Does education decrease Euroscepticism? A regression discontinuity design using compulsory schooling reforms in four European countries.

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Online Appendix

Appendix A

Table i gives an overview of tested compulsory schooling reforms as listed in Cavaille and Marshall (2019). We dropped the reforms in Finland and Germany, because these reforms took place in separate regions. Although we can specify specific regions in the ESS, this means we have to assume people did not move their entire life. Given this uncertainty, we dropped both country-reforms (Both country-reforms also did not yield a significant increase in years of schooling).

Table i. Analysed compulsory schooling reforms

Country	Year of reform	Change	First cohort affected
Austria	1962	14 to 15	1948
Belgium	1983	14 to 18	1969
Denmark	1958	14 to 16	1944
France	1967	14 to 16	1953
Greece	1975	12 to 15	1963
Ireland	1967	14 to 15	1953
Italy	1963	11 to 14	1952
The Netherlands	1974	15 to 16	1959
Portugal	1964	12 to 14	1952
Spain	1969	12 to 14	1957
Sweden	1965	14 to 16	1951
Great Britain	1947	14 to 15	1933
Great Britain	1972	15 to 16	1957

Appendix B

Below we demonstrate that (a) for five reforms we find a significant increase in the average years of education at the cut-off and (b) that the pooled result is robust for different bandwidths.

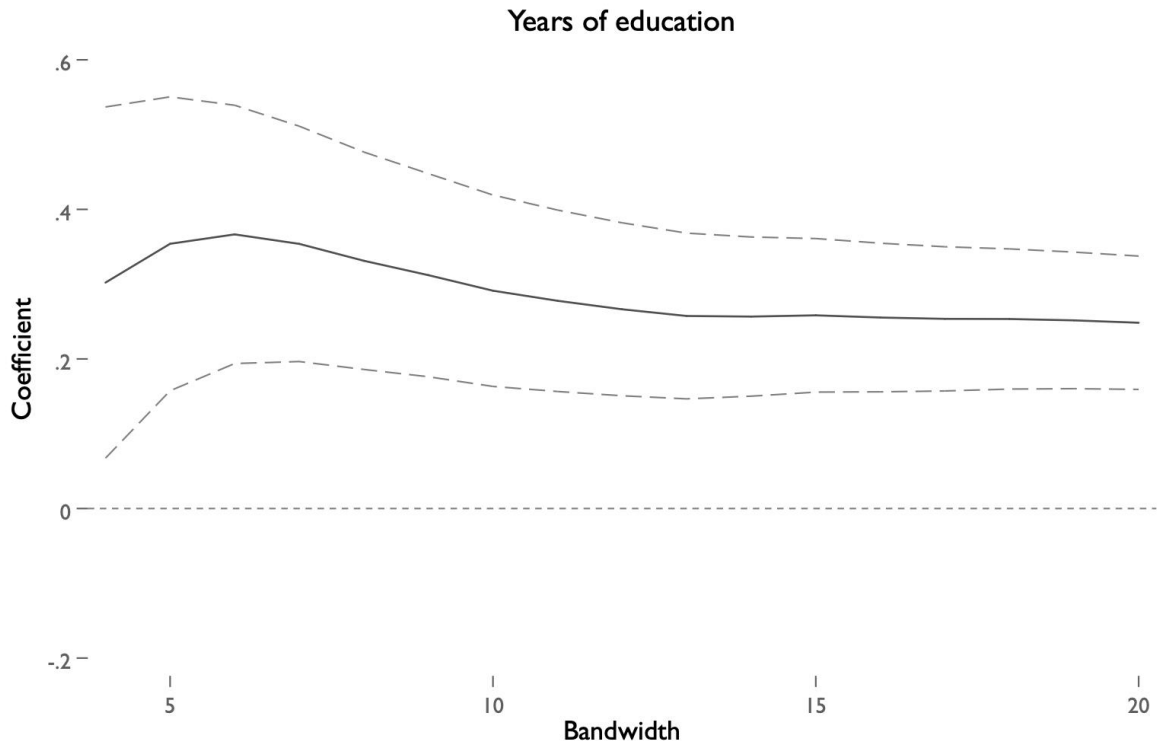**Table ii.** Effect of reforms for years of education

