

## **Appendix**

# **”Can Warm Behavior Mitigate the Negative Effect of Unfavorable Governmental Decisions on Citizens’ Trust?”**

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June 30, 2021

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## **A Survey**

In the following, I show the survey including the full wording of the questions. For full transparency, both a Danish and English version of the survey is provided here, although only the Danish version is used in the study (since I only sample Danish respondents). The text placed in brackets ([ ]) is additional information to the reader of this appendix, and thus **not** shown to respondents in the real survey. The survey was started by 1,693 and completed by 1,613 participants, giving a response rate of 95%.

### **A.1 Danish version of survey**

#### **Introduktion til survey**

Tak for, at du vil deltage i denne undersøgelse. Undersøgelsen foretages af forskere ved Aarhus Universitet og omhandler, hvordan du oplever beslutninger truffet af offentlige myndigheder. Det er vigtigt, at du besvarer spørgsmålene grundigt. Spørgeskemaet tager omkring 5 minutter at gennemføre.

Spørgeskemaet er frivilligt og ved at udfylde spørgeskemaet accepterer du din deltagelse i undersøgelsen. Alle dine svar er anonyme og vil kun blive brugt i forskningsmæssig sammenhæng.

På forhånd tak for din medvirken i undersøgelsen!

#### **Pre-experiment baggrundsspørgsmål**

Vi starter med nogle spørgsmål om dig selv.

##### **Køn**

*Hvad er dit køn? (Mand; Kvinde)*

##### **Alder**

*Hvor gammel er du? (18-34; 35-59; 55-69; 70+; Ønsker ikke at svare)*

**Ideologi**

*Hvor vil du placere dig selv på en traditionel højre-venstre skala? (1=højre; 5=venstre; Ved ikke)*

**Uddannelse**

*Hvad er din højest gennemførte uddannelse? (Ungdomsuddannelse eller lavere; Kort eller mellemlang videregående uddannelse; Lang videregående uddannelse eller længere)*

**Bruger af service (ældrepleje)**

*Har du et nærtstående familiemedlem, der bor i plejebolig/på plejehjem? (Ja; Nej; Ikke relevant)*

**Pro offentlig sektor**

*Hvor enig er du i følgende udsagn: Den offentlige sektor er bedst til at levere offentlige services (1=Helt uenig; 5=Helt enig; Ved ikke)*

## **Eksperimentelt treatment**

[The wording of the survey-experimental vignettes is as follows. The text in bold indicates the manipulation of decision favorability and warmth, respectively. In the second and third paragraph the caseworker's warmth is manipulated, while the favorability of the decision is manipulated in the last paragraph of the vignette].

De følgende spørgsmål omhandler, hvordan du oplever beslutninger truffet af kommunen. Vi vil nu venligst bede dig om at læse følgende scenarie grundigt.

[Ny skærm]

Forestil dig venligst, at du selv står i følgende fiktive situation.

*Du skal hjælpe en 85-årig nær pårørende med at søge om plads på et kommunalt plejehjem. Som en del af ansøgningsprocessen sidder du med i en samtale mellem din nære pårørende og en visitator (en sagsbehandler) fra kommunen. I denne samtale skal visitatoren afklare din nære pårørendes helbredsmæssige situation og generelle behov for en plejehjemsplads. Du fortæller visitatoren, at du ofte oplever, at din nære pårørende er afhængig af omfattende praktisk hjælp og pleje mange gange om dagen. Du har ikke mulighed for at varetage den nødvendige omsorg for din nære pårørende.*

*Gennem samtalen har du et **[positivt indtryk af visitatoren, der virker sympatisk og rar/ret negativt indtryk af visitatoren, der ikke virker særlig sympatisk og rar.]***

*Sagsbehandleren svarer på alle jeres spørgsmål på en **[venlig og varm/ ret uvenlig og kold]** måde og **[virker generelt som en imødekommende person/virker generelt ikke som den mest imødekommende person].***

*Fire uger efter besøget fra kommunen modtager din nære pårørende en skriftlig afgørelse. På baggrund af en indstilling fra visitatoren har kommunen besluttet at **[godkende/afslå]** ansøgningen om en plejehjemsplads.*

## **Afhængige variable**

### **Mål for tillid til kommunen**

[The order of the following items is randomized.]

*Hvor stor personlig tillid har du til, at kommunen træffer de rigtige afgørelser? (0=Slet ingen tillid; 10=Full tillid; Ved ikke)*

*Hvor stor personlig tillid har du til, at sagsbehandleren træffer de rigtige afgørelser? (0=Slet ingen tillid; 10=Full tillid; Ved ikke)*

## **Post-experiment manipulations -og opmærksomhedschecks**

Tidligere i denne undersøgelse blev du bedt om at læse et scenarie omkring et møde med en visitator fra kommunen. De følgende spørgsmål omhandler dette scenarie.

