Contesting legitimacy in global environmental governance - An exploration of transboundary climate risk management in the Brazilian-German coffee supply-chain

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ABSTRACT

Stronger interconnections between people, ecosystems and economies in a globalized world are changing the scope and nature of global environmental governance. One area where this is becoming increasingly evident is climate change, where there is a growing recognition that climate risks can be transboundary in nature, crossing international borders as people, goods, and capital do. This suggests that a multiplicity of actors – state and non-state – have plausible claims to be engaged in or responsible for the governance of transboundary climate risks. However, it is presently unclear on what premises a global governance institution to do so might be constructed and the roles various actors may play therein. This absence of established roles and norms creates a space for political contestation with legitimacy at its center. In this paper, we unpack the contested nature of legitimacy by examining the governance of TCRs in agricultural supply-chains. Empirically, we analyze 41 semi-structured interviews across the Brazilian-German coffee supply-chain in an effort to characterize the primary modes of governance available to manage TCRs and their perceived institutional sources of legitimacy. We identify five distinct governance pathways, each underpinned by a distinct operationalization of legitimacy. These governance pathways are not necessarily mutually exclusive; it is plausible for several to co-exist, though the relative balance between their importance in a given context may vary widely. We argue that these five pathways and the role of legitimacy in navigating their differences are transferrable to other challenges in global environmental governance. Further, we argue that legitimacy is best understood as an object of political contestation, wherein actors deploy various sources of legitimacy differently in an effort to legitimize their preferred approach to TCR management, delegitimize others, and advance their own vision of appropriate global environmental governance.

1. Introduction

In an interconnected world, a central challenge for global environmental governance frameworks, policies, and regulations is to appropriately assign the authority for managing affairs which have cross-border ramifications. Climate change is a clear case-in-point. While constrained in-part by the biophysical nature of a changing climate, this challenge is essentially political, given that its resolution depends on forging a collective view of fairness in the international community, both in terms of assigning roles to public and private actors (Mees et al., 2012), and distributing the consequences of action or inaction (Caney, 2005; Shue, 1995). It is therefore essential to consider on what basis an approach to global environmental governance is understood to be *legitimate*, as this can reveal useful information about the evolving nature of governance in a globalizing world.

Legitimacy and its origins have become increasingly important objects of study in recent years (Tallberg et al., 2018a). While domestic politics in the modern era has seen legitimacy become deeply entangled with the concept of democracy, those same standards do not neatly apply to global affairs. Instead, scholars have turned their attention to broader sources of legitimacy, ranging from employing agreed processes based on shared values, to producing effective outcomes (Hurrell, 2005; Scholte and Tallberg, 2018b). Moreover, novel global challenges generate the possibility of multiple claims on authority in parallel and

competing processes to acquire legitimacy, which have been documented in other settings (Suchman, 1995). This highlights the need to consider both the origins of legitimacy, as well as the processes through which it is contested, negotiated and claimed (Bäckstrand and Söderbaum, 2018; Freeman and Langbein, 2000). There is yet limited academic research which considers how competing claims for legitimacy are produced in global environmental governance or how they interact.

The aim of this paper is to further unpack and empirically explore the contested nature of legitimacy in global environmental governance by examining an emerging arena with competing claims for legitimacy: the governance of transboundary climate risks (TCRs). There is growing recognition in the scholarly and policy communities that many climate risks and impacts can be transboundary in nature, crossing international borders as people, goods, and capital do (Challinor et al., 2017; Liverman, 2016), and requiring new governance arrangements, which take into account both adaptation action for TCRs and their spill-over effects (Carter et al., 2021). From shared water resources under stress, to supply-chains affected by extreme weather events, climate impacts in one country will generate risks and opportunities for actors elsewhere, creating a need for global adaptation governance (Benzie and Persson, 2019; Hedlund et al., 2018). For example, in agriculture supply-chains, reduced harvests both impact the livelihoods of smallholder farmers engaged in agricultural production, as well as those companies and consumers who depend on their goods. This phenomenon complicates existing tropes of vulnerability to climate change, at once revealing new risks – including for developed countries – and portraying adaptation as a global challenge where the need to build resilience is interconnected rather than borne separately (Benzie et al., 2018). Recognizing the transboundary nature of climate risk challenges the traditional framing of adaptation as a highly localized issue, and places it squarely in the purview of global environmental governance as countries grapple with previously unidentified risks or areas of shared interest (Benzie and Persson, 2019).

This paper has two key objectives. First, to explore the theoretical propositions about the sources of legitimacy and consider them in an empirical context. It demonstrates how actors are deploying competing claims for legitimacy to advance and shape contested visions of global environmental governance. It identifies patterns in how the sources of legitimacy are deployed, reflecting different and competing visions for TCR governance. Second, to broaden the understanding of TCRs as an emerging governance challenge. Presently, there are no internationally agreed frameworks, policies, or regulations for governing TCRs, nor is there consensus about which policy regimes or actors should be tasked with developing and implementing them. In many cases where shared resources are in question, states play a central role, though there are challenges to balancing the pursuit of one's interest in affairs abroad with principles of state sovereignty, especially where differences in power or complex historical relationships exist (Schrijver, 1997). International organizations, such as the United Nations Framework Convention on Climate Change (UNFCCC), and multilateralism may mitigate this, but it is unclear which organizations may have the appropriate mandate or expertise to do so. Likewise, non-state actors, including private actors, are increasingly involved in cross-border governance arrangements in multiple areas, including forest governance (Bernstein and Cashore, 2012), municipal networks (Papin, 2020) climate action (Chan et al., 2018) and supply-chains and trade (Soundararajan et al., 2019). Taken together, the unstable intersection of unclear public and informal private governance mechanisms, grappling with an emerging issue, generates a space for political contestation wherein different approaches for governing TCRs can be advanced, challenged, or reified.

