SUPPLEMENTARY DOCUMENTATION ON DATAVERSE

Liesbet Hooghe, Gary Marks, Jonne Kamphorst. 2024. “Why it makes sense to pay attention to a person’s field alongside their level of education: Voting on the socio-cultural divide.” *American Political Science Review*.

Contents

A. Descriptive support for the ESS analysis 3

Table A.1. Party family size (waves 2-4) 3

Table A.2. A list of Tan and GAL parties 1

Table A.3. Descriptives 3

Table A.4. Correlation matrix 4

Table A.5. Educational CECT by field 5

B. Information on the four-resource schema and its application 6

A concise sociology of knowledge on the four-resource schema 6

The 1998 skills survey 7

Addendum: Dutch survey on skills by field of study 8

From skills to CECT 9

Addendum: question wording in the European Social Survey 10

Is it valid to extend this schema to other time points and countries? 11

C. Field of education – decomposing CECT 12

Figure A.1. Decomposing CECT and GAL voting 13

Figure A.2. Decomposing CECT and TAN voting 13

Table A.6. Field of education: Decomposing CECT 14

D. Testing an alternative operationalization for field of education: STEM 16

Figure A.3. The effect of field of education: STEM vs. CECT as measure 16

Table A.7. The effect of STEM or CECT on voting GAL and TAN 17

E. Level of education: dichotomous or five categories? 18

Table A.8: Alternative operationalizations of level of education 18

F. Field and level of education in multiparty systems 20

Figure A.4. The effect of field of education across party blocs 20
Table A.9. Party bloc analysis with field of education under controls 22
G. Replication of the educational field model by country 23
Multivariate analysis by country 23
Table A.10a. GAL voting and field of education by country (2004-2008) 24
Table A.10b. GAL voting and field of education by country (2004-2008) 25
Table A.11. TAN voting and field of education by country (2004-2008) 26
French exceptionalism? 26
Figure A.5: Field of education and Left or Right voting in France 27
Table A.12. Field of education and voting Left or voting Right in France 28
H. Question wording in a 2023 US survey replicating the skills schema 29
Addendum: question wording in the 2023 US survey 29
References 31

A. Descriptive support for the ESS analysis

Table A.1. Party family size (waves 2-4)

Party family	All 15 countries and waves (a GAL party is always present)	11 countries with TAN party in one or more waves
TAN family	5.10	6.99
GAL family	9.64	10.98
Greens	6.41	7.84
Social liberals	0.91	1.25
New Left	2.32	1.89
Traditional party families	85.26	82.03
Conservatives	18.19	13.90
Liberals	13.66	14.94
Christian democrats	13.09	14.57
Socialists/social democrats	33.95	32.66
Traditional radical Left	3.86	4.04
Other	2.51	1.92
All	100.00	100.00

Note: Unweighted percentages based on vote choice. An individual's party choice in the most recent national election is classified as TAN (or nationalist right), Conservative, Liberal, Christian Democratic, Social Democratic, Radical Left, Green, or Other (Döring and Manow 2016; Hix and Lord 1997; Jolly et al. 2022; Knutsen 2018; Marks et al. 2023). Social-liberal parties are liberal parties that score less than 2.5 on the 0-10 GAL/TAN dimension; new left parties are radical left parties that score less than 2.5 on the 0-10 GAL/TAN dimension. We average GAL/TAN scores across the 2002, 2006, and 2010 CHES waves, which coincide with the timing of the ESS waves used in the analysis (Bakker et al. 2015).

Table A.2. A list of Tan and GAL parties

Table A.2. lists by country and wave the political parties that are categorized as TAN or GAL and that were presented as an option to respondents in the ESS survey.

Country	PARTY FAMILY	Wave 2 (2004)	Wave 3 (2006)	Wave 4 (2008)
Austria	TAN	FPÖ	BZÖ, FPÖ	No survey
	GAL	Grüne	Grüne	No survey
Belgium	TAN	Vlaams Belang	Vlaams Belang	Vlaams Belang
	GAL	Ecolo, Agalev/Groen	Ecolo, Groen	Ecolo, Groen
Denmark	TAN	DF	DF	DF
	GAL	RV, SF, EL	RV, SF, EL	RV, SF, EL
Finland	TAN	PS	PS	PS
	GAL	VIHR	VIHR	VIHR
Germany	TAN	DVU, Republikaner	DVU, Republikaner	DVU, Republikaner
	GAL	Grunen	Grunen	Grunen
Greece	TAN	LAOS	No survey	LAOS
	GAL	SYN/Syriza	No survey	OP, Syriza
France	TAN	FN, MPF	FN, MPF	FN, MPF
	GAL	EELV/Verts	EELV/Verts	Les Verts
Ireland	TAN	*No option*	*No option*	*No option*
	GAL	Greens	Greens	Greens
Netherlands	TAN	LPF	LPF	LPF, PVV
	GAL	Groenlinks, PvdD, D66	Groenlinks, D66	Groenlinks, PvdD, D66
Norway	TAN	FrP	FrP	FrP
	GAL	RA, SV	RA, SV	RA, SV
Portugal	TAN	*No option*	*No option*	*No option*
	GAL	CDU, BE	CDU, BE	CDU, BE
Spain	TAN	*No option*	*No option*	*No option*
	GAL	IU	IU	IU, VB
Sweden	TAN	*No option*	*No option*	*No option*
	GAL	MP	MP	MP
Switzerland	TAN	SVP/UDC	SVP/UDC	SVP/UDC
	GAL	GPS/PES, PdA/PST	GPS/PES, PdA/PST	GLP/PVL, GPS/PES, PdA/PST
UK	TAN	*No option*	UKIP	*No option*
	GAL	Green	Green	Green

Individual political parties are allocated in party families on the basis of their ideology (Langsæther 2023), European and international party memberships, and self-description (Kitschelt 2018; Marks & Wilson 2000), and in dialogue with existing categorizations, including von Beyme (1985), Hix and Lord (1997), the CHES expert data set (Jolly et al. 2022; Polk et al.,

2017; Steenbergen & Marks 2007), the Comparative Manifesto Project (CMP-MARPOR Budge et al., 2001; Klingemann et al., 2006; Volkens et al., 2020), the Eurobarometer trend file (Schmitt et al. 2005), Knutsen (2018), and ParlGov (Döring & Manow 2021).

The GAL party bloc encompasses 40 Green parties; 6 social-liberal parties, which are liberal parties that score less than 2.5 on the 0-10 GAL/TAN dimension; and 17 new left parties, which are radical left parties that score less than 2.5 on the 0-10 GAL/TAN dimension. To evaluate whether a party is social-liberal or new left, we calculate the average GAL/TAN score across the 2002, 2006, and 2010 Chapel Hill Expert waves, which coincide with the timing of the ESS waves used in the analysis (Bakker et al. 2015). Our classification is broadly consistent with Langsaether's detailed assessment in the late 2010s, which suggests a certain stickiness in party ideology (2023, chs. 2 and 6).

The analysis produces very similar results for the effect of field of education if we restrict GAL to Green parties, whose voters represent two-thirds of GAL voters during the time of investigation.

The dependent variables – TAN vote and GAL vote – are extracted from the survey question in the European Social Survey that asks respondents to report which party they voted for in the last national election. We then categorize their party responses into TAN (yes or no) or GAL (yes or no).