### **Opmærksomhedschecks**

*Hvilket serviceområde omhandlede scenariet? (Fri tekstboks)*

### **Opfattet varme, kompetence og procedural fairness**

#### **Opfattet fairness i processen**

*Hvor godt beskriver det følgende ord visitatoren i scenariet [fair, neutral, uvildig] (1=Meget dårligt; 7=Meget godt; Ved ikke)*

#### **Opfattet varme**

*Hvor godt beskriver det følgende ord visitatoren i scenariet [varm, venlig, sympatisk] (1=Meget dårligt; 7=Meget godt; Ved ikke)*

#### **Opfattet kompetence**

*Hvor godt beskriver det følgende ord visitatoren i scenariet [kompetent, intelligent, dygtig] (1=Meget dårligt; 7=Meget godt; Ved ikke)*

### **Afgørelsens fordelagtighed**

*I hvilken grad synes du, at kommunens beslutning i scenariet er fordelagtig? (1=Meget ufordelagtig; 7=Meget fordelagtig; Ved ikke)*

## **Afslutning på survey**

Dette var det sidste spørgsmål. Mange tak for din deltagelse! I undersøgelsen blev du præsenteret for et scenarie angående ældrepleje i Danmark. Vi vil gerne understrege, at dette var et fiktivt scenarie, der var formuleret specifikt til dette studie.

## **A.2 English translation of survey**

### **Introduction to survey**

Thank you for participating in this survey. The study is conducted by researchers at Aarhus University and concerns how you experience decisions made by government institutions. It is important that you answer the questions carefully. The survey takes about 5 minutes to complete.

We want to emphasize that the survey is voluntary, and by completing the survey you accept to participate in the study. All your answers are anonymous and will only be used in research related matters.

Thank you in advance for your participation in the survey!

### **Pre-experiment demographics**

We would like to start out with a few questions about yourself

#### **Gender**

*What is your gender?* (Male; Female)

#### **Age**

*How old are you?* (18-34; 35-59; 55-69; 70+; Prefer not to answer)

#### **Ideology**

*Where would you place yourself on a traditional political right-left scale?* (1=right; 5=left; Don't know)

#### **Education**

*What is your highest level of education?* (Upper secondary education or lower; Short/medium-cycle higher education; Long-cycle higher education or higher)



**User of public service (elderly care)**

*Do you have a close relative, who lives at a nursing home? (Yes; No; Not relevant)*

**Pro public sector**

*How much do you agree with the following statement: The public sector is best at providing public services (1=Strongly disagree; 5=Strongly agree; Don't know)*

## Experimental treatment

[The wording of the survey-experimental vignettes is as follows. The text in bold font indicates the manipulation of outcome favorability and warmth, respectively. In the second and third paragraph the caseworker's warmth is manipulated, while the favorability of the outcome is manipulated in the last paragraph of the vignette].<sup>1</sup>

The following questions concern how you experience decisions made by the municipality. We kindly ask you to read the following scenario carefully.

[New screen]

Please do your best to imagine yourself in the following fictitious scenario.

*You are helping a 85-year-old close relative with an application to enter a public nursing home. As a part of the process, you accompany your close relative in a conversation with a caseworker from the municipality. In this conversation, the caseworker aim to clarify your close relative's health condition and general need for a place in a nursing home. You tell the caseworker that you have frequently experienced your close relative needing extensive care and help many times per day. You cannot provide the necessary care for your close relative.*

*Throughout the conversation, you have [**a positive impression of the caseworker, who seems likable and good-natured/a rather negative impression of the employee, who does not seem very likable and good-natured.**]*

*The caseworker answers all your questions in a [**warm and friendly/rather cold and unfriendly**] manner, and [**generally appears like a kind person/does not generally appear like the most kind person.**]*

*Four weeks after the visit from the municipality, your close relative receives a written decision. Based on the caseworker's recommendation, the municipality has decided to [**reject/approve**] the application to enter a nursing home.*

---

1. In the analysis, the two experimental manipulations are coded into two dummy variables. The main independent variable (decision favorability) captures whether participants were shown a vignette concerning a rejection or approval of the application for a nursing home (0=rejection/unfavorable decision; 1=approval/favorable decision).

## **Dependent measures**

[The order is randomized]<sup>2</sup>

*How much do you personally trust the municipality to make the right decisions? (0=No trust at all; 10=Completely trust; Don't know)*

*How much do you personally trust the caseworker to make the right decisions? (0=No trust at all; 10=Completely trust; Don't know)*

## **Post-experiment manipulation -and attention checks**

Earlier in the survey you were asked to read a scenario about an encounter with a case-worker from the municipality. The following questions concern this scenario.

### **Attention check**

*Which service area was described in the scenario? (Text box)*

### **Perceived warmth, competence, and procedural fairness<sup>3</sup>**

#### **Perceived warmth**

*How well or badly do the following words describe the caseworker in the scenario?*

*[warm, friendly, likable] (1=Very bad; 7=Very well; Don't know)*

#### **Perceived procedural fairness**

*How well or badly do the following words describe the caseworker in the scenario?*

*[fair, neutral, unbiased] (1=Very bad; 7=Very well; Don't know)*

#### **Perceived competence**

*How well or badly do the following words describe the caseworker in the scenario?*

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2. The trust items are designed to reflect the validated measures of institutional trust used in the European Social Survey.

3. Perceived warmth was measured through an additive index including perceptions of warmth, friendliness, and likability. Perceptions of competence, capability, and intelligence were collapsed into an additive index measuring perceived competence. Lastly, perceived procedural fairness was measured using an additive index consisting of perceived fairness, neutrality, and unbiasedness. All traits were measured on seven-point scales with 7 indicating how well the trait described the caseworker in the scenario (7= "very well"; 0 = "Very bad"). The items formed reliable scales (Cronbach's alpha .80). Missing values are replaced with the participant's average on the other items if the participant answered at least one of the items.

