

Online appendix for:
The impact of EU institutional advertising on public
support for European integration

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A Further information on treatment materials

The original ads used in each of the treatment groups can be found here:

- Policy benefits treatment: <http://www.europarl.europa.eu/news/es/headlines/priorities/parlamento-europeo/20180322ST000307/que-obtengo-de-la-ue>
- Economic costs treatment: <http://www.europarl.europa.eu/news/es/headlines/priorities/parlamento-europeo/20180322ST000304/cuanto-me-cuesta-la-ue>

The english version of these ads can be found here:

- Policy benefits treatment: https://multimedia.europarl.europa.eu/en/what-do-i-get-from-the-eu_B01-ESN-171115_ev
- Economic costs treatment: https://multimedia.europarl.europa.eu/en/how-much-does-the-eu-cost-me_B01-ESN-171122_ev.

B Question wording and operationalization of variables

Introductory statement experimental manipulations

Original Spanish version:

“Ahora te vamos a mostrar un video sobre la Unión Europea (UE) producido por el Parlamento Europeo. El video dura aproximadamente 30 segundos. Haz click en > cuando estés preparado/a. Cuando hayas terminado de verlo, pulsa >”

English translation:

“You will now watch a video about the European Union (EU) that was produced by the European Parliament. The video lasts about 30 seconds. Click on > when you are ready. When you have finished watching, press >”

EU policy responsiveness

Original Spanish version:

“Las políticas de la Unión Europea tienen en cuenta las necesidades de los ciudadanos europeos”

1. Sí, totalmente
2. Sí, hasta cierto punto
3. No, no realmente
4. No, en absoluto

English translation:

“European Union policies take into account the needs of European citizens”

1. Yes, completely
2. Yes, to some extent
3. No, not really
4. No, not at all

Economic costs of integration

Original Spanish version:

“En el caso de España, ¿piensas que el coste económico derivado de pertenecer a la Unión Europea es...?”

1. Demasiado alto
2. Adecuado
3. Demasiado bajo

English translation:

“In the case of Spain, do you think that the economic cost of being a member of the European Union is...?”

1. Too high
2. Adequate
3. Too low

Support EU integration

Original Spanish version:

“Algunas personas opinan que la integración europea se debería impulsar más. Otras creen que ya ha ido demasiado lejos. ¿Podrías decirme cuál es tu opinión al respecto?”

“Utiliza una escala de 0 a 10, donde '0' significa que la integración europea 'ya ha ido demasiado lejos' y '10' significa que 'debería impulsarse más'.”

“¿Qué número en esta escala describe mejor tu posición?”

English translation:

“Some say European unification should be pushed further. Others say it already has gone too far. What is your opinion?”

“Please use a scale from 0 to 10, where '0' means unification 'has already gone too far' and '10' means it 'should be pushed further'.”

“What number on this scale best describes your position?”

Support for membership

Original Spanish version:

“En general, ¿piensas que para España el hecho de ser miembro de la Unión Europea es...?”

1. Algo bueno
2. Algo malo
3. Ni bueno ni malo

English translation:

“Generally speaking, do you think that Spain’s membership in the EU is...?”

