Supplementary Online Material

Polarization in the wake of the European refugee crisis – a longitudinal study of the Finnish political elite's attitudes towards refugees and the environment

Reliability of the attitude measurement

For refugee attitudes, the two HS items were, "If the state offers to establish a reception center for asylum seekers in my municipality, the offer should be accepted." [Jos valtio tarjoaa turvapaikanhakijoiden vastaanottokeskuksen perustamista kotikuntaani, tarjous pitää hyväksyä.] and "My municipality should take an active part in the integration of asylum seekers." [Kotikuntani pitäisi ottaa aktiivisesti vastaan kotoutettavia turvapaikanhakijoita.] For environmental attitudes, the matching items were "Economic growth and job creation should be prioritized over the environment when the two are in conflict" [Talouskasvu ja työpaikkojen luominen tulisi asettaa ympäristöasioiden edelle silloin kun nämä kaksi ovat keskenään ristiriidassa] and "In all decision-making, the environmental impact of the decisions should be considered, and when called for, projects that are harmful to the environment should be abandoned" [Kaikessa päätöksenteossa pitäisi arvioida vaikutukset ympäristöön ja tarvittaessa luopua ympäristölle haitallisista hankkeista.] The items in the HS VAA were all responded to on a scale from 1 (completely disagree) to 5 (completely agree).

The YLE refugee ($r = .80$ and $r = .79$, respectively) and environmental items ($r = .76$ and $r = .54$, respectively) were both highly correlated with the HS items, indicating that our measures, although only single items, could be trusted.

Attrition

A relatively large proportion of the participants in the longitudinal sample only had data for the baseline measurement of attitudes. However, regarding both refugee attitudes and environment attitudes those who had data only from 2012 did not differ from those who had data available from both 2012 and 2017 (for refugee attitudes, $M = 2.13$, $SD = 0.88$ and $M = 2.12$, $SD = 0.88$, respectively, $t(12872) = -0.54$, $p = .589$, $d = -.01$; for environmental attitudes, $M = 3.02$, $SD = 0.82$ and $M = 3.03$, $SD = 0.80$, respectively, $t(13367) = -1.33$, $p = .183$, $d = -.02$).

Between-party differences were examined with binomial probit regression, for which only having 2012 data was coded 1, and having both 2012 and 2017 data was coded 0. Candidates from some parties were more likely to have data available from both time points, $\Delta\chi^2(7) = 31.99$, $p < .001$. Contrasts conducted with the *multcomp* -package (Hothorn, Bretz, & Westfall, 2008) showed that the Centre Party Finland had more and the National Coalition Party less candidates with both sets of data. However, the differences between parties were small, with 64.09% to 69.21% of the candidates having only 2012 data.

Further probing the party $\times$ attitude interactions showed that acceptance of refugees was in some parties associated with having 2017 data available ($\Delta\chi^2(8) = 19.11$, $p = .014$). More specifically, within the Left Alliance, being anti-refugee predicted not having 2017 data available ($b = -0.14$, p-adjusted = .033; 1 SD below the mean level, P(only 2012 data) = .67, 1 SD above the mean level, P(only 2012 data) = .60). Also attitude towards the environment was in some parties associated with having 2017 data available ($\Delta\chi^2(8) = 31.84$, $p < .001$). Again, specifically, within the Left Alliance, being anti-environment predicted not having 2017 data available ($b = -0.17$, p-adjusted = .006; 1 SD below the mean level, P(only 2012 data) = .69, 1 SD above the mean level, P(only 2012 data) = .58).

In sum, there were no general differences between those who had only 2012 data available and those that had both 2012 and 2017 data available. However, within the Left Alliance, participants who in 2012 were more anti-refugee and more anti-environment were more likely not to have also 2017 data, suggesting that they may have chosen not to run in 2017.

