

Fairness matters when responding to disasters: An experimental study of government legitimacy

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Abstract

Governments worldwide are regularly faced with severe weather conditions and disasters caused by natural hazards. Does the way in which governments respond to disasters affect their legitimacy? The current study investigated how evaluations of authorities were influenced by four aspects of a governmental response to a hypothetical disaster. In a survey experiment participants read a scenario in which a government distributed aid in the aftermath of a flooding. Data were collected from the Netherlands, France, Poland, Ukraine, and Russia ($N = 2,677$). Results showed that the government was seen as more legitimate when it was described as distributing resources fairly, following fair procedures, and providing a material benefit to the participant. However, in contrast to predictions derived from system-justification theory, results showed that outcome dependence was associated with reduced legitimacy. These findings suggest that response policies that address both instrumental and fairness concerns might help maintain positive evaluations of governments.

1 | DISASTERS AND THE LEGITIMACY OF GOVERNMENTS

People across the world are affected by disasters caused by natural hazards. The changing climate has increased the frequency of disasters (Thomas, Albert, & Hepburn, 2014) and makes hazards such as floods, tornados, and draughts more extreme (Trenberth, 2012; Trenberth et al., 2014). When disasters occur, governments are expected to intervene and provide necessary help to the victims

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(Schneider, 2011). But when is the government's response perceived as a job well-done? How do citizens judge governments in the aftermath of a disaster? We propose that work on legitimacy helps us understand how citizens evaluate government responses to disaster.

Work on crisis management indicates that governments and various agencies involved in the response to disasters care about how they appear to the public when disasters occur. This literature gives insights about how responses between different governmental agencies need to be coordinated when facing a crisis (Boin, 't Hart, Stern, & Sundelius, 2016) and shows that different parties involved in the response sometimes shift the blame for the disaster. The most commonly analyzed case of blame-shifting is the response to the Hurricane Katrina (Moynihan, 2012). It seems that the involved authorities want to shift blame in order to avoid accountability for the crisis or ineffective rescue operations. Although rarely explicit in this literature, the latent assumption seems to be that being held accountable for the disaster means losing legitimacy in the eyes of citizens. The evidence, however, is mixed. In some cases crisis or crisis management seems to boost legitimacy, while in others it is associated with legitimacy decline (Christensen & Aars, 2019; Olson & Gawronski, 2010). Thus, we still do not know much about the causal links between the governments' actions in the times of crisis and the perceptions of legitimacy. Therefore, we need to explore how citizens evaluate the actions of governments and what criteria they take into account when assessing the legitimacy of governments specifically after a disaster caused by natural hazards (hereafter referred to as disaster).

Anthropological and sociological studies of disasters complement the crisis management literature with research that focuses on victims' experience of disasters (Masozera, Bailey, & Kerchner, 2007; Oliver-Smith, Hoffman, & Hoffman, 1999). These studies, mostly focusing on specific cases, examine the levels of vulnerability of particular populations, their behavior during the disasters, and attitudes toward the aid provided to them. They are often concerned with the relation between fairness of authorities and structural inequalities present within societies that make some groups particularly vulnerable to disasters (Harrison & Chiroro, 2017). They also offer rich descriptions of particular disaster cases, focusing on a broader geographical array of disasters than the crisis management literature. Due to their case-specific focus, the anthropological and sociological studies often fall short in terms of generalizability. These studies, like the crisis management research, do not test the causal relations between governments' actions and the perceptions of legitimacy from the perspective of the victims.

A few political science studies examined blame attribution for disasters and their electoral consequences. Blame attribution for a disaster can affect the electoral support for incumbents, like it did in the case of flooding caused by Tropical Storm Allison in Houston (Arceneaux & Stein, 2006) and Hurricane Katrina (Malhotra & Kuo, 2008). Moreover, political science research shows that response to disasters is not only about blame attribution, but that resource distribution also has substantial effects on evaluations of the authorities involved (Garrett & Sobel, 2003). Interestingly, disaster prevention does not reward the incumbents who invest in disaster prevention and thus could avoid blame, but the relief spending after a disaster can influence the vote (Healy & Malhotra, 2009). Also, there is evidence that the distribution of help during a disaster can have relatively lasting effects on the outcome of elections (Bechtel & Hainmueller, 2011). However, these results do not necessarily replicate in other contexts (Bovan, Banai, & Banai, 2018). Therefore, although the distribution of help after a disaster seems to be a relevant factor influencing the legitimacy of political authorities, we do not know what aspects of the resource distribution affect support for political authorities.

Our study aims to fill these gaps. It adds to the aforementioned work by using theories of legitimacy from social psychology and political science to investigate the factors that influence citizens' perceptions of government legitimacy in the context of disasters. Outside of the disaster context, the perceived legitimacy of political authorities can be affected by a broad set of factors. As theories of

legitimacy inform us, citizens care about what they get from political authorities, how they are treated in comparison to others, and whether the authorities listen to them (Mazepus, 2018; Tyler, 2001). In other words, personal benefits as well as perceived fairness—distributive and procedural—influence the level of legitimacy citizens grant politicians and political institutions. This study tests to what extent these factors matter when a government responds to a disaster.