1. A good thing
2. A bad thing
3. Neither good nor bad

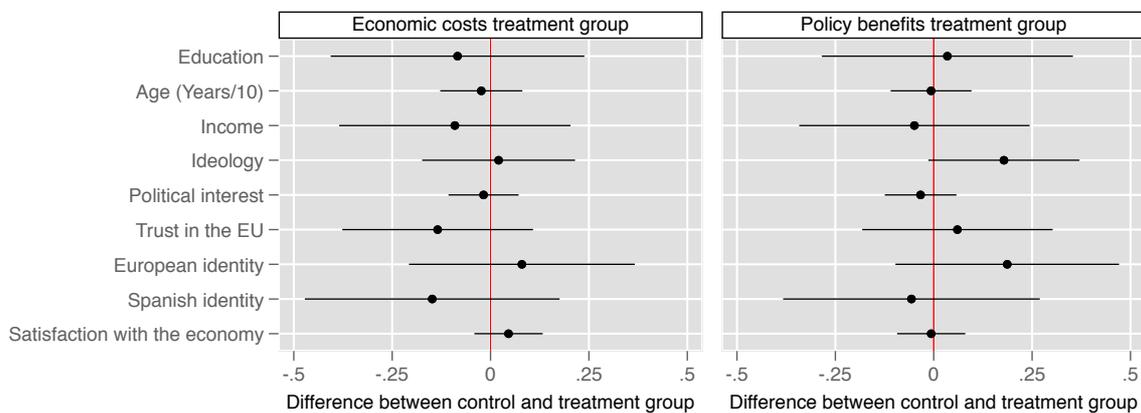
C Additional results

Table C1: Average values of outcome and mediating variables by treatment condition. Standard deviations in parentheses

	Control group	Costs treatment	Policy benefits treatment
Support EU integration	5.36 (2.44)	5.60 (2.52)	5.77 (2.60)
Support membership (dichotomized)	0.46 (0.50)	0.54 (0.50)	0.56 (0.50)
Support membership	1.28 (0.76)	1.40 (0.72)	1.42 (0.72)
Eco. costs integration (dichotomized)	0.48 (0.50)	0.42 (0.49)	0.48 (0.50)
Eco. costs integration	1.42 (0.60)	1.35 (0.60)	1.42 (0.59)
Policy responsiveness (dichotomized)	0.44 (0.50)	0.62 (0.49)	0.66 (0.47)
Policy responsiveness	1.32 (0.73)	1.60 (0.72)	1.65 (0.71)

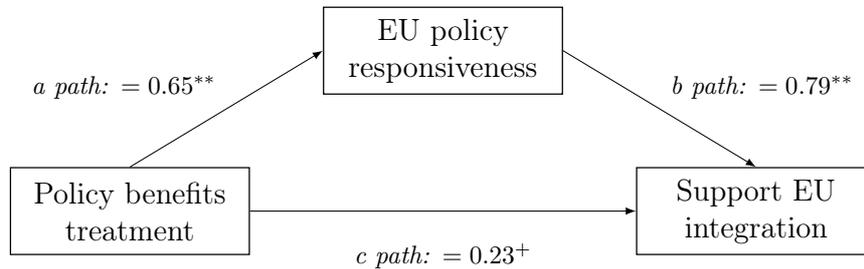
Note: The coding of the "Eco. costs integration" variable is: 0 "Too low", 1 "Adequate", 2 "Too high". The coding of the "Policy responsiveness" variable is: 0 "No, not at all", 1 "No, not really", 2 "Yes, to some extent", 3 "Yes, completely".

Figure C1: Balance tests: covariate differences between the control and treatment groups.



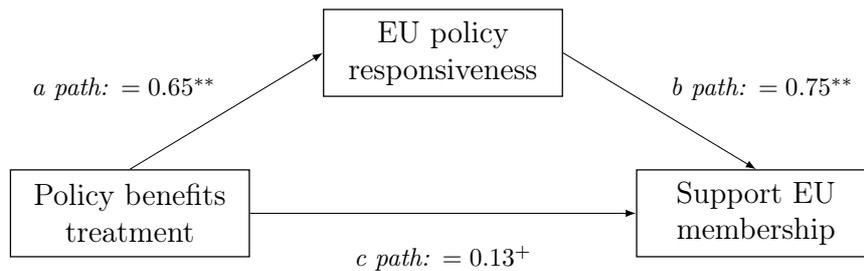
Note: Entries report the difference in the mean of the covariates between the control group and each of the treatment groups (two sample t-tests). Lines are 95% confidence intervals

Figure C2: Mediation model for policy outcomes treatment effects on support for European integration (For Panel A Figure 4 results)