*[competent, capable, intelligent]* (1=Very bad; 7=Very well; Don't know)

**Perceived outcome favorability**

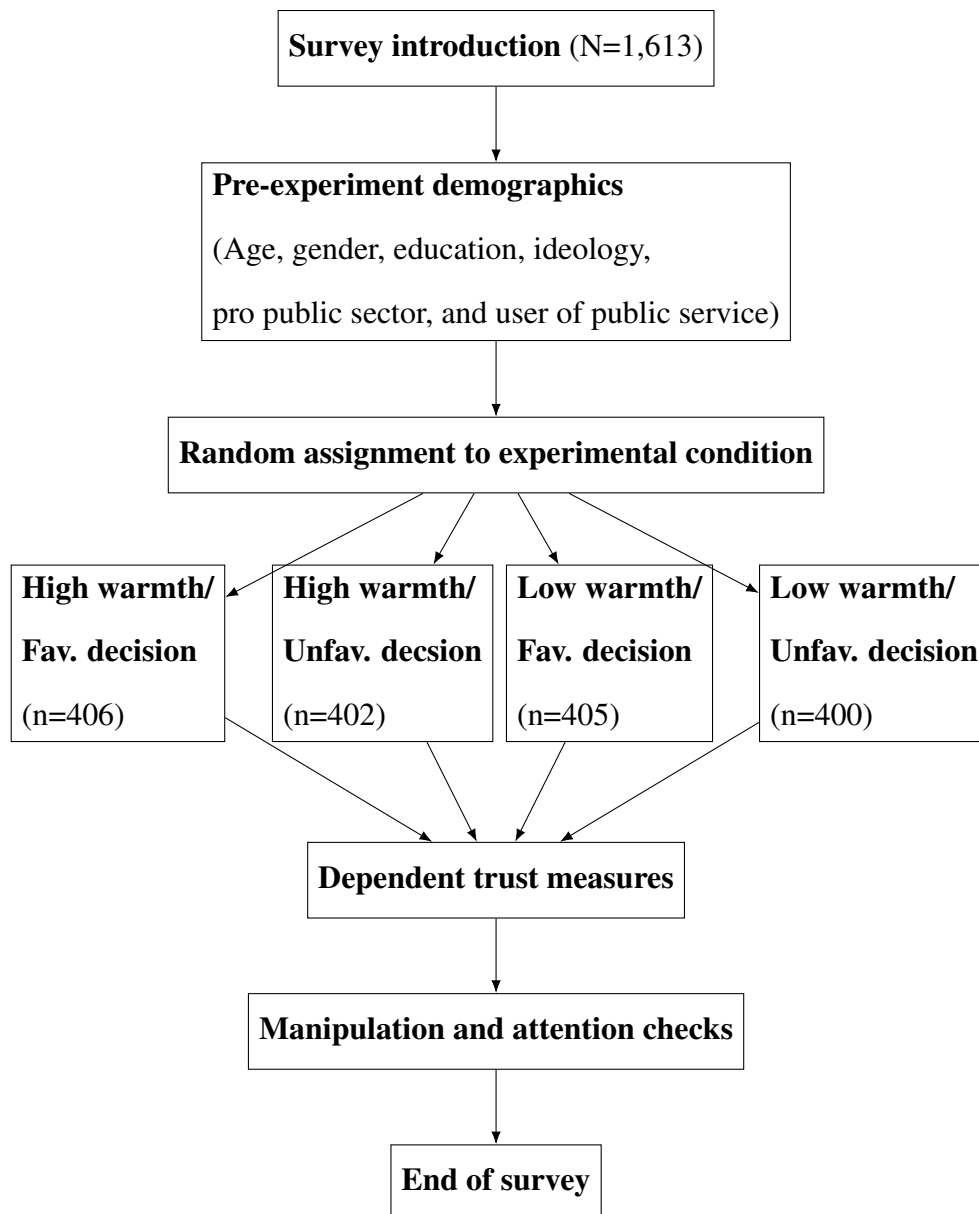
*To what extent do you think the municipality's decision in the scenario is favorable?*

(1=Very unfavorable; 7=Very favorable; Don't know)

**End of survey**

This was the last question. Thank you for participating in the study! In the study, you were presented with a scenario about elderly care in Denmark. We want to emphasize that this was a fictitious scenario specifically formulated and designed for this study.