The current study contributes experimental evidence about the causal relation between what a government does and how the citizens evaluate it. In particular, it adds original data about how citizens evaluate a governmental response to a disaster. In addition, this study evaluates the generalizability of standard theories about legitimacy. Most work on perceived legitimacy has studied North American populations. By utilizing samples from five different European societies (Netherlands, France, Poland, Ukraine, and Russia), the current study provides a test of whether these theories of legitimacy apply elsewhere.

2 | PERCEIVED LEGITIMACY AND ITS CAUSES

Scholarly debates of political legitimacy focus on the relationship between authorities and institutions on one side and citizens on the other. Depending on the discipline, studies of legitimacy take either a prescriptive (normative) or descriptive approach (Peter, 2009). Here, we adopt a descriptive approach to study how citizens evaluate authorities and we follow Easton's (1965, 278) definition of legitimacy as “a strong inner conviction of the moral validity of the authorities or regime.” Following from this definition, we focus on what influences citizens' conviction that the authorities are legitimate, that is, morally acceptable. In other words, we are interested in subjective evaluations of legitimacy (Tyler, 2006) and are concerned with how individuals reason about an authority's right to rule.

Granting political legitimacy by citizens is about a voluntary transfer of decision-making power to authorities and institutions. Citizens can transfer decision-making power for various reasons. For example, they can cast a vote for an incumbent, because they support their political agenda (voluntary transfer) or, in the context of dictatorships, because they fear coercion (involuntary transfer). One way of assessing the level of perceived legitimacy is to focus on the three dimensions proposed by Beetham (2013, pp. 15–20): (a) legal validity (is the power acquired and exercised according to the rules?); (b) justification of rules in terms of shared beliefs (do both dominant and subordinate believe that the rules are appropriate?); and (c) expressed consent (do the subordinates consent to the particular power relation?). We assume that these dimensions of legitimacy should be relevant also when citizens evaluate the government in the context of a disaster.

Research shows that legitimacy evaluations are affected by individual and social factors. Two individual factors that have been found to influence the evaluations of political authorities are positive personal outcome (i.e., material gain) and outcome dependence (Van der Toorn, Tyler, & Jost, 2011). Other studies have identified two social factors that increase the perceived legitimacy of authorities: fairness in the distribution of goods among individuals and fair procedures for the interactions between authorities and individuals (Tyler, 2001, p. 416).

2.1 | Individual factors

2.1.1 | Positive personal outcome

Provision of aid in the aftermath of a disaster affects the material well-being of individuals. Theories about economics emphasize the role of personal outcomes in decisions of individuals and therefore

are applicable in the context of disasters as well. Such theories predict that transferring power to authorities is based on a calculation of personal costs and benefits. Resource-based models (Stigler, 1950) assume that personal material gain is the primary interest of individuals and should play the most important role in the decision-making process (Tyler, Rasinski, & Griffin, 1986). Also in political science the notion has been widespread that people “generally care about ends not means; they judge government by results and are ignorant of or indifferent about the methods by which the results were obtained” (Popkin, 1991, p. 99). Therefore, the first hypothesis is that when citizens evaluate a government’s response to a disaster, a *positive personal outcome increases the perceived legitimacy of political authorities* (Hypothesis 1).

2.1.2 | Outcome dependence

Disasters often put individuals in a situation of dependence. Victims of a flooding, hurricane, or draught typically cannot return to their daily tasks without the help of others. Governments and their agencies usually act as providers of aid. Individuals who depend on authorities for their safety, economic well-being, and mental and physical health are in an *outcome dependent* situation (Fiske & Berdahl, 2007). In contrast to the intuitive assumption that disadvantaged individuals—individuals experiencing some sort of negative inequality—will express disapproval of the authorities, there is evidence that people who are powerless or highly dependent on political authorities express positive evaluations of these authorities (Jost, Pelham, Sheldon, & Ni Sullivan, 2003). System-justification theory offers an explanation of this phenomenon (Jost, Banaji, & Nosek, 2004). The main assumption is that people want to see their social system as fair and just. As a consequence, they are motivated to “defend, bolster, and justify prevailing social, economic, and political arrangements (i.e., status quo)” (Jost & Van der Toorn, 2012, p. 313). According to Jost et al. (2003, p. 14), “this means that they should often view systems and authorities as above reproach and inequality among groups and individuals as legitimate and even necessary.” The main idea is that people who are dependent on the system (i.e., who experience some degree of powerlessness) tend to see the status quo as legitimate and approve the position of those who control it. In other words, such dependence “activates system justification motivation, and this contributes to the legitimation of power holders” (Van der Toorn et al., 2011, p. 128). Importantly, it seems that dependence contributes to the legitimation of political authorities independently of the outcomes that people receive from them. In general, studies testing system-justification theory have provided evidence that people in dependent positions tend to express acceptance of power differences, support the status quo, and perceive the (unjust) power relations as legitimate.

