Online appendix

to

Learning the Brexit lesson?

Shifting support for direct democracy in Germany in the aftermath of the Brexit referendum

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Appendix A: Data and measurement

Table A1: Waves of the panel and measurement of key variables

Wave	Field time	Referendum support	EU integration	Political knowledge	Political interest
1	20.06.2013-07.07.2013				
2	18.07.2013-28.07.2013	X			
3	01.08.2013-11.08.2013		X		
4	15.08.2013-25.08.2013				
5	02.09.2013-12.09.2013	X			
6	16.09.2013-21.09.2013		X		
7	24.09.2013-04.10.2013			X	
8	14.10.2014-28.10.2014	X			
9	01.10.2015-23.10.2015	X			X
10	06.10.2016-10.11.2016	X	X		
11	16.02.2017-03.03.2017				
12	11.05.2017-23.05.2017				
13	06.07.2017-17.07.0217	X			
14	17.08.2017-28.08.2017				
15	04.09.2017-13.09.2017		X		
16	18.09.2017-23.09.2017	X	X		
17	27.09.2017-09.10.2017		X		
18	15.03.2018-26.03.2018				

Note: Thick line delineates waves before and after the 18 June 2016 Brexit referendum. For the main analysis, we use the EU integration attitudes as measured in wave 3. For the additional analysis in appendix D, we made use of EU integration attitudes measured in other waves as well, as explained below (gray 'X').

Table A2: Measurement of variables for regression analysis

Variable	Wording, original coding and wave	(Re-)Coding
Referendum support	Citizens should be able to initiate binding referendums at the federal level (waves 2, 5, 8, 9, 10, 13, 16)	(0) → „disagree " (1) → „tend to disagree" (2) → „neither" (3) → „tend to agree" (4) → „agree"
1st difference in referendum support	Referendum support in wave 10 (October 2016) - Referendum support in wave 9 (October 2015)	(-4) … (4)
Attitude towards EU integration	Should European unification be pushed further to establish a common European government soon or is European unification already going too far? (wave 6, September 2013; last wave before October 2016 in which item was included)	(0) -> European integration already going too far (20%) (1) (14%) (2) (14%) (3) (25%) (4) (12%) (5) (8 %) (6) -> European integration pushed further (7%)
Political interest	How strongly are you interested in politics in general? (1) very strong (2) strong (3) medium (4) less strong (5) not at all (wave 9, October 2015)	(3) (4) (5) → low political interest (51%) (1) (2) → high political interest (49%)
Political knowledge	Index based on nine factual political knowledge questions (on electoral system, party affiliation of leading politicians): sum of correct answers, "don't know" and "no answer" counted as incorrect. (wave 7, September 2013; last wave before October 2016 with encompassing quiz battery)	1 to 7 correct answers -> low political knowledge (43%) 8 or 9 correct answers -> high political knowledge (57%)
Voting intention	Intended party vote of respondent in federal election ("Zweitstimme") (wave 9, October 2015)	(1) → CDU/CSU (4) → SPD (5) → FDP (6) → Grüne (7) → DIE LINKE (322) → AfD (801) → other party (0) → no intention to vote
Attitudes toward immigration	Should immigration opportunities for foreigners be facilitated or restricted? (wave 9, October 2015)	(1) immigration should be restricted … (11) immigration should be facilitated
Socio-demographic control variables		
Age	Year of birth (wave x of 2013 Panel)	Age=2016-birth year Coded into age groups: → up to 34 → 35 to 49 → 50 to 64 → 65 and older
Eastern Germany	Current residence in state (wave x of 2013 Panel)	(0) west (1) east

Education	What is your highest school degree? (1) school completed without degree – (2) Hauptschulabschluss – (3) Realschulabschluss – (4) Fachhochschulreife – (5) Abitur – (9) still in school (wave 10, October 2016)	(1) (2) → „low" (3) → „medium" (4) (5) → „high"
Gender	(1) male – (2) female (wave x of 2013 Panel)	(0) male (1) female
Income	What is the monthly net income of your household? We are interested in the sum after the deduction of taxes and social security contributions. (1) under 500 Euro – (2) 500 to 750 Euro – (3) 750 to 1000 Euro – (4) 1000 to 1250 Euro – (5) 1250 to – (6) 1500 to 2000 Euro – (7) 2000 to 2500 Euro – (8) 2500 to 3000 Euro – (9) 3000 to 4000 Euro – (10) 4000 to 5000 Euro – (11) 5000 to 7500 Euro – (12) 7500 to 10000 Euro – (13) 10000 Euro and more (wave 1)	(1) (2) (3) → <1000€ (4) (5) (6) → 1000-2000€ (7) (8) → 2000-3000€ (9) → 3000-4000€ (10) (11) (12) (13) → >4000€

Appendix B: Regression tables for predicted values reported in the main text

Table B1: Regression table for results in Figure 2

	(1)	(2)	(3)
Referendum support$_{Oct\ 2015}$	-0.35***	-0.36***	-0.38***
	(0.020)	(0.020)	(0.022)
Less EU integration	ref.	ref.	ref.
EU integration: 1	-0.14*	-0.11	-0.069
	(0.067)	(0.068)	(0.074)
EU integration: 2	-0.20**	-0.18*	-0.14
	(0.069)	(0.070)	(0.076)
EU integration: 3	-0.32***	-0.27***	-0.21**
	(0.059)	(0.060)	(0.066)
EU integration: 4	-0.38***	-0.31***	-0.22**
	(0.072)	(0.074)	(0.079)
EU integration: 5	-0.42***	-0.37***	-0.30***
	(0.082)	(0.084)	(0.090)
More EU integration	-0.70***	-0.61***	-0.60***
	(0.084)	(0.087)	(0.094)
income <1000€		ref.	ref.
income 1000-2000€		-0.00065	-0.016
		(0.059)	(0.064)
income 2000-3000€		-0.035	-0.022
		(0.061)	(0.066)
income 3000-4000€		-0.11	-0.089
		(0.073)	(0.079)
income >4000€		-0.061	-0.042
		(0.081)	(0.089)
Age: up to 34		ref.	ref.
Age: 35 to 49		0.13	0.16*
		(0.071)	(0.077)
Age: 50 to 64		0.19**	0.23**
		(0.067)	(0.073)
Age: 65+		0.12	0.17*
		(0.072)	(0.078)
education low		ref.	ref.
education middle		0.0014	-0.016
		(0.052)	(0.056)
education high		-0.11*	-0.12*
		(0.055)	(0.059)
West Germany		ref.	ref.
East Germany		0.090	0.056
		(0.047)	(0.051)
Voting intention: CDU/CSU			ref.
Voting intention: SPD			-0.035
			(0.066)
Voting intention: FDP			0.013
			(0.10)
Voting intention: GRUENE			0.0043
			(0.082)

Voting intention: DIE LINKE			0.27***
			(0.072)
Voting intention: AfD			0.33***
			(0.084)
Voting intention: other party			0.25**
			(0.087)
Voting intention: no intention to vote			0.14
			(0.088)
Constant	1.09***	0.99***	1.00***
	(0.084)	(0.12)	(0.14)
Observations	1927	1896	1663
R²	0.15	0.16	0.18

Coefficients from OLS regression with standard errors in parentheses. Dependent variable is the difference in referendum support in October 2016 and October 2015. $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

Table B2: Regression table for results in Figure 3

	(1)
Referendum support$_{Oct 2015}$	-0.38***
	(0.022)
Less EU integration	ref.
EU integration: 1	-0.071
	(0.11)
EU integration: 2	-0.088
	(0.11)
EU integration: 3	-0.049
	(0.096)
EU integration: 4	0.067
	(0.13)
EU integration: 5	0.14
	(0.17)
More EU integration	-0.38*
	(0.18)
Low political knowledge	ref.
High political knowledge	0.11
	(0.095)
EU integration: 1 X high political knowledge	0.011
	(0.15)
EU integration: 2 X high political knowledge	-0.098
	(0.15)
EU integration: 3 X high political knowledge	-0.30*
	(0.13)
EU integration: 4 X high political knowledge	-0.46**
	(0.16)
EU integration: 5 X high political knowledge	-0.64**
	(0.19)
More EU integration X high political knowledge	-0.34
	(0.21)
income <1000€	ref.
income 1000-2000€	0.0023
	(0.064)
income 2000-3000€	-0.0048
	(0.067)
income 3000-4000€	-0.039
	(0.080)
income >4000€	0.0036
	(0.090)
Age: up to 34	ref.
Age: 35 to 49	0.16*
	(0.077)
Age: 50 to 64	0.24**
	(0.073)
Age: 65+	0.19*
	(0.078)
education low	ref.
education middle	-0.011
	(0.056)
education high	-0.094
	(0.061)

West Germany	ref.
East Germany	0.048
	(0.051)
Voting intention: CDU/CSU	ref.
Voting intention: SPD	-0.025
	(0.066)
Voting intention: FDP	0.023
	(0.10)
Voting intention: GRUENE	0.032
	(0.082)
Voting intention: DIE LINKE	0.30***
	(0.073)
Voting intention: AfD	0.35***
	(0.085)
Voting intention: other party	0.25**
	(0.087)
Voting intention: no intention to vote	0.14
	(0.090)
Constant	0.76***
	(0.14)
Observations	1647
R²	0.20

Coefficients from OLS regression with standard errors in parentheses. Dependent variable is the difference in referendum support in October 2016 and October 2015. $^{*}\, p < 0.05$, $^{**}\, p < 0.01$, $^{***}\, p < 0.001$.

