

# How Relevant Are Input and Output Performance to Popular Legitimacy of International Governance?

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## Abstract

Conventional wisdom holds that public support for (i.e. popular legitimacy of) international governance efforts is crucial to their viability and effectiveness. Popular legitimacy is widely regarded as deriving from citizens' evaluation of input and output performance of international governance. Input pertains to how governance systems and associated policies are established and implemented (process). Output pertains to how effective, costly, and advantageous governance is. Conceptual and theoretical work abound, notably on European integration, we know rather little about how much, empirically, input and output performance really matter for popular legitimacy of international governance, and how the two relate to one another. Based on three experiments carried out with representative samples of citizens from Germany and the United Kingdom (N=3,000 each), and with an empirical focus on transboundary air pollution in Europe, we address three questions: (1) To what extent do input (process) and output quality matter per se for popular legitimacy of international governance efforts? (2) Does high input quality make citizens more supportive of output that is ineffective and disadvantageous, and vice versa? (3) Does the prospect of effective and advantageous output reduce public demand for high input quality, and vice versa? The results show that, from the viewpoint of citizens, both input and output matter, but that output matters more than input. While input-related evaluations of citizens are hardly affected by the prospect of "good" or "bad" governance output, citizens are less tolerant of ineffective and unfavorable output when input quality is low. Overall, these results suggest that, from the viewpoint of policy-makers and democratic legitimacy, enhancing process quality is worthwhile particularly for policy challenges that require long-term and incremental efforts.

**Keywords:** legitimacy, input, output, process, transparency, civil society, parliament, air pollution, international environmental governance, experiment, survey, public opinion

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## 1. Introduction

Legitimacy is widely regarded as one of the key defining characteristics of well-functioning political systems<sup>1</sup>. It describes a situation where citizens believe that political authority delegated to policy-makers and political institutions is being appropriately exercised and thus deserves to be obeyed. In the research presented here we are interested in understanding how citizens form their legitimacy perceptions with respect to international governance systems, and how relevant the input (process) and output performance of such systems is in accounting for variation in popular legitimacy. The relevance of this research derives from a widespread popular discontent with crucial international governance systems, and debates about what could be done to enhance the legitimacy of such governance systems.<sup>2</sup> Expressions of this discontent are large-scale protests against the Transatlantic Trade and Investment Partnership (TTIP), the Brexit vote, various other instances of political backlash against European integration, the anti-globalization movement, right wing populist movements, and, on the other hand, enormous investments by international institutions in campaigns meant to enhance their visibility and legitimacy vis-à-vis the citizens of member countries.<sup>3</sup>

When citizens think about how well their country is governed they usually evaluate the input and output of their country's political system and its institutions.<sup>4</sup> Input relates to the governance process, that is, how political decisions are prepared and taken, and how policies are enacted and implemented. Output relates to whether the system pro-

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<sup>1</sup> E.g., Papadopoulos 2013; Lipset 1983; Dahl 1971.

<sup>2</sup> Morse and Keohane 2014; Lavenex 2013; Margalit 2012; Cheneval 2011; Buchanan and Keohane 2006; Koenig-Archibugi 2004.

<sup>3</sup> E.g., Tallberg and Zürn 2016; Held 1995; Follesdal and Hix 2006; Held 1999.

<sup>4</sup> E.g., Dellmuth and Tallberg 2015; Schmidt 2013; Zaum 2013; Steffek 2003, 2015; Zürn 2000, 2004; Scharpf 1997; Weatherford 1992.

duces effective solutions to societal problems, and what the cost and distributional implications of solutions are. Conventional wisdom holds that both dimensions are relevant, and conceptual and theoretical studies on this issue are plentiful.<sup>5</sup> However, we know rather little, particularly at the empirical level and with respect to international, rather than national governance, about the extent to which input and output matter per se for popular legitimacy, and how they relate to one another.

Empirical insights into whether and how input and output quality of governance, individually and jointly, affects the popular legitimacy of international governance are important not only academically, but are also relevant in practice. For instance, as policy-makers are struggling to find effective solutions to many societal problems that extend across national boundaries, e.g., environmental degradation, social inequality, unemployment, or immigration, it is important to know whether enhancing input (process) quality could help in ascertaining or maintaining public support, even in situations where political systems are, due to the complexity of challenges, very slow in coming up with effective solutions.

Empirical research on the input and output legitimacy issue from a public opinion perspective has thus far focused primarily on domestic politics and on the European Union. One prominent example is the “stealth democracy” debate, in which Hibbing and Theiss-Morse<sup>6</sup> have argued that American citizens tend to care more about the results of politics (that is, output) than about process (input) quality. However, these authors do not actually claim that American citizens are neutral regarding political process but instead that citizens do not want to get personally and closely involved in politics, as

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<sup>5</sup> E.g. Risse 2006 and Scharpf 1999.

<sup>6</sup> Hibbing and Theiss-Morse 2001, 2002.

long as they are content with the outputs of the political system and elected politicians' behavior. In this respect, 'stealth democrats' bear resemblance to citizens with a civic political culture balancing their desire for political activity and passiveness.<sup>7</sup> More recent research on European integration has shown that public support for the EU is influenced both by procedural (input) considerations and by output performance.<sup>8</sup>

We pick up on this debate, take it to the international level, and examine how relevant input and output legitimacy considerations are to public support for (that is, popular legitimacy of) international governance efforts, and whether input and output legitimacy necessarily go together or one facet of legitimacy could substitute for or reinforce the other. Such research is, in our view, important particularly because there is a widespread presumption that shifting authority from within states to policy-making fora beyond the state may result in declining legitimacy and thus an authority-legitimacy gap.<sup>9</sup>

Many studies focus, from a conceptual and theoretical viewpoint, on questions of input (process)-related legitimacy in international and global governance.<sup>10</sup> One important line of research, for instance, has been focusing on different procedural modes of international governance, notably liberal, republican, deliberative, and private governance.<sup>11</sup> However, despite very lively debates on procedural alternatives in international governance and their implications for legitimacy, there is only very little empirical work to

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<sup>7</sup> Almond and Verba 1963.

<sup>8</sup> Sternberg 2015; Boomgarden et al. 2011; Lindgren and Persson 2010; Hooghe and Marks 2003, 2005; Rohrschneider 2002; McLaren 2002; Banchoff and Smith 1999; Anderson and Reichert 1995.

<sup>9</sup> Gronau and Schmidtke 2016; Dellmuth and Tallberg 2015; Hooghe and Marks 2015; Lenz et al. 2015; Stevenson and Dryzek 2014; Brassett and Tsingou 2011; Johnson 2011; Avant et al. 2010; Reus-Smit 2007; Buchanan and Keohane 2006; Rohrschneider 2002; Hurd 1999.

<sup>10</sup> Bodansky 2013; Lavenex 2013; Doherty and Wolak 2012; Archibugi et al. 2012; Papadopoulos 2010; Scholte 2007; Clark 2005; Keohane and Nye 2003; Falk and Strauss 2001; Claude 1966.

<sup>11</sup> Lavenex 2013.

date that has addressed the following questions systematically and in a methodologically rigorous manner, particularly with respect to issues other than European integration. First, to what extent do input (process) and output quality (that is, performance) matter per se (that is, each on its own) for popular legitimacy of international governance efforts? Second, does high input (that is, process) quality make citizens more supportive of output that is of low quality (that is, ineffective and disadvantageous)? Conversely, does low input quality make citizens less supportive of low quality (that is, ineffective and disadvantageous) output. Third, does the prospect of high quality output reduce public demand for high input quality, and vice versa? Conversely, does the prospect of low quality output increase public demand for higher input quality?

For the research presented in this paper we rely on an experimental study design, with three distinct but substantively related experiments administered to nationally representative samples of citizens from Germany and the United Kingdom (N=3,000 each). The three experiments are designed to respond to the three questions on input and output legitimacy raised above, and to test hypotheses that derive from these questions. The advantage of using an experimental design in our context is that it also allows for analysis of “what if” scenarios, that is, input and output characteristics that currently do not exist, but that are from a policy viewpoint realistic. Another advantage is that the experimental design is superior to observational (correlational) analysis when it comes to testing of causal hypotheses.

The empirical focus is on transboundary air pollution. The reason for focusing on a specific policy challenge in our experiments, rather than on some abstract, non-issue-specific international governance scenario, is that we wanted to make the experiments intuitive and tangible for participants. This is clearly the case with air pollution, which

is an issue that poses obvious international governance challenges, notably because pollution travels across national boundaries. For instance, a recent study<sup>12</sup> on the subject concluded that within Europe air pollution from coal-fired power plants caused more than 20,000 premature deaths in 2013. For comparison, the study noted that 26,000 people died in road traffic in the European Union the same year. The overall health costs due to coal burning in the EU are estimated at 32.4–62.3 billion Euros. In other words, transboundary air pollution is, at least in terms of fatal risks to human lives and economic burden on society, on par with risks associated with road traffic.

Our survey embedded experiments were carried out in Germany and the United Kingdom because these two countries are among the largest emitters of air pollutants in Europe, and because they pollute each other and are thus engaged in the same clean air governance efforts. In 2013, German coal-fired power plants were, according to the aforementioned study, responsible for an estimated 2,490 premature deaths abroad (230 of which in the UK) and UK coal-fired power-plants were responsible for an estimated 1,350 premature deaths abroad (320 of which in Germany). Moreover, we opted for Germany and the United Kingdom also because the two countries have different political systems and different histories of EU membership. This allows us to explore whether our empirical findings are relevant to different political and economic contexts.