This evidence, however, comes mainly from studies with North-American respondents and it is currently unknown to what extent these findings generalize to other populations. A cross-national comparison of perceptions of fairness in the workplace by Americans and Hungarians indicated that tendencies for system justification were lower among the Hungarian respondents (Van der Toorn, Berkics, & Jost, 2010). Furthermore, there is evidence against the hypothesis that dependence relates to system justification. Analysis of large-N survey data from the United States and from the World Values Survey shows that variables related to dependence (income, gender, social class, education) either have no substantial relation with trust in authorities, or do not relate to trust in authorities as predicted by system-justification theory (Brandt, 2013). These divergent results might be explained by how outcome dependence was operationalized. Brandt’s studies used measures of social status (e.g., gender, income), whereas in the studies by Van der Toorn et al. (2011) perceived outcome dependence was measured within the context of a Californian water shortage caused by draught. The

present study contributes experimental data from five non-American societies to evaluate whether the effect of outcome dependence on perceived legitimacy is present outside of the United States. The hypothesis derived from system-justification theory is that when citizens evaluate a government's response to a disaster, *dependence on political authorities increases the perceived legitimacy of the authorities* (Hypothesis 2).

2.2 | Social factors

Disasters usually affect groups of people and therefore beside the individual aspect (personal tragedies, dependencies, and reliance on aid), they also have a social aspect. For example, different communities and groups might suffer different level of damages. For this reason, the government's response does not only involve help delivered to individuals, but also involves distributing help across different groups in society. In this situation, citizens are likely to be concerned with fairness (Starmans, Sheskin, & Bloom, 2017).

Theoretical work on legitimacy suggests that factors related to justice or fairness will influence citizens' evaluations of authorities. Tyler and Caine's (1981, p. 643) review of a large political science literature yielded "widespread anecdotal evidence" of higher support for authorities and institutions that act "according to fair and impartial procedures." Since the mid-1980s, there is a growing body of studies that provides further supporting evidence (Levi, 1991; Rothstein, 1998; Tyler, 1997; Tyler et al., 1986, p. 972; Wilking, 2011), including studies that focus on institutions such as courts, laws, and police (Gibson, 1989; Sunshine & Tyler, 2003; Thibaut & Walker, 1975; Tyler, 1990; Tyler & Caine, 1981; Tyler & Huo, 2002).

To investigate how fairness influences perceived legitimacy, these studies have tested the links between norms and values, *perceptions* of fairness of authorities, and the approval of authorities. Early research suggested that when evaluating authorities, citizens focus primarily or exclusively on the outcomes they personally get (Leventhal, Karuza, & Fry, 1980). However, taken together, the studies of fairness motives suggest that perceived justice of authorities increases citizens' positive evaluations of these authorities, which in turn increases the odds that people show compliant behavior. The two aspects of justice that feature most prominently in this body of literature are procedural justice and distributive justice (Kluegel & Mason, 2004, p. 817).

2.2.1 | Perceived procedural justice

Perceived procedural justice can be defined as "an individual's perception of the fairness of procedural components of the social system that regulate the allocative process" (Leventhal, 1980, p. 35). In the context of granting legitimacy, procedural justice refers to people's evaluations of procedures used by authorities to arrive at a decision. Tyler and Caine (1981, p. 643) suggest that "support for authorities is more strongly dependent on acceptance of the belief that government leaders and institutions function according to fair and impartial procedures than upon outcomes received from the political system or specific government decision." Such procedural fairness has several facets and can be operationalized in various ways, including providing people an opportunity to voice their opinions (voice/public deliberation/participation), considering all relevant information, following established formal rules for a decision-making process, transparency, and unbiased and impartial decision making (De Fine Licht, Naurin, Esaiasson, & Gilljam, 2014; Leventhal, 1980; Peter, 2009; Schmidt, 2013; Thibaut & Walker, 1975; Tyler, 2000; Tyler & Rasinski, 1991; Tyler, Rasinski, & Spodick, 1985).

Deliberation and personal involvement in the decision-making process are important aspects of democracy (Bohman, 1997; Dryzek, 2009; Gutmann & Thompson, 2009) and are believed to have effects on perceived legitimacy (Esaïasson, Gilljam, & Persson, 2012). Deliberation is “a process of careful and informed reflection on facts and opinions, generally leading to a judgment on the matter at hand” (King, 2003, p. 25), which gives citizens an opportunity to voice their opinions and inquire about the issues that are decided on by the authorities. In the context of aid provision by a government, it might be crucial to give citizens an opportunity to voice their concerns, consult them about their needs, and inquire about their situation. Therefore, the aspect of procedural fairness that was tested in the current study is giving citizens a voice. In line with the work on procedural justice, we derived the hypothesis that when citizens evaluate a government's response to a disaster, *procedural justice increases the perceived legitimacy of political authorities* (Hypothesis 3).

2.2.2 | Perceived distributive justice

Disaster management is a form of welfare provision and when faced with a disaster, authorities need to decide about the distribution of resources. This distribution can be perceived by citizens as fair or unfair.¹ More broadly, distribution is fair when resources are allocated in a manner that helps the common good, that is, benefits society as a whole rather than a privileged group or tribe (Easton, 1965, p. 312). One major task of political authorities is resource distribution and they should, in principle, promote and work for the common good to gain legitimacy. In line with the thesis of distributive justice, people are expected to “be more willing to give power to legal authorities when they feel that those authorities deliver outcomes fairly to people and groups” (Sunshine & Tyler, 2003, p. 517). In other words, if goods and services are distributed in a way that serves the communal interest (rather than individual interests) and citizens do not experience strong relative deprivation (Gurr, 1970), then the government will be appreciated and granted legitimacy.