Appendix C: Regressions with additional control for attitudes towards immigration

Figure C1: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration while additionally controlling for immigration attitude
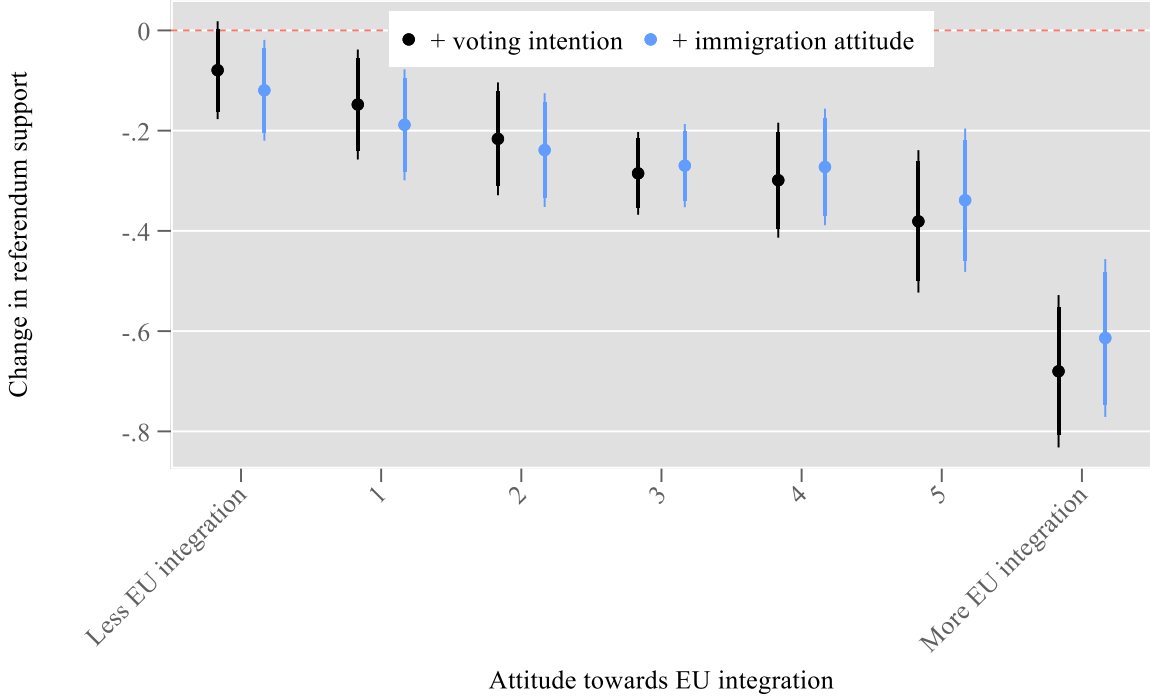
Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. Model 1 is the fully specified model from Figure 2 (reprinted here for comparison). Model 2 additionally includes attitudes on whether immigration should be facilitated or restricted measured on an 11-point scale in wave 10 (October 2015) and included as categorical predictor in the model. Model 1: n=1,663; R²=0.18. Model 2: n=1,659; R²=0.20. Results remain similar with the additional control included. This is despite the substantial correlation between support for EU integration and immigration attitudes of 0.44.

Figure C2: Predicted change in referendum support between October 2015 and October 2016 by attitude toward immigration
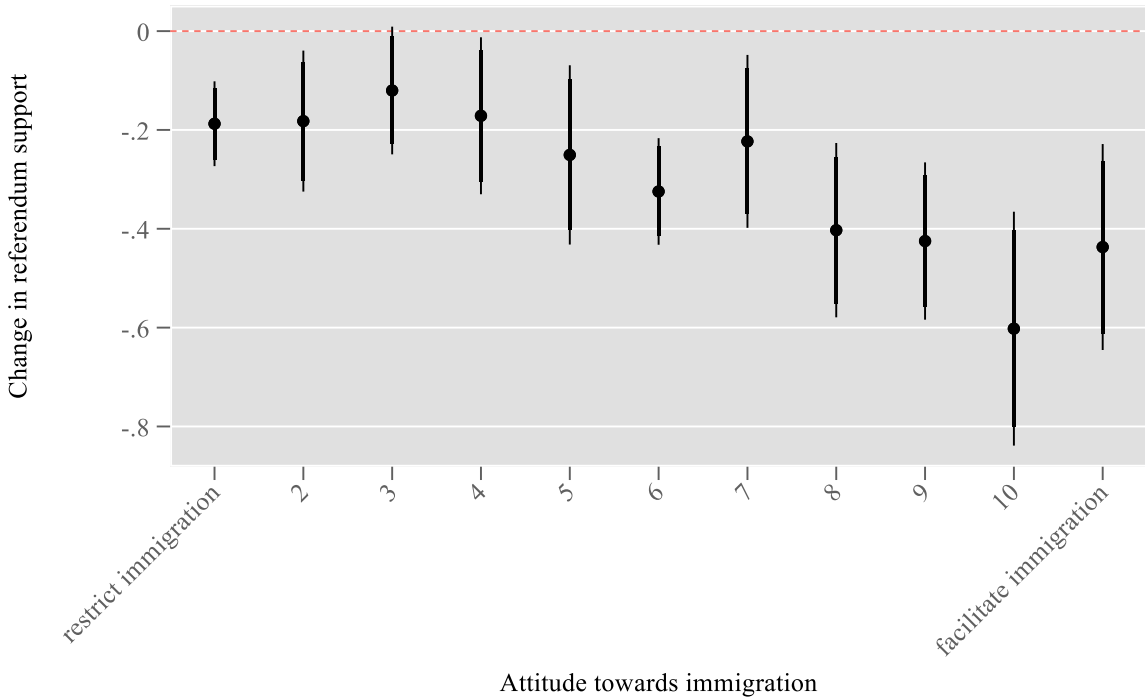
Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. n=1,659; R^2=0.20. Similar to the result for attitudes towards EU integration, there is a tendency of individuals who are more supportive of immigration to become more negatively oriented towards the introduction of binding referendums in Germany in the aftermath of the Brexit referendum. Also similar to what we argue for attitudes towards EU integration, this may partly reflect a reaction to the Brexit referendum as immigration featured as a top issue in the campaign. Arguably, the referendum was indirectly also a vote about immigration. Accordingly, immigration-friendly individuals might have viewed the Brexit referendum more negatively, with repercussions for their views on whether referendums should be introduced in Germany. It may also be related to developments within Germany, specifically the right-wing populist mobilization in the context of the 'refugee crisis' (see footnote 3 in the main text). These developments might have also made pro-immigration individuals more skeptical of referendums. In any case, the most important finding in the context of our article is that our main finding is robust to controlling for immigration attitudes (see Figure C1).