In this paper, we empirically explore competing claims for legitimacy for a specific case where the governance of TCRs is actively unfolding: the Brazilian-German coffee supply-chain. Brazil is one of the largest and most climate-vulnerable coffee exporters in the world (Bunn et al.,

2015), while Germany is both a major coffee consumer and re-exporter. Specifically, we ask: *what are the primary governance pathways for managing TCRs being considered by actors and on what grounds are they understood to be legitimate*? We analyze 41 semi-structured interviews, conducted with public and private actors across the full coffee supply-chain, examining the governance options identified and their perceived sources of legitimacy. To answer this question, we apply a set of existing theoretical propositions about institutional sources of legitimacy (Dellmuth et al., 2019; Tallberg et al., 2018a) and consider actors' deployment of legitimation and delegitimation strategies. The paper confirms that the institutional sources are present in our study and are actively deployed by actors who advocate for different governance arrangements. The paper also finds that the institutional sources are not interpreted in the same way by all actors. These insights are presented and discussed through five inductively defined governance pathways for TCRs: Transnational Governance, Development Cooperation, International Diplomacy, Global Markets and Domestic Policy. The paper's findings shed light on the multiplicity of governance options available for TCRs, their contested nature, and the grounds on which their legitimacy is understood and shaped by actors who actively shape the governance landscape in this space.

In the next section, we consider the most relevant theoretical advancements for the study of institutional sources of legitimacy in global environmental governance and identify several knowledge gaps which our work begins to address. Then, we provide a detailed overview of our case study and methodological approach. Thereafter, we present our analysis of institutional sources of legitimacy in the Brazilian-German coffee supply-chain by identifying five governance pathways for transboundary climate risks, each underpinned by distinct operationalizations of legitimacy. We then discuss these results, including their implications for future empirical work on transboundary climate risk, as well as for our theoretical understanding of legitimacy and the role that its contestation plays in global environmental governance, before offering some concluding remarks.

2. Legitimacy: Approaches, sources, and contestation

Legitimacy is a crucial concept for the study of global governance and international politics. Bodansky (2013) suggests that where a decision is made for a collective in an attempt to constrain a group's behavior, efforts to enforce those decisions can vary in their level of coercion, on one end of the spectrum employing "hard power" or force, and on the other "soft power" and influence.

While there is broad agreement that legitimacy is essential for functional global governance architectures (Biermann and Gupta, 2011), significant debate remains about its nature and how it should be studied (Agné, 2018). Generally, these positions can be understood as distributed along a spectrum. Toward one end, there are a number of scholars whose work has taken a normative approach to legitimacy, or one rooted in political theory (see i.e. Beetham, 2012; Grossman, 2013; Keohane, 2011). Here, legitimacy stems from adherence to a particular principle or set of principles, such as democratic decision-making processes or respect for human rights. Put differently, in this understanding, to have legitimacy is to appropriately confer authority, i.e. legitimate exercise of power, on a specific normative basis. This perspective has led to concerns about a "democratic deficit" in international organizations, as much of global governance does not operate based on the same principles of electoral democracy which are hallmarks of domestic political processes (Beetham, 2013; Dahl, 1999; Moravcsik, 2004).

Alternatively, others have increasingly advocated for a sociological approach to legitimacy, arguing that the legitimacy of a governance process comes not directly from adherence to political principles, but rather the acceptance of an audience, be they citizens in general or specifically affected parties (Weber 1978). From this perspective, building legitimacy is a socially constructed process through which authority is conferred, allowing a range of actors to be seen as

Table 1
Institutional Sources of Legitimacy (Scholte and Tallberg, 2018) (see also Dellmuth et al., 2019).

	Democratic	Technocratic	Fair
Procedure	Participation; Accountability	Efficiency; Expertise	Impartiality; Proportionality
Performance	Democracy promotion in wider society	Problem solving; Collective gains	Human dignity; distributive justice

appropriately governing, potentially distinct from a formal designation of authority such as a legal mandate (Rosenau and Czempiel, 1992). Research in this area has focused on empirical examples of legitimacy in global governance, working to identify relevant "audiences" of governance processes and explore their views of specific institutions (Anderson et al., 2019; Dellmuth and Tallberg 2015, 2020).

Between these two poles, Agné (2018; see also Tallberg et al., 2018b) contends that a normative sociological approach to legitimacy in global governance presents an opportunity to benefit from strengths of each archetype. While sociological legitimacy has appropriately gained traction in recent years, there remains value in employing the tools of political theory to locate sources of legitimacy, rather than doing so on a purely empirical basis. A normative sociological approach to legitimacy begins by developing an understanding of legitimacy sources using political theory, before examining the social perceptions of those sources in a particular context. Our work adopts this view and builds on this foundation.

What, then, are the relevant sources of legitimacy for the governance of transboundary climate risks? Tallberg et al. (2018a) argue that sources of legitimacy can be located at the individual, institutional, or structural level. In this paper, we are mainly interested in understanding the institutional sources of legitimacy for plausible governance pathways.

There exist a wide variety of conceptual tools and classification schemes for the institutional sources of legitimacy. One prominent approach is to distinguish between "input" legitimacy, or the processes through which decisions are made, and "output" legitimacy, or the effectiveness of institutions in achieving their stated goals (Scharpf, 1997). It is notable that this distinction broadly corresponds with the phases of the policy cycle, but says little about qualitative nature of legitimacy in each phase. In an effort to move beyond this dichotomy, Dellmuth et al. (2019) (see also Scholte and Tallberg, 2018) have recently proposed a more nuanced framework: a matrix where one axis mirrors the input/output dimensions, and the other seeks to capture the qualitative character of legitimacy sources, spanning the democratic, technocratic, and fair (Table 1). The three categories are, in turn, used to capture perceptions of affected publics in terms of due voice and control over governance (democratic), effective and efficient application of best available knowledge (technocratic) and just, equitable and impartial processes and outcomes (fair) (Scholte and Tallberg, 2018). This proposed framework systematically organizes a number of important institutional sources of legitimacy offered by scholars (i.e. Bernstein and Cashore 2007; Hurd 2002; Scharpf 1997) though does not claim to be exhaustive.