Distributive justice is inherently linked with individuals' perceptions of their situation in comparison to the situation of others (Folger, 1977, p. 108). Reflection on this relative situation is assumed to influence evaluations of authorities. Therefore, the principles of distributive justice preferred by individuals can differ depending on the information available to them (and/or common knowledge), the type of group in which the distribution takes place, the particular situation, and socio-economic status of an individual. The main principles on which distributive justice can be based are equality, desert (equity), and need (DeScioli, Massenkoff, Shaw, Petersen, & Kurzban, 2014; Miller, 1992). In this study concerned with the disaster context, need is the tested principle of distributive justice. It seems that the distributive principle of need is the most relevant in the context of a disaster as some groups might be affected more than others and therefore are more in need of help. For this reason, how the government distributes help across the affected groups should matter for the legitimacy of this government in the eyes of citizens. In line with this research on distributive justice we derived the hypothesis that when citizens evaluate a government's response to a disaster, *distributive justice increases the perceived legitimacy of political authorities* (Hypothesis 4).

3 | METHOD

3.1 | Sample characteristics

We used a factorial survey experiment with student samples to test the hypotheses. Our priority was to examine how perceived legitimacy of authorities is influenced by the way in which the authority

responds to the disaster. The theories of legitimacy reviewed earlier are in principle applicable to people in general, therefore they should also apply to students, making student samples suitable for our study. Moreover, comparisons of representative samples and (self-selected) student samples have shown that student samples can produce “qualitatively and quantitatively accurate results” and that students can be appropriate subjects for social science research because variation in views among students reflects variation in views among the general public (Druckman & Kam, 2011, pp. 51–52; Exadaktylos, Espín, & Branas-Garza, 2013).

We recruited more than 320 respondents in each country (i.e., the number of individuals who responded to at least one of the items of the dependent variable were 398 in the Netherlands, 421 in France, 456 in Poland, 501 in Ukraine, and 1,358 in Russia). Data were collected in 2012 (Netherlands), 2013 (Poland, Ukraine, Russia), and 2014 (France). We excluded respondents who were not citizens of the country in which the survey was conducted (Netherlands $n = 8$, France $n = 96$, Poland $n = 1$, Ukraine $n = 53$, Russia $n = 296$), did not respond attentively (France $n = 1$), or for whom we were unable to determine which vignette was presented (France $n = 1$, Russia $n = 1$). This resulted in a Dutch sample with $N = 390$ (150 women, 224 men, 16 sex unknown; age: from 16 to 73, $M = 19.9$, $SD = 5.3$), a French sample with $N = 323$ (201 women, 11 men, 8 sex unknown; age: from 16 to 25, $M = 18.6$, $SD = 1.1$), a Polish sample with $N = 455$ (277 women, 159 men, 19 sex unknown; age: from 18 to 47, $M = 21.6$, $SD = 2.97$), a Ukrainian sample with $N = 448$ (319 women, 128 men, 1 sex unknown; age: from 16 to 40, $M = 20.1$, $SD = 2.85$), and a Russian sample with $N = 1,061$ (478 women, 571 men, 12 sex unknown, age: from 16 to 66, $M = 21.1$, $SD = 4.0$).

3.2 | Design and procedures

In the survey experiment we presented respondents with vignettes that were followed by questions. The vignettes provided a concrete and detailed context, which is believed to improve respondents' understanding of the questions and thus the validity of their answers (Wallander, 2009, pp. 505–506). Importantly, compared to nonexperimental methods, survey experiments allow for testing the hypothesized causal effects with internal validity (McDermott, 2011). The vignettes described a hypothetical situation in which a government made a decision about helping the victims of a flood that had occurred in their region. The content of the vignettes was systematically varied to manipulate four factors (see later). The same vignettes were presented to students in five different countries in their native language. The survey was administered as a paper-and-pen task to students in the Netherlands, Poland, France, and Russia and online to students in Ukraine and Russia (for details see Data S1).

The content of the vignettes was manipulated between-subjects, so that each respondent was presented with one vignette only. Respondents received an instruction explaining that the story was hypothetical and that they should imagine that they and their families are in the described situation before answering the questions. In the vignettes we manipulated the four factors mentioned in the hypotheses: personal outcome, dependence, procedural justice, and distributive justice. For each factor there was a treatment condition (i.e., the vignette described a situation with a positive outcome, outcome dependence, procedural justice, or distributive justice) and a control condition (i.e., the vignette described a situation without a positive outcome, less outcome dependence, a violation of procedural justice, or a violation of distributive justice).

The vignettes always started with two sentences introducing the hypothetical context: “There was a flooding in your region. The water is gone now.” Then there followed sentences manipulating the

dependence on authorities, that is, the respondent's family suffered from limited access to essential goods, or only suffered a marginal loss. When dependence was present, the vignette included the sentences: "The house and possessions of your family suffered damages. Your family has limited access to primary goods like food and other essentials." In contrast, when dependence was absent the sentences read: "The house and most possessions of your family did not suffer damages. Your family has access to primary goods like food and other essentials. However, your family lost a car that you used in the weekends."