The results show that both input and output quality matter, though output quality matters more. Input preferences are hardly affected by the quality of prospective output, but citizens are less accepting of low quality (ineffective and unfavorable) output when input quality is low. These findings suggest that enhancing input quality is worthwhile,

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<sup>12</sup> “Europe’s Dark Cloud: How Coal-Burning Countries Are Making Their Neighbors Sick” 2016, <http://wwf.fi/mediabank/8633.pdf>.

notably because it encourages and enables policy-makers to try and find solutions to problems that require costly and long-term policies and involve substantial risks of policy failure.

The following section discusses the main theoretical concepts, such as input and output characteristics of international governance and its legitimacy, and outlines the hypotheses to be tested. The next section describes the empirical study design, focusing on the design of the three experiments. We then present the empirical findings and end with a discussion of these, as well as options for further research and policy implications.

## **2. Arguments and Hypotheses**

Policy-making has internationalized quite dramatically over the past few decades. That is, many policy choices that used to be made entirely within the institutions of the sovereign territorial state are now being made in fora that include representatives from several or many countries.<sup>13</sup> As governance efforts have proliferated beyond the state, debates over procedural and output-related aspects of such governance efforts have emerged.<sup>14</sup> While some debates are focusing primarily on outputs of policy-making, others center on processes (or inputs) of decision-making and policy implementation. One example is the current controversy over the Transatlantic Trade and Investment Partnership (TTIP), where critics, on the one hand, dispute its effects on economic growth, employment, and environmental and consumer protection (addressing expected output). And, on the other hand, they criticize negotiations for their lack of transparency

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<sup>13</sup> Kriesi et al. 2013; Zürn 2000.

<sup>14</sup> Archibugi et al. 2012; Bernstein 2011; Keohane and Nye 2003; Bodansky 2013; Hurd 1999.

as well as the implications of dispute settlement provisions for national control over important economic and social matters (addressing process features).<sup>15</sup>

The example of TTIP, and many others, show that public support for international governance efforts is essential, not only in terms of ascertaining democratic quality and stability of political systems overall, but also in terms of viability of policies in specific areas. How, in turn, citizens tend to evaluate international governance efforts, and how in the aggregate public support or opposition develops, appears to be a function of how citizens evaluate the procedural and output characteristics of governance efforts.<sup>16</sup> To what extent citizens are willing and able to evaluate on their own international governance systems and to what extent such evaluations are driven by elite cues remains subject to debate<sup>17</sup>, but is not quintessential for our analysis here – as long as public opinion matters and is shaped by evaluations of input and output quality of governance efforts.

The existing literature on legitimacy issues associated with international governance has focused primarily on procedural (input) aspects. It offers many innovative conceptual and theoretical insights into problems of transparency, participation, and accountability in international governance and also provides ideas on how limitations or deficiencies could be addressed.<sup>18</sup> However, in view of the large literature on process (in-

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<sup>15</sup> E.g., <https://www.theguardian.com/business/2015/jul/03/what-is-ttip-controversial-trade-deal-explained> or <https://www.theguardian.com/commentisfree/2015/aug/31/transparency-ttip-documents-big-business>.

<sup>16</sup> Dellmuth and Tallberg 2015; Doherty and Wolak 2012; Boomgarden et al. 2011; Hooghe and Marks 2005; Hibbing and Theiss-Morse 2002; Banchoff and Smith 1999.

<sup>17</sup> E.g., Tallberg and Dellmuth 2016.

<sup>18</sup> Cheneval and Schimmelfennig 2013; Cheneval 2011; Chapman 2009; Black 2008; Bohman 2007; Buchanan and Keohane 2006.

put) and output fairness in allocating scarce resources<sup>19</sup> and the vibrant but still unresolved debate over how legitimacy relates to input and output in domestic politics<sup>20</sup> it is somewhat surprising that the existing literature on international governance offers only few systematic theoretical insights into the relevance of input and output quality in that realm. In addition, it does not offer systematic empirical evidence on the extent to which input and output quality are, individually and in relative terms, relevant to popular legitimacy in international governance. Nor does it tell us whether increased input quality could offset deficiencies in output quality, and vice versa, or whether the two might reinforce each other or a trade-off between the two might exist.

Specifically Scharpf<sup>21</sup> contends that both input and output legitimacy are necessary for democratic legitimization since input-oriented arguments “never carry the full burden of legitimizing the exercise of governing power”, but tend to be supplemented by output-oriented arguments about positive outcomes for the public interest. Consequently, arguments about the legitimacy of global governance should involve not only output-related proclamations about efficient problem solving abilities, but also input-related statements about democratic qualifications. In addition, some scholars argue that input and output legitimacy are supplements, but that both dimensions are mutually reinforcing.<sup>22</sup> For instance Sternberg<sup>23</sup> states concluding her conceptual study of legitimacy as well as the reconstruction of EU-related legitimacy discourses that “[input and output legitimacy] each make up for weaknesses at the other end of the spectrum, especially

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<sup>19</sup> E.g., De Fine Licht et al. 2014; Doherty and Wolak 2012; Esaiasson et al. 2012; Tyler et al. 1997.

<sup>20</sup> E.g., Hibbing and Theiss-Morse 2002.

<sup>21</sup> Scharpf 1999, 188, 43–48.

<sup>22</sup> (Sternberg 2015; Lindgren and Persson 2010; Verweij and Josling 2003; Zürn 2000)

<sup>23</sup> Sternberg 2015, 634.

during periods of difficulty.” Similarly Lindgren and Persson<sup>24</sup> show that in the context of the EU chemicals policy, the so called REACH regulation, stakeholders who thought that the quality of the decision-making was very good, were also more likely to view the resulting outcome as efficient. However it remains to be tested whether this finding also holds for citizens. If citizens evaluate global governances’ overall legitimacy based on input and output dimensions and if the two are either perceived as supplementary, that is additive in their effects on legitimacy, or even as mutually reinforcing each other, citizens then might be more accepting of low input (low output) if they perceive output as being high (high input).

That said, still a debate persists in the literature that focuses on the notion that, instead of input- and output legitimacy being supplements and/or mutually reinforcing, a trade-off or a zero-sum game between the two exists.<sup>25</sup> That is, it might be the case that even global governance with reasonable claims to output legitimacy on the grounds of effective problem solving might be seen as illegitimate if it does not satisfy some input legitimate criteria, for instance it fails to take into account citizens’ preferences in some type of participatory and deliberative process, and vice-versa. Consequently, focus on or attempts aiming at increasing the output legitimacy of global governance, e.g. by increasing the efficiency of decision-making, may lead to a democratic deficit if citizens’ preferences are not taken into consideration. On the other hand, attempts to improve input legitimacy of global governance may weaken its decision-making efficiency and, hence, result in lower output legitimacy due to longer decision making processes, or

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<sup>24</sup> Lindgren and Persson 2010.

<sup>25</sup> E.g., Greenwood 2007; Risse 2006; Höreth 1999. This trade-off is related to the notion of ‘democratic dilemma’ coined by Dahl (1994). In particular Dahl argues that with the Maastricht Treaty Europeans citizens had to choose between their political effectiveness as citizens within their countries and the effectiveness of the European Union as a transnational system.

because citizens might not act in favor of the common good.<sup>26</sup> Citizens being aware of such a trade-off might accept that both input- and output legitimacy cannot be improved at the same time and, therefore, they might be willing to accept lower input (lower output) given higher output (higher input).

Based on these arguments, we can derive specific hypotheses on how input (process) and output characteristics of international governance are likely to affect popular legitimacy (public support), and how input and output relate to one another in affecting the dependent variable of interest here.

The first hypothesis, which serves as a starting point, focuses on the relevance of input (process) and output considerations in an absolute sense. That is, we study the extent to which input (process) and output characteristics of international governance, as discussed above, are relevant to citizens' evaluations of the governance effort as a whole. While we posit that both input and output legitimacy are likely to matter in global governance, we remain agnostic as to whether one or the other matters more.

*H1: Input and output quality both have a positive effect on popular legitimacy.*

Whereas this first hypothesis centers on whether input and output quality are relevant independently of each other, we are also interested in their substitutability, meaning whether they are related, in the sense that one might make up for deficits in the other, or that one could reinforce the other. The very few studies on this subject in the area of international governance<sup>27</sup> suggest that such effects do exist. Moreover, research on

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<sup>26</sup> Dahl (1998) notes that the increase in size from nation-state to international organization decreases a) the possibility of effective citizen participation as a function of the time needed to express one's views and b) a shared political culture and common identity making resulting thus in suboptimal decisions.

<sup>27</sup> Sternberg 2015 and Lindgreen and Persson 2010.

procedural fairness in areas other than international governance shows that in costly allocation situations people tend to be more accepting of disadvantageous results if they regard the allocation procedure as fair.<sup>28</sup> Translation of such arguments to international governance is quite intuitive and can be approached from two perspectives.

First, reminiscent of the “stealth democracy” argument, one can hypothesize that when citizens expect an international governance effort to produce positive outputs (i.e., outputs that are effective, low cost, and distributionally advantageous) they are less likely to demand improvements in input quality. Conversely, when citizens expect international governance to perform poorly in output terms, we expect greater demand for improvements in input quality.