Table A.3. Descriptives

	Mean	Min	Max	SD	N
Educational CECT	0.434	0	1	0.304	40,833
Occupational CECT	0.447	0	1	0.188	40,833
Field income	0.622	0	1	0.240	40,833
Level of education (five-category)	3.283	1	5	1.416	40,833
Higher education (dichotomous)	0.370	0	1	0.483	40,833
Female	0.500	0	1	0.500	40,833
Rural	2.992	1	5	1.218	40,833
Secular	5.543	1	7	1.466	40,833
Income	6.753	1	10	2.422	40,833
Age	50.945	21	97	16.162	40,833
Level of education: categories					
Less than lower secondary education	0.139	0	1	0.346	40,833
Lower secondary education completed	0.147	0	1	0.354	40,833
Upper secondary education completed	0.344	0	1	0.475	40,833
Post-secondary non-tertiary educ completed	0.033	0	1	0.178	40,833
Tertiary education completed	0.338	0	1	0.473	40,833
Occupation: categories					
Self-employed	0.028	0	1	0.164	40,833
Small business	0.112	0	1	0.316	40,833
Technical (semi-)professionals	0.076	0	1	0.264	40,833
Production workers	0.179	0	1	0.384	40,833
Managers	0.170	0	1	0.375	40,833
Clerks	0.108	0	1	0.311	40,833
Socio-cultural (semi-)professionals	0.141	0	1	0.348	40,833
Service workers	0.186	0	1	0.389	40,833

Table A.4. Correlation matrix

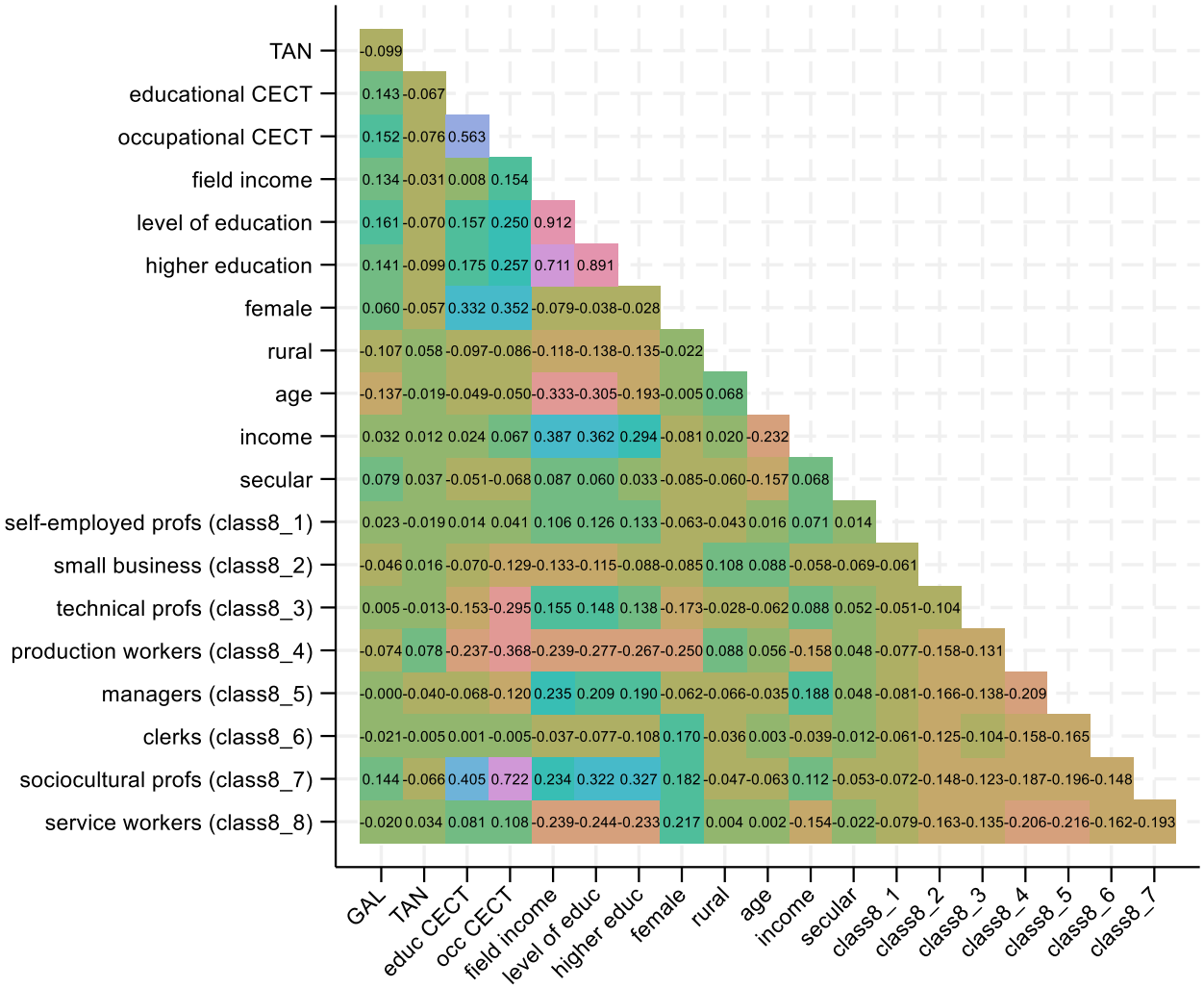


Table A.5. Educational CECT by field

Educational field	Educational CECT	Size of the field	Field income	
			Mean	SD
Teacher training	1.000	7.04	7.405	0.350
Arts	0.952	2.3	6.938	0.476
Humanities	0.952	4.0	7.240	0.401
Social studies	0.861	5.3	7.358	0.346
Personal care	0.680	5.8	6.308	0.314
Science/mathematics	0.614	4.8	7.598	0.412
Medical & health	0.554	10.6	7.287	0.533
General education	0.531	17.8	5.665	0.785
Public order and safety	0.494	1.1	7.409	0.546
Law	0.312	1.5	8.023	0.499
Economics and commerce	0.188	15.3	7.458	0.603
Technical and engineering	0.036	19.7	7.155	0.513
Transport	0.036	1.5	7.184	0.523
Agriculture/forestry	0.000	3.1	6.379	0.758
Mean / Total	**0.450**	**100**	**6.838**	**0.936**

Note: N=35198 respondents who indicated a field of study (not including respondents with only primary education). The third and fourth column show the average income (in deciles) and standard deviation by educational field as reported by respondents who indicated their field of education and occupation (N=38824).

B. Information on the four-resource schema and its application

A concise sociology of knowledge on the four-resource schema

The four-fold schema of skills and knowledge in education was conceived to improve on Bourdieu's (1984) theory of status reproduction, which argues that social hierarchies are reproduced through the transmission of cultural or economic capital. The theory highlights the role of education in perpetuating social divisions. In the 1990s a group of Dutch sociologists began to put the theory to the test, and found it needed refinement in the types of skills or knowledge that can be acquired in the educational system.

The chief extension to Bourdieu's conceptualization is the addition of communicative capital and technical capital (Kalmijn and van der Lippe 1997; van de Werfhorst 2001). These were added to directly capture skills that gain relevance in complex post-industrial societies: communicative skills, because knowledge of human behavior is central in a service economy, and technical skills, because mastery of technical tools and production processes sustains an advanced division of labor and specialization.

Van de Werfhorst and Kraaykamp (2000; 2001) took the further step of developing a systematic empirical foundation for testing the four-fold schema. They broke down the four types of knowledge capital into concrete skills transmitted through education and training. Their list of 4x4 skills, labeled "*the WK-indeling*" (W and K are the first letters of their last names), was drawn from a close reading of the literature, and triangulated with evidence collected from a survey among graduates of several educational programs to rate to what extent a long list of skills and knowledge was paid attention to in their program. This was validated through a survey of experts (van de Werfhorst 2010: 165). This resulting information was used in a representative sample of the Family Survey of the Dutch Population 1998 of c.1,960 people, and this provides the empirics for skill distribution by field in the CECT measure.

The 1998 skills survey

The objective of the Family Survey of the Dutch Population was to investigate aspects of the life course and life situations of the Dutch-speaking population of the Netherlands aged 18-70 in 1998. The sample of primary respondents was drawn randomly from population registers of a sample of Dutch municipalities stratified by region and urbanization. Primary respondents and, if married or cohabiting, their partners were interviewed. All interviewees conducted an oral interview and filled out a self-administered questionnaire. All told, 2,029 persons in 1,140 households were interviewed, of which 1,960 people provided valid responses on education. The authors ruled out selective nonresponse with respect to educational variables (van de Werfhorst and Kraaykamp 2001: 301).

Respondents were first asked to report their highest completed education (level and field). If they had attained at least secondary-level education, they were then asked: "Please indicate for this education (level and field) to what extent attention was paid to the following types of knowledge and skills," and indicate their answer on a five-point scale from "to a very limited extent" to "to a very large extent." Next, they were presented with a list of sixteen skills in random order. People with primary education only (N = 179) were assumed to have obtained no specific field-related resources and automatically allocated a value of 1 on all skills. This information was then used to calculate average scores for the four skill resources for eleven fields of education (see inset below).

