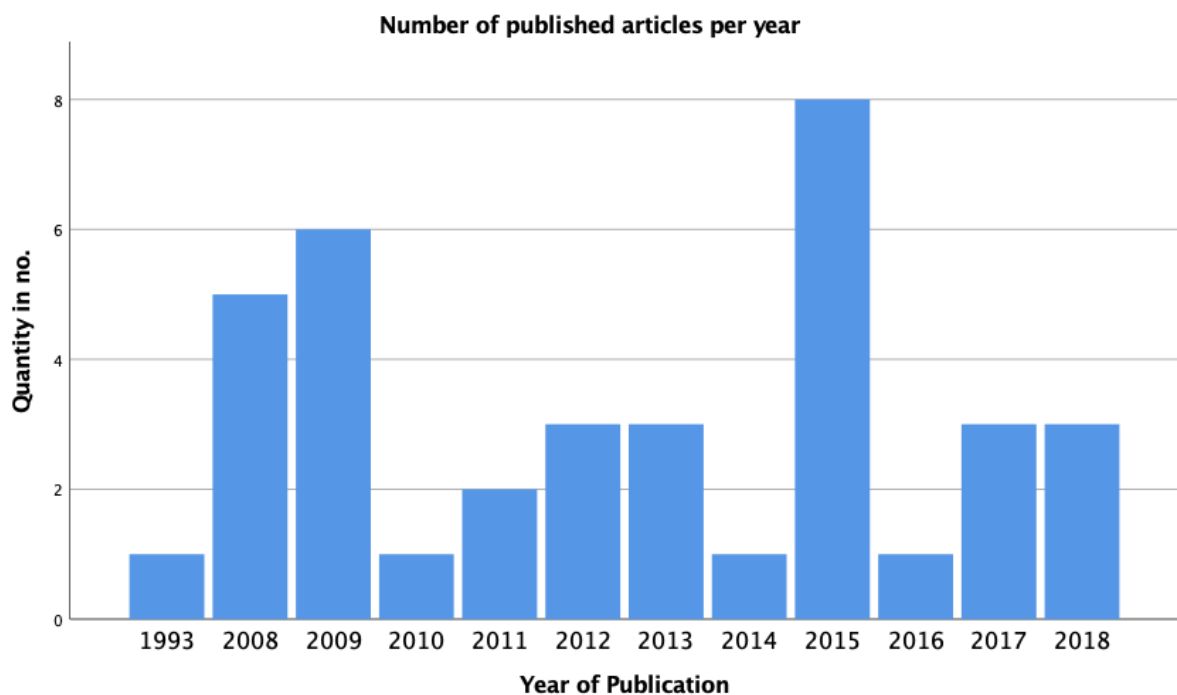
Moreover, articles were analysed with regard to the number of citations they received (via Google scholar) and their usage of research methods: (1) quantitative, (2) qualitative, (3) mixed methods, and (4) articles with a theoretical focus.

### **Climate change as a resonating topic in sociology**

Figure 1 shows the total number of articles published per year in the eight journals. The first article appeared in 1993 in the journal *The Sociological Review* and addresses the

newspaper coverage of climate change (Lacey and Longman, 1993). Until 2008, a debate in the leading mainstream journals does not emerge. In 2008 and 2009, however, the topic experiences a sudden rise: Lever-Tracy's seminal paper (2008) triggers most of these new contributions, including direct replies to and extensions of her argument. At this time, the debate is mostly a theoretical one that analyses the pitfalls and potentials of the social sciences to engage more strongly with climate change. The journals *Current Sociology*, which published Lever-Tracy's 2008 article, and *The Sociological Review* spearhead this debate. By contrast, other leading journals do not publish any climate-related contributions at this time. In 2010, the contributions on climate change abruptly decrease again, but gain some momentum in the following years and reach an all-time high in 2015 with eight published articles in one year. While the first peak in 2008/2009 is clearly related to Lever-Tracy's contribution and, therefore, an outcome of the internal dynamics of the sociological debates, this second peak is more difficult to explain and could be related to developments outside the discipline. The publication of the fifth assessment report of the IPCC in 2014 and the anticipation of COP21, which took place at the end of 2015 in Paris, might have stimulated stronger resonance in the discipline, as both generated a sense of urgency. Therefore, contrasting the previous peak in 2008/2009, this time the focus of the contributions is not only on theoretical debates about the role of the social sciences but also on political, economic and media dimensions of climate change (Hunter et al., 2015; Luke, 2015; Vara, 2015). This indicates a shift towards more