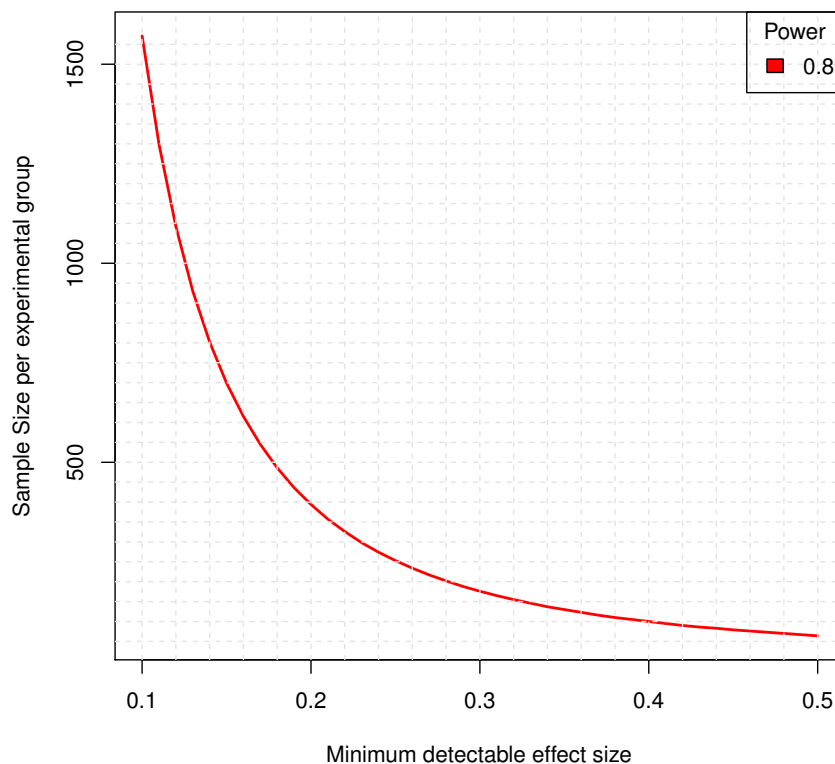
## B Survey flow



## C Statistical power calculations

In the following power calculations, I assume power = .80, alpha = .05 and allocation ratio = 1 (i.e., an equal number of respondents in each group). To detect a small effect of .2 standard deviations on the dependent variable, I need 394 respondents per group (with four groups:  $N=394*4=1,576$ ). For example, Bøggild (2016) experimentally examines whether outcome favorability interacts with decision-maker impartiality in predicting trust in politicians. The author finds an effect size of about .27 standard deviations (in study 1), when estimating the effect of outcome favorability on trust in political decision makers. Thus, effect sizes in my study can be expected to be rather small.

**Figure C.1:** Sample size estimation



## D Sample characteristics and balance test

**Table D.1:** Descriptive statistics

Variable	Mean/%	SD	N
Gender (0 = male, 1 = female)	.51	.50	1,613
Age groups (%)			1,613
18-34	25.9		417
35-54	34.1		550
55-69	23.4		377
70+	16.7		269
Ideology (right-left scale 1-5, 5 = left)	2.99	1.22	1,377
Education (%)			1,613
Upper secondary education or lower	64.8		1,045
Short/medium-cycle higher education	24.6		397
Long cycle higher education	10.6		171
Public sector preference (1-5 scale, 5 = public preference)	3.23	1.06	1,486

*Note:* The number of observations is lower for ideology and public sector preference due to "don't know" responses which are coded as missing values.

**Table D.2:** Balance check of randomization on observables across experimental groups

	Exp. group 1	Exp. group 2	Exp. group 3	Exp. group 4
Gender (female)	.51 (.50)	.48 (.50)	.54 (.49)	.53 (.50)
Age group 18-34	.26 (.43)	.27 (.45)	.26 (.44)	.24 (.43)
Upper secondary education	.65 (.48)	.64 (.48)	.64 (.48)	.67 (.47)
Ideology	3 (1.20)	3 (1.25)	3 (1.28)	2.98 (1.16)
Public sector preference	3.26 (1.01)	3.27 (1.07)	3.24 (1.14)	3.14 (1.03)

*Note:* Baseline means and standard deviations in parentheses for pre-treatment measures by experimental group. For each of the pretreatment characteristics, two-sided t-tests comparing each group with the others cannot reject the hypothesis that the groups have the same mean (at the 5 percent level). Thus, the groups are well-balanced on pre-treatment covariates (on average) and confirms the expectation from the random assignment of treatments. Group 1 = High warmth/unfavorable outcome, group 2 = high warmth/favorable outcome, group 3 = low warmth/favorable outcome, group 4 = low warmth/unfavorable outcome.

## **E Heterogeneous effects**

To test whether users of elderly care reacted stronger to the treatments, Table E1 presents the interaction effect estimates from interacting the respective treatments with a dummy variable indicating whether a participant is a user of elderly care. The regression models also include pre-treatment covariates, since being a user of elderly care was not randomly assigned. The interaction terms in models 1 and 2 (Warmth\*User) suggest that warm behavior by bureaucrats has a significant 9.1 percentage points larger effect on trust in the bureaucrat among users compared to non-users, but users do not react stronger to the warmth treatment when the models predict trust in the municipality. Moreover, the interaction terms in models 3 and 4 (OF\*User) show that users do not significantly change their trust levels more than non-users when provided with a favorable outcome. Thus, these results only partially provide evidence supporting the argument that users of a given service should care more and consequently be more influenced by bureaucratic behavior and decision outcomes.

However, these results should be interpreted carefully as only 225 participants in the sample identified themselves as "users of elderly care" (i.e., they have a close relative in a nursing home).