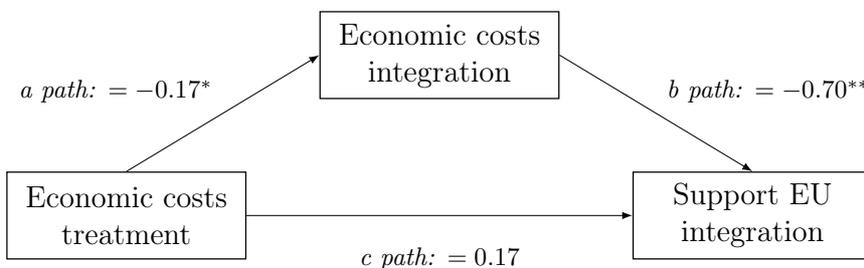
Note: Paths *b* and *c* are estimated with least squares. Path *a* is estimated through probit. All models include the following covariates: education, age, ideology, ideology squared, satisfaction with democracy, and European identity. ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ N = 1,419

Figure C3: Mediation model for policy outcomes treatment effects on support for EU membership (For Panel B Figure 4 results)



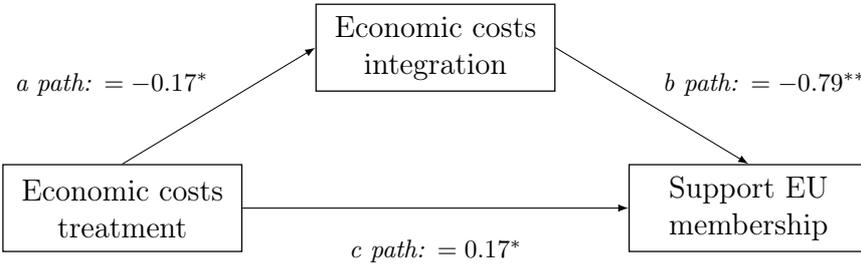
Note: Paths *a*, *b* and *c* are estimated through probit. All models include the following covariates: education, age, ideology, ideology squared, satisfaction with democracy, and European identity. ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ N = 1,418

Figure C4: Mediation model for costs treatment effects on support for European integration (For Panel A Figure 5 results)



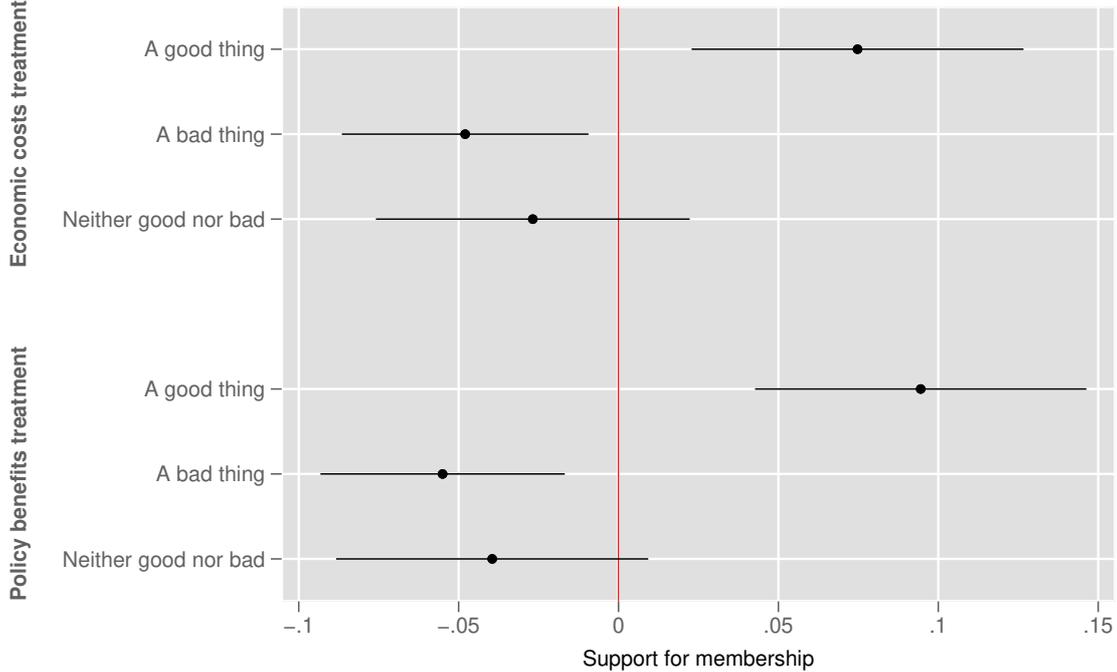
Note: Paths *b* and *c* are estimated with least squares. Path *a* is estimated through probit. All models include the following covariates: education, age, ideology, ideology squared, satisfaction with democracy, and European identity. ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ N = 1,419