Appendix D: Regressions with alternative cut-off points for political knowledge as a moderator

Figure D1: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on political knowledge (lower cut-off)
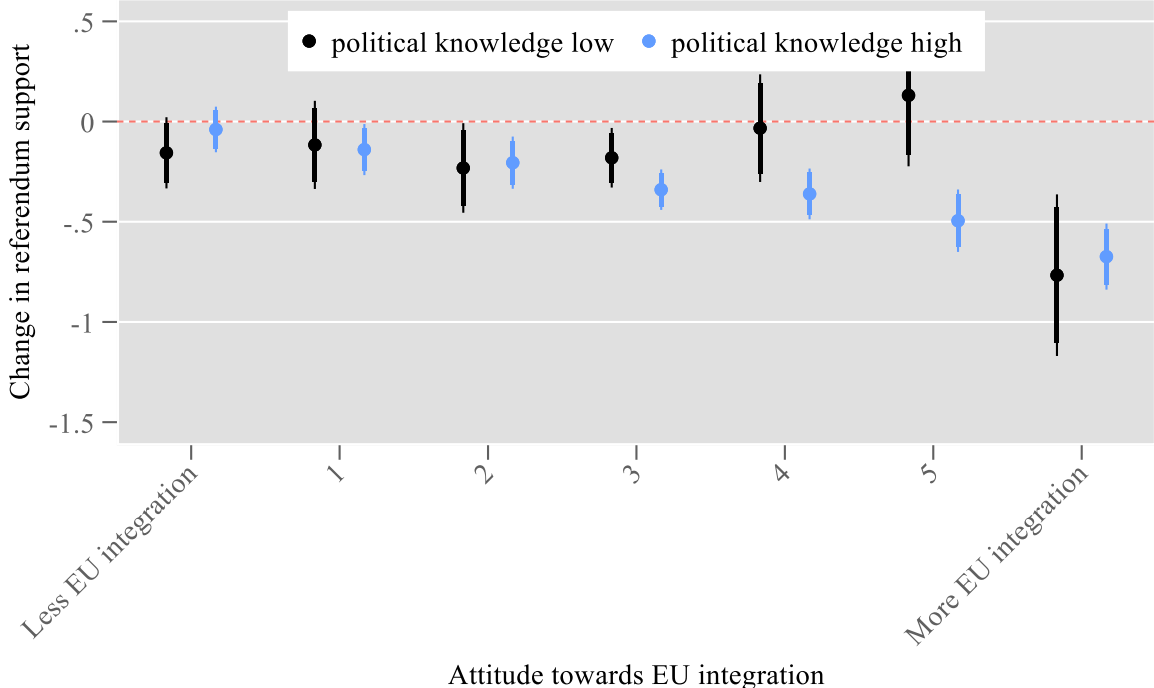
Attitude towards EU integration

Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. First difference in referendum support regressed on EU attitude (categorical) interacted with dummy variable for political knowledge. Control variables as in third model of Figure 2 of the main text. n=1,647; R²=0.19. In contrast to Figure 4 of the main text, the political knowledge dummy uses a slightly more lenient cut-off point of having answered at least seven of the nine question correctly to be counted as high in political knowledge. Note that this leads to less balanced group sizes of 72.0% having high and only 28.1% having low knowledge (vs. 56.8% high and 43.2% low with the original coding). As a result, coefficients get noisier for the low knowledge category, especially at very high levels of EU support as this combination becomes exceedingly rare (n=33). Overall, results remain similar to Figure 3 though.
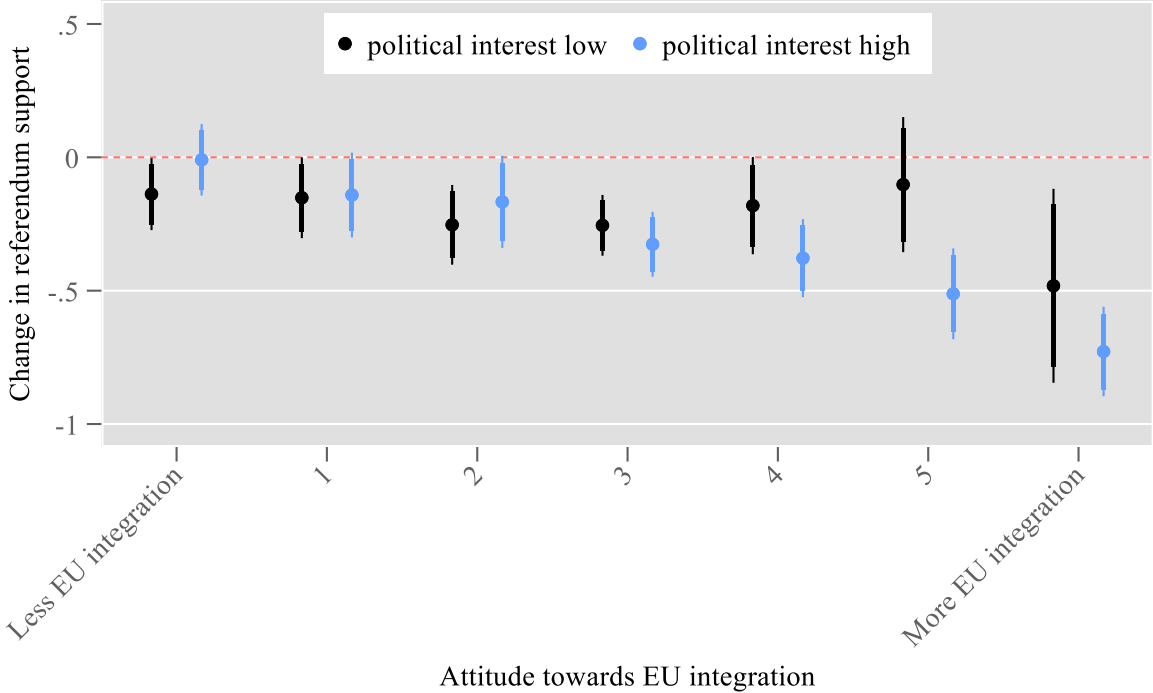
Table D1: Regression table for results in Figure D1

	(1)
Referendum support$_{Oct\ 2015}$	-0.38***
	(0.022)
Less EU integration	ref.
EU integration: 1	0.039
	(0.14)
EU integration: 2	-0.076
	(0.14)
EU integration: 3	-0.025
	(0.12)
EU integration: 4	0.12
	(0.16)
EU integration: 5	0.29
	(0.20)
More EU integration	-0.61**
	(0.22)
Low political knowledge	ref.
High political knowledge	0.12
	(0.10)
EU integration: 1 X high political knowledge	-0.14
	(0.17)
EU integration: 2 X high political knowledge	-0.090
	(0.17)
EU integration: 3 X high political knowledge	-0.28*
	(0.14)
EU integration: 4 X high political knowledge	-0.44*
	(0.18)
EU integration: 5 X high political knowledge	-0.74***
	(0.22)
More EU integration X high political knowledge	-0.024
	(0.25)
income <1000€	ref.
income 1000-2000€	-0.0020
	(0.064)
income 2000-3000€	-0.011
	(0.067)
income 3000-4000€	-0.059
	(0.080)
income >4000€	-0.0090
	(0.090)
Age: up to 34	ref.
Age: 35 to 49	0.15*
	(0.077)
Age: 50 to 64	0.23**
	(0.073)
Age: 65+	0.18*
	(0.079)
education low	ref.
education middle	-0.011
	(0.056)
education high	-0.099
	(0.061)

West Germany	ref.
East Germany	0.047
	(0.052)
Voting intention: CDU/CSU	ref.
Voting intention: SPD	-0.026
	(0.066)
Voting intention: FDP	0.030
	(0.10)
Voting intention: GRUENE	0.011
	(0.082)
Voting intention: DIE LINKE	0.28***
	(0.073)
Voting intention: AfD	0.34***
	(0.085)
Voting intention: other party	0.25**
	(0.087)
Voting intention: no intention to vote	0.13
	(0.090)
Constant	0.76***
	(0.15)
Observations	1647
R²	0.19

Coefficients from OLS regression with standard errors in parentheses. Dependent variable is the difference in referendum support in October 2016 and October 2015. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix E: Regressions with self-rated political interest as a moderator

Figure E1: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on political interest

Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. First difference in referendum support regressed on EU attitude (categorical) interacted with dummy variable for self-reported political interest. Control variables as in third model of Figure 2. n=1,661; R²=0.19.