empirically oriented research about the problems and efforts in different social spheres to address climate change-related dynamics. This tendency for more empirical studies carries on in the following years.



**Figure 1.** Number of published articles per year

Despite a general rise in climate-related contributions, their total number and their share of the general sociological debate in leading journals remains small: In 2017, a total of 384 articles were published in the eight mainstream journals, out of which three addressed climate change. This represents a share of 0.8% of all published articles in 2017 in the selected journals. In comparison, a search with regard to the established subject ‘social

class’, based on the search term “class”, led to 49 results in the same year, representing roughly 13% of all published articles in the selected journals. As such, the reach of the debate about climate change within mainstream sociology remains limited and still constitutes an emergent debate rather than an established research field in the leading journals.

The eight selected mainstream journals differ greatly in the number of published articles on the subject: *Current Sociology* (14) and *The Sociological Review* (10) have published most articles on the subject, followed by *Sociology* (7), the *British Journal of Sociology* (3), the *Annual Review of Sociology* (2), and the *American Journal of Sociology* (1). Based on the search terms, no articles were found in the *American Review of Sociology* and the *European Sociological Review*.

Some of the published articles have received substantial attention. Table 1 summarizes the six most cited contributions in the sample. Four out of six articles refer to the role of the social sciences and three of them have appeared in *Current Sociology*. Hence, the question of how the social sciences should and can engage with climate change has received the strongest academic attention.

<b>Contribution</b>	<b>Journal</b>	<b>Subfield of Research</b>	<b>Citations</b>
<b>Yearley, S. (2009): Sociology and Climate</b>	Current Sociology	Social Sciences	132

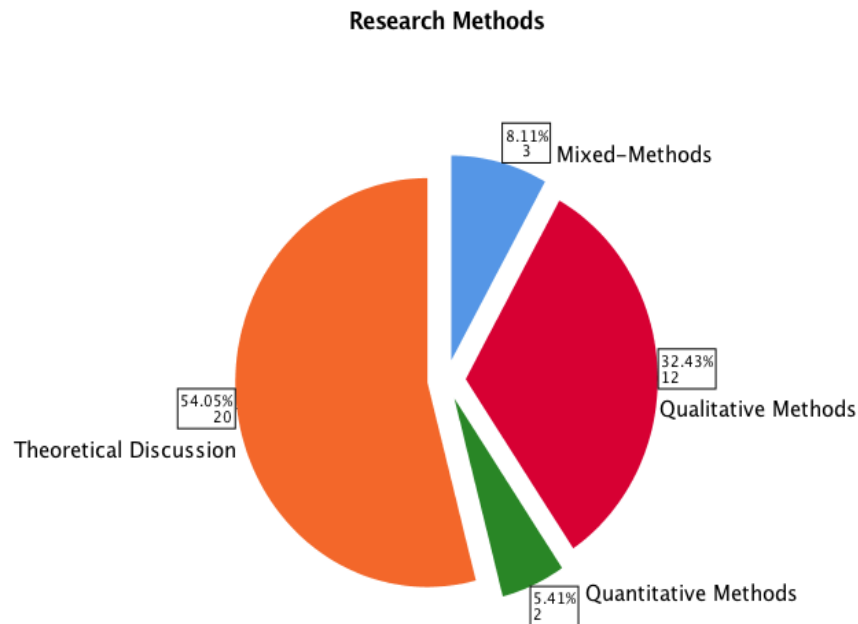
<b>Change after Kyoto: What Roles for Social Science in Understanding Climate Change?</b>			
<b>Beck, U. (2015): Emancipatory catastrophism: What does it mean to climate change and risk society?,</b>	Current Sociology	Social Sciences	127
<b>Urry, J. (2008): Climate change, travel and complex futures</b>	British Journal of Sociology	Economy	126
<b>Lever-Tracy, C. (2008): Global Warming and Sociology</b>	Current Sociology	Social Sciences	125
<b>Clark, N. (2014): Geo-Politics and the Disaster of the Anthropocene</b>	The Sociological Review	Politics	117