Figure C5: Mediation model for costs treatment effects on support for EU membership (For Panel B Figure 5 results)



Note: Paths *a*, *b* and *c* are estimated through probit. All models include the following covariates: education, age, ideology, ideology squared, satisfaction with democracy, and European identity. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$ N = 1,418

Figure C6: Effects of EU institutional advertising on support for membership in its original metric



Note: Lines are 95% confidence intervals. The model is estimated through a multinomial logistic regression and the plot summarizes the contrasts of the adjusted prediction of being in each of the three categories of the dependent variable for each treatment group vs. the control group. N = 2,127

D Further information about POLAT panel survey

In this appendix we provide further information on the POLAT panel dataset (Anduiza et al., 2019). This information follows the American Association for Public Opinion Research (AAPOR) 2016 standard definitions as well as the metrics and rates proposed by Callegaro and DiSogra (2008) and Baker et al. (2010). The appendix also provides further information about panel attrition between the 10th and the 11th waves of the POLAT panel. Note that in the article and in this appendix we refer to respondent’s attrition between the two waves of the POLAT panel survey and not to attrition in the Netquest opt-in panel that we use to field the POLAT panel survey.

D.1 Wave 10

As we mention in the article, 2,128 respondents took part in (and completed) wave 10 of the POLAT panel survey. From these, 1,624 respondents had participated at least in one previous wave of the POLAT survey, and 504 were new respondents who participated for the first time in 2018. New respondents were incorporated towards the end of the fieldwork in order to compensate for attrition in the POLAT survey. All respondents were invited to participate in our survey through emails that were sent by the commercial firm Netquest. Since the experimental manipulation contained video images and audio, we conducted a pretreatment manipulation check that excluded respondents who were not effectively watching and listening.

We first measure the completion rate in wave 10. Given the non-probability nature of our dataset we refer to the “completion rate” instead of the “response rate” (see Callegaro and DiSogra (2008)). To calculate the completion rate we follow Callegaro and DiSogra (2008), but instead of estimating a measure that follows AAPOR RR6 response-rate standard definition we estimate a measure that follows AAPOR RR5 response-rate standard definition. The completion rate is, thus, estimated as follows:

$$\frac{I}{(I + P) + (R + NC + O)} \quad (1)$$

where

I = the number of completed interviews

P = the number of partial (non-completed) interviews¹

R = the number of refusals and break-offs

NC = the number of non-contacts

O = the number of non-completed interviews due to other reasons

To calculate the completion rate we distinguish between respondents who had already participated in a previous wave of our panel survey and among newly recruited respondents. The completion rate among the former was 0.899. The completion rate among newly recruited respondents was 0.1837. In any case, one must note that the completion rate might not be an indicator of the overall quality of the panel used to field the survey, but an indication of efficiency of the panel provider (Willems et al., 2006).

Next we estimate the break-off rate. We define a break-off as any survey that was opened but not completed because the respondent failed to complete a screening question not related to quota filtering. Specifically we classify as break-offs respondents who were filtered out because they failed to pass a video/audio manipulation check, or because they failed to pass screeners to measures respondent's attention. We therefore, estimate the break-off rate as:

$$\frac{BO}{I + P + BO} \quad (2)$$

where

BO = are the number of surveys that we classified as break-offs

The total break-off rate equals 0.0302. Specifically, 36 surveys were not completed because respondents failed to pass one of the screening questions aimed to measure respondent's attentiveness. Additionally, 41 respondents were excluded because they did not pass the video/audio manipulation check that we performed at the beginning of the survey.