The vignettes continued with two sentences that were the same across all conditions: "The government has enough available resources to offer help.² A governmental commission came to your region to estimate the damages and write a report." Then followed two sentences that manipulated procedural justice (inspired by the manipulation used by Tyler & Caine, 1981, p. 650). When procedural justice was present the vignette read: "Before writing the report, the commission held a series of meetings with victims of the flooding. The victims had an opportunity to talk about the damages they suffered and propose forms of help that the government could offer them. Everybody got a chance to present their point of view and the report guided the decision of the government." When procedural justice was absent it read: "The flood victims requested a meeting with the commission to talk about the damages they suffered and propose forms of help that the government could offer them. The commission did not arrange the meeting and wrote a report without including the voices of the victims. The report guided the decision of the government."

The vignette then included sentences that manipulated distributive justice by varying whom the government offered to help—helping everyone in need, or excluding certain groups. When distributive justice was present, the vignette read: "Then the government decided that every flood victim will receive a benefit in proportion to the losses they suffered ... Farmers from your region will receive benefits to compensate for the destruction of their crop fields that were the only source of income for their families." When distributive justice was absent it read: "Then the government decided that not everybody will be compensated for the damages they suffered. The benefits will be paid out only to persons whose houses and cars were damaged ... However, farmers from your region will not receive benefits to compensate for the destruction of their crop fields that were the only source of income for their families."

In between the sentences for the distributive justice manipulation were one or more sentences manipulating positive outcome. The manipulation of personal outcome was operationalized as receiving help from the government or not. When positive outcome was present, the sentence read: "As a consequence, you will receive a benefit that will help you buy a car" or "As a consequence, you will receive a benefit that will help you and your family to get back on your feet." When positive outcome was absent, the sentence read: "As a consequence, you will not receive the benefit and you will not be able to buy a car" or "As a consequence, you will not receive the benefit that would help you and your family to get back on your feet."

The experiment thus involved 16 vignettes following a 2 (personal outcome) \times 2 (dependence) \times 2 (procedural justice) \times 2 (distributive justice) factorial design. To maintain consistency within all vignettes, the wording in some vignettes differed slightly from that given earlier. For the complete text of all vignettes, see Data S6. Pretests with international and Dutch students at the University of Leiden ($N = 87$) and a pretest with Russian students at the Higher School of Economics in Moscow ($N = 16$) were conducted to verify that the vignettes were comprehensible.

After reading the vignette, respondents indicated their agreement with several statements about the vignette on a 7-point Likert-type scale with 1 = *Fully disagree*, 4 = *Neutral*, and 7 = *Fully agree*. They were asked questions that reflected the three dimensions of legitimacy discussed earlier:

whether the authority has the right to take a particular decision (a proxy for legality), whether the authority is trustworthy (a proxy for justification), and whether the decision of the authority should be followed or protested (a proxy for consent). Seven statements were included to assess the perceived legitimacy of the authority: “The government has the right to take this kind of decisions,” “Decisions of this government should be respected,” “I would trust this government,” “I would like it, if in the future, this government made decisions on this type of issues that influence my life,” “On the whole this government is legitimate,” “I would be ready to protest against this decision of the government” [reverse-coded], “If this situation is representative of how the government acts, I would like this government to rule in my country.” A principal component analysis over these items showed that in each sample, the items loaded highly on a single component. In each sample, only one component had an eigenvalue >1 , and in each sample this first component explained more than 50% of variance in the item responses. The internal consistency of these seven items was good (Cronbach's α ranged from .83 to .89). We computed the dependent variable, perceived legitimacy, as the average response across these seven items.

Four statements were included as manipulation checks, that is, to assess whether the manipulations had actually manipulated perceptions of outcome, dependence, procedural justice, and distributive justice (e.g., “The decision of the government represented a fair distribution of help”). In addition, three statements were included as validity checks. These statements read: “To what extent do you agree that this decision was justified?,” “The government has taken the wrong decision,” and “On the whole, decisions on matters like this affect the legitimacy of the government.” For the exact order in which the statements were shown, see Data S2.

4 | RESULTS

4.1 | Checks of measures and manipulations

The perceived legitimacy of the government correlated positively with respondents' evaluation of whether the government's decision was justified (range $r_s = .63$ to $.81$; overall $r = .74$, $p < .001$) and correlated negatively with their evaluation of whether the government had taken the wrong decision (range $r_s = -.54$ to $-.68$; overall $r = -.61$, $p < .001$). Furthermore, in each sample the respondents perceived the actions of the government described in the vignette as relevant to legitimacy. That is, on average, respondents agreed that decisions on matters like described in the vignette affect the legitimacy of the government (M [95% CI]: Netherlands 5.07 [4.93, 5.21]; France 4.72 [4.52, 4.91]; Poland 5.02 [4.88, 5.16]; Ukraine 4.81 [4.64, 4.98]; Russia 4.82 [4.70, 4.93]).

In all five countries, answers to the manipulation check questions showed that all four manipulations worked in the intended direction (for details see Table S3a and Figure S3). Mean responses to the relevant manipulation check were consistently higher in the condition in which that factor was present, all $p_s < .001$. We examined correlations to assess whether the manipulations were specific (Table S3b). Each of the four manipulations had the strongest association with its own manipulation check. However, the manipulations of procedural and distributive justice seem not to have yielded completely independent manipulations of perceptions of fair procedures and fair distribution. That is, responses to the manipulation check about procedural justice correlated moderately with the distributive justice manipulation, $r = .29$, and responses to the manipulation check about distributive justice correlated with the procedural justice manipulation, $r = .16$. These correlations were not caused by an unbalanced design (i.e., the correlations in Rows 1 to 4 of Table S3b are near zero). However, responses to these two manipulation checks were highly correlated ($r = .68$), which suggests that

these correlations resulted from a tendency of the respondents to conflate procedural and distributive justice when making fairness evaluations. This is consistent with previous research: Studies in experimental settings tend to show stronger correlations between evaluations of procedural and distributive justice than nonexperimental studies (see Ambrose & Arnaud, 2005, pp. 70–72; Folger, 1977, p. 109).