<b>MacGregor, S. (2009): A Stranger Silence Still: The Need for Feminist Social Research on Climate Change</b>	The Sociological Review	Social Sciences	117
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**Table 1.** Most cited articles in debate about climate change

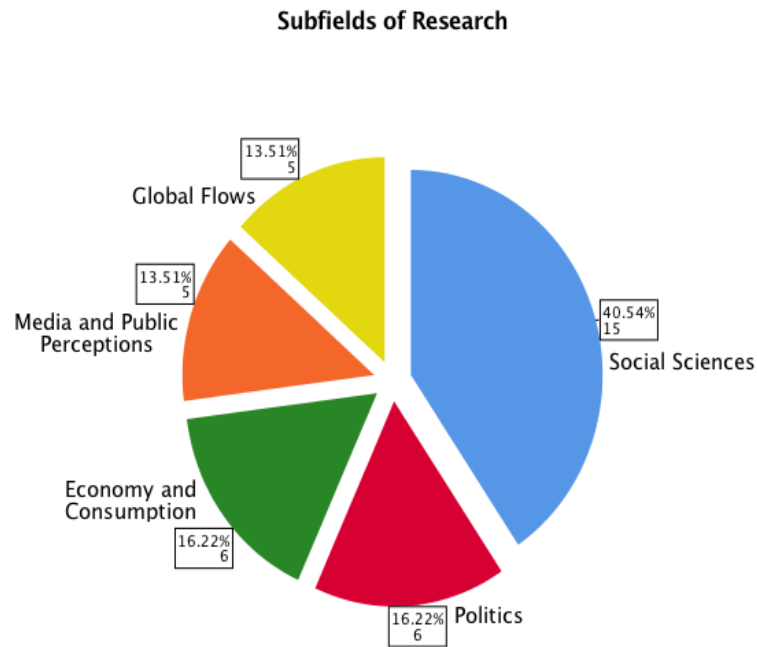
In terms of how the topic is approached, theoretical discussions represent a slight majority of contributions (20 articles, 54%), whereas 17 (46%) report on empirical research (Figure 2). Of the empirical contributions, most approaches employ qualitative methods (12), followed by mixed-methods (3) and quantitative methods (2). In total, theoretical considerations and qualitative methodologies dominate ongoing research on the topic. This dominance of theory and qualitative methods may also explain the absence of contributions in some of the leading sociological journals, as these place emphasis on quantitative methodologies (in particular the *European Sociological Review*).



**Figure 2.** Research methodologies employed by studies published on climate change

### Five subfields of research

The 37 contributions cover five subfields of research: (a) reflections on the role of the social sciences, (b) politics, (c) economy and consumption, (d) media and public perceptions, and (e) global flows. Figure 3 shows the number of articles published in each of these categories. The subfield “social sciences” covers by far the highest share (15 articles, 41%) while each of the other subfields is addressed in five or six articles (14/16%). The following description of the subfields provides a synthesis of which topics scholars have so far tackled in each of them.



**Figure 3.** Subfields of research covered by contributions on climate change

### *Social sciences*

This subfield engages in self-reflexive discussions about the potential perspectives, roles and contributions of sociologists and social scientists in the context of climate change. The subfield constitutes the strongest one in terms of published articles and citations. Unsurprisingly, most contributions are theoretical reflections and elaborations, while only four of the fifteen studies in this subfield draw upon empirical research. The most prevalent place of these debates is *Current Sociology* with ten published articles. Two types of contributions mark this subfield: a) discussions about the role of the social

sciences and b) evaluations and extensions of the sociological toolbox for the study of climate change.