**Table E.1:** Regression models (OLS): Heterogeneous effects for users of elderly care

	Trust in bureaucrat (1)	Trust in municipality (2)	Trust in bureaucrat (3)	Trust in municipality (4)
User (ref. = non-user)	-0.056* (0.025)	-0.047* (0.024)	-0.008 (0.026)	0.002 (0.025)
Warmth	0.075*** (0.014)	0.036** (0.013)	0.088*** (0.013)	0.044*** (0.012)
Outcome favorability (OF)	0.195*** (0.013)	0.184*** (0.012)	0.195*** (0.014)	0.190*** (0.013)
Warmth*User	0.089* (0.036)	0.056 (0.034)		
OF*User			-0.011 (0.036)	-0.041 (0.035)
Constant	0.213*** (0.028)	0.199*** (0.027)	0.206*** (0.028)	0.193*** (0.027)
Covariates?	Yes	Yes	Yes	Yes
Observations	1,247	1,252	1,247	1,252
Adjusted R <sup>2</sup>	0.244	0.242	0.240	0.241

*Note:* OLS regressions with standard errors in parentheses. Two-sided tests. The following pre-treatment covariates are included in the regressions: gender, age, education, ideology, and public sector preference.  
\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

## F Causal mediation analysis

In the main text it was argued that the effect of warmth cues on citizens' trust in government could be mediated by either perceptions of fairness or perceptions of competence. To examine whether this could potentially be the case, I conduct a causal mediation analysis following the approach developed by Imai and colleagues (Imai, Tingley, and Keele 2010; Imai et al. 2011; Tingley et al. 2014). At its core, the concern with mediation analyses is that a confounding factor might influence both the mediator and the outcome. This is also possible even if the treatment is randomly assigned as in this experiment. This is what can be labelled as the assumption of sequential ignorability (Imai, Tingley, and Keele 2010). To take this assumption seriously, Imai and colleagues has developed an approach (and algorithm) where one basically estimates the mediation effect and subsequently tests how robust the estimated mediation effect is to potential violations of the sequential ignorability assumption.

First, two regression models are estimated. In the first model, the mediator ( $M$ ) is modelled as a function of the treatment ( $T$ ) and pre-treatment covariates ( $X$ ). In the second model, the outcome ( $Y$ ) is regressed on the treatment ( $T$ ), the mediator ( $M$ ) and the same pre-treatment covariates ( $X$ ). The results of these regression models for both potential moderators are presented in Tables F1 and F2. For instance, model 1 in Table F1 shows how the warmth treatment influence perceived fairness (the potential moderator) and model 2 presents how trust in bureaucrat (outcome variable) is predicted by the warmth treatment, perceived fairness, and pre-treatment covariates.<sup>4</sup>

$$M = \alpha + \beta_1 T + \beta_2 X + \varepsilon \quad (1)$$

$$Y = \alpha + \beta_1 T + \beta_2 M + \beta_3 X + \varepsilon \quad (2)$$

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4. Handling the two potential mediators one at a time estimates the ACME under the homogeneous interaction assumption (Imai and Yamamoto 2013).

Second, I used the mediation software (Tingley et al. 2014) to calculate the mediation effects. Uncertainty estimates are calculated using non-parametric bootstrap with 1000 resamples. Both the average causal mediation effect (ACME) and the average direct effect (ADE). The ACME represents the indirect effect of the warmth treatment on trust outcomes through the hypothesized mediator (here either perceived fairness or perceived competence). The ADE is the causal effect of the warmth treatment on trust outcome through all other possible causal mechanisms but the hypothesized one.

Table F3 provides the results from separate causal mediation analyses using first perceived fairness as mediator and secondly perceived competence as the hypothesized mediating factor (see also Figure F1). Looking at the ACME's, the results suggest that both perceived fairness and perceived competence might be potential mediators concerning the effect of warmth on citizens' trust. In all cases, the estimates for the ACME is in fact larger than the ADE.

Figures F2 and F3 shows the results of sensitivity analyses, where it is estimated how robust the ACME's are to potential violations of the sequential ignorability assumption. In the figures, the sensitivity parameter,  $\rho$ , represents the correlation between the error terms in equations 1 and 2. The results appear to be highly robust, as the ACME's remain statistically significant when  $\rho$  is below .41. This means that, for the ACME's to be statistically insignificant, a possible confounder has to affect both the mediator and the trust outcome and make the correlation between the error terms in the two regression models larger than .41

**Table F.1:** Regression models for mediation analysis (perceived fairness as mediator)

	Perceived fairness (1)	Trust in bureaucrat (2)	Perceived fairness (3)	Trust in municipality (4)
Perceived fairness		0.485*** (0.025)		0.423*** (0.025)
Warmth	0.126*** (0.015)	0.038** (0.013)	0.128*** (0.015)	-0.002 (0.013)
Gender	-0.022 (0.015)	-0.001 (0.013)	-0.021 (0.015)	-0.0001 (0.013)
Age group 18-34	Ref.	Ref.	Ref.	Ref.
Age group 35-54	-0.031 (0.020)	-0.032 (0.017)	-0.026 (0.020)	-0.032 (0.017)
Age group 55-69	-0.030 (0.021)	-0.057** (0.018)	-0.024 (0.021)	-0.043* (0.018)
Age group 70+	0.006 (0.023)	-0.031 (0.020)	0.013 (0.023)	-0.029 (0.020)
Upper secondary education	Ref.	Ref.	Ref.	Ref.
Short/medium cycle higher education	-0.006 (0.017)	-0.012 (0.015)	-0.009 (0.017)	-0.007 (0.015)
Long cycle higher education	-0.018 (0.024)	0.039 (0.020)	-0.023 (0.023)	0.035 (0.020)
Ideology	-0.002 (0.007)	-0.007 (0.006)	-0.001 (0.007)	-0.009 (0.006)
Public sector preference	0.028*** (0.007)	0.048*** (0.006)	0.028*** (0.007)	0.062*** (0.006)
Constant	0.340*** (0.031)	0.129*** (0.028)	0.334*** (0.031)	0.134*** (0.028)
Observations	1,157	1,157	1,158	1,158
Adjusted R <sup>2</sup>	0.073	0.326	0.076	0.284