Procedurally, institutional features of legitimacy can be rooted in democratic norms, such as participation (i.e. affected parties are involved and can deliberate in policy-making processes) and accountability[1] (i.e. the policymaking adequately answers to the public it affects through transparency, consultation, review, and redress). Technocratic

norms are contextualized through efficiency (number and speed of policy-making) and utilizing relevant expertise (based on knowledge and skills), whilst fairness, alludes to impartiality (processes are followed consistently without discrimination), and proportionally (based on relative contributions) (Scholte and Tallberg, 2018). From a performance perspective, legitimacy may stem from promoting democracy itself (by increasing participation and public accountability in wider society). Technocratically, legitimacy stems from the notion of problem solving (full and fast realization of results) or producing the largest collective gains (for the society as a whole). Lastly, in the context of fair, human dignity (i.e. outcomes uphold norms of basic humanity for all) and distributive justice (benefits are shared equally among those concerned) are signifiers of legitimacy (Scholte and Tallberg, 2018). In practice, an institution may do all or none of these things well. Whether or not it is understood to be legitimate, then, depends on the active acceptance of its audience, based on some constellation of these features.

This framework allows for systematic assessment of legitimacy sources across institutions, audiences, contexts, or time. It also raises a number of questions in need of further exploration. First, does this framework have utility for a wide range of international institutions and organizations? Much of the existing literature on legitimacy has focused on international organizations, and individual ones at that, rather than a broader set of international institutions, to include formal treaties and bodies, as well as informal governance mechanisms and norms (Mitchell et al., 2020). This is a particularly relevant challenge in a globalizing world – and for TCRs – as non-state actors and informal mechanisms are of especially high importance (Orsini et al., 2020).

Second, do all actors have a shared understanding of each legitimacy source, or views as to which are most important for global environmental governance? In the likely event that different understandings and preferences exist, what are those differences based upon, how are they contested and how do actors navigate them? Here, the literature on legitimation and delegitimation in global governance is instructive. Bäckstrand and Söderbaum (2018) argue that legitimation and delegitimation are two sides of the same coin, in that actors employ a variety of discursive, institutional, and behavioral techniques in an effort to either advance or challenge the legitimacy of a particular global governance institution.[2] For that reason, the authors argue, both need to be integrated in a single framework. Operationally, both legitimation and delegitimation can invoke the same institutional sources for opposite purposes. In this paper, we are focusing on the discursive practices of legitimation and delegitimation, through self-justification and endorsement of practices and actions on the one hand, and criticism on the other (Bäckstrand and Söderbaum, 2018; Steffek, 2003).

3. An arena for legitimacy contestation: transboundary climate risks in the coffee supply-chain

An important new frontier for global environmental governance is the management of TCRs. As interconnections between countries have become both more prevalent and economically important, the risks and impacts of climate change have not been confined to national borders. TCRs are climate risks that cross national borders and are comprised of the transboundary nature of climate impacts and the transboundary effects of adaptation responses (Hedlund et al., 2018). Work that has, so far, considered transboundary risks and impacts of climate change, suggests that they merit more attention. This body of work includes

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[1] Scholte and Tallberg (2018) identify "Accountability" as a second indicative feature of democratic procedural legitimacy, while Dellmuth et al. (2019) use "Transparency". We have opted to use accountability, as transparency is but one element of accountability, which we understand to be a principal feature of democracy more broadly.

[2] Notably (Bäckstrand and Söderbaum, 2018), focus the bulk of their attention on international organizations, in much the same way that other literature on legitimacy in global governance has, appearing to use "global governance institution" as synonymous with "international organization." Despite this, we contend that their arguments generally hold for a broader conception of global governance institutions in line with this article's approach.

national risk assessments in Europe (Benzie et al., 2019), the United States (Smith et al., 2018), Norway (Prytz et al., 2018) and Germany (Peter et al., 2021), among others. Jointly, this work highlights potential adverse impacts from TCRs on trade, businesses and supply-chains implying both political and security implications and requiring adaptation intervention in terms of "development assistance, diplomacy and foreign policy" (Carter et al., 2021:69).

As an emerging challenge, it is presently unclear which actors have the authority to govern these risks, or on what premises a legitimate global governance institution might be constructed. One obvious candidate is the UNFCCC and the Paris Agreement, which has made some strides towards recognizing adaptation as a global challenge and formulating a global goal on adaptation (UNFCCC, 2015). However, neither the UNFCCC nor any other policy regime has established frameworks, nor are there actors or institutions with a clear mandate to govern these risks (Benzie and Persson, 2019). This absence of clear roles and norms, while not uncommon for novel issues in global environmental governance, creates a space for political contestation with legitimacy at its center.

In agricultural supply-chains, for example, long-term changes to climatic patterns may lead to diminished yields of a particular crop (IPCC, 2019), extreme weather events can disrupt trade, transport or other key logistics systems (Adams et al., 2021a; Bailey and Wellesley, 2017), while adaptation actions responding to the perceived manifestation of climate impacts can materially alter laws and policies relevant for agricultural production, processing, and trade (Adams et al., 2020; Magnan et al., 2016). As such, both producing and consuming countries, as well as private actors, have concrete interests in effective TCR governance (Bednar-Friedl et al., 2022).

One pertinent example is the international coffee trade, which provides employment and income to an estimated 25 million households, or over 60 million people, of which 80% are smallholder farmers with production areas smaller than 5 ha (ICO, 2019; Sachs et al., 2019). Coffee is one of the most traded agricultural commodities in the world with roughly 7.8 million tons exported and exchanged on commodity markets in 2019, 72% of total coffee production worldwide (ICO, 2020). Likewise, coffee is highly vulnerable to climate change, which risks reducing the global area suitable for coffee production by up to 50% by 2050 (Bunn et al., 2015; Grüter et al., 2022). Smallholder coffee farmers would be disproportionately affected by climate change, as they have fewer financial resources to use for agricultural inputs and depend heavily on rain-fed agriculture (Beuchelt and Zeller, 2011).