Table E1: Regression table for results in Figure E1

	(1)
Referendum support$_{Oct\ 2015}$	-0.38***
	(0.022)
Less EU integration	ref.
EU integration: 1	-0.013
	(0.10)
EU integration: 2	-0.11
	(0.10)
EU integration: 3	-0.12
	(0.090)
EU integration: 4	-0.043
	(0.12)
EU integration: 5	0.036
	(0.15)
More EU integration	-0.34
	(0.20)
Low political interest	ref.
High political interest	0.13
	(0.095)
EU integration: 1 X high political interest	-0.12
	(0.15)
EU integration: 2 X high political interest	-0.043
	(0.15)
EU integration: 3 X high political interest	-0.20
	(0.13)
EU integration: 4 X high political interest	-0.33*
	(0.15)
EU integration: 5 X high political interest	-0.54**
	(0.18)
More EU integration X high political interest	-0.38
	(0.22)
income <1000€	ref.
income 1000-2000€	-0.022
	(0.064)
income 2000-3000€	-0.028
	(0.066)
income 3000-4000€	-0.094
	(0.079)
income >4000€	-0.038
	(0.090)
Age: up to 34	ref.
Age: 35 to 49	0.16*
	(0.077)
Age: 50 to 64	0.22**
	(0.073)
Age: 65+	0.18*
	(0.079)
education low	ref.
education middle	-0.0054
	(0.056)
education high	-0.10
	(0.060)

West Germany	ref.
East Germany	0.052
	(0.051)
Voting intention: CDU/CSU	ref.
Voting intention: SPD	-0.027
	(0.066)
Voting intention: FDP	0.014
	(0.10)
Voting intention: GRUENE	-0.00028
	(0.082)
Voting intention: DIE LINKE	0.29***
	(0.073)
Voting intention: AfD	0.32***
	(0.085)
Voting intention: other party	0.25**
	(0.087)
Voting intention: no intention to vote	0.13
	(0.090)
Constant	0.81***
	(0.14)
Observations	1661
R²	0.19

Coefficients from OLS regression with standard errors in parentheses. Dependent variable is the difference in referendum support in October 2016 and October 2015. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Appendix F: Regressions with EU support measured in October 2016

For the analysis in our main text, we used attitudes towards EU integration as measured in September 2013, i.e., the last time the item run in the panel before the Brexit referendum. We can thereby ensure that our measure of support for EU integration is itself unaffected by the Brexit referendum in any way. However, this usage raises the question whether the item from September 2013 is a valid measure for EU attitudes in 2015-2016. Below we make use of the fact that the EU integration was also included in October 2016 (i.e., in the first wave after the Brexit referendum). The Pearson correlation between EU support in September 2013 and October 2016 is 0.60. The histogram below, showing the first difference in EU support, further shows that large shifts are rare. 69.6% of respondents shift by not more than one point on the six-point scale between these two waves, which are separated by more than three years.

In Figures E2 to E4, we replicate the main results using the October 2016 measure of EU support instead of the measure from September 2013. The results are similar, leading to similar conclusions.

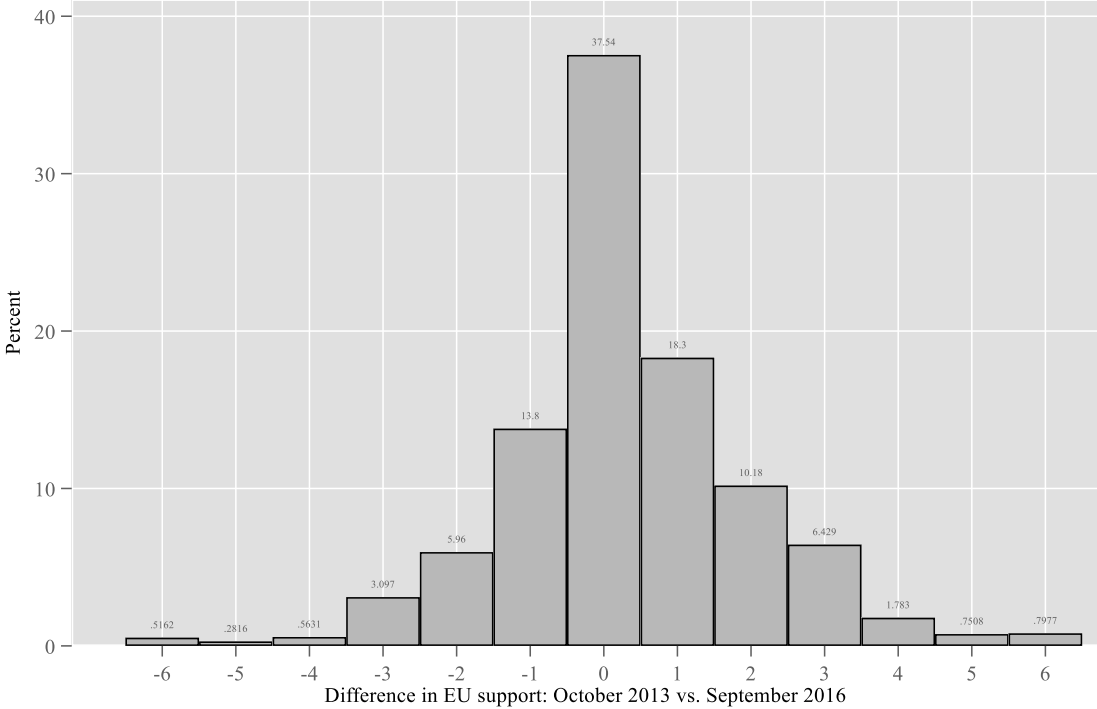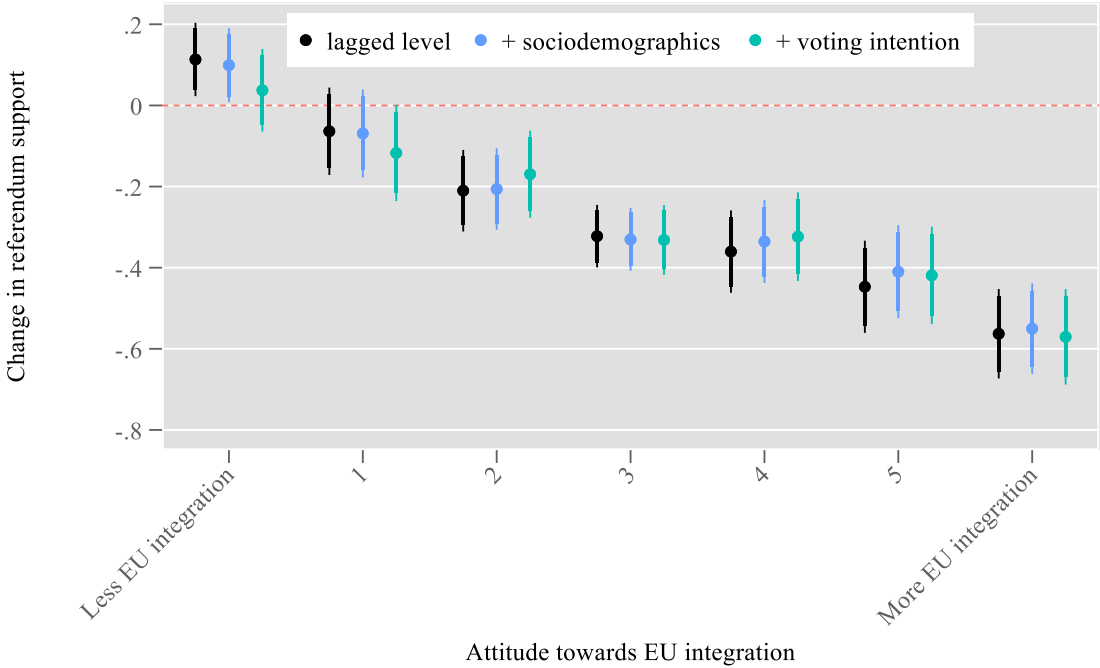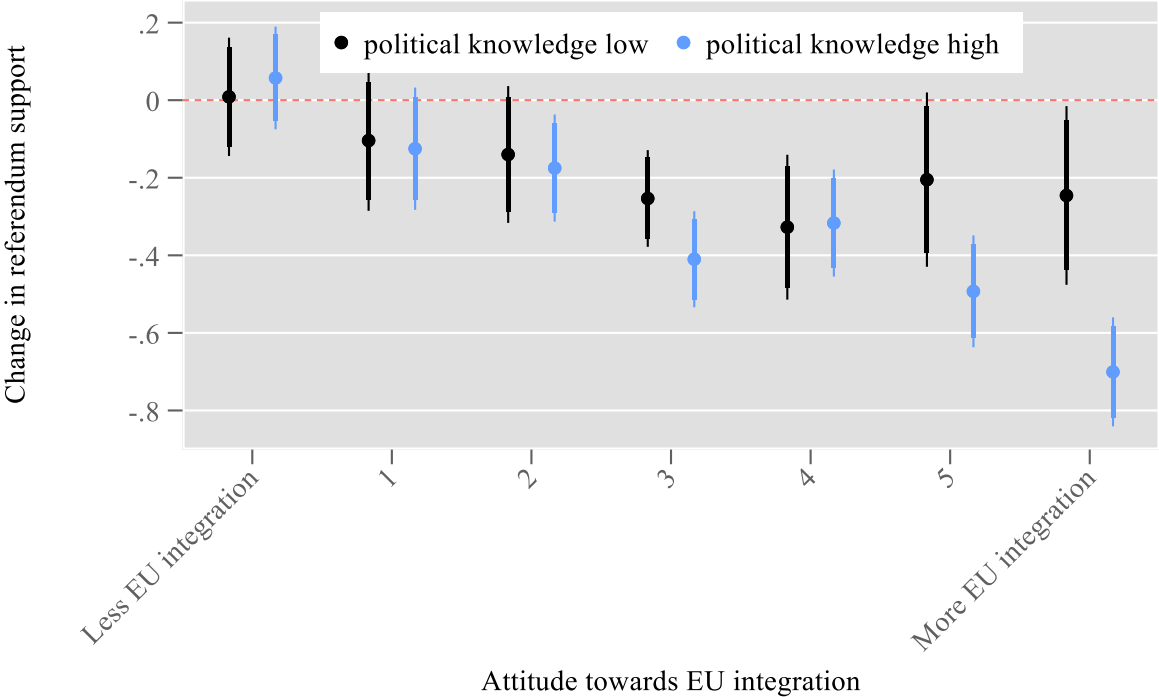Figure F1: First difference of EU support in October 2016 vs. September 2013