Lever Tracy's (2008a) seminal contribution provides an important starting point for the discussion about the role of the social sciences and sociology in particular. Several contributions have extended Lever-Tracy's arguments: Brechin argues that there are no signs of a sincere involvement with climate change as "[o]ur discipline is not being seriously internally or externally challenged" (Brechin, 2008: 471). He critically asks: "Is it not more likely that the mainstream discipline will engage climate change as a central organizing factor only after the fact, that is, once disaster is upon us?" (Brechin, 2008: 472). Lever-Tracy (2008b) reacts to this grim picture with a more optimistic outlook, suggesting that the "mainstreaming" of climate change might perhaps reach sociology in the near future. However, as we have shown above, this mainstreaming within the discipline seems limited so far, while many sociologists have moved beyond disciplinary boundaries to explore different aspects of climate change.

Some scholars have expanded Lever-Tracy's arguments to further research areas: Studying the social construction of climate change predictions, Yearley (2009) argues for more attention to the social dimensions of climate change. Within the social sciences, MacGregor (2009) remarks that feminist research about climate change is developing only very slowly. Indicating different gender dimensions, she makes a strong argument for the integration of gender analysis into the study of climate change.

Contrasting the aforementioned requests for more involvement, Grundmann and Stehr (2010) take a more critical stance: In their reply to Lever-Tracy, they point to an “inherent alarmism in many social science contributions on climate change” (Grundmann and Stehr, 2010: 899). Against this alarmism, they call for more cautious approaches instead of translating the urgency of media debates into sociology.

Aside from addressing the role of the social sciences, many contributions in this field evaluate the theoretical toolbox of sociology against the challenges of climate change. This includes (a) general review articles on environmental sociology (Lidskog et al., 2015; Rudel et al., 2011) as well as (b) the analysis of specific theories and their abilities to grasp climate change. For instance, in their review of US and European environmental sociology, Lidskog, Mol, and Oosterveer (2015) suggest rules for a “global environmental sociology”. Applying these rules to climate change means that the “dominant sociological approach of ‘methodological nationalism’ (...) needs to be replaced by a ‘methodological cosmopolitanism’ (...)” (Lidskog et al., 2015: 358). Several articles highlight the potential of specific theoretical approaches for the study of climate change, such as Weber’s sociological oeuvre (Foster and Holleman, 2012), Elias’ theory of civilizing processes (Rohloff, 2011), Margaret Archer’s reflexivity theory (Davidson, 2012) and Ulrich Beck’s notion of “emancipatory catastrophism” (Asayama, 2015; Beck, 2015; Han, 2015). Others criticize prevalent modes of analysis: arguing that social science

analyses often draw upon utopian speculation, Murphy (2015) calls the social sciences to re-conceptualize their models and terminology.

In total, the first thread of contributions has rather unanimously urged the social sciences to engage more intensely with the topic. It is controversial, however, whether this engagement should include active advocacy or even alarmism. The second and more recent thread places stronger emphasis on developing theoretical models. This new focus indicates a shift from *whether* to *how* the social sciences should study climate-related social change. Importantly, in the course of this shift from *whether* to *how*, sociologists also have to reflect on the cognitive resources their discipline provides and explore where they need to expand these.

### *Politics*

Six contributions in the sample tackle the politics of climate change on the national and international level. Surprisingly, and in contrast to the literature published outside the disciplinary core, there are no studies on global climate negotiations, municipal politics of climate change, or bottom-up civil society activities. Studies in this subfield apply qualitative methods and consist of theoretical considerations.