*Note:* OLS regressions with standard errors in parentheses. Two-sided tests. The models include pretreatment variables following the approach in (Imai and Yamamoto 2013; Tingley et al. 2014).

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Table F.2:** Regression models for mediation analysis (perceived competence as mediator)

	Perceived competence (1)	Trust in bureaucrat (2)	Perceived competence (3)	Trust in municipality (4)
Perceived competence		0.506*** (0.026)		0.43*** (0.026)
Warmth	0.245*** (0.015)	-0.025 (0.014)	0.245*** (0.015)	-0.052 (0.014)
Gender	-0.041** (0.015)	0.011 (0.013)	-0.04** (0.015)	0.01 (0.013)
Age group 18-34	Ref.	Ref.	Ref.	Ref.
Age group 35-54	-0.043* (0.020)	-0.036* (0.017)	-0.043* (0.020)	-0.034* (0.017)
Age group 55-69	-0.005 (0.021)	-0.072*** (0.018)	-0.005 (0.021)	-0.05** (0.018)
Age group 70+	0.025 (0.023)	-0.049* (0.020)	0.025 (0.023)	-0.04* (0.020)
Upper secondary education	Ref.	Ref.	Ref.	Ref.
Short/medium cycle higher education	-0.029 (0.017)	0.002 (0.015)	-0.029 (0.017)	0.002 (0.015)
Long cycle higher education	-0.006 (0.024)	0.047* (0.020)	-0.005 (0.024)	0.04 (0.020)
Ideology	-0.006 (0.007)	-0.005 (0.006)	-0.007 (0.007)	-0.007 (0.006)
Public sector pref.	0.035*** (0.007)	0.046*** (0.006)	0.036*** (0.007)	0.058*** (0.006)
Constant	0.279*** (0.032)	0.147*** (0.028)	0.278*** (0.032)	0.157*** (0.028)
Observations	1,115	1,115	1,115	1,115
Adjusted R <sup>2</sup>	0.221	0.345	0.223	0.292

*Note:* OLS regressions with standard errors in parentheses. Two-sided tests. The models include pre-treatment variables following the approach in (Imai and Yamamoto 2013; Tingley et al. 2014).

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

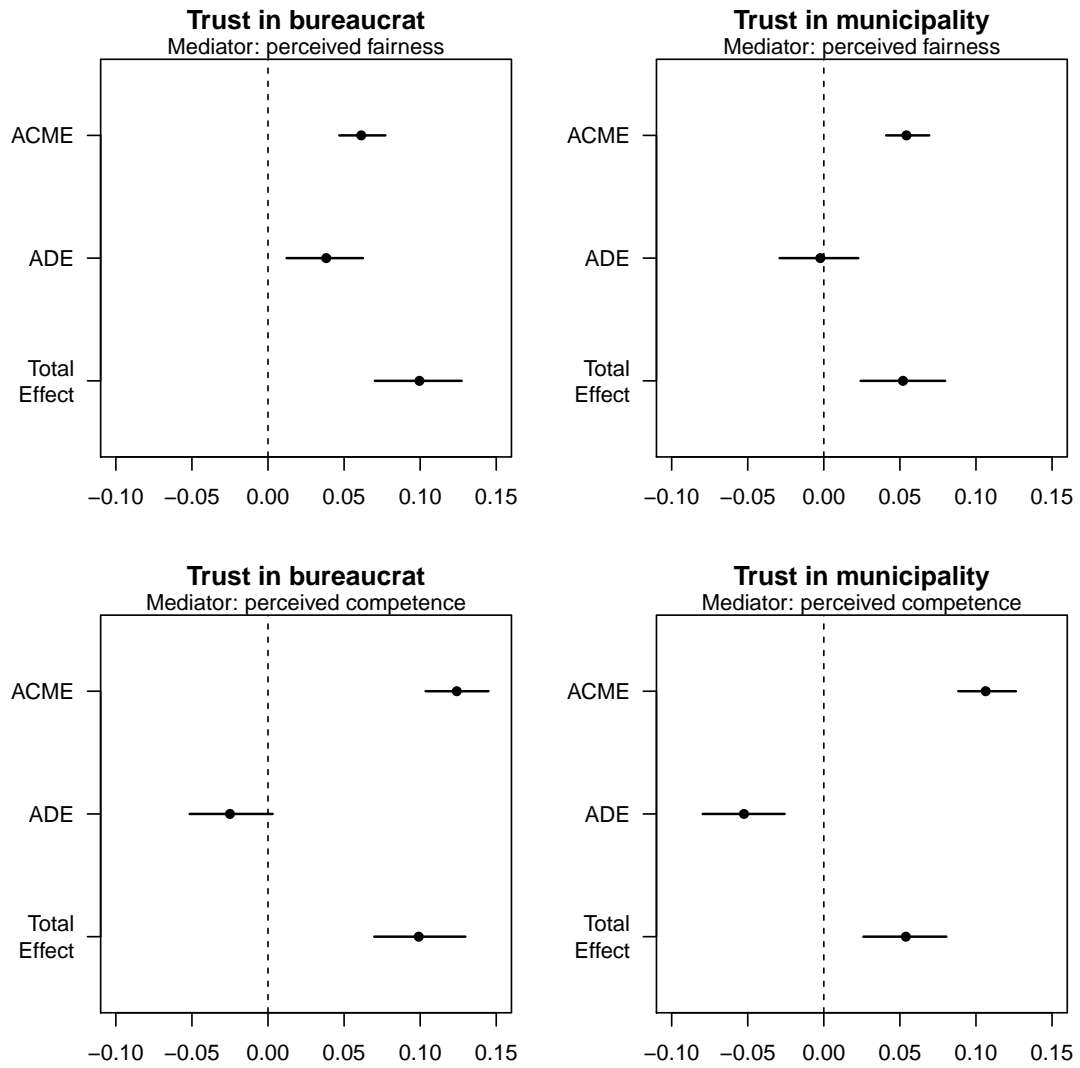
**Table F.3:** Results from causal mediation analysis