*H2.1: The prospect of positive international governance output reduces demand for improvements in input (process) quality.*

*H2.2: The prospect of negative international governance output increases demand for improvements in input (process) quality.*

Second, we expect that high input (process) quality is likely to make citizens more accepting of low quality governance output.<sup>29</sup> Conversely, low input (process) quality is likely to make citizens less accepting of low quality governance output.

*H3.1: High input (process) quality is likely to make citizens more accepting of negative governance output.*

*H3.2: Low input (process) quality is likely to make citizens less accepting of negative governance output.*

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<sup>28</sup> E.g., Tyler 1990.

<sup>29</sup> This is similar to arguments on procedural and output fairness in allocation decisions in areas other than international governance (e.g. Taylor 1990).

### On the definition of input and output legitimacy

Though there might be some nuanced differences between popular legitimacy and public support<sup>30</sup>, we use the two concepts interchangeably, as many previous studies have done<sup>31</sup>. Empirically, we will focus on three procedural (input) and three output characteristics of international governance systems that, in the existing literature on domestic and international governance, are regarded as potentially affecting legitimacy.<sup>32</sup> These characteristics are, to some degree related. For instance both a stronger role of national parliaments and of civil society in international governments could help increase transparency and accountability and, via those, influence popular legitimacy.<sup>33</sup> However, our experimental design focuses on variation in six input and output characteristics (as manipulated experimentally), which are clearly distinct from each other, and their effects on popular legitimacy.

With respect to input characteristics, we focus on institutionalized access to information on decision processes, involvement of civil society, and the need for approval by (democratically elected) national legislatures. Institutionalized access to information on decision processes is widely regarded as a factor that tends to increase confidence of citizens in policy-making processes, political institutions, and their outputs, particularly because it supports transparency and accountability.<sup>34</sup>

Civil society involvement is regarded by many scholars as an important means of enhancing representation of otherwise underrepresented interests in society, increasing

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<sup>30</sup> Zürn and Tallberg 2016; Gronau and Schmidtke 2016; Dellmuth and Tallberg 2015; Hooghe and Marks 2005; Hurd 1999.

<sup>31</sup> Dellmuth and Tallberg 2015; Agné et al. 2015; Bernauer and Gampfer 2013; Hurd 1999.

<sup>32</sup> Hooghe and Marks 2005, 2013.

<sup>33</sup> Agné et al. 2015; Black 2008; Bohman 2007.

<sup>34</sup> De Fine Licht et al. 2014; Archibugi et al. 2012; Grigorescu 2007; Held and Koenig-Archibugi 2005; Keohane and Nye 2003.

transparency and accountability, and enhancing problem solving capacity by adding know-how that is relevant to problem-solving.<sup>35</sup> Recent research in fact shows that involving civil society groups tends to enhance public support for global governance, both in democratic and non-democratic systems.<sup>36</sup>

We are also interested in the implications of variation in decision-rules. The traditional principle of state consent holds that no country can be bound to international governance arrangements and resulting legal obligations unless it accepts those. Treaty ratification requirements are the most prominent expression of this principle.<sup>37</sup> Since this principle increases the transaction costs of international governance and tends to result in lowest common denominator solutions, which may be at odds with output quality (see below), majority decision-making in international governance and reduced domestic implementation hurdles (weaker or no ratification requirements) have been suggested.<sup>38</sup> However, whereas majority decision-making is standard in domestic law-making, the implications of “more efficient” decision-modes in international governance remain subject to debate. Empirically, we will focus on two decision-modes that represent the opposing ends of the debate: the traditional principle of state consent (domestic ratification required before an international agreement can be implemented domestically), and automatic implementation of an international agreement without the need for prior ratification by domestic legislatures if the majority of countries negotiating an agreement

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<sup>35</sup> Agné et al. 2015; Dellmuth and Tallberg 2015; Buntaine 2015; Tallberg et al. 2013, 2014; Archibugi et al. 2012; MacDonald 2012; Bernstein 2011; Lidskog and Elander 2010; Scholte 2007, 2011; Grigorescu 2007, 2015; O’Brian et al. 2000; Falk and Strauss 2001.

<sup>36</sup> Bernauer et al. 2016; Agné et al. 2015; Bernauer and Gampfer 2013.

<sup>37</sup> For most democratic countries and international treaties, the ratification requirement implies that a country’s national legislative body has to approve of the agreement before the country can join the latter.

<sup>38</sup> E.g., Bodansky 2013.

decides to adopt the agreement. We tend to side with those scholars who argue that shifting decision-making authority from the domestic to the international level along these two lines may undermine popular legitimacy because it tends to take authority away from democratically elected national legislatures.<sup>39</sup> Presuming that it is difficult to replace the legitimating effect of national legislatures with some kind of international legislature<sup>40</sup> we hypothesize that the input (process) characteristic of state consent, as expressed by consensus decision rules at the international level and domestic ratification requirements, tends to enhance popular legitimacy.

With respect to output quality, we concentrate on three characteristics of output from international governance efforts that are widely regarded as affecting popular legitimacy: problem solving effectiveness, costs, and relative benefits. International governance efforts that are expected to, or do in fact, solve problems more effectively are likely to enjoy greater public support, all else equal.<sup>41</sup> Costs of governance efforts are likely to play a role as well, with popular legitimacy (public support) declining with increasing costs.<sup>42</sup> Moreover, relative benefits are likely to affect popular legitimacy. As noted in the International Relations literature on relative gains, governments are likely to pay attention not only to absolute, but also to relative benefits, that is, how much their respective country would benefit from a cooperative effort, relative to other countries.<sup>43</sup>

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<sup>39</sup> Archibugi et al. 2012; Esaiasson et al. 2012; Johnson 2011; Lidskog and Elander 2010; Paterson 2010; Reus-Smit 2007; Hooghe and Marks 2005; Dahl 1999; Hurd 1999; Banchoff and Smith 1999; Blondel et al. 1998; Beetham 1991.

<sup>40</sup> Schmidt 2013; Boomgarden et al. 2011; Rohrschneider 2002; Falk and Strauss 2001; Blondel et al. 1998.

<sup>41</sup> Dellmuth and Tallberg 2015; Doherty and Wolak 2012; Hibbing and Theiss-Morse 2002; Scharpf 1999.

<sup>42</sup> Bernauer and McGrath 2016; Steffek 2015; Schmidt 2013; Boomgarden et al. 2011; McLaren 2002; Anderson and Reichert 1995; Tyler 1990.

<sup>43</sup> Grieco and Snidal 1993; Powell 1991.

The presumption is that governments and their citizens are more likely to support cooperative arrangements producing more evenly distributed benefits and reject arrangements that would result in lower benefits to themselves, relative to other states. Similarly, many studies on distributional fairness, social justice, and common pool resources<sup>44</sup> note that support is positively affected by an even distribution of benefits.

### **3. Empirical Design**

In this section we describe the sampling strategy, the survey design, and the three experiments that were used to evaluate the hypotheses stated above.

#### **3.1 Sampling**

The three experiments were embedded in population-based online surveys. The surveys as such were identical except the experimental part, which consisted of experiment 1, 2, or 3. Each experiment was administered to two representative samples drawn from the German and the UK adult population respectively. That is, we carried out three surveys per country, each one including one of the three experiments.

The sampling, matching, and data collection was carried out by YouGov<sup>45</sup>. In April 2016, YouGov interviewed a total of 3,699 respondents from the UK and a total of 3,617 respondents from Germany. For each of the two countries, these respondents were matched down to 3,000 (in order to achieve distributions on socio-demographics mimicking the census-based distributions) for three surveys (each including one of the experiments) carried out in each country. The survey containing experiment 1 was admin-

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<sup>44</sup> Brahms 2008; Tyler et al. 1997; Ostrom 1990.

<sup>45</sup> <https://today.yougov.com/about/about/>

istered to 600 participants, and the two other surveys comprising experiment 2 and 3 respectively, each of which included three treatment groups of 400 respondents, was administered to 1,200 participants each per country. This means that each person participated only in one experiment. The smaller sample for experiment 1 is due to the fact that the design of this experiment (a conjoint choice experiment) generates 6000 observations (10 per participant, see below).

For each of the seven different groups per country (one group in experiment 1, three groups in experiment 2, and three groups in experiment 3), the sample was matched to a sampling frame on gender, age, education, and geographical area (England, Scotland, Wales, and Northern Ireland for the UK data, and East-West for Germany). The two sampling frames, one for the UK and one for Germany, were constructed by stratified sampling from the two national full 2014 Eurobarometer 82.4 samples, with selection within strata by weighted sampling with replacement (using the person weights on the file). The matched cases were weighted to the sampling frame using propensity scores. The matched cases and the frame were combined and a logistic regression was estimated for inclusion in the frame. The propensity score function included age, gender, education, and geography. The propensity scores were grouped into deciles of the estimated propensity score in the frame and post-stratified according to these deciles.

### **3.2 Survey Design**

Each survey consisted of three consecutive parts: first, several demographic and political attitudes items required by YouGov for matching and block randomization; second,

one of the three experiments; and, third, other items covering political attitudes and demographic background.<sup>46</sup>

The survey started with an informed consent page and then asked for information pertaining to individual participants, such as gender, age, education level, political ideology, and area and characteristics of residence.