The intent of the study was to collect information on field of education and their evaluation of skills acquisition for a person's *highest completed education.* The interviewer was to follow detailed instructions during the oral interview to minimize ambiguity.

The precise questions [translated from Dutch] are as following:

> "I would now like to ask you a few more questions about the highest level of education that you have successfully completed. This refers to …. [Interviewer: note the level and field of the highest completed education of the respondent. If this is unclear, ask the respondent explicitly. Interviewer: use cards A and B.]
>
> E16N: Level of education
>
> E16R: direction/field of education

"Please indicate for this education (level and field) to what extent attention was paid to the following types of knowledge and skills." [Interviewer: "If this refers to an education at post-academic level, please answer with respect to the university education that you completed prior." Interviewer: please use card C. If the respondent is unfamiliar with one of the skills, use answer category 1.]

Source: Familie-enquete Nederlandse Bevolking 1998 (FnB98). Netherlands Institute for Scientific Information Services, Steinmetz Archive Documentation Set, version 1.0, Amsterdam, p. 21. (https://ssh.datastations.nl/dataset.xhtml?persistentId=doi:10.17026/dans-zzu-yw93 (accessed on July 7, 2023).

Addendum: Dutch survey on skills by field of study

303

Four Field-Related Educational Resources

Table 1. Average Scores on 16 Types of Knowledge and Skills, by Field of Study

	Field of Study											
	General	Teacher Education	Humanities/ Arts	Agriculture	Technical	Medical	Economics/ Administration	Law	Social-Cultural	Social/ Personal Care	Police/ Military	Total
Knowledge of arts/literature	2.50	3.18	3.78	1.31	1.30	1.24	1.37	1.26	1.94	1.39	1.06	1.79
General knowledge/historical knowledge	3.39	3.83	3.68	2.26	2.22	2.08	2.16	2.74	3.01	2.44	3.44	2.66
Creativity/artistic expression	2.32	3.59	3.16	2.18	2.02	1.88	1.58	1.74	2.69	3.15	1.44	2.29
Writing/reading skills	3.57	3.82	3.33	2.67	2.50	2.26	3.02	3.03	3.00	2.61	3.69	2.94
Mean cultural items	*2.94*	*3.60*	*3.49*	*2.10*	*2.01*	*1.87*	*2.03*	*2.19*	*2.66*	*2.40*	*2.41*	*2.42*
Knowledge of conduct of business/bookkeeping	2.72	1.34	1.49	3.65	2.11	1.42	3.89	3.08	1.67	1.81	1.69	2.38
Knowledge of Dutch law/ procedures	2.18	1.76	1.65	2.26	1.87	2.00	3.12	4.62	2.64	1.86	4.63	2.25
Business/commercial thinking	2.01	1.66	1.80	3.04	2.52	1.78	3.67	3.00	1.97	1.87	2.56	2.39
Management skills	1.51	2.71	1.91	2.57	2.08	2.09	2.98	2.56	2.70	1.75	2.50	2.18
Mean economic items	*2.11*	*1.87*	*1.71*	*2.88*	*2.14*	*1.82*	*3.41*	*3.31*	*2.24*	*1.82*	*2.84*	*2.30*
Knowledge of communication/ instruction	2.08	3.08	2.58	2.35	2.31	3.16	2.97	2.56	3.40	2.17	3.38	2.57
Knowledge of social psychology/ teaching methods	1.44	4.47	2.81	1.40	1.43	3.09	1.78	2.10	4.21	2.34	2.81	2.16
Discussion technique/group conversation	2.17	3.35	2.73	2.01	1.96	2.97	2.57	2.95	3.99	2.36	3.19	2.49
Presentation skills/ public speaking	2.34	3.67	3.00	2.10	2.10	2.67	2.85	2.82	3.46	2.16	3.31	2.56
Mean communicative items	*2.01*	*3.64*	*2.78*	*1.97*	*1.95*	*2.97*	*2.54*	*2.61*	*3.76*	*2.26*	*3.17*	*2.44*
Knowledge of mechanization/ automation	1.46	1.45	1.52	2.90	2.95	1.71	2.58	2.00	1.46	1.22	2.38	2.06
Knowledge of techniques/ production processes	1.65	1.59	1.65	3.49	3.93	2.15	1.82	1.62	1.40	1.71	2.19	2.32
Making technical/mathematical calculations	2.77	2.04	1.59	3.06	3.89	2.23	2.38	2.03	1.62	1.57	1.69	2.62
Conducting tests/experiments	2.28	2.02	1.68	2.78	2.90	2.45	1.45	1.33	1.67	1.58	1.81	2.15
Mean technical items	*2.04*	*1.77*	*1.61*	*3.06*	*3.42*	*2.14*	*2.06*	*1.74*	*1.54*	*1.52*	*2.02*	*2.29*

Source: Survey of the Dutch Population 1998 (N = 1,960).
Note: General, N = 355; Teacher Education, N = 131; Humanities/Arts, N = 85; Agriculture, N = 72; Technical, N = 454; Medical, N = 196; Economics/Administration, N = 318; Law, N = 39; Social-Cultural, N = 87; Social/Personal Care, N = 207; Police/Military, N = 16; Total, N = 1,960.

Note: This table reports the average score in attention that was paid during a field of study to each of sixteen skills, on a scale from 1 ("to a very limited extent") to 5 ("to a very large extent"). This is an average of the assessments by respondents who completed a degree in a particular field of study. Extracted from van de Werfhorst & Kraaykamp (2001: Table 1 on p. 303); see also van de Werfhorst 2001: 61-73.

In examining the reliability and validity of the scale, the authors took several steps. This included conducting a confirmatory factor analysis that reproduced the four factors with each scale having a Cronbach's alpha of 0.70 or higher. It also included an analysis of variance of individual variation in cultural, economic, communicative and technical skills, which shows that field of education is by far the chief source of variation. Level of education is a distant second, and there is no discernible effect of birth cohort. And they examined the effect of a potential discontinuity as the result of a major educational reform (the 1968 Mammoth Law). A concise account of this research process is available in van de Werfhorst's dissertation (2001: chapter 3).

From skills to CECT

Our theory connects the relative preponderance of human-centered education to voting on the socio-cultural divide. It draws attention to the prominence of cultural and communicative skills for understanding human coexistence relative to economic and technical skills. Because these skills are assumed to be independent of each other, and additive, in that their sum measures a person's educational resources, we can combine them in a part-to-whole ratio measure. The variable, *CECT*, is estimated as follows: for a given field, it is the ratio of communicative plus cultural skills to the sum of the four skill categories:

$$CECT_i = \frac{communicative_i + cultural_i}{cultural_i + economic_i + communicative_i + technical_i}$$

This variable has the virtue of simplicity while it produces essentially the same results as specifying the components separately (Appendix H).

Three waves (2004, 2006, 2008) of the European Social Survey adopted a question that taps individuals' field or subject of their highest qualification. The list of subjects or field of education is a simplified version of the ISCED classification developed under the auspices of UNESCO, and

the lesser-known educational brother of the ISCO-occupational schema.[1] Note that the ESS conducted face-to-face interviews with all respondents, which greatly enhances the validity of the responses.

Addendum: question wording in the European Social Survey

LEVEL: "What is the highest level of education you have achieved?"	Please use this card [answers recoded into five-category variable] • No qualifications 01 GO TO F7 • CSE grade 2-5/GCSE grades D-G or equivalent 02 • CSE grade 1/O-level/GCSE grades A-C or equivalent 03 • A-level, AS-level or equivalent 04 • Degree/postgraduate qualification or equivalent 05 • Other (WRITE IN)_____
FIELD: "In which <u>one</u> of these fields or subjects is your <u>highest</u> qualification?" [NOTE TO INTERVIEWER: If respondent's highest qualification is in <u>more</u> than one subject code as 01.]	• General or no specific field 01 • Art – fine or applied 02 • Humanities – languages, classics, history, theology, etc 03 • Technical & engineering, including architecture and planning, industry, craft, building trades, etc 04 • Agriculture & forestry 05 • Teacher training or education 06 • Science, mathematics, computing, etc 07 • Medical, health services, nursing, etc 08 • Economics, commerce, business administration, accountancy, etc 09 • Social & behavioural studies, public administration, media, • culture, sport and leisure studies, etc 10 • Law and legal services 11 • Personal care services - catering, domestic science, hairdressing, etc 12 • Public order and safety – police, army, fire services, etc 13 • Transport and telecommunications 14 • (Don't know) 88

[1] ISCED was designed by a UNESCO task force in the early 1970s to serve "as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally," and endorsed by UNESCO's General Conference in 1978. It has been revised twice, in 1997 and 2013. The ESS list was modeled on the 1997 schema. The basic unit of classification in ISCED is the educational program, which is coded along two axes: levels of education (0 to 6) and fields of education (9 at ISCED-level 1 and broken up into 25 categories at ISCED-level 2). We agree that more fine-grained data would be preferable, but these are, for now, unavailable. We do note that ISCED 2013 introduced a three-tier field of education schema with 80 categories at the lowest level, which would be a considerable improvement.