In order to calculate the completion rate among the newly recruited respondents (i.e. respondents that had not participated in a previous wave of the POLAT panel before being asked to join the panel in wave 10) the denominator included respondents that were

¹Partial interviews are those in which a respondent opened the survey but did not finish it.

filtered out of the survey and did not complete the survey because the quota they belong to was full. After answering a few screening questions related to the quotas established for the newly recruited respondents (e.g. on their age and gender) these respondents were considered ineligible because their corresponding quota was full. To measure this, we follow Callegaro and DiSogra (2008) and compute the study-specific eligibility rate as follows:

$$\frac{SCQ}{SCQ + SCNQ} \quad (3)$$

where

SCQ = number of respondents who completed the screening questions and qualified to participate in the survey

$SCNQ$ = number of respondents who completed the screening questions and did not qualify (screened out)

The study-specific eligibility rate equals 0.5431. One must remember that this rate is only calculated among newly recruited respondents, not among those who had already participated in a previous wave of the POLAT panel before.

D.2 Wave 11

In the eleventh wave of the POLAT panel all the respondents who had participated in at least one of the previous wave of the panel were invited to participate. In this case, and following the definitions discussed above, the completion rate was 0.7419 and the break-off rate was 0.0143.²

In the tenth wave of the POLAT panel (May 2018) 2,128 respondents participated in the experiment to test the effects of the ads produced by the EP. The experimental distribution of respondents was as follows: 710 respondents were assigned to the control group, and 709 respondents were assigned to either the economic costs or the policy benefits treatment groups. All these 2,128 respondents were recontacted during the fieldwork

²In this case, we do not distinguish between respondents who had participated in a previous waves of the panel survey and newly recruited respondents, because all the respondents who had participated in at least one of the previous waves of the panel were invited to participate. In this case, the BO parameter of the break-off rate only includes respondents who failed to pass one the screening questions. The reason for the difference in the operationalization of BO between waves 10 and 11 is that in wave 11 there was no manipulation check related to video/audio technology.

of the eleventh (2019) wave of the POLAT Panel.³ The recontact rate among the participants in the tenth wave was of 0.744 (i.e. 1,583 respondents from the tenth wave also participated in the eleventh wave). Out of them, 521 respondents had been originally assigned to the control group in 2018, 532 to the economic cost treatment group, and 530 to the policy benefit treatment group. As expected given that participants were randomly assigned to the different treatment conditions in 2018, panel attrition between the two waves has affected all control and treatment groups in a similar way. Table D1 provides an overview of panel attrition between the 10th and 11th waves of the POLAT panel.

Table D1: Panel attrition in each experimental group between 10th and 11th waves of the POLAT panel

Group	Respondents in 2018	Respondents in 2019	Re-contact rate
Control	710	521	0.734
Policy benefits	709	530	0.747
Economic costs	709	532	0.750

³Respondents who had not participated in the tenth wave but had participated in an earlier wave were also recontacted.