Compulsory schooling reform	Years of education
Great Britain (1947)	0,520**
	(0,219)
Optimal bandwidth	5.098
N	1816
Great Britain (1972)	0,304**
	(0,151)
Optimal bandwidth	5.981
N	2706
Netherlands (1974)	0,246**
	(0,120)
Optimal bandwidth	9.560
N	4600
Denmark (1958)	0,453*
	(0,273)
Optimal bandwidth	6.932
N	2330
Sweden (1965)	0,292*
	(0,171)
Optimal bandwidth	6.766
N	2754
Pooled	0,292***
	(0,065)
Optimal bandwidth	9.960
N	20,000

Note: Reduced-form RDs. Conventional estimates are used. Standard errors are indicated within parenthesis. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel. These models include country-reform fixed-effects.

Table iii. Effect of reforms for years of education (ineffective)

Compulsory schooling reform	Years of education
Austria (1962)	-0.107
	(0.189)
Optimal bandwidth	7.081
N	1878
Belgium (1983)	0.0895
	(0.209)
Optimal bandwidth	4.187
N	1921
France (1967)	0.234
	(0.170)
Optimal bandwidth	9.640
N	4278
Greece (1975)	0.294
	(0.283)
Optimal bandwidth	6.968
N	2212
Ireland (1967)	0.205
	(0.126)
Optimal bandwidth	9.661
N	4692
Italy (1963)	-0.671
	(0.550)
Optimal bandwidth	9.299
N	704
Portugal (1964)	0.353
	(0.289)
Optimal bandwidth	7.993
N	3109
Spain (1969)	-0.0261
	(0.261)
Optimal bandwidth	7.221
N	3170

Note**:** Reduced-form RDs. Conventional estimates are used. Standard errors are indicated within parenthesis. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel.

Figure i. Estimates effect of reforms for years of education for different bandwidths

Note: Conventional estimates are used. Dotted lines indicate 95% confidence interval. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel. These models include country-reform fixed-effects.

Appendix C

We discuss the assumption of monotonicity and the exclusion restriction in the main article. Below we demonstrate that also (a) no sorting takes place around the reform using the McCrary's density graph and (b) that the cohorts just below and above the cut-off are similar in age, gender and the educational background of the parents.
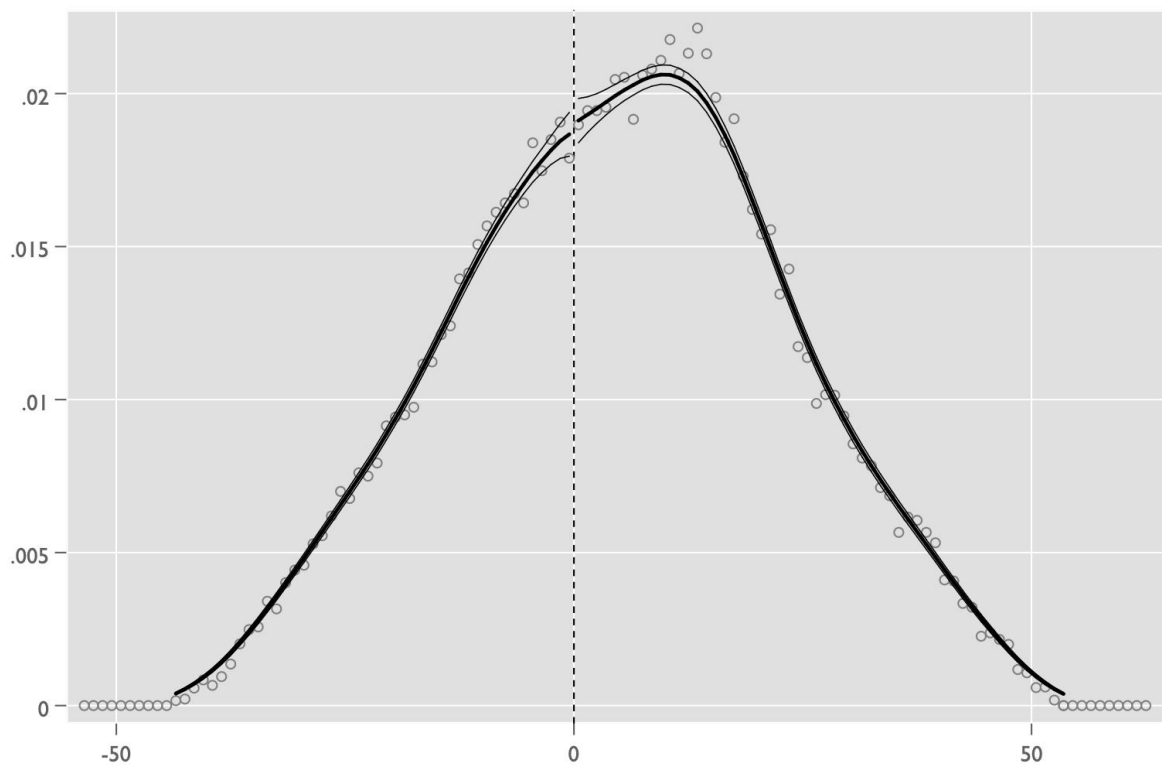
Figure ii. McCrary's density graph