Authors in this subfield assume a critical stance towards existing policy frameworks and their emphasis on technological fixes and behavioural-driven economic solutions. Webb (2012), for instance, assesses the UK framework to reduce greenhouse gas emissions of households as technocratic and insufficient to produce societal change. As an alternative,

she points to the need of addressing the contradiction between reducing carbon emissions and the ongoing focus on economic growth. Similarly, Thorpe and Jacobson (2013) present a critique of market and technological policy responses, while Shaw (2009) shows how European climate policy applies the precautionary principle rather arbitrarily to define its targets. Addressing consequences of global warming in the form of climate migration, Clark and Bettini (2017) reveal that there is a need to reframe climate policy to provide help in places affected by global warming.

These criticisms raise the question of why designing appropriate climate policies is troubling for policymakers and what new types of policies and politics may evolve against the background of these challenges. Willis (2018) presents potential explanations for what she assesses as an unsatisfactory performance of climate politics by studying the conceptions of climate change among members of the UK parliament: her analysis unveils how climate change deeply challenges policymakers in creating popular and manageable responses within the existing political system. Climate change forms a stigmatized issue in parliament that may negatively affect career opportunities. Against the limitations of territorially bound national politics, Clark (2014) suggests that a new type of politics is emerging by drawing upon the Anthropocene concept: a “geo-politics” of interventions into the earth system, such as geoengineering.

The rich discussions and insights of the contributions to this subfield illustrate the critical potential of sociology for the study of climate change. Sociological studies assess political

solutions and illustrate the difficulties and resistances to address climate change in the context of present political institutions and orders. Thereby, sociologists also challenge their discipline to explore how climate change questions established notions of politics and power in relation to agency and order and to re-think them accordingly.

### *Economy and consumption*

Six studies in the sample place questions of economy and consumption front and centre. Four of these papers (Leahy, 2008; Redclift, 2009; Urry, 2008, 2009) cover theoretical reflections that question late capitalist modes of production and consumption. The other two were published considerably later, have a more empirical orientation (Nyberg and Wright, 2013; Vara, 2015).

The theoretical papers suggest that present capitalist modes of production and consumption might be inherently unsustainable and no longer able to regulate themselves. Urry (2008), for example, deploys the case of car mobility to show the consequences of unrestrained capitalist lifestyles. Sociological contributions might offer insights into internal paradoxes and complexities of late modern economies by focussing on the excessive practices that contemporary capitalism generates (Urry, 2009). The theoretical papers urge sociologists to turn their attention to alternative futures of production and consumption. Even though postmodernism problematized utopian and dystopian thinking, the looming environmental catastrophe would force the discipline to rediscover the power of critique and the elaboration of desirable alternatives. In particular,



sociologists should investigate the promises of ecological modernization and green consumerism to uncover the hidden social costs of technological solutions to societal problems (Leahy, 2008; Urry, 2008) and question how the environment is turned into capital (Redclift, 2009).

The study of Nyberg and Wright (Nyberg and Wright, 2013) addresses the nature-capital nexus empirically. It investigates the crucial hope of ecological modernization: to balance between environmental and economic sustainability, green values and market values. A qualitative analysis of interviews with sustainability managers and consultants demonstrates *how* a compromise between environmental goals and market pressures is legitimized and negotiated. By translating the critique of capitalism into green corporate practices, companies turn the environment into a market commodity.

Vara's (2015) paper is a short comment on Beck (2015). It uses the case of lithium – a crucial resource for electric cars – to scrutinize Beck's concept of emancipatory catastrophism. While Beck proposes that climate change might have an inclusive effect on world society, Vara argues that established economic inequalities do not change easily. South America is still expected to provide the natural resource (lithium), while the global North turns this resource into technological products (batteries).

The contributions in this subfield demonstrate that sociology can be helpful to problematize capitalist production and consumption patterns on a general level. At the same time, the studies provide impulses for extending sociological thinking about the

economy. For example, climate change encourages sociologists to reflect on material flows (from consumer products to waste, to emissions), their social infrastructures, and their relationships with soil, water, the atmosphere, etc.