In addition to the direct impacts on smallholder farmers, the highly globalized nature of coffee trade creates transboundary effects throughout the whole supply-chain, affecting actors both in producer and consumer countries (Bednar-Friedl et al., 2022; Ghadge et al., 2020). The systemic nature of climate risk in agriculture supply-chains means that it is present in all parts of the supply-chain, simultaneously, threatening the stability of commodity markets, posing risks to food security as well as livelihoods of smallholder farmers. The traditional management logic to replace high-risk production areas to more resilient ones will no longer be a plausible strategy for commodity traders, as well as countries (Adams et al., 2021a).

Brazil is the world's largest coffee producer, representing nearly 29% of total exports, while Germany is the second largest importer in the world, importing 3.2B USD in 2019, a large importer of Brazilian coffee, and an important re-exporter of roasted coffee (Barros, 2019). The two countries have had a strategic partnership since 2008, which includes a high-level consultation mechanism covering a broad set of topics including the environment and climate change (Bastos et al., 2014). Brazil and Germany have also been engaged in deliberations around the EU-MERCOSUR Free Trade Agreement, which would be the largest free trade agreement for both of the participating blocs (Brunsden et al., 2019). While the parties have come to an agreement in-principle after twenty years of negotiations, final texts have not yet been produced or signed, in part because the deal has been heavily criticized throughout the EU. A key reason for this has been Brazil's management of the Amazon rainforest and recent increases in deforestation under the Bolsonaro Administration. A number of EU countries have threatened on these grounds to not sign or ratify the deal (Colli, 2019).

From a governance perspective, the coffee supply-chain is regulated at the international level by the World Trade Organization (WTO) and the International Coffee Organization (ICO), among others, as well as a patchwork of bilateral and multilateral free trade agreements and national laws. This fragmented landscape, as well as the novelty of TCRs as a phenomenon, has created a governance gap where managing TCRs is currently "no-one's job" (Benzie and Harris, 2020). Furthermore, the coffee supply-chain itself is composed of a plethora of private producers, cooperatives, traders, roasters and retailers, who must navigate this landscape in order to stay in business. In addition, the coffee sector has a critical mass of sustainability initiatives, including certification schemes, non-governmental organizations, and trade associations (Levy et al., 2016). There is a pressing need for multilateral cooperation to govern these risks and develop effective, coordinated adaptation responses (Adams et al., 2021b).

4. Methodology

In order to empirically explore the contestation of legitimacy in the governance of TCRs this research study draws on an extensive stakeholder mapping of the Brazilian-German coffee supply-chain, including coffee producers, cooperatives, traders, roasters, and retailers, as well as relevant sustainability initiatives, certification schemes, government ministries and agencies, trade associations, civil society organizations and researchers. Employing a snowball sampling technique, the authors conducted 41 semi-structured interviews (21 in Brazil, 16 in Germany and 4 international) with 65 experts, decision-makers and practitioners during field visits to Brazil and Germany (January 2020 and March 2019, respectively) (Table 2). In Brazil, particular attention was focused on state of Minas Gerais, which is the largest coffee producing state in Brazil. Additional interviews were conducted in Brasilia, São Paolo and Santos, a major port for commodity exports. In Germany, interviews took place in Berlin, Bonn and Cologne, as well as Hamburg, which is a hub for European coffee roasters.

Interviews focused on professional responsibilities, the relevance of climate change to respondent's work, effectiveness in current climate risk management, which actors were best placed to manage TCRs and why, as well as the role of global and national partnerships in order to gather the views of respondents on which actors and governance processes were perceived as legitimate and why. The authors, as appropriate, asked probing questions about potential governance arrangements and their underlying norms and values, soliciting views on the prospect for more or better regulation of climate change; which actors are best placed to develop or institute those regulations, at what level, and why; potential negative outcomes from more regulations, and for whom; and whether recent regulation in the coffee sector has

Table 2
Overview of expert interviews.

Type of actor	Traders and roasters		Sustainability initiatives			Cooperatives		Association		Government and IOs			Academia	
Interviews per country	BRA	GER	BRA	GER	INT	BRA	GER	BRA	GER	BRA	GER	INT	BRA	GER
	3	4	2	7	2	3	0	6	1	5	5	2	1	0
Total no. of interviews	7		11			3		7		12			1	

affected the respondent's stance towards climate risks and impacts. Where an interview included more than one expert, each response was accredited to that specific expert. Interviews were transcribed and transcripts were verified by respondents for accuracy.

In order to study competing claims for legitimacy, a textual analysis was conducted, which identified "legitimacy claims" throughout the corpus of interview material. A legitimacy claim is an actor statement, which makes an effort to either advance or challenge the legitimacy of a particular approach to TCR governance. This analysis led to the development of a database which included basic information about the claim (i.e., legitimation/delegitimation), actor(s) involved, potential policy mechanism identified, and the institutional sources of legitimacy invoked (based on Table 1). We identified 315 unique (de)legitimation claims where interviewees explicitly or implicitly advanced or challenged the authority of an actor/institution, group of actors/institutions or governance arrangements as appropriate for TCR governance. When respondents made claims which referenced specific sources of legitimacy (Table 1), we coded them as such and noted how they were being understood across contexts, whether they were supportive of or disparaging of said source with regard to a possible pathway. Every step of the analysis and then was validated by the authors individually and then jointly agreed on. The number of (de)legitimacy claims in each interview ranged from 1 (lowest) to 16 (highest). On average, 6 claims were made per interview and were often a mix of legitimation claims (supporting some actors/institutions/governance arrangements) and delegitimation claims (challenging others). Based on this database, authors then structured the results through an aggregation of actors and policy mechanisms identified, as well as the varying deployment of legitimacy sources, to identify the primary modes of governance being considered by interviewees for the governance of TCR and their respective normative foundations.