Figure F2: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration (as of October 2016)
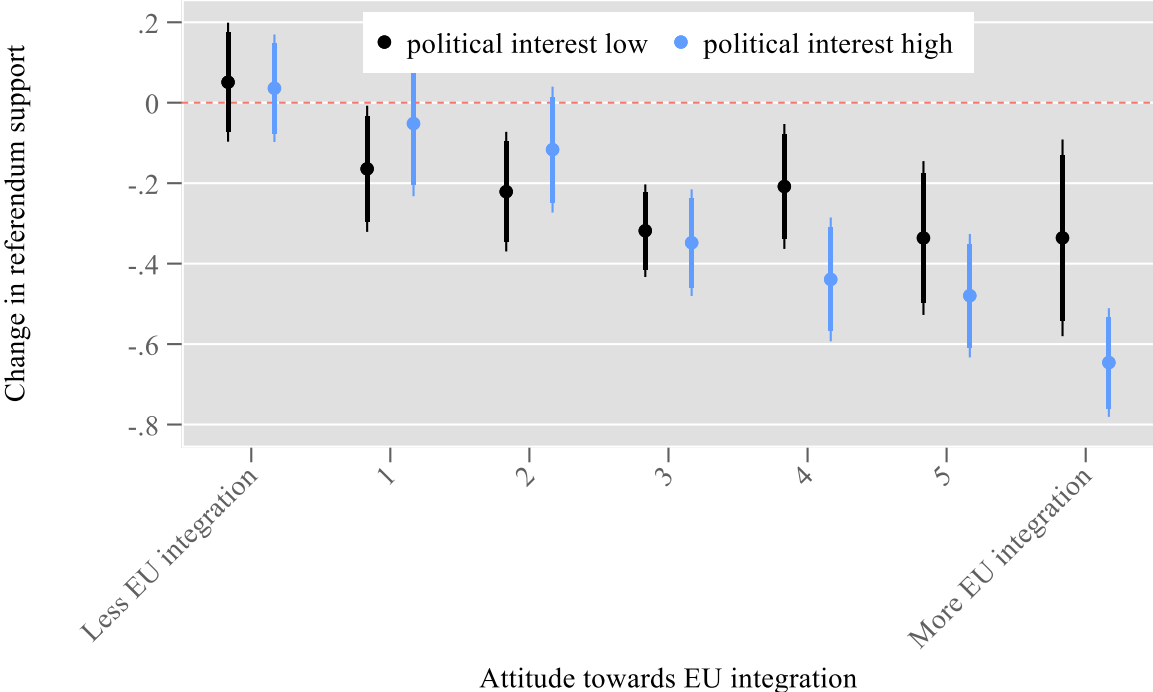

Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. Model 1: n=2,029; R²=0.16; Model 2: n=1,995; R²=0.18. Model 3: n=1,743; R²=0.19.

Figure F3: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on political knowledge

Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. Control variables as in third model of Figure 2. n=1,705; R²=0.20.

Figure F4: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on political interest

Note: Predicted values from OLS regressions with 90% (thick) and 95% (thin) confidence intervals. First difference in referendum support regressed on EU attitude (categorical) interacted with dummy variable for self-reported political interest. Control variables as in third model of Figure 2. n=1,661; R²=0.19.

Appendix G: Alternative fixed effect panel regression analysis

As an alternative to the straightforward cross-sectional OLS specification reported in the article, we estimated fixed effect panel data models. An advantage of this specification is that it uses data from all the available waves, which allows us to explore whether the Brexit referendum effect persists over time. The model is a difference-in-difference style specification with individual-level fixed effects that introduces dummy variables for the (post-Brexit referendum) waves and interacts those with attitudes towards European integration. Thus, we estimate how the effect of post-Brexit referendums waves on individual *i*'s referendum support is contingent on his/her attitude towards EU integration ($EU_{i,t}$). Our first model includes just one dummy (*postBR*) taking the value of zero for all waves before the Brexit referendum and the value of one for all waves after the Brexit referendum. Formally, we estimate:

(D1) $Referendum_{i,t} = \alpha + \beta_1 EU_{i,t} + \beta_2\ postBR_t + \beta_3\ EU_{i,t} XpostBRf_t + \xi_i + \varepsilon_i$

In addition to the interaction, this model includes a fixed effect for individuals (ξ_i). Thus, the model identifies the effects of interest only from variation within individuals over time, disregarding any constant differences between individuals. We estimate a second model that includes separate dummies for each of the available waves (but one), including those from before the Brexit referendum.

This model requires a measure of attitudes towards EU integration at each *t* included in the model (that is, each wave in which referendum support was measured). Because EU integration attitude was only included in some waves, we filled in missing information as follows: We replaced missing values with the last observed valid value of EU integration attitude. Values that were then still missing were replaced with later observations of valid values of EU integration attitude (this is mostly needed to include referendum attitude from wave 2 as EU integration attitude was measured first in wave 3).

In Tables G1 and G2 we list the respective regression tables. In Figure G1 we report the effect of the post-Brexit referendum dummy by attitude towards EU integration from the first model. In Figure G2 we report the effects of the three separate post-Brexit referendum wave dummies by attitude towards EU integration from the second model. In Figure G3 we make further use of the second model and plot predicted values for referendum support by wave— including those before the Brexit referendum—and EU integration attitude from fixed effect regression.

Overall, these alternative specifications lead to similar conclusions as the main models. We see that generalized referendum support decreases among those in favor of further EU integration, and the more so the more intense the preference for further EU integration. In contrast, there is little change among those who do not want further EU integration. Though, and in contrast to the main models, these models indicate a slight tendency among those most opposed to further EU integration to increase their support for referendums—mirroring the opposite tendency among supporters of further EU integration.

The results in Figure G2 shows that the Brexit referendum effect persists over time. There is no sign of referendum support among supporters of further EU integration to recover from the Brexit referendum shock—at least until October 2017. If anything, among moderate supporters of further EU integration support for EU integration even decreases further. Among those who are most in favor of further EU integration, we see almost perfect stability across the three post-Brexit waves, in line with the idea of a one-time, persistent adjustment to the Brexit referendum shock.

The predicted values, now covering all waves, in Figure G3 lead to similar conclusions. In addition, they further validate our identification strategy and the conclusion we have drawn on this basis. Before the Brexit referendum, the groups move in parallel. The bifurcation starts after the Brexit referendum and remains until the end of the observed period.