Is it valid to extend this schema to other time points and countries?

The challenge is twofold: a) is it plausible to argue that data on skill distribution of 1998 validly and reliably captures the skill distribution across fields of study in Western democracies up to the present; and b) is it plausible to argue that data from the Dutch early-track system can be extrapolated to a wider variety of systems, particularly the major general education systems of Britain, Scandinavia, and the United States?

With respect to the validity of extrapolating 1998 information over time, our confidence is increased by the thorough robustness checks conducted by the originators of the schema. We are particularly encouraged by their finding that birth cohort does not contribute substantially to an analysis of variance whereby the dependent variables are the four resources and independent variables are field of education, level of education, and birth cohort (van de Werfhorst and Kraaykamp 2001: Table2). That is to say, cohorts who received their education in the 1960s, 1970s, or 1980s, do not perceive their skills acquisition in education differently from those who completed their degree in the 1990s. Since only a few years separate the time at which respondents provided their assessments and the time at which the ESS collected its information on field of education (2004-2008), we have reason to believe that the passing of time will not have invalidated the information on skills.

Is it credible to assume a relatively similar skill distribution by field of education across a wide variety of educational systems? Here our answer is more tentative. While some national surveys collect information on field of education (e.g. the Dutch, German, the British, and Swedish national surveys), to our knowledge the sixteen-skills schema has not been replicated. We do so in a new survey in an educational system that is very different from the Dutch early-track system, the general education system of the United States. This survey was conducted in Spring 2023 and is detailed in Appendix L. The main take-away is that the incidence of skills by field of education in the US in 2023 is consistent with that reported by the originators of the schema. When using the individual-level information from the US survey to create aggregate CECT scores for each field, we find that these scores are correlated 0.84 with the CECT scores estimated from the 1998 Dutch survey.

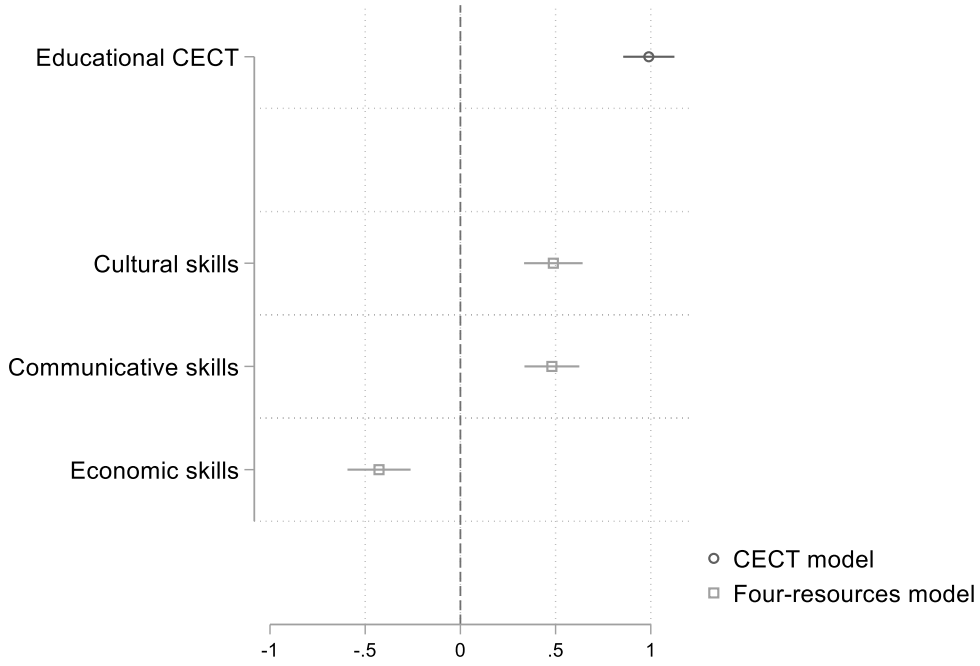
C. Field of education – decomposing CECT

Table A.6 specifies models that decompose educational CECT into its constituent resources (cultural, communicative, economic, and technical) for GAL (Figure A.1) and TAN (Figure A.2) voting. The individual resources are operationalized as proportions of a respondent's total educational resources. Because cultural, communicative, economic, and technical resources sum to the entirety of a person's skill package, one of the four variables drops out of each model because it can be solved as a function of the other three and hence exhibits perfect collinearity.[2] While the model produces the same statistical associations irrespective of which resource variable is dropped, the coefficients of the remaining resource variables shift. We use technical resources as the reference category in Figure A.1 because this reveals most clearly the effect of the resources (cultural and communicative) expected to be most influential for GAL voting. We use cultural resources as the reference category in Figure A.2 because this does the same for technical and economic resources.

Comparing these models to the baseline models using educational CECT shows that the more complex four-resource model predicts voting consistent with our theory yet does not produce much greater validity. The model using educational CECT has a Bayesian Information Criterion statistic that is slightly superior to the four-resource model. Combining the four resources in a single part-to-whole ratio appears to represent a reasonable trade-off between parsimony and accuracy.

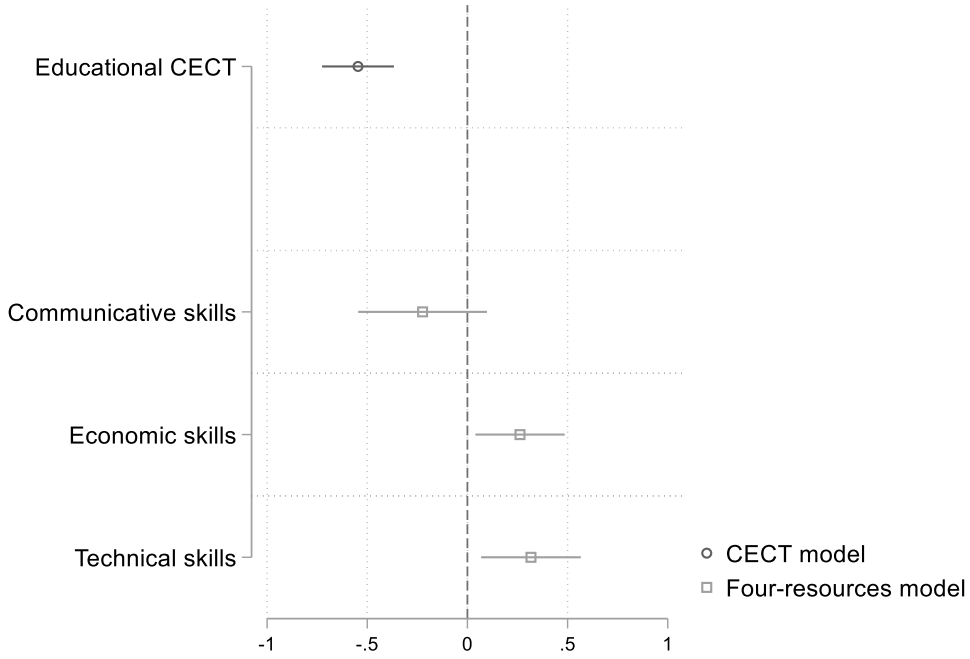
[2] This can be shown statistically by regressing the variable from the model against all other independent variables, producing a perfect model with R2=1.00.

Figure A.1. Decomposing CECT and GAL voting



Note: This figure plots model 2 in Table A.6. The coefficients are log odds (with 95% confidence intervals), multi-level mixed model, full controls. The reference category is Technical skills.