4.2 | Hypothesis testing

To test the four hypotheses that positive outcome, dependence, procedural justice, and distributive justice increase legitimacy we computed an ANOVA over perceived legitimacy scores in a combined data set that included samples from all five countries. ANOVA is an appropriate technique to analyze data from a factorial design (Field, 2013). The ANOVA included main effects for the four manipulations and the country of the sample and all interaction terms. We evaluated the hypotheses on the basis of this model and the estimated marginal means (which, in contrast to observed means, are not biased by different cells in the design having different numbers of respondents).

The ANOVA showed that the main effects for all four manipulated factors were significant (see Table S4). In support of Hypothesis 1, estimated marginal means showed that the presence of a positive outcome ($M = 4.08$, $SE = 0.03$) increased legitimacy compared to the absence of a positive outcome ($M = 3.63$, $SE = 0.03$), $F(1, 2597) = 89.26$, $p < .001$, partial $\eta^2 = .033$. In contrast to Hypothesis 2, estimated marginal means showed that dependence ($M = 3.74$, $SE = 0.03$) *decreased* legitimacy compared to independence ($M = 3.97$, $SE = 0.03$), $F(1, 2597) = 21.84$, $p < .001$, partial $\eta^2 = .008$. In line with Hypothesis 3, estimated marginal means showed that the presence of procedural justice ($M = 4.17$, $SE = 0.03$) increased legitimacy compared to the absence of procedural justice ($M = 3.55$, $SE = 0.03$), $F(1, 2597) = 170.65$, $p < .001$, partial $\eta^2 = .062$. The analysis also supported Hypothesis 4. Estimated marginal means showed that the presence of distributive justice ($M = 4.31$, $SE = 0.03$) increased legitimacy compared to the absence of distributive justice ($M = 3.41$, $SE = 0.03$), $F(1, 2597) = 349.11$, $p < .001$, partial $\eta^2 = .118$.

We verified that these results were not due to combining all samples in one analysis. We computed separate ANOVAs for each of the five samples (see Table S5) and inspected boxplots stratified by country (see Figure 1). This showed that in each sample, there were significant effects in support of Hypotheses 1, 3, and 4. Regarding Hypothesis 2, there was a significant negative effect of dependence in three samples (Netherlands, Ukraine, Russia) and no effect of dependence in two samples (France, Poland).

4.3 | Additional analysis

The analysis also showed a significant main effect for country, $F(4, 2597) = 15.22$, $p < .001$, partial $\eta^2 = .023$, indicating that the average legitimacy scores differed across the five samples (see Table S4). From lowest to highest, the sample averages of perceived legitimacy were: Ukraine $M = 3.65$, 95% CI [3.55, 3.76]; Poland $M = 3.67$, 95% CI [3.57, 3.78]; Netherlands $M = 3.84$, 95% CI [3.73, 3.95]; Russia $M = 4.00$, 95% CI [3.93, 4.07]; France $M = 4.13$, 95% CI [4.00, 4.25]. The ANOVA also showed six significant two-way interactions and three significant higher-order interactions. We conducted additional analysis to interpret these interaction effects and in particular looked for reversals in the effects of the manipulated factors (see S4). That is, we looked for so-called disordinal interactions in which the presence of a factor increased perceived legitimacy in some conditions, but *decreased* perceived legitimacy in other conditions. The analysis did not reveal such interactions for the effects of positive outcome, procedural justice, and distributive justice.