Simulation: Change Score Model vs. Testing for Differences between Correlations in Testing H2

Testing for the difference in correlations between T1 and T2 could be arguably an intuitive way to test H2. To show that this method would give the results as our correlated change score model, we ran a simulation where a .10 correlation increased to a .20 correlation in a group of 1000 individuals over time while both attitudes also had within-party longitudinal stability (simulated at .70). This simulation can be reproduced with the analysis script provided at https://osf.io/mdkjr/. Testing for the change in correlation was more reliable from the correlation between change scores as compared to directly testing for the difference between two correlations. The below figure shows that the mean-estimates for both are very close to .10 but that there is much more spread for the direct test than for test from change scores. Test from change scores also had more statistical power to detect the simulated change (perfect 1.00 with change scores vs. .87 in direct test, when type-I error is .05). This is because the change score model controls for longitudinal stability. Also, SEM can better deal with missing values, as well as with the possibility that attrition could be correlated with covariates. For these reasons, we did not change our way of testing H2. However, we realized that a precondition for H2 and our testing of it is that there is a correlation between attitudes at T2 (there is). We now report in the supplementary online-material the correlations at T1, T2, and the longitudinal correlations, both within and across parties.
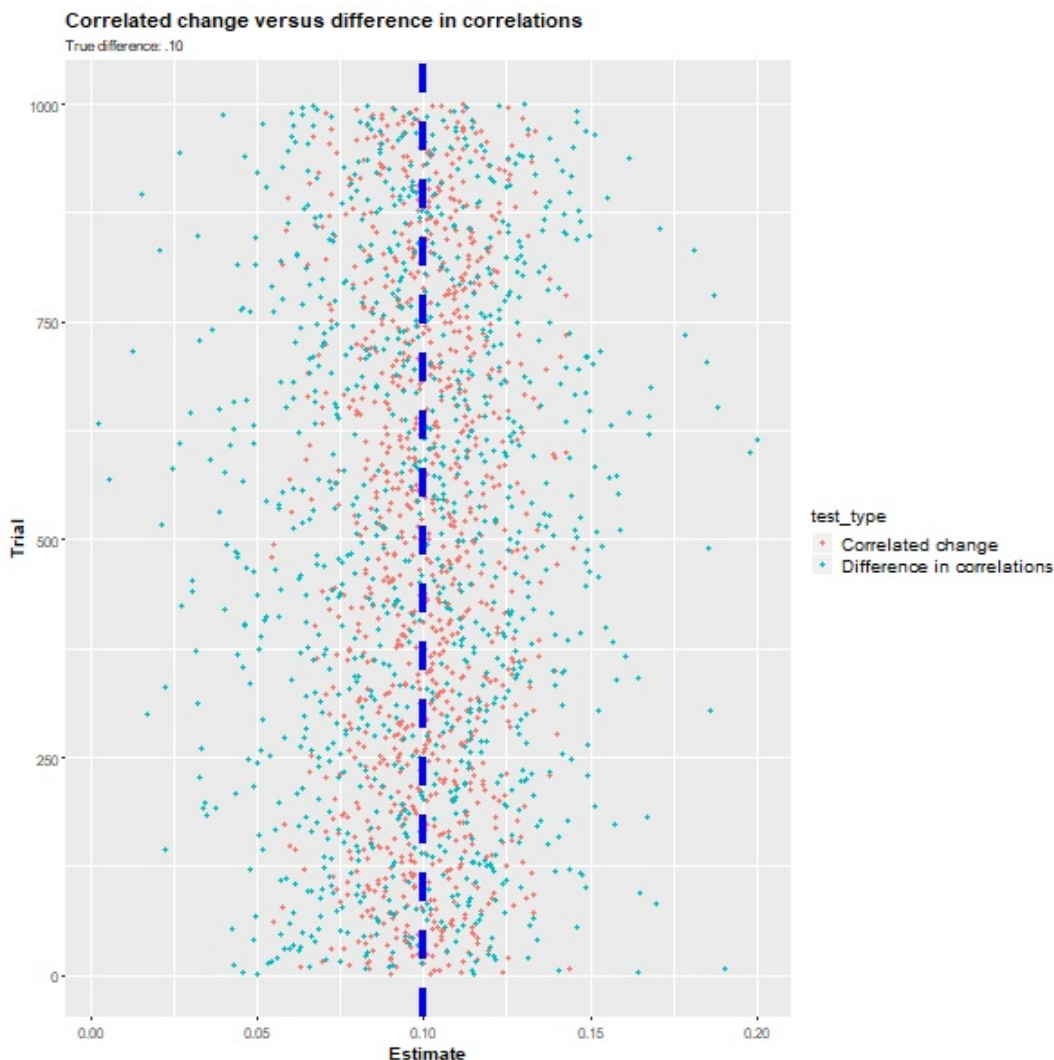
Table S1
Descriptive statistics, item response frequencies, and zero-order correlations in Centre Party