Figure A.2. Decomposing CECT and TAN voting



Note: This figure plots model 4 in Table A.6. The coefficients are log odds (with 95% confidence intervals), multi-level mixed model, full controls. The reference category is Cultural skills.

Table A.6. Field of education: Decomposing CECT

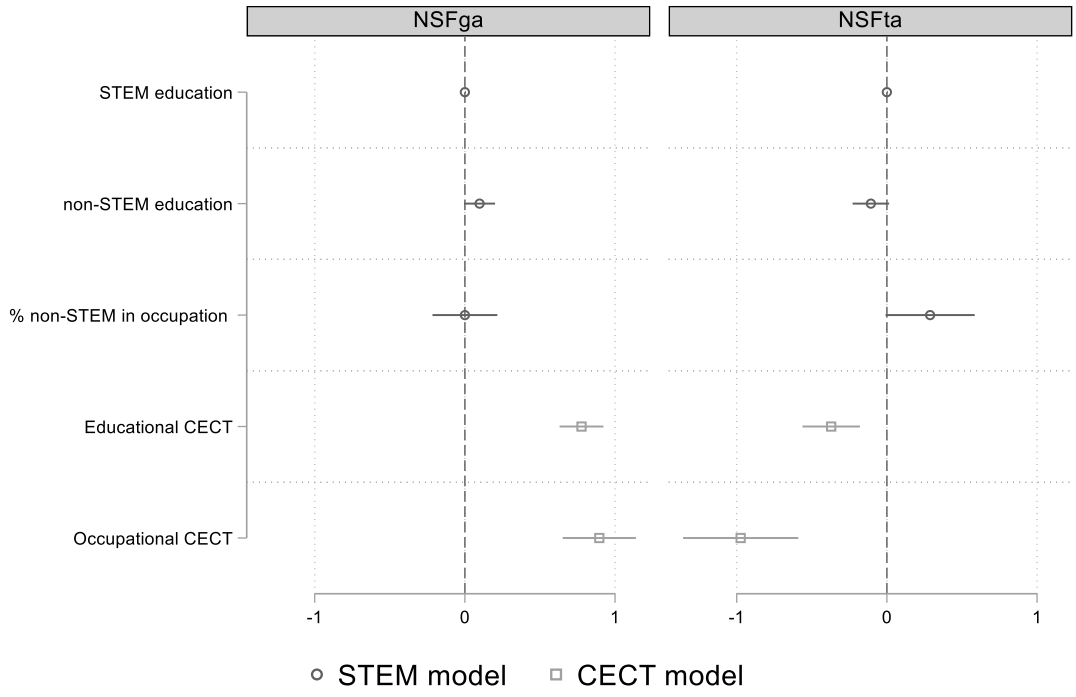
	GAL		TAN	
	(1) CECT	(2) FOUR-RESOURCES	(3) CECT	(4) FOUR-RESOURCES
Educational CECT	0.990***		-0.546***	
	(0.069)		(0.091)	
F0UR-RESOURCES				
Cultural		0.488***		*Ref.category*
		(0.078)		
Communicative		0.481***		-0.224
		(0.074)		(0.164)
Economic		-0.427***		0.263**
		(0.085)		(0.114)
Technical		*Ref. category*		0.317**
				(0.127)
Level of education				
No lower secondary degree	*Ref. category*	*Ref. category*	*Ref. category*	*Ref. category*
Lower secondary degree	0.089	-0.025	0.176	0.067
	(0.144)	(0.161)	(0.163)	(0.182)
Upper secondary degree	0.436**	0.273	0.012	-0.107
	(0.174)	(0.192)	(0.202)	(0.221)
Post-secondary degree	0.720***	0.544**	-0.237	-0.383
	(0.210)	(0.228)	(0.276)	(0.298)
Tertiary degree	0.943***	0.723***	-0.921***	-1.085***
	(0.234)	(0.257)	(0.295)	(0.320)
Field income	-0.013	0.289	-0.418	0.038
	(0.303)	(0.344)	(0.685)	(0.764)
Female	0.174***	0.207***	-0.326***	-0.313***
	(0.039)	(0.040)	(0.056)	(0.058)
Rural	-0.179***	-0.180***	0.024	0.025
	(0.015)	(0.015)	(0.021)	(0.021)
Income	-0.047***	-0.046***	-0.047***	-0.047***
	(0.008)	(0.008)	(0.012)	(0.012)
Age	-0.020***	-0.020***	-0.009***	-0.009***
	(0.001)	(0.001)	(0.002)	(0.002)
Secular	0.210***	0.210***	0.140***	0.139***
	(0.015)	(0.015)	(0.020)	(0.020)
Country intercept variance	0.455***	0.460***	1.716**	1.714**
	(0.171)	(0.173)	(0.755)	(0.754)
ISCO intercept variance	0.112***	0.107***	0.127***	0.128***
	(0.022)	(0.021)	(0.030)	(0.030)
Intercept	-2.918***	-2.704***	-2.341***	-2.987***
	(0.248)	(0.256)	(0.583)	(0.577)
Observations	40,943	40,943	30,794	30,794
Groups	15	15	11	11
Loglikelihood	-11698.6	-11685.2	-6528.4	-6527.5
BIC	23567.1	23561.6	13222.2	13241.0

Note: Coefficients are log odds, CECT and resource variables are rescaled to 0-1. Time fixed effects not shown. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

D. Testing an alternative operationalization for field of education: STEM

STEM refers to science, technology, engineering, and mathematics (Dugger 2010; Schmader 2023). We apply the categorization of the American Congress and the National Science Foundation (CRS report 2018). We assess whether an individual has a degree in STEM and the percentage of STEM-educated individuals in that individual's ISCO-3 occupation. To align the interpretation of the coefficients with those for CECT—higher scores implying a greater propensity to vote GAL—we reverse the values on individual STEM and occupational STEM. Figure A.3 and Table A.7 show that individual STEM trends in the expected direction for both GAL and TAN voting, but occupational STEM is insignificant (GAL) or trends in the opposite direction of what the theory anticipates (TAN). In all, estimates based on CECT are more robust predictors of GAL and TAN voting than estimates based on STEM.

Figure A.3. The effect of field of education: STEM vs. CECT as measure



Note: This figure plots all models in Table A.15. Circle shapes plot a model that use STEM operationalizations (model 1 for GAL; model 3 for TAN from Table A.7); square shapes plot a model that use CECT operationalizations (model 2 for GAL; model 4 for TAN from Table A.7. The coefficients are log odds (with 95% confidence intervals), derived from multi-level mixed logistic models with oim clustering by country and ISCO-3 categories, full controls.

Table A.7. The effect of STEM or CECT on voting GAL and TAN

	GAL		TAN	
	(1)	(2)	(3)	(4)
STEM OPERATIONALIZATION				
Non-STEM degree	0.098*		-0.107*	
	(0.053)		(0.062)	
% with non-STEM degree in occupation	0.000		0.288*	
	(0.110)		(0.151)	
CECT OPERATIONALIZATION				
Educational CECT		0.777***		-0.371***
		(0.075)		(0.098)
Occupational CECT		0.895***		-0.974***
		(0.124)		(0.196)
Level of education				
No lower secondary degree	*Reference cat.*	*Reference cat.*	*Reference cat.*	*Reference cat.*
Lower secondary degree	0.603***	0.037	0.055	0.144
	(0.152)	(0.147)	(0.168)	(0.167)
Upper-level secondary degree	1.175***	0.375**	-0.118	-0.002
	(0.181)	(0.176)	(0.206)	(0.204)
Post-secondary degree	1.578***	0.638***	-0.399	-0.239
	(0.216)	(0.211)	(0.279)	(0.276)
Tertiary degree	2.115***	0.850***	-1.162***	-0.901***
	(0.244)	(0.235)	(0.299)	(0.295)
Field income	-1.499***	-0.118	0.016	-0.290
	(0.344)	(0.306)	(0.741)	(0.692)
Female	0.296***	0.127***	-0.432***	-0.252***
	(0.039)	(0.039)	(0.055)	(0.058)
Rural	-0.192***	-0.177***	0.037*	0.023
	(0.015)	(0.015)	(0.021)	(0.021)
Age	-0.020***	-0.020***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.002)	(0.002)
Secular	0.207***	0.215***	0.142***	0.139***
	(0.015)	(0.015)	(0.020)	(0.020)
Income	-0.046***	-0.048***	-0.045***	-0.047***
	(0.009)	(0.008)	(0.012)	(0.012)
Country intercept variance	0.423***	0.430***	1.582**	1.606**
	(0.160)	(0.162)	(0.702)	(0.711)
ISCO intercept variance	0.172***	0.092***	0.135***	0.108***
	(0.026)	(0.020)	(0.031)	(0.028)
Intercept	-2.342***	-3.073***	-2.862***	-2.101***
	(0.262)	(0.253)	(0.617)	(0.588)
Observations	38,930	38,930	29,366	29,366
	15	15	11	11
Log-Likelihood	-11636.5	-11512.7	-6433.5	-6405.4
BIC	23452.6	23205.0	13041.9	12985.7