5. Governing transboundary climate risks: Five pathways and the sources of their legitimacy

In the Brazilian-German coffee supply-chain, interviewees collectively described five distinct governance pathways for TCRs, where the purpose of governance activities (or lack thereof) is to incentivize behavioral change (Table 3). In the first pathway 'transnational governance', activities are dominated by the private sector through e.g., private certification schemes, insurance, sustainability initiatives or corporate social responsibility and, to some extent, public-private partnerships. The second pathway, 'international diplomacy' mainly engages sovereign states, who negotiate as equals to jointly agree on international rules and regulations intended to benefit both parties, either through bilateral engagement or under the guise of international organizations and clubs. In the third pathway, 'development cooperation', TCR governance is achieved through development and climate finance support from donor countries. In addition, we present two pathways suggested by interviewees where the governance of TCR itself is delegitimized: 'global markets', where consumer preferences should govern market signals and where other intervention is unwarranted; and 'domestic policy', where the public sector is wholly responsible for governance mechanisms for national and local adaptation within national borders. In many cases, individual actors were engaged in multiple pathways, playing different roles in different contexts. In this sense, the pathways should not be seen to be mutually exclusive nor as necessarily exhaustive. The primary distinctions between governance pathways are the policy mechanisms employed in each instance, the relationship between key actors involved and the normative basis for their perceived legitimacy as an appropriate institution for the governance of TCRs.

The sources of institutional legitimacy across governance pathways are summarized in Tables 4 and 5. Table 4 shows the distribution of legitimation claims and Table 5 the distribution of delegitimation claims. To provide more granularity, darker shading indicates that a specific institutional source was referenced in over 20% of the total claims. Lighter shading indicates that the institutional source was referenced in under 20% of the total claims. For instance, under 20% of all legitimacy claims pertaining to the 'Development Cooperation' pathway suggested that development cooperation would be an efficient mode of governing TCRs. Respondents focused much more often on how Development Cooperation was accountable to recipient country priorities. At the same time, respondents who made claims de-legitimizing the development cooperation pathway also referenced efficiency, underscoring how climate risk in the agricultural sector was not always a sufficiently high priority by development agencies. The institutional sources that are blank were not represented at all by the legitimacy claims.

Those institutional sources where actors had different interpretations from their theoretical definitions, or where (de)legitimation claims focused on certain characteristics of the broader definition, are provided with brief descriptions, which are further elaborated on in the text below. For example, using the 'Development Cooperation' pathway again, delegitimation claims against this pathway as appropriate for TCR governance invoked efficiency as an institutional source. However, efficiency was largely interpreted as a priority issue by interviewees, rather than number and speed of decisions. In other words, bilateral agencies and development banks, as key actors in this pathway, were seen as having other priorities on their agenda and did not consider TCR as pertinent. The rest of this chapter will further elaborate on these tables for each pathway.

5.1. Transnational governance

The first and most prominent governance pathway we refer to as "transnational governance." Using the term in the political scientific sense, we understand transnationalism to mean "interactions across national boundaries when at least one actor is a non-state agent or does not operate on behalf of a national government or an international organization" (Risse-Kappen 1995: 9). In this case, interviewees envision a central role for the private sector in governing TCRs, and, to a lesser extent, public-private partnerships which would aim to create norms and standards to be adopted by key players in the coffee sector. Governance of climate impacts and risks in the supply-chain should be done with existing mechanisms, which, in turn, need to be scaled-up for broader reach. As the most diverse of the governance pathways, interviewees consistently invoked the central role played by sustainability certification schemes and advocacy groups, such as Rainforest Alliance and Fairtrade, the importance of traders and roasters including Louis-Dreyfus Company and Neumann Kaffee Gruppe, as well as coffee cooperatives working on the ground with strong links to producers.

When interviewees spoke supportively of the transnational governance pathway, the most commonly cited institutional source of legitimacy was the ability of the private sector to solve problems, followed by statements about the importance of expertise in the coffee sector. The private sector is understood to be the most effective actor to govern TCRs, relying on their superior knowledge of the coffee sector and the challenges faced by businesses working to maintain profitability while navigating other risks, such as strong price fluctuation. Interestingly, while problem solving was seen as central to the legitimacy of transnational governance, remarkably little was said about the collective gains which might be produced in this pathway, implying that while the private sector may be well-equipped to resolve their own problems, they are not understood to produce wider benefits for society.

A high proportion of legitimacy claims also referenced the importance of accountability. However, the interpretation of accountability was to consumers and shareholders, while excluding producers and their

Table 3

Five governance pathways for transboundary climate risks.

	Transnational Governance	International Diplomacy	Development Cooperation	Domestic Policy	Global Markets
Key Policy Mechanisms	Certification Schemes; Private Finance, Insurance, and Credit Schemes; Public-Private Partnerships	Bi/Multilateral Engagement; International Agreements	Development Assistance; Capacity Building and Technology Transfer	Domestic Law; Domestic Strategies and Plans	Market Signals; Consumer Behavior
Key Actors Engaged	Private Companies; CSOs/NGOs; States	States; International Organizations and Clubs	Development Banks/Agencies; CSOs/NGOs International organizations	States; Local/Regional Governments	Consumers; Private Companies
Ambition for International Cooperation	High	High	High	Low	Low

Table 4

Sources of Institutional Legitimacy and how they are Deployed and Interpreted in Legitimation Claims across TCR Governance Pathways.

			Transnational Governance n = 73	International Diplomacy n = 40	Development Cooperation n = 26	Domestic Policy n = 31	Global Markets n = 15
Procedure	Democratic	Participation		Of Relevant States	Of Local Actors and Businesses		
		Accountability	To Consumers and Shareholders	To Citizens	To Recipient Country Priorities	To Citizens	
	Technocratic	Efficiency					Of the Market
		Expertise	In the Sector		In Key Technical Issues	In National Context	In the Sector
	Fair	Impartiality		Rules Apply to All Parties			Of the Market
		Proportionality					
Performance	Democratic	Democracy Promotion in Wider Society					
	Technocratic	Problem Solving					
		Collective Gains					
	Fair	Human Dignity					
		Distributive Justice					

Table 5

Sources of Institutional Legitimacy and how they are Deployed and Interpreted in Delegitimation Claims across TCR Governance Pathways.