### *Media and public perceptions*

Studies in this subfield explore the mass media coverage as well as public perceptions of climate change. Noticeably, the only two quantitative studies in the sample belong to this subfield. The other studies in this subfield apply qualitative methods (two articles) or draw upon theoretical work (one article).

Already in 1993, Lacey and Longman (1993) published a first contribution to this subfield in which they explored the coverage of global warming and the Sudan famine in four newspapers. At the time, they found that the newspapers address “global warming” only inadequately. More than 20 years later, Luke (2015) analyses the media contributions of Al Gore. The author describes that the symbolic representations of climate change in these contributions create a climate imaginary that promotes the idea of “green capitalism” and an ethic of environmental engagement that “falls far short of the radical changes needed to delay, defend or deactivate disruptive climate crises now building up around the planet” (Luke, 2015: 293).

Other contributions in this subfield explore public perceptions of climate change: Hamilton et al. (2016) study residents’ perceptions of flood damage in the US state of New Hampshire and find that “ideology remains the most consistent predictor of

perceptions about local flooding” (Hamilton et al., 2016: 927). Therefore, increases in flooding and other extreme weather events will not necessarily shift public opinions on climate change. Laidley (2013) suggests that such perceptions may vary along class cultures. Undertaking interviews with actors from different class backgrounds in Boston, he reveals that they conceive climate change in divergent ways. White (2017) tackles representations of time in public debates about climate change. He finds that a focus on “future generations” has assumed strong prominence due to its pragmatic features (e.g. by providing discrete units of analysis). Nevertheless, he asserts that the generational view restrains our capacity to act, given that climate change becomes increasingly manifest in the present and not only among “future generations”.

Sociological contributions in this subfield show how dominant media actors and prevalent narratives shape perceptions and understandings of climate change. These perceptions are not necessarily determined by increasing scientific knowledge, nor are they unanimous: they vary across world regions and social milieus. Sociology, thereby, indicates differences in the (re)production of climate change perceptions and sheds light on the difficulties in bringing them together to jointly design solutions. At the same time, this research informs sociology about the relevance of environmental phenomena for the (re)production of societal perceptions. In order to make sense of their environment, (post-)industrial societies produce media accounts that seek to connect environmental change with the existing social reality (e.g. American capitalism, established ideologies).

### *Global flows*

Five studies analyse the global flows of knowledge and people in the context of climate change. They demonstrate how climate change becomes manifest in the form of environmentally-related migration (Hunter et al., 2015), international collaborations of researchers in low carbon innovation (Tyfield and Urry, 2009), unequal flows of knowledge between the Global North and South (Connell et al., 2018b; Connell et al., 2018a), and global civil society networks (Ylä-Anttila and Swarnakar, 2017). Three of the contributions draw upon mixed methods research, while one contribution employs qualitative research and one contribution is a review paper.

The majority of contributions in this subfield explore knowledge flows in the global research domain. Connell et al. study inequalities in scientific knowledge production between the Global North and South in three fields of research: climate change, HIV/AIDS and gender (Connell et al., 2018b; Connell et al., 2018a). They report prevailing inequalities in the “global knowledge economy dominated by the most privileged countries, institutions, and social groups, increasingly gripped by the corporate pursuit of profit” (Connell et al., 2018a: 17). According to Connell et al. (2018b), Global South researchers deal with these inequalities through valorization of local knowledge and by collective negotiation processes (e.g. framing of new research problems).

Focussing on China, Tyfield and Urry (2009) study cosmopolitanism among Chinese researchers against the background of climate change. Based upon interviews with

researchers who are involved in low carbon innovation, they find only an emergent cosmopolitanism among a small elite in the Chinese science and technology sector. Moreover, even “amongst those involved in ‘low-carbon’ collaborations, climate change is often not seen as an imminent ‘global’ problem for China, by contrast with its air and water pollution problems” (Tyfield and Urry, 2009: 805).