Note: The coefficients are log odds, derived from multilevel mixed-effects logistic models with oim clustering by country and ISCO-3 occupational categories, and with time fixed effects (not shown). ESS data for 2004-2008. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

E. Level of education: dichotomous or five categories?

Table A.8 reports two alternative specifications of level of education in the baseline model. The first is as five dichotomous variables, which operationalizes the idea that length of education has a linear or non-linear effect on the outcome:

- 1 = did not complete lower secondary education; or something else (0)
- 1 = completed lower secondary education; or something else (0)
- 1 = completed higher secondary degree; or something else (0)
- 1 = completed post-secondary non-tertiary degree; or something else (0)
- 1 = completed tertiary degree; or something else (0)

The second uses a dichotomous variable, whereby

- 1 = obtained post-secondary degree
- 0 = did not obtain post-secondary degree.

This operationalizes the notion that the chief divide on socio-cultural issues tends to be between those with a post-secondary degree and those without (see e.g, Kunst et al. 2022; Bornschier et al. 2022; Hooghe and Marks 2018; Häusermann et al. 2023; Häusermann and Kriesi 2015; Stubager 2008).

The multivariate analysis shows that the effect of educational CECT and occupational CECT is strongly robust across these specifications (Table A.8). We use the five-category operationalization for our main models because it is theoretically agnostic to whether the association between level of education and GAL or TAN voting is non-linear.

Table A.8: Alternative operationalizations of level of education

	GAL		TAN	
FIELD OF EDUCATION				
Educational CECT	0.852***	0.780***	-0.392***	-0.372***
	(0.069)	(0.074)	(0.096)	(0.097)
Occupational CECT	0.916***	0.900***	-1.027***	-0.972***
	(0.125)	(0.125)	(0.197)	(0.196)
LEVEL OF EDUCATION				

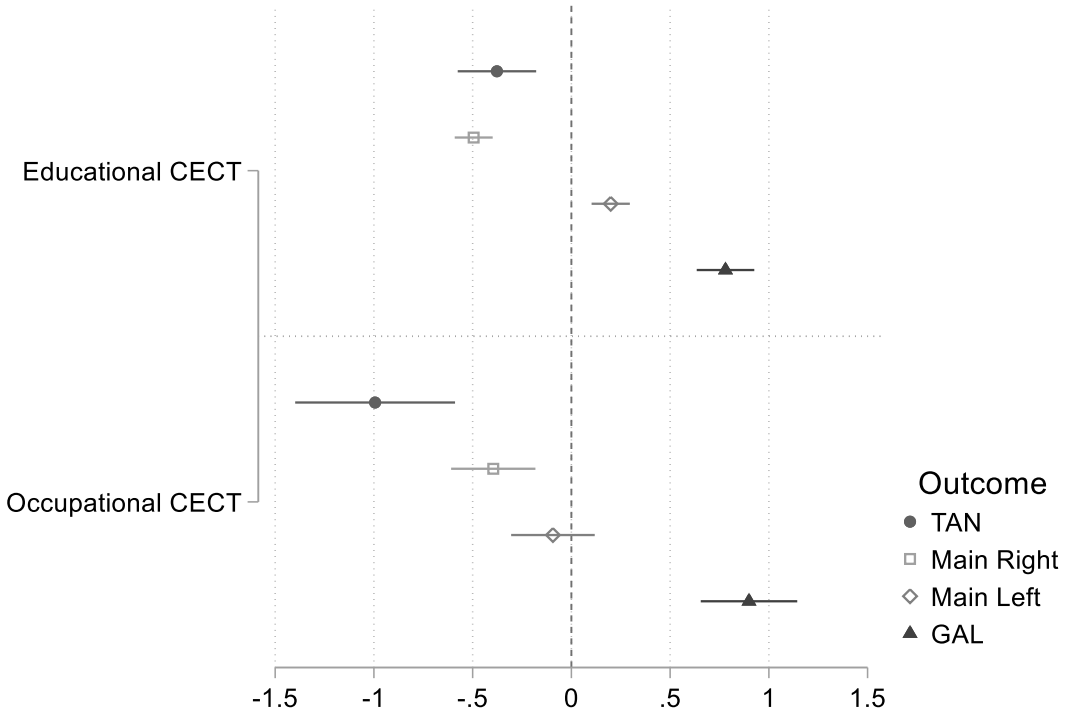
Higher education	0.333***		-0.728***	
	(0.063)		(0.088)	
Reference category: did not complete lower secondary education				
Lower secondary degree		0.111		0.165
		(0.144)		(0.163)
Higher secondary degree		0.444**		0.015
		(0.175)		(0.202)
Post-secondary non-tertiary degree		0.705***		-0.219
		(0.211)		(0.275)
Tertiary degree		0.912***		-0.878***
		(0.235)		(0.294)
CONTROLS				
Field income	0.699***	-0.089	-0.706*	-0.320
	(0.162)	(0.305)	(0.365)	(0.683)
Female	0.122***	0.123***	-0.249***	-0.251***
	(0.039)	(0.039)	(0.058)	(0.058)
Rural	-0.178***	-0.178***	0.022	0.019
	(0.015)	(0.015)	(0.021)	(0.021)
Income	-0.047***	-0.048***	-0.049***	-0.047***
	(0.008)	(0.008)	(0.012)	(0.012)
Age	-0.021***	-0.021***	-0.009***	-0.009***
	(0.001)	(0.001)	(0.002)	(0.002)
Secular	0.215***	0.215***	0.138***	0.137***
	(0.015)	(0.015)	(0.020)	(0.020)
Country intercept	0.453***	0.448***	1.775**	1.732**
	(0.170)	(0.168)	(0.780)	(0.761)
ISCO intercept variance	0.096***	0.095***	0.125***	0.116***
	(0.020)	(0.020)	(0.030)	(0.029)
Intercept	-3.287***	-3.161***	-1.774***	-2.097***
	(0.246)	(0.249)	(0.529)	(0.585)
Observations	40,943	40,943	30,794	30,794
Groups	15	15	11	11
Loglikelihood	-11681.6	-11672.8	-6529.8	-6515.9
BIC	23512.0	23526.7	13204.3	13207.4

Note: The coefficients are log odds from multilevel mixed-effects logistic models with oim clustering by country and ISCO-3 occupational categories, time fixed effects (not shown). Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

F. Field and level of education in multiparty systems

We compare the predictive power of field and level of education for GAL and TAN parties against their role in explaining voting for the traditional mainstream Left and mainstream Right. This builds on Abou-Chadi and Hix (2021) who show that the effect of level of education is largely driven by GAL and TAN parties and not left vs. right. We corroborate this in Table A.9 and show that the same is true for field of education.[3] Figure A.4 visualizes the greater substantive effect of field of education for GAL parties relative to the mainstream Left; the difference in substantive effects for TAN and the mainstream Right is smaller but leans in the same direction.

Figure A.4. The effect of field of education across party blocs



[3] We adopt Abou-Chadi and Hix's classification of national parties into mainstream Left and Right blocs (see Table A.1 in the Supplementary appendix to their article). We extend their list to parties in Greece, Ireland, Portugal, and Spain.

Note: This figure plots all models in Table A.9. The coefficients are log odds (with 95% confidence intervals) from multilevel mixed-effects logistic models with oim clustering by country and ISCO-3 categories, with controls for level of education, field income, gender, rural, income, age, secularism and time fixed effects.