Table G1: Fixed effect panel regression with one post-Brexit referendum dummy

	(1)
Post Brexit referendum dummy	0.097**
	(0.031)
Less EU integration	ref.
EU integration: 1	-0.014
	(0.032)
EU integration: 2	-0.027
	(0.032)
EU integration: 3	-0.030
	(0.028)
EU integration: 4	0.010
	(0.033)
EU integration: 5	-0.012
	(0.036)
More EU integration	0.063
	(0.039)
Post Brexit referendum dummy X EU integration: 1	-0.071
	(0.050)
Post Brexit referendum dummy X EU integration: 2	-0.11*
	(0.049)
Post Brexit referendum dummy X EU integration: 3	-0.16***
	(0.041)
Post Brexit referendum dummy X EU integration: 4	-0.35***
	(0.048)
Post Brexit referendum dummy X EU integration: 5	-0.42***
	(0.051)
Post Brexit referendum dummy X More EU integration	-0.63***
	(0.052)
Constant	2.91***
	(0.021)
Observations (i, t)	16137
Observations (i)	2,725

Coefficients from fixed effect regression with standard errors in parentheses. Dependent variable is referendum support at t. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure G1: Effect of post-Brexit referendum dummy by attitude towards EU integration
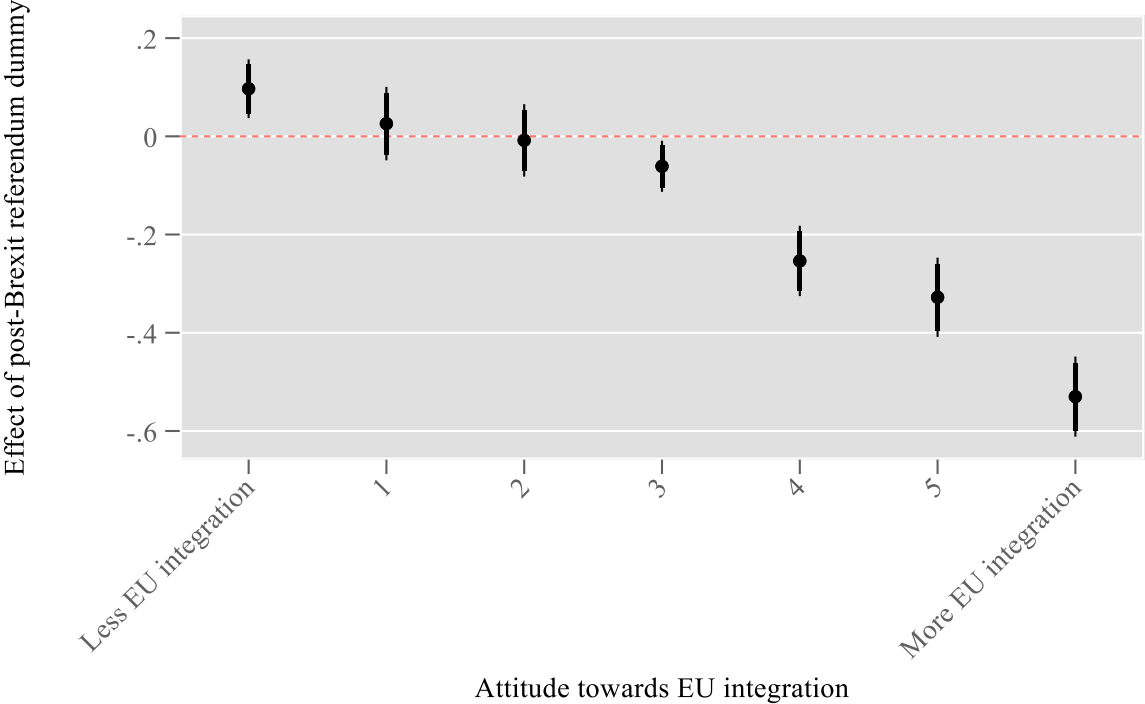
Note: Marginal effects of post-Brexit referendum dummy conditional on attitude towards EU integration from fixed effect regression in Table D1, with 90% (thick) and 95% (thin) confidence intervals.

Table G2: Fixed effect panel regression with post-Brexit referendum dummies per wave

	(1)
July 2013	ref.
Sept 2013	-0.027
	(0.053)
Oct 2014	-0.054
	(0.056)
Oct 2015	0.14*
	(0.056)
Oct 2016	0.10
	(0.058)
July 2017	0.12*
	(0.058)
Sept 2017	0.11
	(0.062)
Less EU integration	ref.
EU integration: 1	-0.068
	(0.063)
EU integration: 2	-0.034
	(0.064)
EU integration: 3	-0.060
	(0.052)
EU integration: 4	-0.0036
	(0.058)
EU integration: 5	0.044
	(0.060)
More EU integration	0.051
	(0.063)
Sept 2013 X EU integration: 1	0.035
	(0.083)
Sept 2013 X EU integration: 2	0.011
	(0.083)
Sept 2013 X EU integration: 3	-0.016
	(0.070)
Sept 2013 X EU integration: 4	0.10
	(0.082)
Sept 2013 X EU integration: 5	-0.13
	(0.092)
Sept 2013 X More EU integration	0.12
	(0.094)
Oct 2014 X EU integration: 1	0.055
	(0.085)
Oct 2014 X EU integration: 2	0.032
	(0.087)
Oct 2014 X EU integration: 3	0.056
	(0.073)
Oct 2014 X EU integration: 4	-0.014
	(0.085)
Oct 2014 X EU integration: 5	-0.016
	(0.092)
Oct 2014 X More EU integration	-0.046
	(0.098)
Oct 2015 X EU integration: 1	0.12
	(0.086)
Oct 2015 X EU integration: 2	-0.015

|	(0.087)
Oct 2015 X EU integration: 3	0.099
	(0.073)
Oct 2015 X EU integration: 4	-0.039
	(0.085)
Oct 2015 X EU integration: 5	-0.13
	(0.093)
Oct 2015 X More EU integration	-0.011
	(0.098)
Oct 2016 X EU integration: 1	-0.054
	(0.090)
Oct 2016 X EU integration: 2	-0.12
	(0.089)
Oct 2016 X EU integration: 3	-0.15
	(0.075)
Oct 2016 X EU integration: 4	-0.23**
	(0.086)
Oct 2016 X EU integration: 5	-0.42***
	(0.089)
Oct 2016 X More EU integration	-0.59***
	(0.091)
July 2017 X EU integration: 1	-0.027
	(0.092)
July 2017 X EU integration: 2	-0.079
	(0.090)
July 2017 X EU integration: 3	-0.056
	(0.076)
July 2017 X EU integration: 4	-0.30***
	(0.088)
July 2017 X EU integration: 5	-0.40***
	(0.091)
July 2017 X More EU integration	-0.65***
	(0.094)
Sept 2017 X EU integration: 1	0.036
	(0.095)
Sept 2017 X EU integration: 2	-0.11
	(0.099)
Sept 2017 X EU integration: 3	-0.18*
	(0.080)
Sept 2017 X EU integration: 4	-0.46***
	(0.089)
Sept 2017 X EU integration: 5	-0.62***
	(0.093)
Sept 2017 X More EU integration	-0.63***
	(0.095)
Constant	2.90***
	(0.041)
Observations (i, t)	16137
Observations (i)	2,725

Coefficients from fixed effect regression with standard errors in parentheses. Dependent variable is referendum support at t. $^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

Figure G2: Effect of post-Brexit referendum wave dummies by attitude towards EU integration
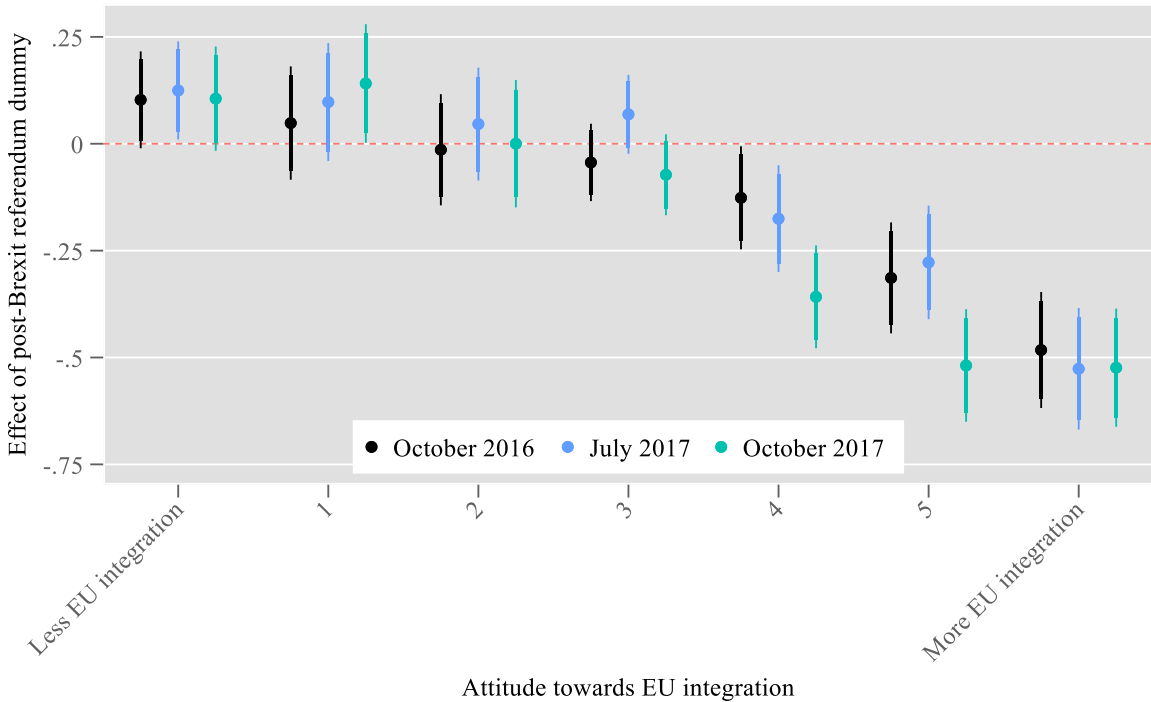
Note: Marginal effects of post-Brexit referendum wave dummies conditional on attitude towards EU integration from fixed effect regression in Table D2, with 90% (thick) and 95% (thin) confidence intervals.