E Sensitivity analyses of causal mediation

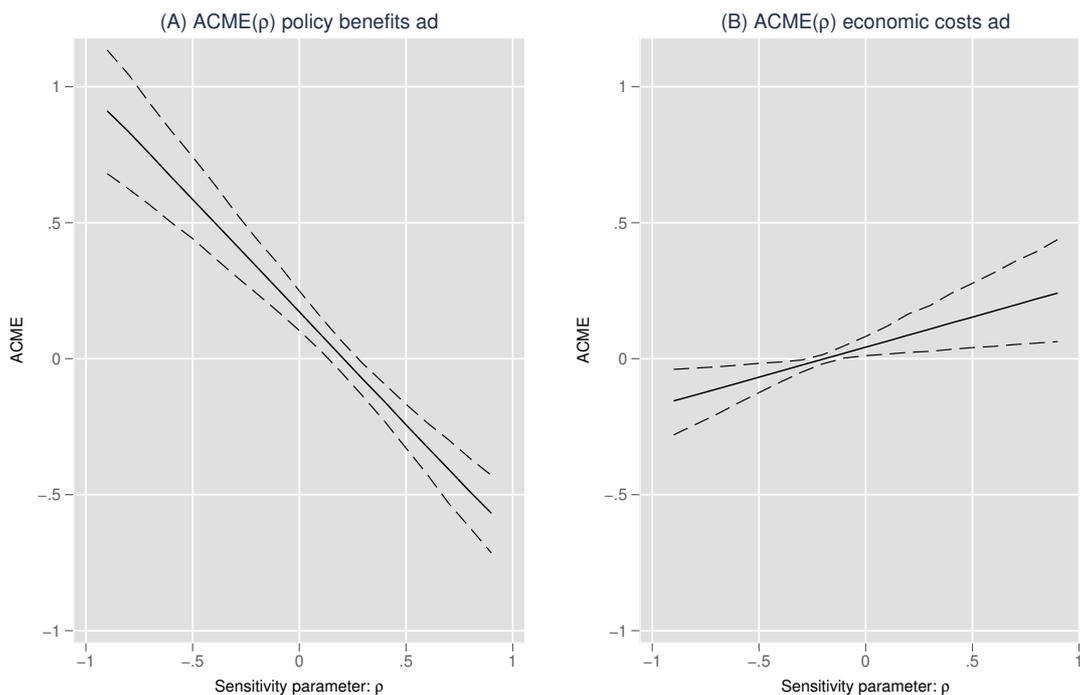
In this appendix we assess the robustness of our findings against violations of the *sequential ignorability assumption* through the sensitivity analyses proposed by Imai et al. (2011). The analyses summarized in this appendix, as well as all the mediation analyses discussed throughout the article, were conducted using Hicks and Tingley (2012) software. Unfortunately, these sensitivity analyses can only be conducted when both the mediator and outcome variables are continuous or when either of the two are binary (Hicks and Tingley, 2012). Therefore, our sensitivity analyses are restricted to the mediation models in which *support for EU integration* is specified as the outcome variable. Overall, the sensitivity analyses reveal that the estimated mediation effects (ACMEs) of both ads on *support for European integration* would still hold even if, due to omitted variable bias, the correlation between the error terms of the mediation paths of our regressions would be as high as 0.2.

Figure E1 summarizes the ACME as a function of the degree of violation of the *sequential ignorability* assumption. This is based on the sensitivity parameter ρ plotted on the x-axis. Panel A summarizes the results of the sensitivity analyses for the estimated ACME of policy responsiveness when analyzing the effects of the policy benefits ad on support for European integration. The results show that for the point estimate of the ACME to be zero, the correlation (due to omitted variables) between the error terms of the regressions in the first and second paths of the mediation should be up to 0.2. Panel B summarizes the results of the sensitivity analyses for the estimated ACME of policy responsiveness when analyzing the effects of the policy benefits ad on support for European integration. Again, the results indicate that for the point estimate of the ACME to be zero, the correlation (due to omitted variables) between the error terms of the regressions in the first and second paths of the mediation should be higher than -0.2.⁴. However, when taking into account the uncertainty around the estimate we observe that while the 95% confidence interval for the ACME of the policy benefits ad only crosses 0

⁴The difference in the direction of the slope between Panels A and B is generated by the different signs of the paths that link the mediators and the outcomes in Figure C2 and Figure C4

at a ρ value of approximately 0.14, in the case of the economic costs ad the confidence interval crosses the 0 line at a ρ value of approximately 0. This is, of course, caused by the difference in the statistical significance of the estimated ACMEs in the first place (see Figure 4 and Figure 5).