Table A.9. Party bloc analysis with field of education under controls

	TAN	Mainstream Right	Mainstream Left	GAL
Educational CECT	-0.377***	-0.495***	0.199***	0.780***
	(0.101)	(0.049)	(0.049)	(0.074)
Occupational CECT	-0.994***	-0.396***	-0.093	0.900***
	(0.206)	(0.109)	(0.108)	(0.125)
CONTROLS				
Reference: did not complete lower secondary education				
Lower secondary degree	0.137	0.191**	-0.226***	0.111
	(0.167)	(0.076)	(0.076)	(0.144)
Higher secondary degree	-0.024	0.321***	-0.416***	0.444**
	(0.208)	(0.097)	(0.097)	(0.175)
Post-secondary non-tertiary degree	-0.278	0.272**	-0.431***	0.705***
	(0.266)	(0.127)	(0.127)	(0.211)
Tertiary degree	-0.946***	0.475***	-0.666***	0.912***
	(0.291)	(0.137)	(0.137)	(0.235)
Field income	-0.090	-0.144	0.081	-0.089
	(0.382)	(0.185)	(0.185)	(0.305)
Female	-0.258***	-0.019	0.081***	0.123***
	(0.058)	(0.027)	(0.027)	(0.039)
Rural	0.020	0.141***	-0.082***	-0.178***
	(0.021)	(0.010)	(0.010)	(0.015)
Income	-0.048***	0.068***	-0.004	-0.048***
	(0.012)	(0.006)	(0.006)	(0.008)
Age	-0.009***	0.010***	0.002***	-0.021***
	(0.002)	(0.001)	(0.001)	(0.001)
Secular	0.138***	-0.227***	0.154***	0.215***
	(0.020)	(0.008)	(0.009)	(0.015)
Country intercept	11.218**	0.346***	0.165***	0.448***
	(5.633)	(0.129)	(0.062)	(0.168)
ISCO intercept variance	0.117***	0.197***	0.186***	0.095***
	(0.029)	(0.017)	(0.017)	(0.020)
Intercept	-4.142***	-0.439**	-1.009***	-3.161***
	(0.815)	(0.188)	(0.153)	(0.249)
Observations	40,943	40,943	40,943	40,943
Number of groups	15	15	15	15
Log Likelihood	-6531.1	-24812.1	-24326.3	-11672.8
BIC	13242.8	49804.7	48833.1	23526.2

Note: The coefficients are log odds from multilevel mixed-effects logistic models with OIM clustering by country and ISCO-3 categories, time fixed effects (not shown). Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

G. Replication of the educational field model by country

Tables A.10 and A.11 evaluate to what extent the findings are robust across individual countries.

Multivariate analysis by country

We limit the analysis to countries for which at least 150 respondents (pooled across waves) reported they voted for a GAL party or a TAN party, respectively. This allows us to examine GAL voting in thirteen countries and TAN voting in five countries. Five countries are categorized as early-track systems (Austria, Belgium, Germany, Netherlands, Switzerland), and eight as late-track systems (Denmark, Finland, Greece, France, Norway, Portugal, Spain, Sweden) (Strello et al. 2021).

The country-by-country results are broadly consistent with the crossnational pooled analysis. Field of education is a strong predictor of Gal and TAN voting. In most countries, both individual and occupational CECT are significant. Similar to the crossnational analysis, voting for GAL parties is more structured by field of education than voting for TAN parties.

In Portugal, field of education is insignificant for GAL voting. The GAL party bloc was constituted by two radical left parties— Bloco de Esquerda, and the Coligação Democrática Unitária. While the cadre tended to hail more from a socio-professional class that supported GAL positions, the parties' votes were strongly reliant on a traditional manufacturing base that was much more invested in radical economic reform. High effective electoral thresholds induced those parties to maintain an uncomfortable coalition between those two constituencies. The upshot is a socially disparate constituency (reflected in high standard deviations on field and level of education, Table A.10b; see also Langsaether 2023, ch. 2: 49-58). Over the next decades, these constituencies sorted into separate political parties.

The only country where field of education does not reach conventional levels of significance for both GAL and TAN voting is France, which is discussed below.

Table A.10a. GAL voting and field of education by country (2004-2008)

	AT	BE	DK	FI	FR	DE	GR
Educational CECT	0.715**	0.859***	1.271***	0.793***	0.574	0.822***	-0.040
	(0.360)	(0.282)	(0.194)	(0.278)	(0.397)	(0.206)	(0.545)
Occupational CECT	1.399***	0.686*	0.539**	1.262***	0.186	0.787***	1.741**
	(0.524)	(0.382)	(0.256)	(0.383)	(0.557)	(0.302)	(0.731)
Level of education - *Reference=did not complete lower secondary education:*							
Lower secondary	-1.049	-0.052	0.675	0.597	-0.166	-1.549**	0.362
	(1.309)	(0.602)	(0.797)	(0.516)	(0.746)	(0.711)	(0.919)
Upper secondary	-0.182	0.895	1.084	1.066*	-0.125	-1.983***	0.485
	(1.355)	(0.686)	(0.853)	(0.582)	(0.899)	(0.722)	(1.150)
Post-secondary	0.353	0.170				-1.759**	
	(1.434)	(1.240)				(0.767)	
Tertiary	0.660	1.765*	1.824*	1.614**	-0.672	-1.858**	0.425
	(1.561)	(0.940)	(0.968)	(0.792)	(1.275)	(0.849)	(1.714)
Field income	0.070	-0.363	-0.908	-0.811	1.314	1.805**	1.963
	(1.341)	(1.233)	(0.883)	(1.032)	(1.665)	(0.848)	(2.162)
Female	0.298*	-0.128	-0.080	0.345**	0.244	0.268**	0.626***
	(0.170)	(0.144)	(0.100)	(0.136)	(0.204)	(0.108)	(0.225)
Rural	-0.259***	-0.099*	-0.127***	-0.356***	-0.116	-0.212***	-0.227**
	(0.069)	(0.060)	(0.039)	(0.049)	(0.082)	(0.043)	(0.105)
Income	-0.026	-0.040	-0.040*	-0.071**	-0.095**	0.003	-0.043
	(0.044)	(0.036)	(0.022)	(0.030)	(0.042)	(0.024)	(0.050)
Age	-0.042***	-0.013***	-0.014***	-0.038***	-0.030***	-0.035***	0.006
	(0.006)	(0.005)	(0.003)	(0.005)	(0.007)	(0.004)	(0.008)
Secular	0.261***	0.286***	0.130***	0.376***	0.073	0.038	0.728***
	(0.064)	(0.063)	(0.044)	(0.063)	(0.082)	(0.039)	(0.114)
Constant	-1.444	-4.627***	-2.458***	-2.969***	-1.435	-0.051	-8.705***
	(1.306)	(0.774)	(0.861)	(0.663)	(0.912)	(0.687)	(1.103)
GAL vote size	15.5%	8.5%	21.0%	9.1%	6.9%	13.2%	6.9%
Observations	1,421	3,011	3,149	3,649	1,857	4,035	1,423

Note: Coefficients are log odds, logistic models with robust standard errors in parentheses, and fixed effects for time (not shown). Minimum of N=150 respondents saying they voted GAL in a country (pooled across ESS rounds). Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Early-track educational systems in gray.