Figure G3: Predicted values for referendum support by wave and EU integration attitude from fixed effect regression
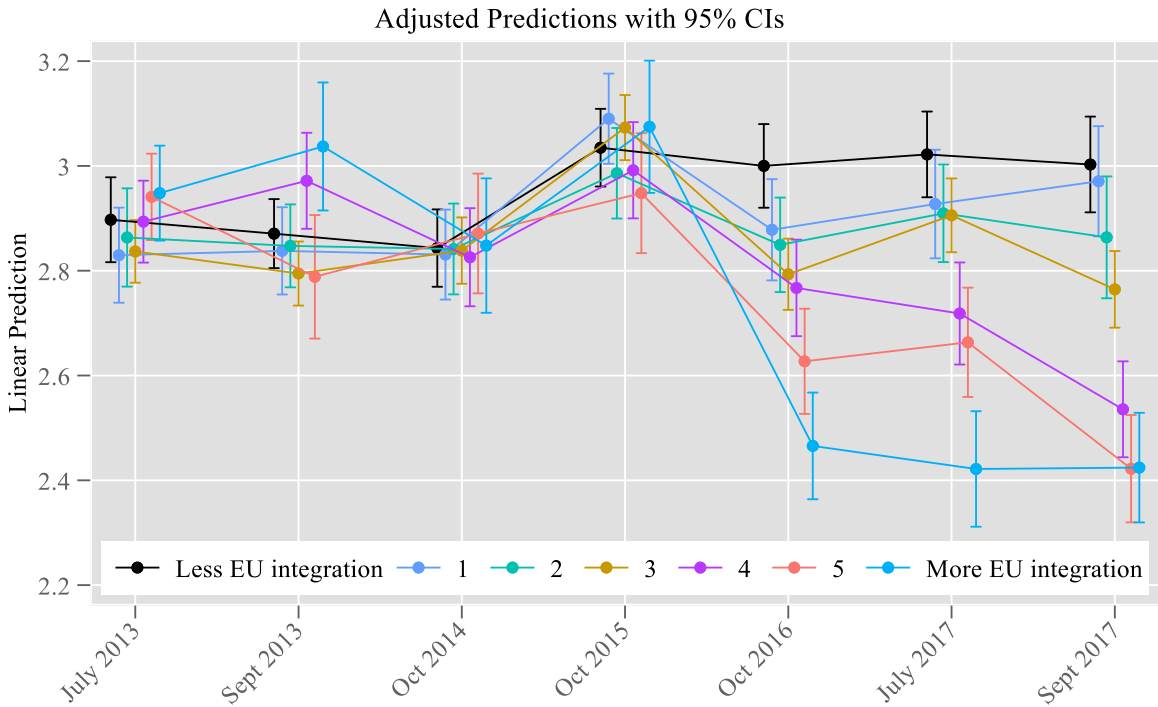
Note: Predicted values for referendum support by wave and EU integration attitude from the fixed effect regression in Table D2 with 95% confidence intervals.

Appendix H: Referendum support in further subgroups over time

Figure H1: Referendum support by voting intention
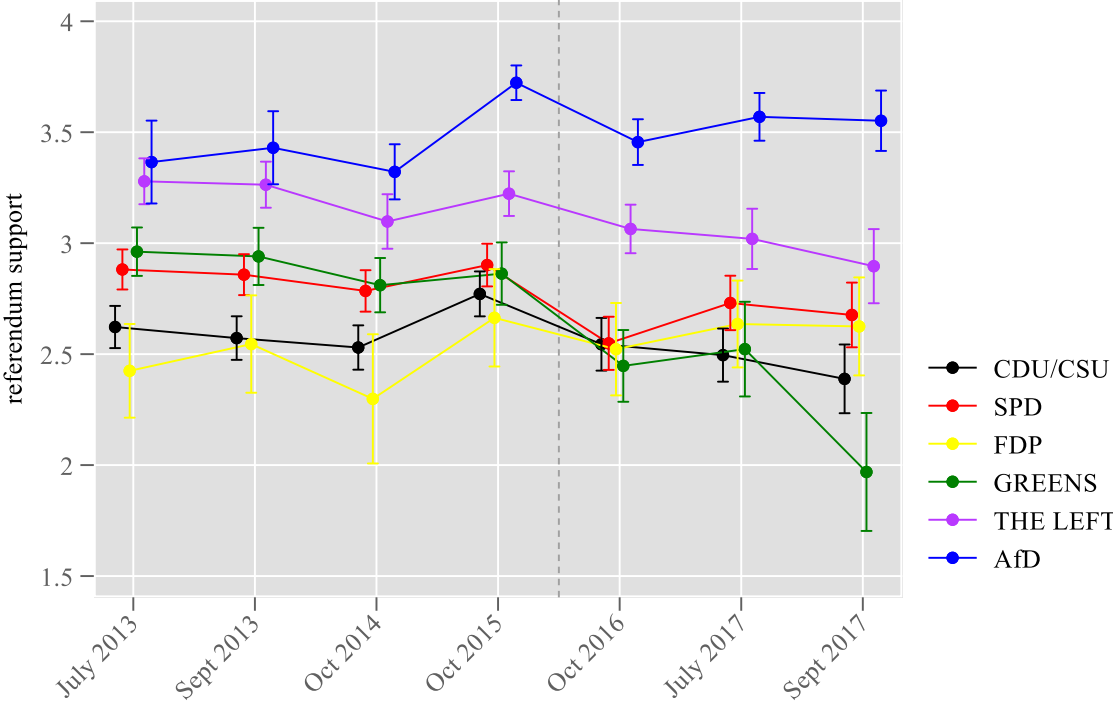
Note: Mean (with 95% confidence intervals) by voting intention in same wave.

Figure H2: Referendum support by education
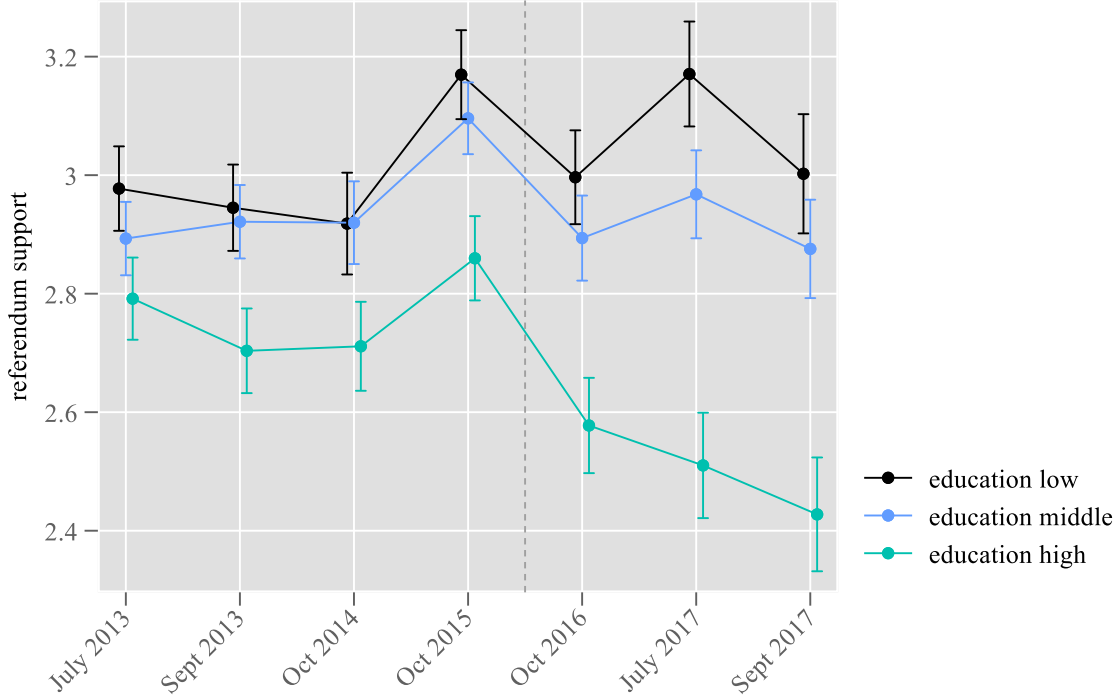
Note: Mean (with 95% confidence intervals) by education. Education was measured in waves 1, 10 and 18 and values were carried forward in time.