The second part, which included experiment 1, 2, or 3, started with a description of the international governance scenario. It described the problem of air pollution in Europe, including a definition of air pollution, estimates of annual costs for European countries resulting from air pollution, negative effects of air pollution on public health in Europe, and identification of Germany, the UK, Poland, France, and Italy as being responsible for the largest share of air pollution in Europe. Participants were then asked to complete the experimental part of the survey. That is, they were exposed to randomly assigned treatment conditions and were then asked to provide responses to items that serve to measure the dependent variables, that is popular legitimacy of (public support for) the governance effort. Table 1 indicates the principle features of the three experiments. For details of each experiment, see further below.

*Table 1: Basic design of the three experiments*

Experiment No.	Treatment conditions	Response variables (dependent variables)	Sample size
1	Various input and output characteristics randomly allocated in conjoint choice experiment	Overall support for (popular legitimacy of) the governance effort	600 (6000 observations because of multiple choice tasks)
2	Randomly allocated information on (priming for) effective/favorable or ineffective/unfavorable	Support for various input (governance process) features	1200

<sup>46</sup> The six survey instruments (three per country) are available from the authors on request.

	governance output		
3	Randomly allocated information on (priming for) high or low input (governance process) quality	Support for effective/favorable or ineffective/unfavorable governance output	1200

The third part of the survey included a series of items measuring attitudes and socio-demographic variables, e.g. satisfaction with democracy, attitudes towards the environment, education level and income.

### 3.3 Experiment 1: Conjoint Choice Experiment

Experiment 1, which serves to evaluate hypothesis 1, is a conjoint choice experiment that captures the salience of input and output features of international governance efforts (in our case with respect to reducing transboundary air pollution in Europe) when citizens evaluate and form overall legitimacy perceptions regarding such efforts. Specifically, we confronted participants with pairs of proposals for a European agreement against air pollution and asked them to tell us which proposal(s) they prefer. The proposals differed with respect to the agreement's expected consequences (output) as well as negotiation and implementation procedures (input). This experimental design enables us to understand what types of input and output characteristics are more salient from the viewpoint of citizens when they evaluate the legitimacy of international governance efforts.

Conjoint experiments are particularly useful for analyzing simultaneous causal effects of various variables in a complex decision situation, such as determinants of consumer choices<sup>47</sup>, agreement and participating country characteristics that make particu-

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<sup>47</sup> Green et al. 2001.

lar types of trade agreements and particular trade partner countries more attractive to citizens<sup>48</sup>, individual traits rendering a person more welcome as an immigrant<sup>49</sup>, or, in our case, the input and output characteristics associated with international environmental policies that are relevant to citizens legitimacy perceptions.

At the beginning of our conjoint experiment, we provided basic information on air pollution in Europe<sup>50</sup> and continued with instructions for completing the conjoint experiment<sup>51</sup>. The key part of the experiment consisted of tables showing features of international agreements against air pollution, including input (process) and output characteristics indicating higher or lower input or output quality. These are shown in Table 2. As can be seen in Table 2, we operationalized input and output characteristics with three

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<sup>48</sup> Spilker et al. 2016.

<sup>49</sup> Hainmueller and Hopkins 2015.

<sup>50</sup> The text of this introductory part was: “Air pollution caused by emissions from industry, cars, trucks, airplanes, electric power generation, and households has major implications for public health and the environment in the United Kingdom, Europe, and elsewhere. Air pollutants include particulate matter, ground level ozone, ammonia, nitrogen oxides, sulphur dioxide, and other substances. A recent report by the European Environmental Agency concludes that such air pollution costs Europe more than 160 billion GBP (or around 200 billion euros) each year, which is equivalent to the entire economic output of Finland in a year. Bad air quality is also responsible for more than 450,000 premature deaths each year in Europe. Germany, the United Kingdom, Poland, France, and Italy are responsible for the largest part of these emissions and the resulting damage. Importantly, this air pollution does not stop at national borders. To the contrary, air pollution caused by emissions at one point, for instance somewhere in the United Kingdom, can travel hundreds and sometimes thousands of miles and affect people and the environment elsewhere. This means that pollution created in the United Kingdom affects people and the environment in other countries, and the other way around. For these reasons, European countries, including the UK, are planning to negotiate a new comprehensive agreement to reduce air pollution. This agreement will prescribe how much each country must reduce its emissions. European countries are also debating how to organize the negotiations of this agreement.”

<sup>51</sup> The relevant text was: “Please look at the following table very carefully. It shows particular features of the negotiation process that are being considered and different consequences the international agreement against air pollution could have for the United Kingdom and other European countries. We will now ask you to compare particular features of the negotiation process that are being considered and consequences the agreement against air pollution may have for the United Kingdom. You will see two possibilities side-by-side. Their features differ, and you will be asked to tell us whether you support or oppose them. Please read carefully. Some sets of procedural features and consequences may look similar but could still differ in one or more important aspects. You will be asked to compare the two possibilities and tell us which one you think the UK government should accept.”

features each, as discussed above. Following the conceptual and theoretical literature on how international governance could be “democratized”<sup>52</sup>, our empirical representations of input characteristics focus on institutionalized access to information on decision processes, involvement of civil society, and the need for endorsement by democratically elected domestic policy makers. As discussed in the theory section, each of these three input (process) characteristics is widely presumed to have a positive legitimating effect. Output characteristics are empirically represented along three lines that are straightforward: effectiveness in reducing air pollution, costs of implementing the agreement, and benefits of the participant’s country relative to other countries.

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<sup>52</sup> Buntaine 2015; Dellmuth and Tallberg 2015; Hooghe and Marks 2013; Lavenex 2013; Bernauer and Gampfer 2013; Margalit 2012; Keohane et al. 2009; Hurd 1999 Held 1999.

*Table 2: Conjoint attributes and possible attribute values, worded for the UK.*

*In square brackets, we also provide the variable and value labels used in the results section. Respondents saw an overview table similar to this one before engaging in the experiment and were allowed to refer back to the table during the experiment. The overview table the respondents saw had the attributes appeared in random order and did not include the variable and value labels.*

Attribute (ordered randomly for each participant; per participant this order was kept constant over all choice tasks)	Attribute values (randomly assigned)
Input: Different types of non-governmental groups could be involved alongside government representatives in all aspects of the negotiations [ <i>Tgroups</i> ]:	<ul style="list-style-type: none"> <li>• environmental groups (e.g. the World Wildlife Fund (WWF), Greenpeace, or Friends of the Earth) [<i>environment</i>]</li> <li>• scientists without any conflict of interest (e.g. scientists from leading universities) [<i>scientists</i>]</li> <li>• business groups (e.g. British Chambers of Commerce, Confederation of British Industry, Association of Electricity Producers) [<i>business</i>]</li> <li>• none [<i>none</i>]</li> </ul>
Input: Public information about the negotiations [ <i>Tinfo</i> ]:	<ul style="list-style-type: none"> <li>• journalists have full access to all parts of the negotiation and can report freely, and all proposals in the negotiations are made public on the internet right away [<i>open to public</i>]</li> <li>• the negotiations and proposals are kept confidential and journalists do not have access to the negotiations; the public will be informed about the results once the negotiations are concluded [<i>closed doors</i>]</li> </ul>
Input: The agreement, once negotiated, will become law and will be fully implemented in the UK [ <i>Timplement</i> ]	<ul style="list-style-type: none"> <li>• only if the UK parliament has also approved the agreement [<i>national parliament</i>]</li> <li>• if the majority of negotiating countries, which may or may not include the UK, approves the agreement [<i>majority of negotiating countries</i>]</li> </ul>
Output: The agreement could reduce air pollution in the UK and other European countries by a [ <i>Teffective</i> ]	<ul style="list-style-type: none"> <li>• large amount (around 50% compared to today) [<i>50 perc.</i>]</li> <li>• medium amount (around 30% compared to today) [<i>30 perc.</i>]</li> <li>• small amount (around 10% compared to today) [<i>10 perc.</i>]</li> <li>• very small amount (around 2% compared to today) [<i>02 perc.</i>]</li> </ul>
Output: The costs of implementing the agreement in the UK could be [ <i>Tcosts</i> ]	<ul style="list-style-type: none"> <li>• very low (additional £5 for the average UK household per month) [<i>1 very low</i>]</li> <li>• low (additional £10 for the average UK household per month) [<i>2 low</i>]</li> <li>• moderate (additional £30 for the average UK household per month) [<i>3 moderate</i>]</li> <li>• high (additional £50 for the average UK household per month) [<i>4 high</i>]</li> <li>• very high (additional £100 for the average UK household per month) [<i>5 very high</i>]</li> </ul>

Output: The benefits for public health and the environment in the UK could be [ <i>Tbenefit</i> ]	<ul style="list-style-type: none"> <li>• at least as big and perhaps even bigger than in other European countries [<i>bigger</i>]</li> <li>• smaller than in other European countries [<i>smaller</i>]</li> </ul>
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After familiarizing herself/himself with the six input and output characteristics (attributes), each respondent was asked to compare pairs of two proposals, with each participant completing this task five times. The values (expressions) on each attribute were inserted randomly into the tables. To avoid ordering effects, the order of the attributes was randomly assigned for each participant initially and then was held constant per participant for the following four choice tasks to avoid cognitive overload. Table 3 provides an example.

After being confronted with a pair of proposals, respondents were asked to express their preference for one or the other (binary choice task; “Which proposal should the UK/German government accept?”) and then to rate each proposal on a scale ranging from 1 to 7 (“How much should the UK/German government support or not support proposal 1/2?”). The unit of observation in the resulting dataset is defined by the response variable, which is the response to each proposal. This generates two observations for each choice task (one per choice task per policy proposal), and a total of 10 observations per participant because of five choice tasks. For a sample of 600 participants, the number of observations is thus 6,000.