Note: Density graph based on the pooled sample. Log difference in height: 0.0120 (0.0309).

Table iv. Difference between treatment and control group on background variables

	Gender	Age	Secondary Father	Secondary Mother
Estimate	-0.0283	0.00427	0.0427	-0.00781
	(0.0278)	(0.00981)	(0.0305)	(0.0323)
Optimal bandwidth	12.264	7.228	10.017	8.798
N	26084	15825	19556	16425

Note: Reduced-form RDs. Conventional estimates are used. Standard errors are indicated within parenthesis. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel. These models include country-reform fixed effects.

Appendix D

Table v. 'Fuzzy' RD results for each individual country-reform

Compulsory schooling reform	*European Integration*	*Trust in European Parliament*
Great Britain (1947)	0.0598	-0.0511
	(0.159)	(0.240)
Optimal bandwidth	5.098	5.479
N	1178	1575
First stage	0.976**	0.493**
	(0.276)	(0.224)
Great Britain (1972)	0.0330	0.655*
	(0.249)	(0.393)
Optimal bandwidth	8.383	9.057
N	2829	4399
First stage	0.329**	0.233**
	(0.152)	(0.108)
Netherlands (1974)	0.421	0.389+
	(0.342)	(0.202)
Optimal bandwidth	8.014	8.333
N	2838	4057
First Stage	0.281*	0.365**
	(0.160)	(0.133)
Denmark (1958)	0.0402	0.102
	(0.274)	(0.170)
Optimal bandwidth	9.612	11.243
N	2185	3463
First stage	0.378	0.450**
	(0.291)	(0.220)
Sweden (1965)	0.272	-0.0357
	(0.302)	(0.276)
Optimal bandwidth	6.134	5.454
N	1938	2127
First stage	0.346	0.333*
	(0.211)	(0.198)

Note: Fuzzy RDs. Conventional estimates are used. Standard errors are indicated within parenthesis. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel.

Table vi: Estimates reduced-form RD for Euroscepticism

	European integration	*Trust in European Parliament*
Estimate	0.0600	0.0764**
	(0.0371)	(0.0373)
Optimal bandwidth	9.895	7.087
N	13,394	14,462

Note: Conventional estimates are used. Standard errors are indicated within parenthesis. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$. All calculations use local linear regression, with an optimal bandwidth and a triangular kernel. These models include country-reform fixed effects.

Appendix F

We calculate the correlation coefficient between years of education and (a) European integration and (b) trust in the European Parliament for 10 cohorts just below the cut-off (control) and 10 cohorts just above the cut-off (treatment). The correlation coefficients are largely identical for the treatment and the control group for both dependent variables, indicating no large change in the relationship between years of education and EU-attitudes.

Table vii. Correlation between years of education and EU-attitudes

	European integration	*Trust in European Parliament*
Treatment	0.111	0.135
Control	0.0920	0.111

Note: All coefficients significant at $p < 0.01$.