			Transnational Governance n = 45	International Diplomacy n = 26	Development Cooperation n = 13	Domestic Policy n = 33	Global Markets n = 13
Procedure	Democratic	Participation					
		Accountability	To Producers	Historical Colonialism		To Producers	
	Technocratic	Efficiency		Slow Processes	Other Priorities	Slow Processes	
		Expertise					
	Fair	Impartiality					
		Proportionality					
Performance	Democratic	Democracy Promotion in Wider Society					
	Technocratic	Problem Solving				Low Enforcement	
		Collective Gains					
	Fair	Human Dignity					
		Distributive Justice					

local communities,[3] as an effort to supply products in line with growing interest in sustainable consumption. Large traders and roasters were seen as key actors, given their significant size relative to other players, their role as intermediaries between the markets of producing and consuming countries, and their ability to alter incentive structures to incorporate TCR management. For example, several cooperatives in Brazil called on traders to increase their share of certified coffee, creating higher demand for sustainable coffee in consuming countries.

Somewhat paradoxically, problem solving is also the most commonly invoked feature in delegitimation claims about the transnational governance pathway. Several interviewees noted that climate risks were not the most relevant challenges facing the coffee sector and private

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[3] As Table 5 shows, delegitimation claims for accountability emphasized the lack of accountability for producers.

companies were unlikely to make investments in climate action. Interviewees also referred to the limited effectiveness of certification schemes in improving sustainability, either because competition among the numerous schemes has led to reducing requirements for producers to participate, or, because certification has been viewed by producers as a short-term opportunity to supply coffee to niche markets, rather than a long-term investment in sustainability. Moreover, interviewees noted that many private companies lacked transparency in their activities and were not accountable to the farmers who produced their coffee, further undermining the legitimacy of the pathway.

Taken together, this suggests that despite the preeminence of the transnational governance pathway in the Brazilian-German coffee supply-chain, there remain a number of questions about its ability to solve problems as an institution and its accountability structures. Market-based approaches to problem solving dominate this pathway, but key issues – i.e., *which* problems are addressed, and *to whom* actors are accountable – remain unresolved. For example, certification schemes and sustainability standards have been largely ineffective in rectifying this situation (Bray and Neilson, 2017; Grabs, 2020).

5.2. International diplomacy

The second governance pathway, "international diplomacy," emphasizes the role of foreign policy conducted between countries. For this pathway, interviewees referenced the importance of international negotiations as key venues for governing TCRs. Here, the fundamental premise is the equal engagement of countries in international fora, bilateral and multilateral, agreeing as sovereign states to common rules or goals. In the Brazilian-German coffee supply-chain, one of the most relevant diplomatic processes is the negotiation of the EU-MERCOSUR Free Trade Agreement, where Germany and Brazil are engaged as members of their respective trading blocs in constructing the architecture for the future of trade between the regions. Notably, the role of sustainability in free trade agreements has been an important topic of scholarly and policy inquiry in recent years (i.e. Esty, 1994; Jinnah and Morin, 2020) and has been a critical sticking point of the EU-MERCOSUR discussions.

Legitimation claims for the international diplomacy pathway rely on both problem solving and the promotion of collective gains more than any other governance pathway, suggesting that as an institution, the interviewees understand international diplomacy to be potentially highly effective, particularly when it comes to providing common goods. Similarly, interviewees also noted the critical role of impartiality for international diplomacy, as countries are understood to jointly and voluntarily agree to the establishment of rules which benefit both parties and are applied equally for all involved. The democratic principles in the process, participation and accountability are also referenced repeatedly, underscoring the importance for all negotiating parities to participate on equal terms, and highlighting the role of the state in promoting its national interest through diplomatic engagement, aligned with the traditional democratic conception of state accountability as a product of popular domestic support.

At the same time, both problem solving and accountability are also identified as key challenges for the international diplomacy pathway. In delegitimation claims, a number of interviewees suggested that as international diplomacy often occurs at high levels of abstraction, rules and regulations agreed may have little practical effect on the everyday circumstances for many coffee producers. Several representatives of traders and cooperatives, for example, dismissed the EU-MERCOSUR trade agreement as relevant for the governance of TCRs in the coffee[4]

supply-chain, as its statute is "too coarse" for incorporating climate risk management, as one member of a Brazilian coffee cooperative expressed. Similarly, global governance institutions, such as the UNFCCC, WTO and the ICO were rarely invoked by interviewees as potentially effective arenas for governance of the Brazilian-German coffee supply-chain. Furthermore, delegitimation claims invoked the lack of accountability in the international system. As one interviewee noted, coffee trade has its foundations in the colonial system and these structures are still being persistent even today, making it impossible for developed and developing countries to negotiate as equals. Efficiency also featured strongly in delegitimation claims about the international diplomacy pathway, as interviewees remarked that processes were slow and cumbersome, and depended heavily on the relationship between the administrations in power which regularly changed. For example, the EU-MERCOSUR agreement took 20 years to negotiate.

The international diplomacy pathway is rooted in an institutionalist worldview, where rules and regulations are deployed in an effort to constrain market forces and facilitate the pursuit of a shared goal. However, for its potential to effectively govern TCRs, activity needs to take place at higher pace and at much lower levels of abstraction.

5.3. Development cooperation

The third identified pathway for governing TCRs is a "development cooperation" pathway. This pathway is directly borne of the logic of the donor-recipient relationship, often between countries in the Global North and Global South, where the developed country is understood to be a benevolent supporter of the developing country's needs and aspirations (Kothari, 2005). In the Brazilian-German coffee supply-chain, actors like the German International Development Agency (GIZ), the German Development Bank (KfW), the Federal Ministry for Economic Cooperation and Development (BMZ), and the EU aim to support the Brazilian government in achieving its self-articulated goals, often through the provision of development assistance or climate finance.