Variable	n	M	SD	Item responses (%)				Correlations			
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	3781	2.64	0.80	7.72	33.11	46.20	12.96	-	**.50**	**.17**	**.10**
2. Refugees acceptance 2017	1482	2.93	0.78	4.45	21.32	51.42	22.81	**.49**	-	**.10**	**.08**
3. Environment preservation 2012	3946	2.88	0.76	3.27	25.62	50.94	20.17	**.17**	**.10**	-	**.42**
4. Environment preservation 2017	1506	2.80	0.72	2.52	30.61	51.53	15.34	**.10**	**.08**	**.43**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S2

Descriptive statistics, item response frequencies, and zero-order correlations in Christian Democrats

Variable	n	M	SD	Item responses (%)				Correlations			
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	918	3.06	0.72	2.07	16.67	54.68	26.58	-	**.51**	**.10**	.08
2. Refugees acceptance 2017	284	3.19	0.69	1.41	11.62	53.52	33.45	**.52**	-	.12	**.16**
3. Environment preservation 2012	912	3.06	0.75	2.30	18.31	50.88	28.51	**.09**	.10	-	**.44**
4. Environment preservation 2017	288	2.96	0.71	1.04	23.96	53.12	21.88	.08	**.18**	**.44**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S3
Descriptive statistics, item response frequencies, and zero-order correlations in Finns Party

Variable	n	M	SD	Item responses (%)				Correlations			
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	1777	2.00	0.87	32.81	39.28	23.13	4.78	-	**.46**	**.12**	**.19**
2. Refugees acceptance 2017	593	1.60	0.78	56.16	30.52	10.62	2.70	**.46**	-	**.09**	**.21**
3. Environment preservation 2012	1762	2.67	0.87	8.23	35.30	37.51	18.96	**.12**	**.09**	-	**.43**
4. Environment preservation 2017	596	2.44	0.81	8.39	51.34	28.19	12.08	**.18**	**.21**	**.43**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S4
Descriptive statistics, item response frequencies, and zero-order correlations in Green League

Variable	n	M	SD	Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
				Item responses (%)				Correlations			
1. Refugee acceptance 2012	1652	3.59	0.57	0.24	3.39	33.84	62.53	-	**.40**	**.18**	**.15**
2. Refugees acceptance 2017	620	3.75	0.49	0.65	0.65	22.10	76.61	**.40**	-	**.12**	**.22**
3. Environment preservation 2012	1682	3.70	0.53	0.65	1.55	24.97	72.83	**.19**	**.15**	-	**.32**
4. Environment preservation 2017	623	3.74	0.48	0.16	1.61	21.99	76.24	**.17**	**.27**	**.35**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S5
Descriptive statistics, item response frequencies, and zero-order correlations in Left Alliance

| Variable | n | M | SD | Item responses (%) | | | | Correlations | | | |
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	1568	3.32	0.78	2.68	11.29	36.93	49.11	-	**.57**	**.29**	**.34**
2. Refugees acceptance 2017	600	3.57	0.66	1.33	5.67	27.33	65.67	**.56**	-	**.29**	**.33**
3. Environment preservation 2012	1618	3.29	0.77	2.35	11.93	40.11	45.61	**.30**	**.32**	-	**.48**
4. Environment preservation 2017	614	3.39	0.67	0.81	7.98	42.51	48.70	**.37**	**.32**	**.47**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S6
Descriptive statistics, item response frequencies, and zero-order correlations in National Coalition Party

| Variable | n | M | SD | Item responses (%) | | | | Correlations | | | |
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	3917	2.78	0.80	6.28	26.91	49.66	17.16	-	**.53**	**.17**	**.19**
2. Refugees acceptance 2017	1341	3.01	0.75	3.28	17.60	54.14	24.98	**.52**	-	**.15**	**.17**
3. Environment preservation 2012	4029	2.87	0.79	4.47	25.24	48.97	21.32	**.16**	**.15**	-	**.47**
4. Environment preservation 2017	1363	2.77	0.73	2.35	33.60	48.86	15.19	**.19**	**.17**	**.47**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S7
Descriptive statistics, item response frequencies, and zero-order correlations in Social Democratic Party

Variable	n	M	SD	Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
				Item responses (%)				**Correlations**			
1. Refugee acceptance 2012	3035	3.02	0.79	3.95	18.42	49.03	28.60	-	**.54**	**.18**	**.18**
2. Refugees acceptance 2017	1118	3.28	0.70	1.88	8.86	48.30	40.97	**.53**	-	**.21**	**.17**
3. Environment preservation 2012	3113	3.06	0.78	2.96	18.44	48.19	30.42	**.18**	**.21**	-	**.46**
4. Environment preservation 2017	1149	3.07	0.69	0.96	17.58	54.83	26.63	**.19**	**.19**	**.46**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S8