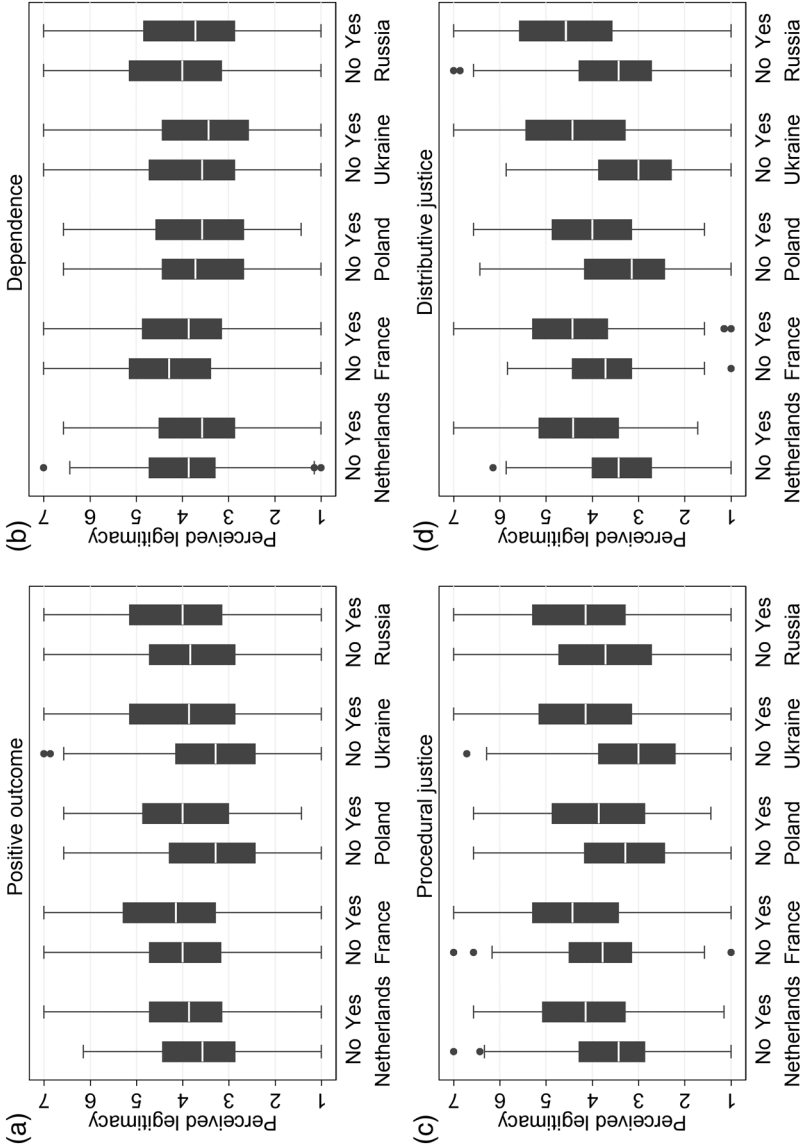


FIGURE 1 Box plots showing the distribution of perceived legitimacy scores by country and by conditions for positive outcome (a), dependence (b), procedural justice (c), and distributive justice (d). The plots labeled “no” on the horizontal axis show the data for those conditions in which the factor was absent (i.e., no positive outcome, no dependence, no procedural justice, no distributive justice), the plots labeled “yes” show the data for the conditions in which the factor was present (i.e., positive outcome, dependence, procedural justice, and distributive justice)

5 | DISCUSSION

This study contributes to the research on crisis management and legitimacy in three ways. First, we showed that in the context of disasters, like in other contexts of governance, authorities' decisions about the distribution of resources are scrutinized and affect how these authorities are evaluated by citizens. Second, by using an experimental design, we provide support for causal effects of three of the four tested factors on legitimacy perceptions. We showed that if citizens get a chance to communicate their views and needs to the authorities, if the resources are distributed fairly across groups, and if citizens gain from the distribution personally, then they evaluate the government more positively and are more willing to grant legitimacy to this government. Third, by using samples from different European societies, we found cross-cultural support for the relations of fairness and material gains with legitimacy perceptions. These findings have implications for scholars of legitimacy and policymakers concerned with crisis management.

More specifically, this study shows the applicability of the theories of legitimacy to study people's evaluations of governments' reactions to a disaster. We add to the scholarship on crisis management by highlighting the distributive aspect of responding to crisis. The research on crisis management shows that political authorities are concerned with shifting the blame for the occurrence of a crisis and for inadequate responses. We add to this work by suggesting that the evaluations of authorities are affected by the way they distribute aid to victims. More specifically, the findings suggest that the perceived legitimacy of the authorities may change depending on "who gets what and how."

Our findings support three of the four tested hypotheses and suggest that theories about legitimacy are useful when trying to predict and understand citizens' evaluations of government responses to disasters. In short, the perceived legitimacy of the government was increased by both individual factors (personal gains, see Hypothesis 1) and social factors (concerns about fairness, see Hypotheses 3 and 4). Specifically, the support for Hypothesis 1 corroborates the notion that citizens are concerned with their personal material outcomes (e.g., Tyler et al., 1986; Tyler & Caine, 1981). The support for Hypotheses 3 and 4 suggest that theories emphasizing fairness concerns (e.g., Sunshine & Tyler, 2003; Thibaut & Walker, 1975; Tyler, 1990) are also applicable to responses to disaster. The support for Hypothesis 3 contributes to recent work on the effects of procedural justice (Persson, Esaiasson, & Gilljam, 2013) that suggests that the effects of certain forms of procedural justice (e.g., deliberation) are minimal under particular conditions. The current study suggests that the effects of voice are robust across the presence and absence of personal gains, dependence, and distributive justice.

In contrast, the results showed no support for the hypothesis derived from system-justification theory (Hypothesis 2). On average, perceived dependence on authorities *decreased* perceived legitimacy. But, the analysis of interaction effects showed that such a negative effect of dependence was only observed when respondents did not perceive a positive outcome. When respondents perceived a positive outcome, dependence had no effect on perceived legitimacy. As our manipulation involved a hypothetical situation, it did not manipulate outcome dependence in a way that is comparable to how individuals of low status groups might experience outcome dependency in their daily lives. In addition, the manipulation of outcome dependence had another weakness: In the conditions without outcome dependence, the vignette involved the loss of a car. It is possible that some participants expected private insurance companies rather than the government to provide aid for such damages.