We then assess the causal effects of the conjoint attributes (the six input/output characteristics) on overall support or opposition to a proposed governance effort. That is, we regress the binary choice or rating variable on dummy variables for all values but one per conjoint attribute for all conjoint attributes. We interpret the estimated regression coefficients as the causal effects of conjoint attribute values on support for a particular

governance effort. These causal effects represent the average of all causal effects of a particular attribute value against a certain baseline value across all possible value combinations for the remaining conjoint attributes. In technical terminology, these are what Hainmueller et al.<sup>53</sup> call “Average marginal component effect” (AMCE), which can be estimated via linear regression.<sup>54</sup> We account for the fact that each respondent evaluated multiple proposals (5 pairs of proposals, 10 in total) by clustering standard errors by respondent.<sup>55</sup>

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<sup>53</sup> Hainmueller et al. 2014.

<sup>54</sup> Hainmueller et al. (2014) list several conditions that must be met for interpreting linear regression coefficients as AMCE. We show in appendix A5 that it is safe to assume that these conditions are met in our case.

<sup>55</sup> Hainmueller et al. 2014.

Table 3: Example of a conjoint table with two proposals to be compared side-by-side

	Proposal 1	Proposal 2
Agreement reduces air pollution by	large amount (around 50%)	very small amount (around 2%)
Costs of implementing agreement in UK	very low (£5 per household per month)	very high (£100 per household per month)
Benefits for public health and environment in the UK are	at least as big as, perhaps even bigger than benefits in other European countries	smaller than benefits in other European countries
Non-governmental groups involved	environmental groups	none
Public information about the negotiations	journalists have full access, all proposals in negotiations made public on internet	negotiations and proposals kept confidential, journalists do not have access to the negotiations; public informed about results once negotiations are concluded
Agreement, once negotiated, is implemented in the UK	only if UK parliament has also approved the agreement	if majority of negotiating countries has approved the agreement, which may or may not include the UK

Which proposal should the UK government accept? Select a box below to indicate your choice.

Proposal 1	Proposal 2
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On a scale from 1 to 7, how much should the UK government support or not support PROPOSAL 1?

Not support at all						Strongly support
1	2	3	4	5	6	7

On a scale from 1 to 7, how much should the UK government support or not support PROPOSAL 2?

Not support at all						Strongly support
1	2	3	4	5	6	7

### 3.4: Experiment 2: Effects of Output Framing on Preferences for Process

We rely on experiment 2 to evaluate hypotheses 2.1 and 2.2. Experiment 2 is a framing experiment that serves to study the effects of prospective governance output's quality on support for governance process (input) features that we regard as representing low or

high process quality. Within homogeneous blocks defined by gender and age group, participants were randomly assigned to one of two information treatments concerning prospects of either advantageous or disadvantageous output, as defined by costs, effectiveness, and relative benefits, or to a control group receiving no information about the prospective output.<sup>56</sup> For the UK sample, the treatment wording is the following (followed by a summary not shown here):

*[High performance output treatment:]* Most experts on air pollution believe that these negotiations will produce an effective agreement that reduces air pollution in the United Kingdom and other European countries by a large amount (reduction by around 50%). They also believe that the costs of implementing the agreement in the United Kingdom will be low (£5 per household per month), and that the benefits for public health and the environment in the United Kingdom will be at least as big and perhaps even bigger than the benefits in other European countries.

*[Low performance output treatment:]* Most experts on air pollution believe that these negotiations will produce an ineffective agreement that reduces air pollution in the United Kingdom and in other European countries only by a small amount (reduction by around 5%). They also believe that the costs of implementing the agreement in the United Kingdom will be high (£100 per household per month), and that benefits for public health and the environment in the United Kingdom will be smaller than the benefits in other European countries.

Participants were then asked to express their support for (or opposition to) seven input (procedural) characteristics of the governance effort, the dependent variables in this experiment: participation of either environmental groups, scientists, or business groups in international negotiations<sup>57</sup>; whether negotiations should be conducted in an open

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<sup>56</sup> We explain how the block randomization was carried out in Appendices B4 (experiment 2) and C4 (experiment 3).

<sup>57</sup> Wording of ENGO item: “Environmental interest groups (e.g. the World Wildlife Fund (WWF), Greenpeace, or Friends of the Earth) should be allowed to participate alongside government representatives in all aspects of the negotiations.” Wording of business item (dots refer to same continuation as in the ENGO item): “Business groups (e.g. British Chambers of Commerce, Confederation of British Industry, Association of Electricity Producers) should be allowed to participate...” Wording of scientists’ item: “Scientists without any conflict of interest (e.g. scientists from leading universities and research institutions in the United Kingdom) should be allowed to participate...”

manner or behind closed-doors<sup>58</sup>; and whether approval by the national parliament should be required<sup>59</sup>, or whether a decision by the majority of the negotiating countries should automatically lead to mandatory implementation.<sup>60</sup> For instance, the item on involvement of environmental groups was worded as follows:

Countries involved in negotiating the international agreement to reduce air pollution in Europe are also dealing with how to organize the negotiations and how the resulting agreement should be implemented. We are interested in what position you personally think the UK government should take on these issues.

On a scale from 1 to 7, how much should the UK government support or not support the following?

Environmental interest groups (e.g. the World Wildlife Fund (WWF), Greenpeace, or Friends of the Earth) should be allowed to participate alongside government representatives in all aspects of the negotiations.

Once support levels concerning input characteristics were measured, we asked participants to rate their expectations with respect to the output of the governance effort from a UK/German perspective. Four items were used with the intention of allowing us to check whether the information treatments effectively manipulated participant expectations as intended. We asked whether the participant thought the agreement was likely ... 1) to impose high or low costs on the average household in her/his country; 2) to reduce air pollution by a large or a small amount; 3) to be more or less beneficial for the

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<sup>58</sup> Wording of information access item: “Journalists should have full access to all parts of the negotiation and should be allowed to report freely, and all proposals in the negotiations should be made public on the internet right away.” Wording of closed-doors item: “The negotiations and proposals should be kept confidential and journalists should not have access to the negotiations; the public should only be informed about the results once the negotiations are concluded”

<sup>59</sup> Wording of parliamentary-approval-required item: “Once the international agreement has been negotiated, it should only become law and be fully implemented in the United Kingdom if the UK parliament has also approved the agreement.”

<sup>60</sup> Wording of international-majority item: “Once the international agreement has been negotiated and approved by the majority of negotiating countries, it should become law and be fully implemented in the United Kingdom, even if the UK government and parliament do not approve the agreement.”

UK/Germany when compared to other European countries; and 4) to be favorable or unfavorable for the UK/Germany?<sup>61</sup>

For experiments 2 and 3, the causal effect of the two treatments (average treatment effect, ATE) was examined by means of linear regressions of the output on the assigned treatment<sup>62</sup>.

### **3.4: Experiment 3: Effects of Process Framing on Output Evaluations**

With experiment 3, again a framing experiment, we evaluate hypothesis 3.1 and 3.2 and assess whether high or low process quality influences support for governance efforts with positive or negative output properties. To this end we randomly assigned participants (again within homogeneous blocks defined by gender and age group) to information treatments concerning the negotiation and implementation process, or to a control group receiving no such information. For UK respondents, we used the following treatment text:

The procedure for negotiating and implementing the international agreement to reduce air pollution will be the following. Please read each point carefully and check its box to indicate that you have read carefully.

*[High process quality treatment:]*

Negotiations conducted by government representatives, environmental interest groups, and scientists: Representatives of environmental interest groups (for example, the World Wildlife Fund (WWF), Greenpeace, Friends of the Earth) and scientists without any conflict of interest (e.g. scientists from leading UK universities and research institutions) participate alongside government representatives in all aspects of the negotiations.

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<sup>61</sup> The wording of these manipulation check items depended on whether a participant received an information treatment or was allocated to the control group. For those receiving an information treatment, the question was: “From what you just previously read about the consequences of the international agreement, what do you think? Is the agreement likely to...” For those allocated to the control group, the question read: “From what you just previously read about the international agreement, what do you think? Is the agreement likely to...”

<sup>62</sup> Angrist and Pischke 2009.

Full public information on the negotiations: Journalists have full access to all parts of the negotiation and can report freely, and all proposals in the negotiations are made public on the Internet right away.

Approval by UK parliament required: Once the agreement has been negotiated, it will become law and will be fully implemented in the United Kingdom only if the UK parliament has also approved the agreement.

[*Low process quality treatment:*]

Negotiations conducted exclusively by government representatives: Representatives of environmental interest groups (for example, the World Wildlife Fund (WWF), Greenpeace, Friends of the Earth) and scientists without any conflict of interest (e.g. scientists from leading UK universities and research institutions) will NOT participate in the negotiations.

Negotiations behind closed doors: The negotiations and proposals are kept confidential and journalists do not have access to the negotiations; the public will only be informed about the results once the negotiations are concluded

Approval by UK parliament NOT required: Once the international agreement has been negotiated and has been adopted by the majority of participating countries, it will become law and will be fully implemented in the United Kingdom, even if the UK government and parliament do not endorse the agreement.