Appendix I: Regressions with direct democracy at the federal level as a moderator

In this section of the appendix, we investigate whether opinion updating is conditioned by prior experience with direct democracy. It is plausible that the Brexit referendum had stronger effects where people had less prior immediate experiences with direct democracy themselves. Where they had such experiences, individuals plausibly held more crystalized attitudes that were less susceptible to change through transnational learning from the Brexit referendum. While we cannot test this expectation regarding variation across countries, we can exploit variation in direct democracy at the subnational level in Germany.

To measure the presence of direct democracy at the level of Germany's 16 federal states, we relied on two measures. First, we simply coded the number of referendums at the state level using the information provided by the "Volksentscheidsranking" 2016 by the NGO "Mehr Demokratie"[1]. Second, we used the subnational direct democracy index (snDDi) from Leemann and Stadelmann-Steffen (2022). For an easy interpretation, we estimated models with dichotomized version of both variables—coding whether any referendum took place (7 states) and doing a median split of the snDDi. We then estimated random-intercept, random-slope multilevel models with states as level 2 including a cross-level interaction between EU support and direct democracy at the state level. In contrast to the main models, we treated EU support as a continuous variable. This seems well justified in light of the almost linear pattern revealed in Figure 2 and is advisable in light of the limited number of level 2 observations (16) as it reduces the number of random-slope parameters. The results are shown as predicted probability plots below.

Using both measures, there is no evidence that opinion updating was stronger among Germans residing in states with more experiences of direct democracy. This suggests that our findings for the German case may well extend to other EU member states, at least to the majority of

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[1] URL: https://www.mehr-demokratie.de/fileadmin/pdf/volksentscheids-ranking_2016.pdf.

member states with low to moderate levels of experiences with direct democracy (see: Altmann 2019). Still, we caution against drawing too strong out-of-sample conclusions from this subnational analysis. It is still very plausible that in countries with massive own experiences of direct democracy (e.g., Italy), the attitudinal response to the Brexit referendum was weaker. Especially, for a country like Switzerland, with massive experience with direct democracy and without EU membership, it is an open question whether we could see a similar pattern. If so, it is likely much weaker.

Figure I1: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on referendums at the state level
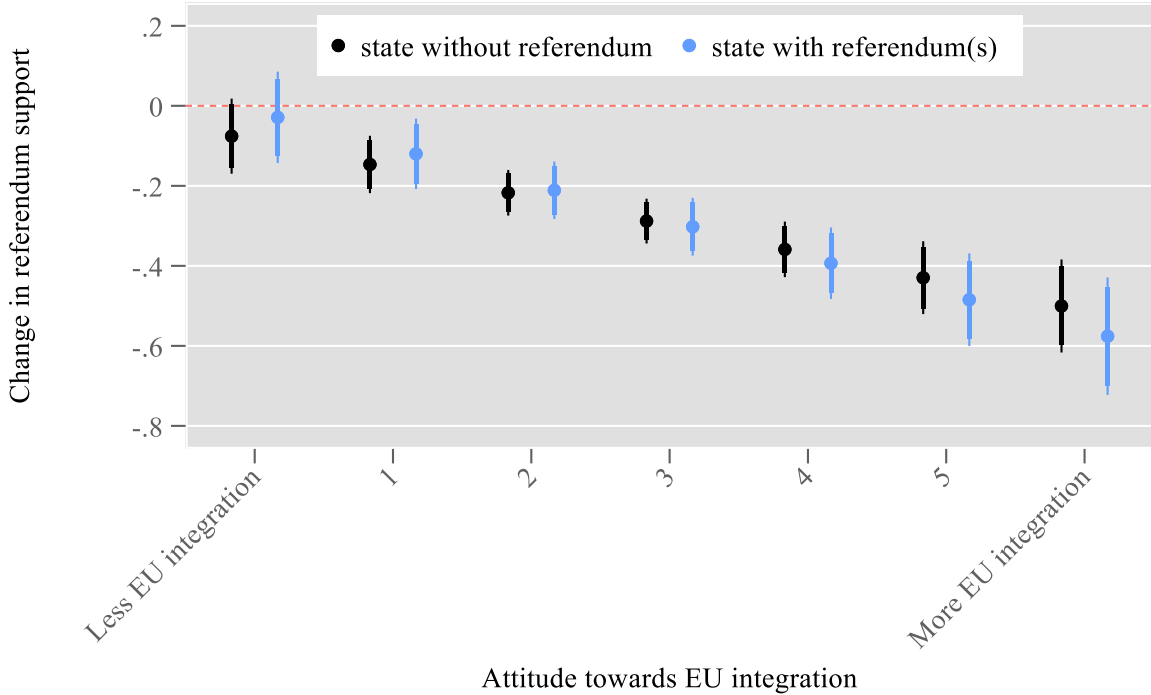
Note: Predicted values from multilevel regressions with 90% (thick) and 95% (thin) confidence intervals. First difference in referendum support regressed on EU attitude (continuous) interacted with dummy variable for direct democracy at the state level. Control variables as in third model of Figure 2. n=1,663.

Figure I2: Predicted change in referendum support between October 2015 and October 2016 by attitude toward European integration conditional on direct democracy index at the state level
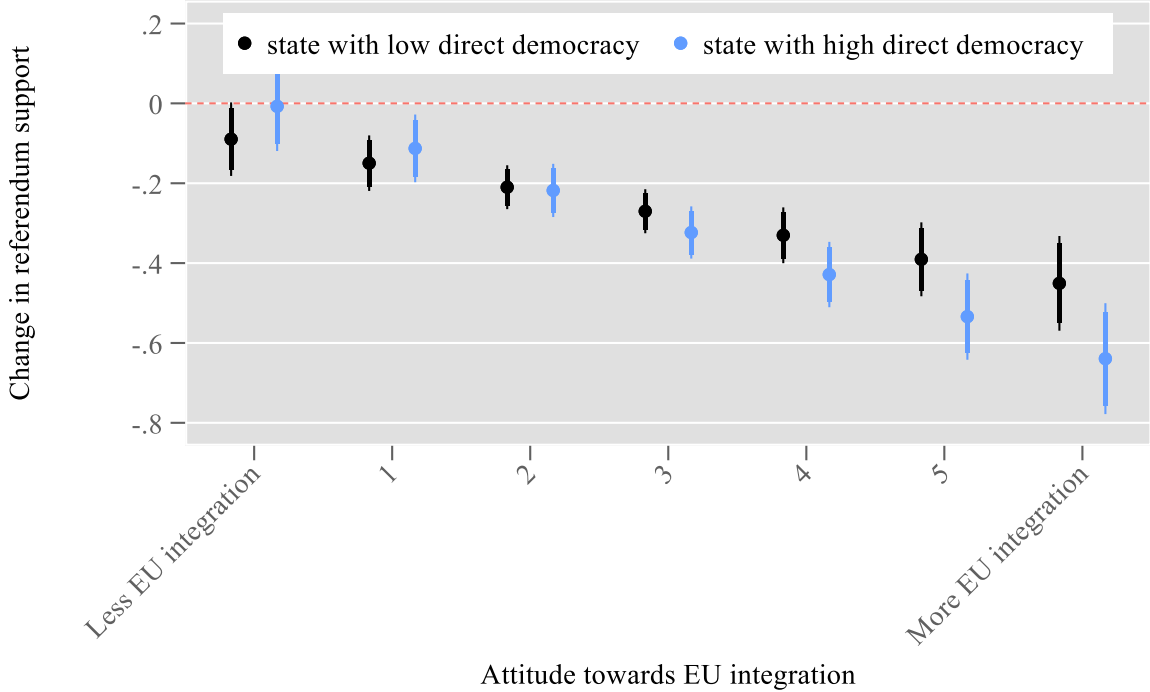
Note: Predicted values from multilevel regressions with 90% (thick) and 95% (thin) confidence intervals. First difference in referendum support regressed on EU attitude (continuous) interacted with dummy variable for direct democracy at the state level. Control variables as in third model of Figure 2. n=1,663.

References

Altman, D. (2019): *Citizenship and Contemporary Direct Democracy*. Cambridge: Cambridge University Press.

Leemann, L., & Stadelmann-Steffen, I. (2022). Satisfaction with democracy: When government by the people brings electoral losers and winners together. *Comparative Political Studies*, 55(1), 93-121.