Legitimation claims for this pathway are relatively diffuse, relying on participation, accountability, expertise, and problem solving. Beginning with participation, interviewees emphasized the ability of actors in the development landscape to bring all the relevant players to the table, referring to the private sector in addition to a specific focus on the inclusion of smallholder coffee farmers and local governments. On accountability, respondents noted that the German government had a duty to support Brazilian coffee producers given the unequal terms of trade in the coffee sector, where most profit is made in developed countries where the coffee is roasted and sold (Sachs et al., 2019). In this sense, the German government could be seen to hold a degree of responsibility to the support segments of the Brazilian economy which drive the more lucrative German domestic coffee market. This line of argumentation is complemented with references to expertise and problem solving, as German development agencies are understood to have a high capacity to share relevant knowledge about climate risk management in agricultural systems and build the resilience of smallholder farmers.

In contrast, delegitimation claims of the development cooperation pathway relied heavily on efficiency, though rather than referring to number and speed of policy decisions, here efficiency reflected the strategic priorities of the actors engaged. As actors in the German government have a limited amount of time and resources to pursue their goals, they preferred to allocate its development cooperation resources elsewhere, either towards climate change mitigation in Brazil, or to other countries with more significant climate adaptation needs. Representatives of German development agencies, as well as the EU Delegation in Brazil, clearly stated that development support for Brazilian smallholder coffee farmers was not a priority issue. Instead, development cooperation efforts were seen as better targeted to Least Developed Countries with lower capacity to deal climate risks, preferring instead to work with the Brazilian government on deforestation initiatives in an

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[4] It was noted several times that other crops and products such as soy, maize and meat were more dependent on the trade agreement than coffee, implying that trade negotiations as a policy mechanism of this pathway could be stronger in other agricultural products as well as other issue areas.

effort to reduce fossil fuel emissions generated through land use change. This is reflective, in part, of the historical relationship between Brazil and Germany, and their relative stature in world economic affairs. As one member of the EU delegation stated: "Brazil is not a country where we focus on development projects; we want to go in as 'equal' partners focusing on bigger issues, working on a peer-to-peer basis."

The development cooperation pathway is underpinned by the notion of German government support for Brazilian-led efforts to address TCRs in the coffee supply-chain. Notably, however, invocations of fairness are rare, and while accountability, expertise, and problem solving feature prominently, they are not invoked in the same way across contexts.

5.4. Domestic policy

Whereas the three pathways above have placed international cooperation at the center of TCR governance, albeit based on distinct logics, the remaining two governance pathways challenge this notion, maintaining instead that despite the shared interest in climate risk management across borders, joint governance may be inappropriate. The "domestic policy" pathway invoked a larger amount of (de)legitimacy claims than the development cooperation pathway and contends that Germany and Brazil should each deal with climate risk focusing on their respective sides of the supply-chain separately, implying a limited role for global environmental governance. Actors legitimizing this pathway underscored the idea that national governments would know best what was needed for their particular contexts and therefore be better able to solve problems and produce collective gains. Most importantly, however, interviewees argued that it was a national responsibility to coordinate and govern domestic affairs, holding national and local governments accountable to their citizens. In Brazil, legitimation claims pointed to the particularly strong environmental regulatory landscape in Brazil, the existence of the national coffee fund, Funcafé, which provides funding for various initiatives in the coffee sector, as well as the low-carbon agriculture (ABC) plans under implementation throughout the country. In Germany, several interviewees argued that the best opportunity for Germany to address TCRs in the coffee supply-chain was to abolish the national tax on certified and sustainable coffee (Molenaar and Short, 2018).

At the same time, interviewees also challenged these same sources of legitimacy. Several actors noted that while there is a strong regulatory space in Brazil, very few laws address climate change, and the enforcement of environmental policy in Brazil leaves much to be desired. In conjunction, there remain outstanding questions about government's accountability for or ability to effectively pursue environmental protection or climate action.

5.5. Global markets

Similar to domestic policy, the final governance pathway limits the possibility of international cooperation to manage TCRs. "Global markets" stresses non-interventionism and the minimization of any effort to manipulate markets to influence consumer and producer behavior.

While less prominent in the Brazilian-German coffee supply-chain than other pathways, the laissez-faire global markets approach still holds sway among a number of actors, particularly multinational companies. Supported for many of the same reasons as the transnational governance pathway, legitimation claims focus on the private sector's ability to innovate and solve problems, their high level of expertise and experience in the coffee business, and the ability of the market to act as an impartial distributor of goods and services across society. As one interviewee from a large Brazilian coffee cooperative noted: "coffee can stand on its own legs without the help of the government."

In contrast, delegitimation claims focused heavily on the well-documented failures of both the private sector and governments to effectively solve the problem of smallholder farmer poverty and build resilience and improve livelihoods. Interviewees noted frequently and critically that the price of coffee, which is set on financial markets,[5] can perpetuate smallholder poverty. It was noted multiple times that large price fluctuations served as a deterrent for those smallholder farmers who wanted switch to more sustainable practices or participate in a certification scheme or sustainability initiative.

6. Discussion and conclusion

As few studies have been conducted which explicitly engage with the governance of TCRs, this paper proposes an empirically driven framework of five pathways which are being actively explored, negotiated, and contested in the Brazilian-German coffee supply-chain. While the proposed pathways are not necessarily exhaustive nor mutually exclusive, and the balance between them in any case will be contextually specific, we contend that the pathways may be generalizable to other supply-chains, issues in global environmental governance, or for foreign affairs more broadly.

These findings complement those of Bernstein and Cashore (2012) who developed a similar framework of four pathways for global environmental governance, focused on how international processes may facilitate change at the national, subnational, or firm level. While Bernstein and Cashore's work was deductive and conceptually driven, this paper begins from the empirical and inductively validates some of their most important contributions, supporting the potential generalizability of our proposed pathways. At the same time, our proposal considers the essential role of legitimacy as fundamental to each pathway's operating logic, advancing beyond the consideration of policy mechanisms alone.