The dependent variable in this experiment captures support for (opposition to) two versions of a European agreement against air pollution, one of which has advantageous output properties (low costs, high effectiveness, UK/Germany benefits more than other countries), and the other disadvantageous output properties (high costs, low effectiveness, UK/Germany benefits less than other countries). The two versions were presented in random order. The main reason for measuring support for two proposals, one with favorable and one with unfavorable output properties was to increase the validity of our measure for support of an unfavorable governance output. We think that this approach makes participants more aware of the low output quality of the latter.

We also asked participants to rate the input (procedural) aspects of the governance effort on four scales ranging from undemocratic to democratic, from unfair to fair, from bad for the UK to good for the UK, from inappropriate to appropriate, and from being

the wrong way to do it to being the right way to do it. These ratings serve as manipulation checks for experiment 3.<sup>63</sup>

## 4. Results

In this section we present the main findings from each experiment, followed by a discussion of limitations, options for further research, and policy implications in the subsequent section.

### 4.1 Relevance of Input and Output Performance

With experiment 1 we examine whether output-related and input-related characteristics of international environmental governance have independent effects on support for (or opposition to) such efforts. Overall, we find that both output and input characteristics matter, but that output-related features of governance are more influential than input-related features.

Figure 1 summarizes the treatment effects (AMCEs) we estimated via regression analyses of data from the two samples (Germany, UK), applying weights that match the two national samples to the respective frame.<sup>64</sup> The plots visualize regression estimates (AMCE) as dots, with 95% confidence intervals shown as solid horizontal lines.<sup>65</sup> If, for example, a governance effort is characterized as being more beneficial for Germany than for other European countries the probability of this governance effort being favored

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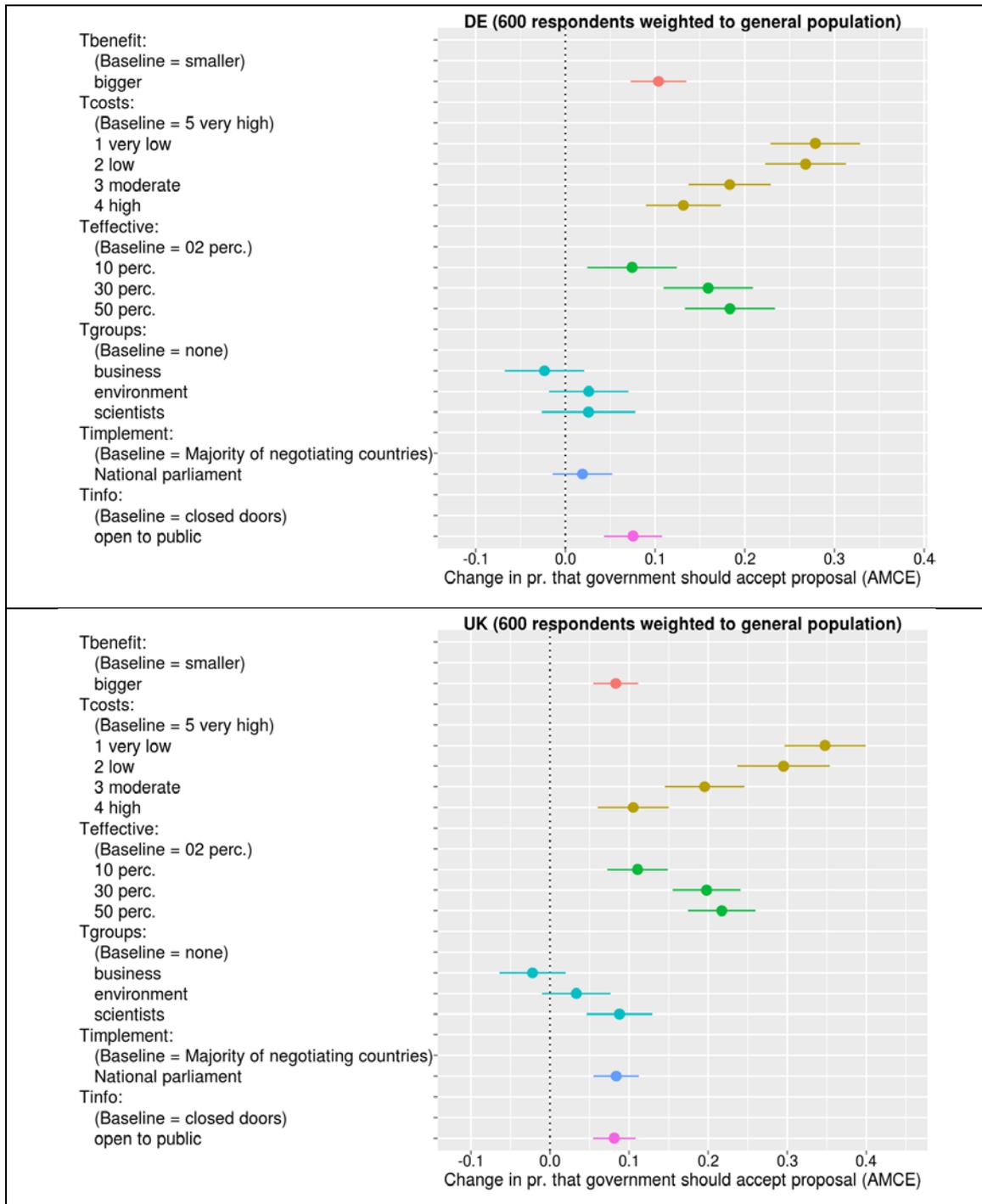
<sup>63</sup> The wording of these manipulation checks depended on whether a respondent received an information treatment or was allocated to the control group. For those receiving an information treatment, the question was “From what you just previously read about the process of how the international agreement will be negotiated and implemented, how would you rate this procedure?” For those in the control group, the question was “From what you just previously read about the international agreement, how would you rate the procedure of how the agreement will be negotiated and implemented?”

<sup>64</sup> A table with the full regression results is presented in appendix A1 and A2.

<sup>65</sup> Hainmueller et al. 2014.

in the binary choice task is about 0.1 larger than the probability of a proposal being chosen that benefits other countries more than Germany.

Figure 1: Results from experiment 1 (Germany (DE) and UK)



Notes: We estimated AMCEs via OLS linear regression with robust standard errors clustered by respondent (Hainmueller et al. 2014). Since each respondent evaluated 10 proposals, each regression uses 6000 observations. We report full regression results in appendix A1 and A2. *Tbenefit*: “The benefits for public health and the environment in the UK could be... than in other European countries”; *Tcosts*: “The costs of implementing the agreement in the UK could be...”, *Teffective*: “The agreement could reduce air pollution in the UK and other European countries by (...)”; *Tgroups*: “Different types of non-governmental groups could be involved alongside government representatives in all aspects of the negotiations: ”; *Timplement*: “The agreement, once negotiated, will become law and will be fully implemented in the UK after national parliament/majority of negotiating countries decide(s)”; *Tinfo*: “Public infor-

Looking at the effects of individual governance attributes, these are, by and large, in line with what we expected. Both input and output characteristics of governance seem to matter. However, output-related governance features appear more influential than input-related features (judging from visual inspection of the effect sizes). While we observe statistically significant results for all output-related governance attributes, many coefficients for input attributes are not statistically different from zero.

Regarding output characteristics, higher relative benefits for the participant’s own country, lower costs of the governance effort for the average household, and higher effectiveness in reducing air pollution all increase the probability of a participant favoring such a governance effort. Regarding process characteristics, involvement of business groups has a negative effect, and involvement of environmental groups and scientists has a positive effect. However, based on our data we cannot rule out that some of these effects are zero (with the exception of the positive effect of including scientists in the UK sample). Approval by the national legislature before implementation, as opposed to automatic implementation, enhances support. However, this effect is statistically significant at the 95% level only for the UK sample. This difference between the two countries seems to be in line with greater public skepticism in the United Kingdom against international governance efforts, above all the EU, relative to Germany, which has a much longer history of EU membership and whose population appears to be more at

ease with international institutions.<sup>66</sup> Finally, greater informational openness of governance efforts increases support, as compared to negotiations behind closed doors.

To assess the robustness of these results<sup>67</sup>, we first estimated a regression model using the pooled data for Germany and the UK. For this model, we added country dummies and their interactions with treatment dummies to the regression equation. The main findings remain the same. Second, we regressed the rating variable, rather than the binary choice variable, on the same treatment dummies. We obtain similar results for all attributes. Third, we extended the regression models, adding one control variable together with interaction terms between all treatment dummies and this control variable. We repeated this procedure for several demographic, environmental, and political control variables.<sup>68</sup> The results for the three output-related conjoint attributes remain similar across these tests. However, when controlling for these additional variables, we observe greater variation in the results for process-related attributes. Overall, however, our general finding regarding output-related attributes appears robust to these additions.

Observed variation in the effects of process-related attributes across subgroups suggests the following interpretation concerning why German respondents showed no statistically significant preference for requiring approval by the national parliament (as

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<sup>66</sup> We asked participants in the UK and Germany whether their country should leave the EU. Slightly more than 40% of UK respondents wanted the UK to leave the EU while only about 20% of the German respondents wanted Germany to leave the EU.

<sup>67</sup> We show coefficient plots for these robustness tests in appendix A4.