		Mediators	
		Perceived fairness	Perceived competence
Outcome: Trust in bureaucrat	ACME	.062***	.12***
	ADE	.038**	-.03
	Total effect	.1***	.09***
Outcome: Trust in municipality	ACME	.054***	.11***
	ADE	-.003	-.052***
	Total effect	.052***	.054***

*Note:* Effects are estimated using the R package "Mediation" (Tingley et al. 2014). ACME denotes the average causal mediation effect while ADE is the average direct effect. Estimations are based on 1000 simulations and nonparametric bootstrap option for variance estimation.

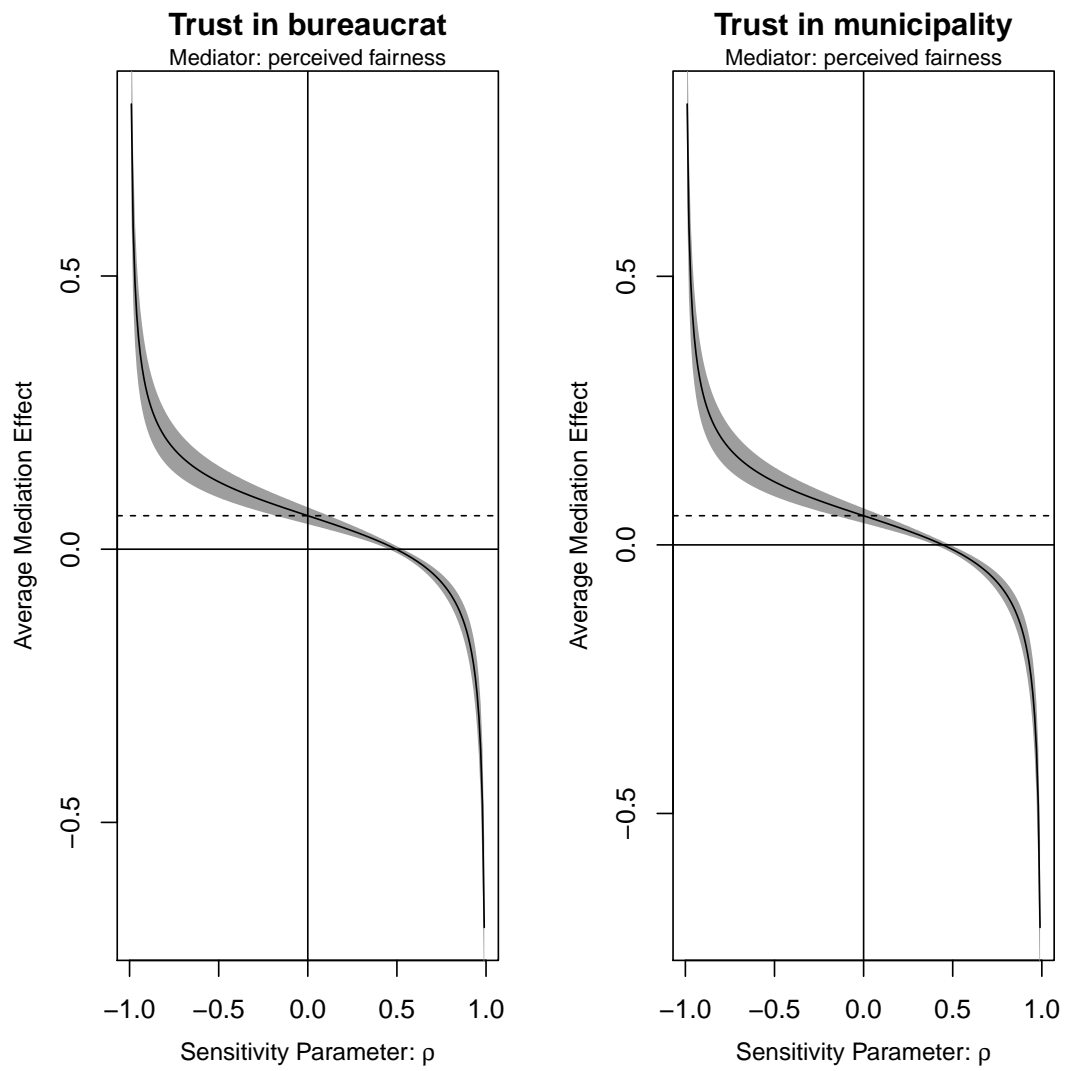
\*\*p<0.01; \*\*\*p<0.001

**Figure F.1:** Graphical display of mediation effects (with 95% confidence intervals)



*Note:* The figure is based on the results presented in table F3. ACME denotes the average causal mediation effect while ADE is the