Importantly, it is this advancement which allows for the active deliberation of the grounds on which an approach to TCR governance may be appropriate, and to assess whether those conditions are indeed met in practice. First, the transnational governance pathway assigns strong weight to the private sector's ability to effectively govern TCRs. However, this pathway is the closest to business-as-usual for the sector, and the institutional initiatives on which it heavily relies have been shown to be insufficient for effective sustainability outcomes (Dzebo, 2019). Second, to presume that international diplomacy occurs between truly equal states would be to overlook decades of research on international political economy, power, and the various forms of coercion which are commonplace in global environmental governance and foreign affairs (Ciplet et al., 2015; Newell, 2008; Stephen and Zürn, 2019). Third, while it is consistently implied that development cooperation is a benevolent exercise driven by a recipient country, a wealth of literature in development studies and development aid would call this in to question (Carbone, 2007; King, 2013). Lastly, neither domestic policy nor global markets pathways make any efforts to actively govern TCRs across borders, either allowing for autonomous adaptation entirely at the domestic level, or mediated solely through market forces. In short, among all three of the pathways with the highest ambition for international cooperation, serious questions exist about the accuracy of their premises.

Our findings highlight a need to better account for global and transnational governance of adaptation and climate risk. There is increasing awareness that current responses to climate risks and impacts will no longer be sufficient as they fail to capture and plan for interdependencies and transboundary effects (Hedlund et al., 2022; Paterson and Guida, 2022). The lack of an established international framework has led to a fragmented approach where responses to climate risk are specific to their thematic area (i.e. agriculture, finance, trade,

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[5] Tariffs on coffee imports play a relatively limited role in determining the market price of coffee, as tariffs are set at the national level and many large importers (i.e., the US, Canada, EU, and Japan) do not currently impose them on green coffee imports, although some EU member states, including Germany, do.

etc.), do not sufficiently consider the transboundary nature of climate risk, and fail to consider horizontal or vertical cross-scale coordination. A coherent process towards operationalising the UNFCCC global goal on adaptation could contribute to a shared understanding of TCRs, that is cross-sectoral, multi-scalar, and includes state and non-state actors governing climate risk through different constellations of appropriate governance pathways in a given circumstance.

This paper has also sought to contribute to the growing literature on the critical role of legitimacy in global environmental governance, at once rooted in political principles and socially constructed by negotiation between ruler and ruled. Research to-date has not grappled with the full diversity of actors and institutions involved in global environmental governance, nor explored how (de)legitimation processes relate to the institutional sources of legitimacy. In many cases, scholarly work has been directed at established processes and policy regimes where existing institutions experience an incumbency advantage, rather than emerging challenges of global importance where these issues are being navigated in real-time.

We have intended to address some of these knowledge gaps. For the governance of TCRs, where few formalized institutions exist[6] and complex relationships between public and private are central, the discursive practices of actors provide important insights as new approaches to global environmental governance are negotiated and evolve. Specifically, as actors deploy rhetorical arguments to justify or challenge the legitimacy of a governance approach, they draw on the same suite of legitimacy sources to advance their views, in line with those proposed by Dellmuth et al. (2019) but do so in markedly different ways. In other words, while actors are (de)legitimizing certain pathways, they do not always have a shared understanding or interpretation of each legitimacy source. Key questions about who should participate and how, to whom governance should be accountable, whose expertise is valuable, or what constitutes justly distributed gains all remain open for interpretation. In this way, legitimacy itself becomes a site of political contestation as actors negotiate what it means to legitimately hold the authority to govern. Even from a normative sociological perspective, the definition of each institutional source of legitimacy cannot be taken as given, but rather must be understood as socially constructed, mobilized in (de)legitimation claims to either advance or undermine a governance approach.

Moving forward, more work is required to better understand the drivers behind the use of different legitimacy sources, or their incongruent definitions, as well as how these differences are navigated and resolved. Here, we propose two avenues for further research. First, this paper focused on institutional sources of legitimacy and presented their contestation in the form of governance pathways. Complementing research at the agent-level should identify the mechanisms and strategies through which actors deploy their power to promote their interests or worldviews in the process of (de)legitimizing different approaches to global environmental governance (Dellmuth, 2018). In addition, complementing research on individual agency and institutional sources should explore how social structure shapes the legitimacy beliefs of actors and institutions, and explore the inter-relationship and co-determination between the three dimensions: individual, institutional and structural (Scholte 2018).

Second, complementing research should explore to which extent our findings may be case-driven; the specific relationship between Brazil and Germany may be different than Germany and Rwanda, for instance, as the contestation of legitimacy in global environmental governance is embedded in a broader political economic context. First, for our specific case, coffee is largely produced in developing countries and primarily processed and consumed in developed ones, where profits tend to be larger (Levy et al., 2016; Sachs et al., 2019). In addition, there is a complex historical relationship between Brazil and Germany: where Germany and the EU are highly industrialized economies, and Brazil is an emerging economy which, while susceptible to international pressure, is somewhat more insulated than other similar countries due to its large size. Similarly, what is understood to be legitimate in the coffee supply-chain may not apply equally well to the rice trade, or for the movement of climate refugees, both areas equally relevant for TCR governance (Hedlund et al., 2018). While differences are certain to exist across these contexts, systematic inquiry is needed to explore precisely how structural factors condition the social construction of legitimacy across contexts, including which legitimacy sources are understood to be most compelling or essential.

The contestation of legitimacy is part-and-parcel of global environmental governance in a changing world. As novel challenges emerge, and institutions, policy regimes, and state and non-state actors interact in new ways, legitimacy is situated at the center of a burgeoning debate about appropriate global environmental governance in the modern era, actively produced by parties who would seek to exert influence over others, and negotiated with those who may be subject to that authority.

CRediT authorship contribution statement

Adis Dzebo: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Roles, Writing – original draft, Writing – review & editing. **Kevin M. Adams:** Conceptualization, Formal analysis, Investigation, Methodology, Roles, Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data is based on semi-structured interviews, which are confidential. A list or organisations and the interview template can be provided on request.

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