Figure E1: Average causal mediation effect as a function of degree of violation of *sequential ignorability assumption*

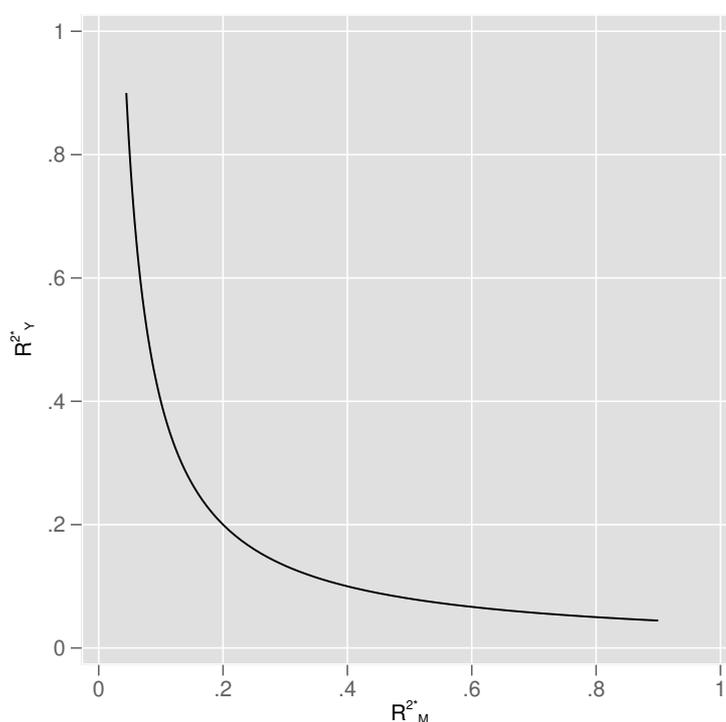


Note: Panel A summarizes the ACME of EU policy responsiveness for the effects of the policy benefits ad on support for EU integration. Panel B summarizes the ACME of the perceptions of the costs of European integration for the effects of the economic costs ad on support for EU integration. The 95% confidence intervals around the estimates are based on quasi-bayesian approximation of parameter uncertainty with 1250 simulations.

Alternatively, the magnitude of the sensitivity of the estimates can be expressed in more intuitive terms as a function of R^2 's (Hicks and Tingley, 2012). That is, of how much remaining variance of the mediator and the outcome variables an omitted confounder would have to jointly explain for the ACME to be zero. The key parameter here is the product of unexplained variance measures for the mediator and outcome variables such that the ACME is zero (Hicks and Tingley, 2012). In our case, the sensitivity analyses reveal that this critical value equals 0.04. This critical value is the same for the ACME

of policy responsiveness and of perceptions of economic costs when analyzing how each of these variables mediate the effects of the policy benefits and economic costs ads on support for European integration, respectively. Therefore, for the ACME to be zero the product of the unexplained variance of the mediator R_M^{*2} and the outcome R_Y^{*2} explained by the omitted confounder should equal 0.04. Since this is a product ($R_M^{*2} \times R_Y^{*2}$), the critical point at which the ACME is zero can occur across a range of values of R_M^{*2} and R_Y^{*2} (Hicks and Tingley, 2012). Figure E2 summarizes these values of R_M^{*2} and R_Y^{*2} at which the ACME would be zero. For example, in the case of the policy benefits ad, the omitted confounder would have to explain 25% of the remaining variance in perceptions about the policy responsiveness of the EU and, at the same time, 16% of the remaining variance in support for EU integration for the ACME estimated in Panel A of Figure 4 to be zero ($0.25 \times 0.16 = 0.04$).

Figure E2: Residual variance of outcome and mediator that must be jointly explained by an unmeasured confounder for the ACME to be zero



Note: R_M^{*2} denotes the proportion of the unexplained variance of the mediator explained by the confounder. R_Y^{*2} denotes the proportion of the unexplained variance of the outcome explained by the mediator. These estimates assume that the sign of the resulting product of the R^2 parameters is positive for the policy benefits ad and negative for the economic costs ad.

References in Supporting Information

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