average direct effect. Estimations are based on 1000 simulations and nonparametric bootstrap option for variance estimation.

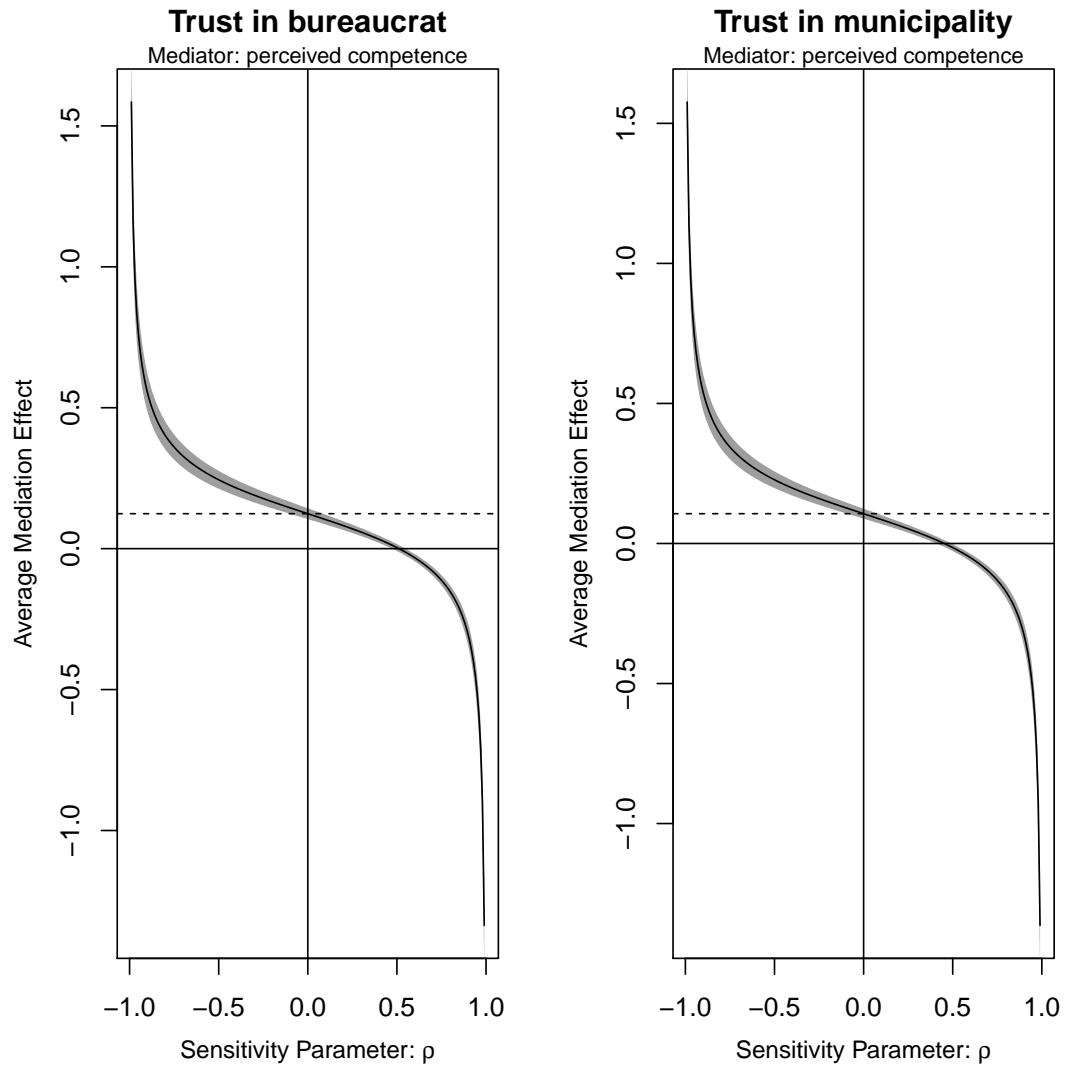
**Figure F.2:** Graphical display of sensitivity analysis of the ACMEs, mediation by perceived fairness



*Note:* The sensitivity analysis is based on the R package "mediation" (Tingley et al. 2014). Estimations are based on 1000 simulations and nonparametric bootstrap for confidence intervals.



**Figure F.3:** Graphical display of sensitivity analysis of the ACMEs, mediation by perceived competence



*Note:* The sensitivity analysis is based on the R package "mediation" (Tingley et al. 2014). Estimations are based on 1000 simulations and nonparametric bootstrap for confidence intervals.

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