Descriptive statistics, item response frequencies, and zero-order correlations in Swedish People's Party

| Variable | *n* | *M* | *SD* | Item responses (%) | | | | Correlations | | | |
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	762	3.31	0.73	1.57	10.76	42.26	45.41	-	**.51**	**.28**	**.24**
2. Refugees acceptance 2017	276	3.70	0.57	1.45	1.09	23.55	73.91	**.51**	-	**.19**	.12
3. Environment preservation 2012	743	3.13	0.80	2.15	19.65	41.59	36.61	**.28**	**.22**	-	**.45**
4. Environment preservation 2017	272	3.11	0.77	1.10	21.32	43.38	34.19	**.25**	**.14**	**.42**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S9

Descriptive statistics, item response frequencies, and zero-order correlations in an aggregate group consisting of Centre Party, National Coalition Party, and Social Democratic Party

| Variable | *n* | *M* | *SD* | Item responses (%) | | | | Correlations | | | |
				Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
1. Refugee acceptance 2012	10733	2.80	0.81	6.13	26.69	48.26	18.91	-	**.54**	**.19**	**.19**
2. Refugees acceptance 2017	3941	3.06	0.76	3.32	16.52	51.46	28.70	**.53**	-	**.17**	**.16**
3. Environment preservation 2012	11088	2.93	0.78	3.62	23.47	49.45	23.47	**.19**	**.17**	-	**.46**
4. Environment preservation 2017	4018	2.87	0.73	2.02	27.90	51.57	18.52	**.19**	**.17**	**.46**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S10

Descriptive statistics, item response frequencies, and zero-order correlations in an aggregate group consisting of Finns Party and Green League

Variable	n	M	SD	Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
				Item responses (%)				Correlations			
1. Refugee acceptance 2012	3429	2.76	1.08	17.12	21.99	28.29	32.60	-	**.80**	**.50**	**.61**
2. Refugees acceptance 2017	1213	2.70	1.26	27.78	15.25	16.49	40.48	**.79**	-	**.58**	**.68**
3. Environment preservation 2012	3444	3.17	0.89	4.53	18.82	31.39	45.27	**.52**	**.59**	-	**.66**
4. Environment preservation 2017	1219	3.11	0.93	4.18	25.92	25.02	44.87	**.62**	**.69**	**.66**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S11
Descriptive statistics, item response frequencies, and zero-order correlations among all study participants

Variable	n	M	SD	Completely disagree	Somewhat disagree	Somewhat agree	Completely agree	1.	2.	3.	4.
				Item responses (%)				Correlations			
1. Refugee acceptance 2012	17410	2.88	0.88	7.57	23.15	43.38	25.89	-	**.65**	**.29**	**.35**
2. Refugees acceptance 2017	6314	3.07	0.90	7.67	14.35	41.32	36.66	**.64**	-	**.30**	**.35**
3. Environment preservation 2012	17805	3.02	0.81	3.55	21.10	44.85	30.50	**.30**	**.32**	-	**.53**
4. Environment preservation 2017	6411	2.98	0.78	2.23	25.16	45.38	27.23	**.36**	**.36**	**.54**	-

Note: Correlations above/below diagonal are Pearson/Spearman coefficients. Boldface correlations are statistically significant, $p < .05$

Table S12
Variance estimates for latent change scores for each party

Party	Acceptance of Refugees			Preservation of the natural environment		
	Est	SE	p	Est	SE	p
Centre Party	0.62	0.01	<.001	0.54	0.01	<.001
Christian Democrats	0.47	0.04	<.001	0.59	0.05	<.001
Finns Party	0.75	0.04	<.001	0.80	0.05	<.001
Green League	0.15	0.02	<.001	0.04	0.02	.034
Left Alliance	0.21	0.02	<.001	0.06	0.03	.017
National Coalition Party	0.56	0.02	<.001	0.61	0.02	<.001
Social Democratic Party	0.51	0.02	<.001	0.58	0.02	<.001
Swedish People's Party	0.39	0.04	<.001	0.68	0.06	<.001

Note: Est = latent change score variance estimate. SE = Standard error of the estimate. One-sided test used for testing the statistical significance of the latent variance estimates because variance estimates can only have positive estimates.