Nevertheless, developments in world society may pressurize states and local actors to place greater emphasis on climate change, as Ylä-Anttila and Swarnakar (2017) show. Connecting to the literature on world society, they illustrate how activities of global institutions have opened up opportunities for Indian civil society organizations (CSOs) to act at the national and local level. While this contribution addresses political dynamics, it discusses from a world society perspective how these unfold within transnational networks.

Contrasting the other studies in this subfield, Hunter, Luna and Norton (2015) place a focus on the global flows of people. Reviewing existing research about environmental dimensions of human migration, they show that migration can form an adaptation strategy to diversify environmental risk. However, what strategy actors finally choose in the context of environmental risks and degradation processes depends on a variety of other factors such as household composition, political and legal frameworks, and social networks.

Taken together, the contributions uncover how climate change challenges the social dynamics of the world society. In particular, the widely shared emphasis on knowledge provides insights into the complex social dynamics required to make climate change visible and governable as a social problem, both globally and locally. For sociology as a discipline, this subfield draws attention to the importance of global flows, including flows of communication and people. Moreover, the studies add to the need to analyse society not only in global terms but also in relation to the various technical, physical and biological systems spanning the globe.

### **Climate change in a disciplinary sociological perspective**

Based on the review, we can identify two phases of the sociological debate about climate change in the mainstream journals: after an initial ‘orientation phase’ that was dominated by reflections on the role of sociology, the debate has developed a stronger research focus. While many of the earlier contributions reacted to Lever-Tracy’s call and tackled the problems and potentials of the social sciences in addressing climate change, the more recent publications rather mobilize sociological approaches for the study of climate change and explore how it becomes manifest in different social fields. Also the diversification into different sub-themes and the widening of the methodological scope indicate a second phase of ‘normalization’ of the sociology of climate change: climate change becomes one topic among other sociological topics.

In the remained of this section, we (1) discuss how the topic resonates within the discipline and how sociology can contribute to climate change research, and (2) explore how the discipline itself can benefit from this research.

### *How climate change resonates within the discipline*

The increasing number of publications in mainstream journals since 2008 indicates that the topic of climate change has started to resonate within the disciplinary core in the last ten years. Nevertheless, this resonance remains moderate in comparison to other topics such as social class and is most strongly concentrated in two journals – *Current Sociology* and *The Sociological Review* – while the interdisciplinary research sites show a much higher sociological activity.

The empirical subfields of research at the disciplinary sites – politics, economy and consumption, media and public perceptions, and global flows – reflect to some extent research topics that can also be found at the interdisciplinary research sites. Moreover, they apply insights about topics such as mobility, environmental justice and governance from these sites (Beck, 2015; Urry, 2008; Yearley, 2009). As such, the contributions create resonance for broader interdisciplinary climate change research within the sociological mainstream journals.

Nevertheless, the internal sociological debates also contrast the interdisciplinary debates. While contributions in interdisciplinary debates – in particular, in the *Sustainability Transitions Research Network* – often focus on technological innovations (e.g. solar

energy, electric mobility), this emphasis is not shared by the sociological contributions in the mainstream journals. Additionally, the sociological debate differs in its rather critical tone. In each of the subfields, we found critical questioning of the current order and the proposed solutions. These criticisms cover, for instance, current climate policies, neo-liberal capitalism, the media coverage, or inequalities in global knowledge flows. Interestingly, by assuming this critical view, the contributions remain more remote from the practical impetus of ongoing low carbon debates: they do not suggest concrete solutions or seek to adapt to ongoing climate strategies. Being at odds with more pragmatic, solution-oriented debates, disciplinary sociological research can help to open up hegemonic framings and generate alternative perspectives that go beyond existing frameworks (Sarewitz, 2011a).

#### *How climate change creates disciplinary resources*

However, sociology can not only add to climate research, it can also benefit from addressing climate change. Understanding climate change generates resources for the discipline by challenging its theoretical and normative foundations and creating knowledge influxes from a vivid interdisciplinary research field.