<sup>68</sup> These control variables items were placed in the survey before the experimental part (age, gender, left-right self-placement, city type, and region) as well as afterwards (stealth and sunshine democracy, conflict aversion, environmental concern and environmental vulnerability, trust in government, political efficacy, and education). We are aware that interacting (randomly assigned) treatment dummies with post-treatment covariates can introduce post-treatment bias (Gerber and Green 2012, 296–305; Montgomery et al. 2016). Thus, we strongly recommend interpreting these results with a grain of salt. Our decision to place these post-treatment items after the experimental part was motivated by avoiding any unwanted priming effects (Gerber and Green 2012, 99).

opposed to automatic domestic implementation of international majority decisions). When we control for environmental concern and interactions of the latter with the treatment conditions we find that German respondents strongly concerned about the environment are indifferent between the two implementation procedures. In contrast, respondents with low environmental concern are more likely to prefer national parliamentary approval before implementation. We observed a similar conditional effect for German participants who regarded air pollution as a problem, or not as a problem. That is, people who are concerned about the environment and think that air pollution is a problem prefer an international clean air agreement that must be implemented in Germany if a majority of countries agree. One possibility is that such citizens might be afraid that their national parliament will do less for clean air than a majority of other European governments. For UK respondents, this pattern is the opposite. Those who think that air pollution is an important problem in the UK prefer parliamentary ratification prior to implementation, while those who consider it not a problem prefer implementation after an international majority agrees.

In summary, experiment 1 shows that both input (process) and output characteristics of international governance efforts matter, in the sense of having a direct and independent effect on popular legitimacy (public support). It also shows, however, that citizens seem to care more about output than about input characteristics. We now move to investigating potential tradeoffs between input and output characteristics, that is whether citizens condition their evaluation of a policy's procedural aspects on the expected output (experiment 2), and whether support for an international clean air policy, which is expected to be expensive, ineffective, and less beneficial for respondent's own country (UK or Germany) is affected by the procedural quality of this policy (experiment 3).

## 4.2. Does Low Output Quality Increase Demand for Increased Input Quality?

Experiment 2 serves to examine whether citizens demand increased input quality when facing governance efforts that appear ineffective and disadvantageous, or whether they care less about input quality when prospective output is effective and advantageous. Overall, we find that public demand for most input characteristics is not affected by whether the prospective output performance is high or low. The main reaction to prospective low output performance appears to be that citizens then prefer a national parliamentary ratification requirement. That is, they resort to the traditional principle of state consent in order to safeguard against undesirable international governance output. Our manipulation checks back the causal interpretation of these results.<sup>69</sup> Participants who received the “low performance output” treatment considered the potential agreement as more costly, relatively ineffective, as well as less beneficial and simply “bad” for their country.

The coefficient plots in Figure 2 summarize results<sup>70</sup> from linear regressions of the seven dependent variables (support levels for different input characteristics) on dummy variables for the two treatments, with the control group as the baseline. The dots represent point estimates, which can be interpreted as causal effects (ATE). The horizontal lines are 95% confidence intervals. We use sample weights that match each of the three experimental groups separately to the sample frame (national adult population). The coefficient plots also summarize results based on pooled data with samples from the UK

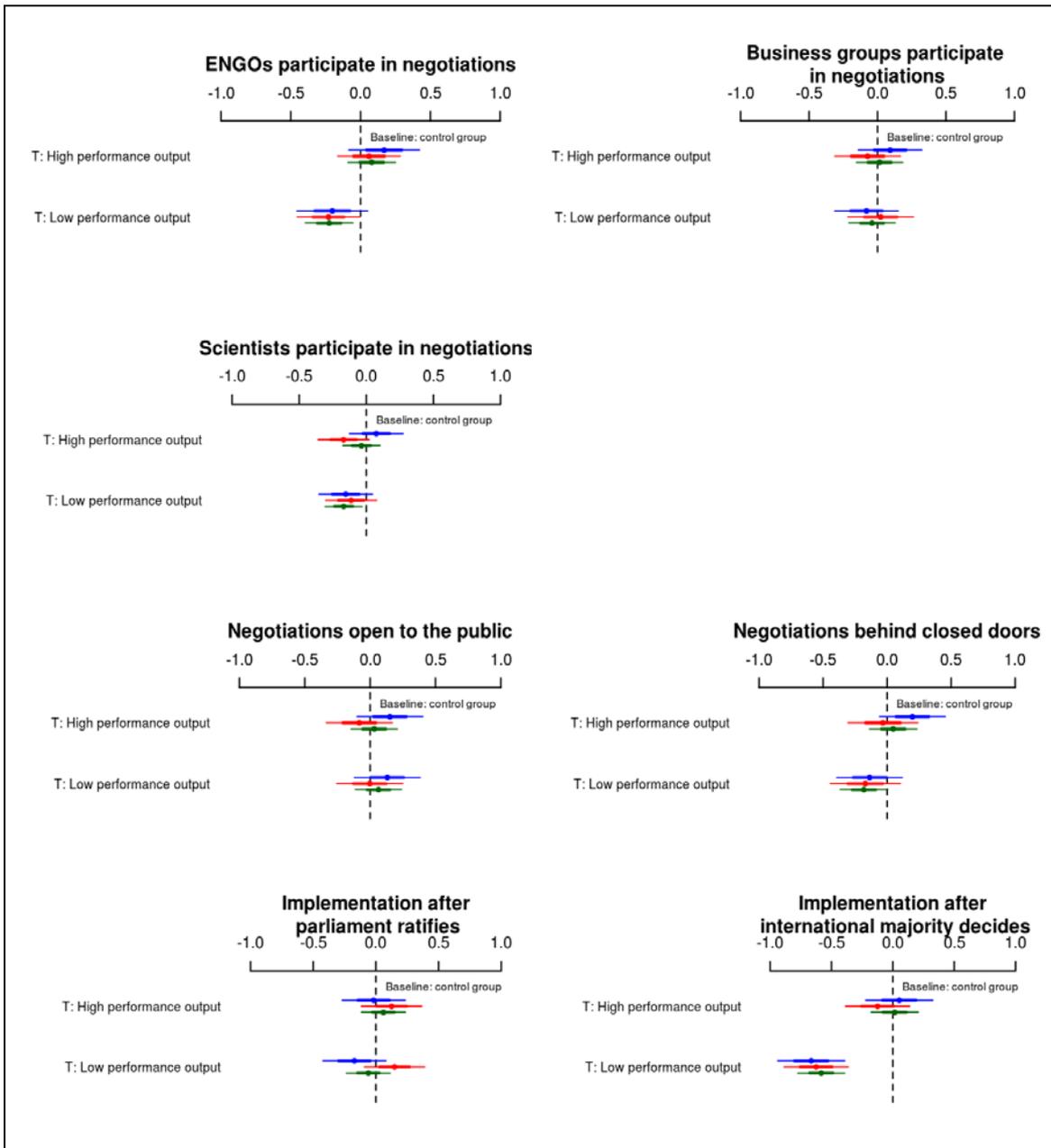
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<sup>69</sup> The results of these manipulation checks are summarized in appendix B3.

<sup>70</sup> We report full regression results (tables) in appendix B1.

and Germany, estimating treatment effects without adding a country-dummy and without using sample weights.

Figure 2: Results of experiment 2



Notes: The coefficient plots summarize OLS linear regressions of each dependent variable on two dummy variables for the high and the low performance output treatment (control group as baseline). We estimate the same model using only UK data (blue line, shown on top), only DE data (red line, middle), or data from both countries (green line, at bottom). Full regression results (tables) are shown in appendix B1. The dependent variables measure support for a particular procedural proposition, e.g. to involve ENGOs during negotiations (“On a scale from 1 to 7, how much should the UK government support or not support the following?” Answers: Not support at all (1) ... Strongly support (7)).

As expected, prospective output that is ineffective and disadvantageous (compared to no information regarding output) reduces support for automatic implementation of interna-

tional majority decisions. This finding is backed by the estimation of treatment effects using the IPW difference in means estimator and its p-value via randomization inference, taking into account that treatments were assigned with equal probability within homogeneous subgroups defined by gender and age group.<sup>71</sup> We also find, albeit weak evidence that prospective output that is ineffective and disadvantageous results, as expected, in less support for carrying out negotiations behind closed doors.

Our results provide no support for the expectation that prospective output that is ineffective and disadvantageous increases demand for higher input quality. Under conditions of poor output performance, respondents from both countries show even less support for inclusion of ENGOs or scientists. One interpretation of this result is that when facing unfavorable prospective output, citizens may believe that involving additional actors might make it even harder to arrive at effective solutions. Conversely, we do not find evidence for the argument that high prospective output performance leads to greater tolerance of low input quality. High prospective output performance hardly changes support for any of the seven input characteristics. It should be noted that in our study design, low input quality means involvement of business groups, negotiations behind closed doors, and automatic domestic implementation subsequent to majority decision making at the international level. This setup is guided by empirical evidence showing that in the UK and Germany our survey participants do not like these three characteristics. In experiment 2, these characteristics receive less support than alternative ones. Also, we know from our manipulation checks in experiment 3 that an information treatment combining these three characteristics induces participants to regard the re-

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<sup>71</sup> We report these results in appendix B4.

spective governance effort as undemocratic, unfair, and inappropriate. Finally, we know from experiment 1 that these three characteristics are among the least favored for the three relevant conjoint attributes.