However, the lack of support for Hypothesis 2 matches findings from analysis of large-scale survey data about legitimacy and socio-economic status (Brandt, 2013), which suggests that the relation

between perceived legitimacy and outcome dependence is either nonexistent or opposite to what is predicted by system-justification theory (i.e., that dependence relates to lower perceived legitimacy). In addition, the studies that support the dependence hypothesis were conducted in the United States, whereas equivocal results were observed in one previous study that tested this hypothesis with a non-American sample (Van der Toorn et al., 2010). Taken together with these previous findings, the current results suggest that either there is no relation between dependence and legitimacy, or that this relation is specific to North-American populations and depends on the context in which legitimacy is studied. As suggested by Van der Toorn et al. (2010), American culture is characterized by high levels of individualism and a preference for equity rather than equality of outcomes. It is possible that these cultural features manifest as a relationship between dependence and legitimacy in particular contexts (e.g., for authorities in a work or education context).

Regarding the effects of personal outcomes and fairness, these results suggest that in the context of a disaster, citizens are sensitive to the same variables as in other previously tested contexts (e.g., court rulings, organizational settings). It thus seems that across a variety of settings, legitimacy evaluations are influenced by the same set of factors. The idea that both individual instrumental motives and social fairness concerns contribute to the evaluation of a governmental response to disaster has several implications.

First, it suggests that in the context of disasters, citizens do not only evaluate the prevention and preparedness of the governments for a disaster (Boin, 't Hart, & Kuipers, 2018, p. 30) and the coordination of different relevant actors (agencies, bureaucracies, politicians) when a disaster strikes. Citizens might also pay attention to the distribution of help once the disaster unfolds. More precisely, it is important to take into account how citizens perceive the help and this could help explain why seemingly adequate responses to disasters can be followed by a decline in support for the government. Even if aid was distributed, this distribution might have not been perceived as fair. As a result, government support might decline after a disaster even though the governmental response involved substantial distribution of aid. Second, the results suggest that procedural fairness might be a key aspect of responses to disasters. Because disasters typically require large and quick responses, victims (and the broader society) might have little information about how decisions about aid distribution were made. That is, they might perceive that some receive aid, but others not. To the extent that such inequalities result from a lack of resources or capacity to provide aid, it seems crucial to provide transparency about decisions over whom to help first. In other words, fairness perceptions can be enhanced when decisions about whom to help are clear (e.g., those most in need are helped first) and result from fair procedures that include voice and transparency.

Several limitations of this study could be addressed by future research. First, there may be other variables that affect legitimacy of political authorities. As we were interested in the effects of particular motivations regardless of the specific political systems, we did not study variables that vary across regimes. For example, elections, rule of law, or other aspects related to the input dimension of legitimacy (Scharpf, 1999) differ substantially across countries and might have different effects on legitimacy across societies. In addition, perceived legitimacy might depend on whether there are sufficient resources to provide help. That is, evaluations of decisions about the distribution of aid might be influenced by whether there are sufficient resources to help everyone, or whether resources are insufficient. In the current study it was held constant that the government had sufficient resources to provide aid. Further research could examine whether the effects for personal outcome and fairness disappear when there are insufficient resources to provide aid. Second, our scenarios assumed that at least some time is available for the governmental consultation with the victims in the aftermath of the disaster. This is not always realistic when the disaster demands and immediate and large-scale response. Further research could examine how the necessity of

immediate responses influences evaluations of the governmental response. Third, the results showed differences in effect sizes for the different manipulated variables (e.g., distributive justice had a larger effect on legitimacy than positive outcome). However, it is unclear whether these differences in effect sizes would generalize to evaluations of real governments. It is possible that these differences in effect sizes are an artifact of the materials used in this study. For example, the relatively large effect for procedural justice might in part derive from the manipulation used, which involved a denial of a requested meeting with government officials. The effect of procedural justice might be smaller with a different operationalization, such as respondents simply not receiving any information about an opportunity to meet with the governmental representation. Most importantly, further research could examine the relative contributions of personal gains and justice concerns on perceived legitimacy in the aftermath of real disasters. Such research might also examine how different principles of resource distribution affect legitimacy perceptions.

In summary, both instrumental and fairness concerns influence evaluations of political authorities in the context of a disaster. The results suggest that how aid is allocated in the aftermath of a disaster affects the legitimacy of governments. Therefore, when preparing policies for how to respond to disasters, governments might not just plan the distribution of aid, but also attend if this distribution satisfies citizens' concerns about fairness.

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AUTHOR CONTRIBUTIONS

H.M. conceived of the study idea, collected data, conducted analysis, and wrote the first draft of the manuscript. F.V.L. collected data in France, conducted analysis, and made revisions to the manuscript.

DATA ACCESSIBILITY

The data and command files are available via the Open Science Framework at <https://doi.org/10.17605/OSF.IO/MH933>.

ENDNOTES

¹ Fairness is distinct from equality. Resources can be divided according to different principles (e.g., need, equity), which may yield unequal outcomes, but are considered fair by those involved because the distributive principle is deemed appropriate for that situation (e.g., Baumard, André, & Sperber, 2013).

² During pilot studies, several participants mentioned that their evaluation of the government would depend on whether it had the resources to help or not. Therefore, we included this statement in the vignette to keep information about the government's resources constant. This means that the results might not generalize to situations where governments have insufficient resources.

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