The sociological study of climate change involves critical reflections on the theoretical foundations of the discipline, by raising general sociological questions that concern, for instance, the relationship between humans and nature (Foster and Holleman, 2012). Thus, climate change can be seen as a topic opening-up a reflection on the coordinates of social



theory. Additionally, the critical impetus of many contributions points to the question of how scholars should position themselves vis-a-vis their subject. Mere references to objectivity and scientific facts cannot resolve the undeniable political, ethical and societal salience of climate change. Concerns about a recent trend towards post-truth politics make this positioning even more important as well as difficult, if political discourses and institutions plainly deny scientific results as fake news (Latour, 2004; Sismondo, 2017). Moreover, climate change in sociology creates connections to an interdisciplinary research field that is constantly engaged in exploring socio-technological transformations. Sociology can draw upon this knowledge by introducing theories, methods, results, and research questions that are being offered by the interdisciplinary sites. For instance, Urry's (2008) paper on "Climate Change: travel and complex futures" prominently brings in research on automobility. Beck (2015) picks up the environmental justice discourse and, thereby, helps to focus on "new forms and arrangements of environmental citizenship and subjectivity" within sociology (Lidskog and Waterton, 2016: 399). The prominence of these sociologists helps to create resonance for these knowledge influxes within the discipline. Part of this knowledge-transfer into the discipline is that other sociologists take up the given insights and apply them to other fields of sociological inquiry beyond climate change. For instance, many other sociologists have drawn upon Urry's widely cited paper; among them Richard Tutton (2017), who explores sociological

thinking about the future, and Mimi Sheller (2014), who reviews sociological research about mobility.

In total, there is some resonance for climate change in the disciplinary core of sociology. This resonance can help to extend the knowledge resources of the discipline. However, taking into account the number of published articles in the leading mainstream journals and the citations they received, the resonance of the topic within the discipline remains moderate. Sociology barely exploits the potentials of addressing climate change.

### **Conclusion**

Against the backdrop of Lever-Tracy's call for more sociological engagement with climate change in 2008, this article reviewed the debate about climate change in leading sociological journals. The review demonstrates that the dynamics of the debate have changed over the last ten years: there has been an increase in contributions in the discipline's mainstream journals. While constituting only a small share of the articles published in these journals overall, the continuous publication of articles during the past ten years indicates that the topic has created some resonance in sociology.

Given the inter- and transdisciplinary engagement of sociology, this review only presents a fragment of the sociological debates about climate change, albeit a central one for the discipline, as it reflects the state of sociological research in its leading journals. However, the review also showed that the dominant mainstream journals of the discipline are not the central fora in which sociologists address the challenge of climate change.

Sociologically informed climate change research becomes visible to a much stronger degree in the inter- and transdisciplinary spaces of climate change research. This raises the question of why sociologists should publish within their own core journals. Our review showed how climate change challenges sociology as a discipline to critically reflect upon and, where necessary, to reinvent its perspectives as well as its disciplinary boundaries (Lidskog et al., 2015: 359). Sociologists engaging with climate change have demonstrated the need to actively think about how to position oneself in a field where knowledge claims cannot be separated from their ethical, political, and social implications and where a position of disinterested objectivity is unavailable (Haraway, 1988). These challenges constitute impulses for further developing the discipline.

As this review pointed out, sociological debates about climate change are not obsolete. The discipline does not only provide resources in the form of conceptual repertoires and research practices but also social spaces (e.g. journals, research networks) where communities that are most familiar with – and hopefully most enthusiastic about – the value of sociology can come together to scrutinize and debate them. The mainstream journal articles of this review demonstrate that sociology can mobilize its intellectual resources for exploring the social dynamics of climate change and, at the same time, extend its own resources by engaging with the topic. Sociology as a discipline can benefit from engaging with the rich knowledge (e.g. theories of social change) generated at the interdisciplinary sites of climate change research when prompting it to resonate within

the core of the discipline. As such, climate change as a disciplinary topic has the potential to expand our sociological imagination.

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