### **4.3. Does High Process Quality Make Citizens More Accepting of Poor Output Performance?**

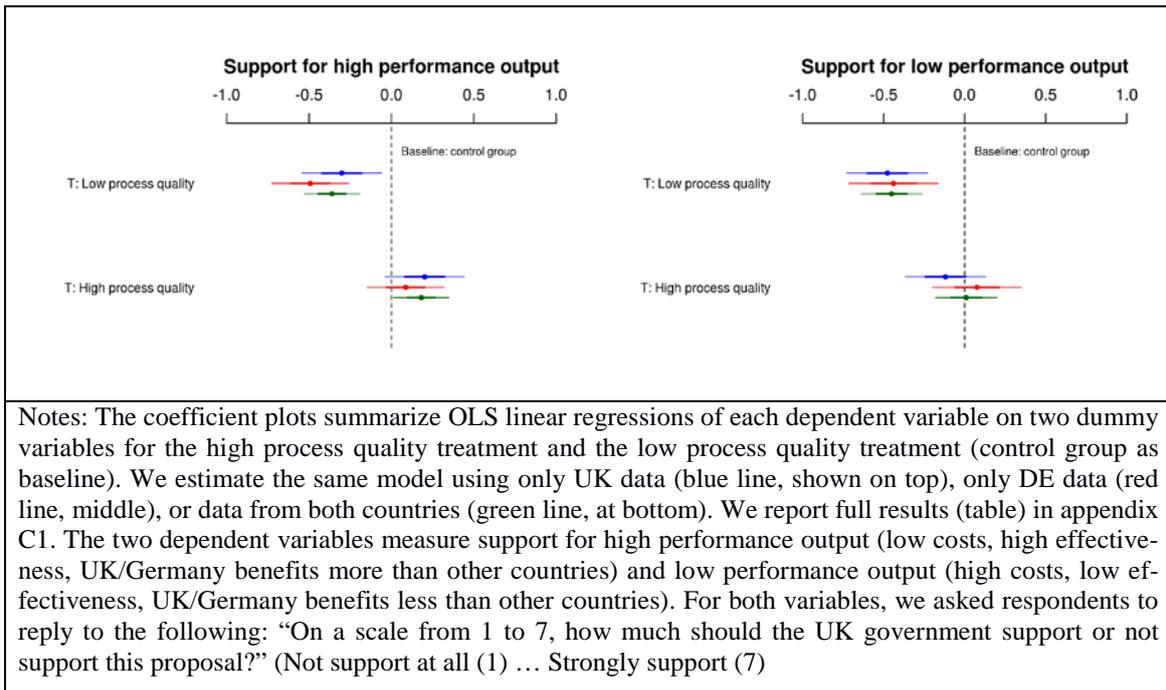
With experiment 3 we examine potential tradeoffs or synergies between input and output in the opposite direction, as compared to experiment 2. That is, we focus on whether high/low input quality makes citizens more/less supportive of international environmental governance characterized by ineffective and unfavorable output. Overall, the results are partly in line with our expectation. Low input quality of governance induces less support for poor output performance. However, we only observe a significant difference in means for the low input quality treatment, and not for the high input quality treatment.

The manipulation checks back the causal interpretation of these results.<sup>72</sup> Participants who received the high/low input quality treatment rated the governance process as more/less democratic, more/less fair, and more/less appropriate. They also considered the procedure (input) as better/worse for their country and were more likely to describe the procedure as the wrong/right way to do things.

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<sup>72</sup> See appendix C3.

Figure 3: Results of experiment 3



The coefficient plots shown in Figure 3 summarize results from linear regressions of support for governance efforts with output defined by either high or low performance properties<sup>73</sup> on experimental group membership. We use sample weights that match each experimental group to the sample frame (national adult population). The coefficient plots also present results based on the pooled UK and Germany samples, estimating treatment effects without adding a country-dummy and without using sample weights. Robustness checks show that these findings remain stable when using the IPW difference in means estimator and its p-value via randomization inference.<sup>74</sup>

As expected, we find that low input (process) quality decreases support for governance efforts characterized by low output performance. Contrary to expectations, howev-

<sup>73</sup> See appendix C1 for results tables related to experiment 3. Support was measured as response to the following questions: “On a scale from 1 to 7, how much should the UK government support or not support this proposal?” Possible answers ranged from “not support at all” (1) to “strongly support (7). We report the treatments’ exact wording in this paper’s section on survey design.

<sup>74</sup> We report these results in appendix C4.

er, high input quality does not increase support for governance efforts characterized by low output performance. The reason might be that the low input quality treatment induces a larger absolute shift in assessments of the procedure being democratic or undemocratic than the high input quality treatment. Moreover, this result is in line with the results of experiment 1, where we find that citizens tend to pay more attention to output than to input characteristics.

## 5. Discussion

International governance efforts are subject to influence by many actors and institutions, most notably government representatives, national legislatures, international organizations, domestic and transnational political and economic elites, interest groups, and the news media. Besides these, the median voter model and a wealth of empirical evidence suggest that mass public opinion also plays an important role in shaping international governance choices, particularly amongst democratic countries where policy-makers face strong incentives to align domestic and international policies with what electorates want.

The motivation for better understanding how citizens evaluate international governance efforts, in general terms and with respect to specific governance areas and particular features of governance is thus twofold. For one, it is likely that international governance efforts that align better with what the majority of citizens want enjoy greater popular legitimacy (public support), which is likely to make them easier to implement and more viable over the long run.<sup>75</sup> Moreover, from a normative, democratic viewpoint we should be interested in understanding what the criteria of “good international govern-

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<sup>75</sup> Tallberg and Zurn 2016; Buchanan and Keohane 2006; Hurd 1999.

ance” are from the perspective of citizens. Even though many “ordinary” citizens may not regularly pay much attention to international governance efforts, our experiments can reveal citizens’ (otherwise latent) preferences under conditions where input and output features of international governance become salient in the public sphere.

When citizens form opinions on and evaluate international governance efforts they are commonly presumed to pay attention to input (process) and output characteristics of such efforts. Information on these input and output characteristics of governance may come from elite cues and other sources.<sup>76</sup> Consequently, the level of public support for (that is, popular legitimacy of) international governance efforts is presumably a function both of their input and output characteristics. A considerable body of research addresses legitimacy issues associated with international governance from a conceptual and theoretical perspective. There is very little empirical research on the extent to which the two facets of international governance matter, in absolute and relative terms, for public opinion formation, and whether there are tradeoffs or synergies between the two.

Based on three experiments embedded in nationally representative surveys carried out in Germany and the United Kingdom we found that citizens pay attention both to input and output facets of international governance, but that output appears to matter more. Moreover, while prospects of reaching effective/ineffective and favorable/unfavorable output in governance efforts does not significantly affect support for improvements in input (process) quality, we observe that citizens are less tolerant (supportive) of poor output performance when this coincides with weak input quality. Interestingly, these findings are very similar for both countries, despite important differences in political, social, economic, and cultural circumstances.

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<sup>76</sup> Dellmuth and Tallberg 2016; Hooghe and Marks 2005.

Even though we do not find significant evidence for the argument that high input (process) quality makes citizens more tolerant of poor output performance, we think that our findings do speak to debates about procedural reforms in international governance.<sup>77</sup> Citizens clearly pay attention to output performance, and probably more so than to input characteristics of international governance efforts. This finding implies that process improvements are unlikely to compensate effectively for poor output performance. Nonetheless, our results suggest that greater informational openness of international governance processes, involvement of civil society groups other than business, and greater involvement of national legislatures, could still be useful. This applies particularly in the sense of making citizens more tolerant (or patient), and thus avoiding political backlash, in situations where finding effective solutions to international governance problems is very slow and tedious (that is, where high output performance is very difficult to achieve). Various international environmental (but also other) challenges fall into this category, for instance climate change.

Further research could explore whether our main findings are relevant to other policy areas. To this end, our experimental design could be adapted to scenarios that focus on different policy areas that vary in terms of salience, emotional appeal, economic and social implications, or the collective/public goods character of the issue. Examples include climate change, trade, immigration, arms control, or tax competition. Moreover, the research presented here does not explicitly address what could be called the “authority-legitimacy-gap”, meaning the concern that shifting decision-making authority from within the national realm to international governance institutions could undermine legit-

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<sup>77</sup> Stevenson and Dryzek 2014; Archibugi et al. 2012; Bernstein 2011; Reus-Smit 2007; Zürn 2004.

imacy.<sup>78</sup> To examine this issue, experimental designs could treat participants with differing shifts in authority to international governance fora and then examine the implications for perceived legitimacy. Further research could also examine various procedural reform options we did not study here, for instance increased involvement of national parliaments, and parliamentary institutions within international governance systems<sup>79</sup>, or private-public partnerships<sup>80</sup>. Finally, we did not consider the possibility that citizens may obtain information on input and output characteristics of international governance from different types of sources and from different types of actors. Such source effects, or effects of elite cues, could be examined in further research as well.

Overall, however, the research presented here shows that complementing existing conceptual and theoretical work on legitimacy issues in international governance with empirical research based on an experimental design can provide new insights that are relevant both from an academic and policy viewpoint. Academically, such research can help us understand how citizens evaluate international governance efforts and form opinions and preferences in this respect. From a policy perspective, it can generate insights into how international governance efforts could be designed so that they enjoy strong popular legitimacy and are thus politically viable and effective.

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<sup>78</sup> Hooghe and Marks 2013; Lavenex 2013; Hurd 1999.

<sup>79</sup> E.g., Cheneval and Schimmelfennig 2013.

<sup>80</sup> E.g., Abbott and Snidal 2009.

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