Table A.10b. GAL voting and field of education by country (2004-2008)

	NL	NO	PT	ES	SE	CH
Educational CECT	0.446*	0.577***	0.271	0.020	1.030***	0.717**
	(0.233)	(0.214)	(0.515)	(0.485)	(0.284)	(0.280)
Occupational CECT	0.749**	1.543***	-0.281	0.845	0.490	1.021**
	(0.336)	(0.319)	(0.651)	(0.731)	(0.415)	(0.407)
Lower secondary	1.036**	-1.403***	-0.247	1.281*	0.076	0.309
	(0.505)	(0.420)	(0.608)	(0.764)	(0.631)	(0.845)
Upper secondary	1.634***	-0.710***	-0.266	1.938*	0.745	0.092
	(0.602)	(0.248)	(0.863)	(1.095)	(0.749)	(0.881)
Post-secondary	1.744***	-0.385		2.072*		-0.367
	(0.671)	(0.241)		(1.234)		(1.033)
Tertiary	2.140***		-0.283	2.382	0.936	0.401
	(0.779)		(1.280)	(1.582)	(0.994)	(1.015)
Field income	-0.428	-0.795	0.737	-1.769	0.438	1.131
	(0.955)	(0.912)	(1.715)	(2.063)	(1.407)	(1.069)
Female	0.154	0.382***	-0.424**	-0.051	0.080	0.206
	(0.118)	(0.112)	(0.181)	(0.219)	(0.153)	(0.148)
Rural	-0.158***	-0.034	-0.225***	-0.091	-0.127**	-0.285***
	(0.044)	(0.040)	(0.075)	(0.087)	(0.062)	(0.063)
Income	-0.024	-0.095***	-0.091*	-0.100*	-0.125***	-0.033
	(0.026)	(0.025)	(0.049)	(0.054)	(0.035)	(0.035)
Age	-0.008**	-0.014***	-0.003	-0.011	-0.020***	-0.025***
	(0.004)	(0.004)	(0.006)	(0.009)	(0.005)	(0.005)
Secular	0.189***	0.361***	0.355***	0.466***	-0.008	0.279***
	(0.040)	(0.051)	(0.059)	(0.103)	(0.063)	(0.056)
Constant	-4.086***	-2.479**	-2.868***	-4.924***	-2.782***	-3.143***
	(0.606)	(0.974)	(0.754)	(1.131)	(0.815)	(0.969)
GAL vote size	11.5%	13.3%	10.5%	5.1%	5.7%	13.7%
Observations	3,572	3,530	1,552	1,942	3,948	1,982

Note: Coefficients are log odds estimated by logistic models (robust standard errors in parentheses), and fixed effects for time (not shown). Minimum of N=150 respondents saying they voted GAL in a country (pooled across ESS rounds). Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Early-track educational systems in gray.

Table A.11. TAN voting and field of education by country (2004-2008)

	Belgium	Denmark	France	Norway	Switzerland
Educational CECT	-0.506*	-0.115	-0.263	-0.199	-0.431**
	(0.262)	(0.283)	(0.440)	(0.177)	(0.213)
Occupational CECT	-1.122**	-0.949**	-0.725	-1.141***	-1.380***
	(0.503)	(0.476)	(0.691)	(0.356)	(0.372)
Level of education - *Reference=did not complete lower secondary education:*					
Lower secondary	0.594	-0.039	-1.182*	-0.014	0.171
	(0.406)	(0.648)	(0.650)	(0.807)	(0.414)
Upper secondary	0.702	-0.548	-1.510*	-0.246	0.611
	(0.526)	(0.739)	(0.794)	(0.844)	(0.469)
Post-secondary	1.047			-0.798	0.656
	(0.829)			(0.913)	(0.624)
Tertiary	-0.477	-1.857*	-3.479***	-1.862**	0.759
	(0.830)	(0.957)	(1.244)	(0.947)	(0.627)
Field income	-1.772	2.923	3.480	2.414*	-4.926***
	(2.005)	(1.934)	(2.895)	(1.353)	(1.356)
Female	-0.294*	-0.088	-0.196	-0.155	-0.167
	(0.155)	(0.156)	(0.224)	(0.113)	(0.126)
Rural	0.030	0.111**	-0.039	-0.046	0.253***
	(0.063)	(0.055)	(0.088)	(0.038)	(0.059)
Income	-0.017	-0.105***	0.017	-0.018	-0.069**
	(0.034)	(0.030)	(0.048)	(0.024)	(0.029)
Age	-0.011**	0.004	-0.024***	-0.013***	-0.003
	(0.005)	(0.004)	(0.008)	(0.003)	(0.004)
Secular	0.185***	0.170**	-0.155**	0.121***	0.078*
	(0.057)	(0.066)	(0.077)	(0.044)	(0.041)
Constant	-0.988	-4.185***	-0.602	-2.098*	2.674***
	(1.240)	(1.325)	(1.715)	(1.154)	(0.887)
Party vote size	9.1%	8.7%	7.7%	16.1%	26.9%
Observations	3,011	3,149	1,857	3,546	1,982

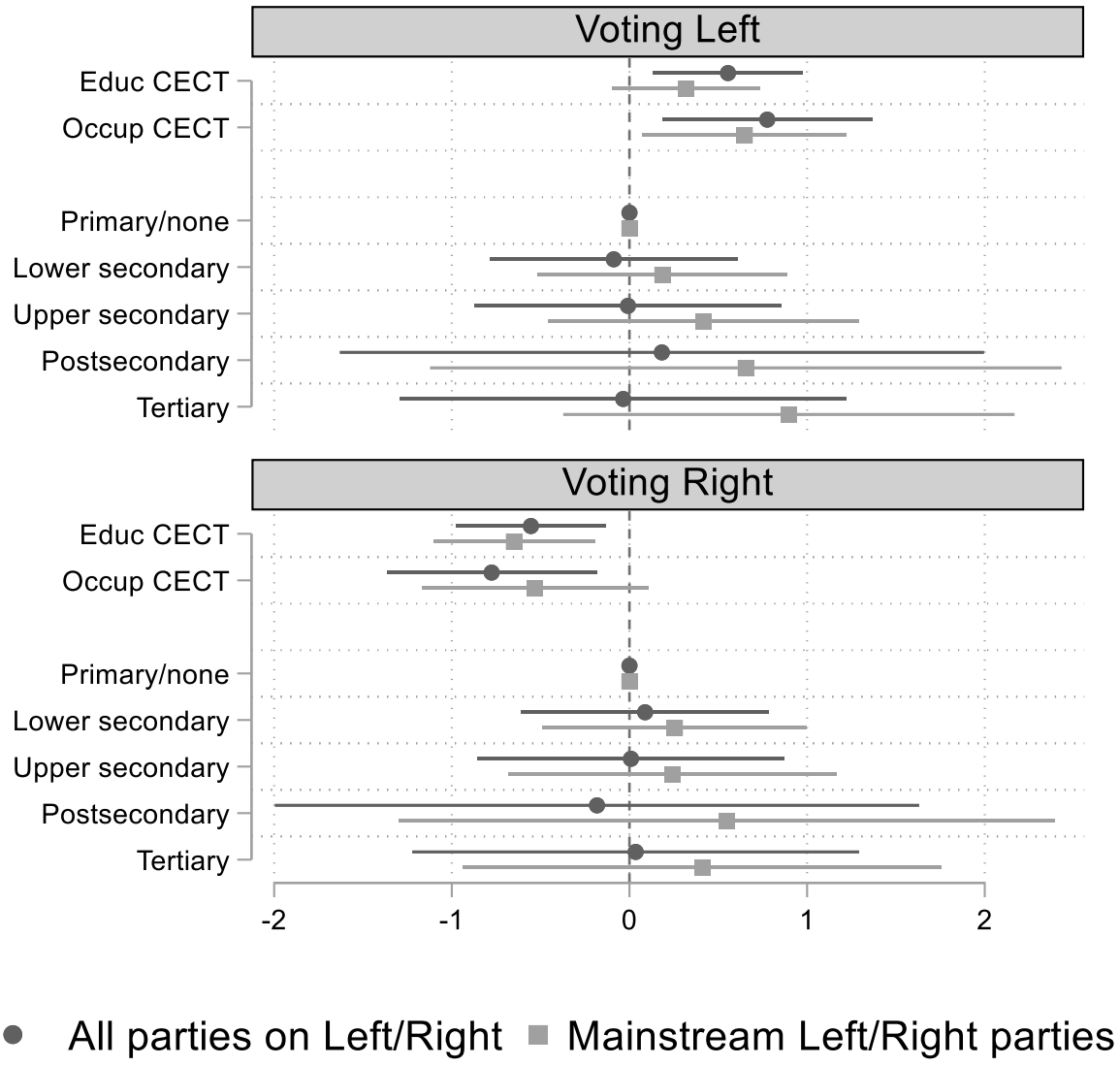
Note: Coefficients are log odds estimated by logistic models (robust standard errors in parentheses), and fixed effects for ESS round (not shown). Minimum N=150 respondents saying they voted for a TAN party in a country (pooled across ESS rounds). *** p<0.01, ** p<0.05, * p<0.1. Early-track educational systems in gray.

French exceptionalism?

The model predicting TAN voting in France is the only one where neither individual nor occupational CECT reaches conventional levels of significance, though the variables are signed as expected. The same applies to GAL voting. Closer examination (Figure A57) reveals that the field

educational divide is present in the French party landscape, but it chiefly divides parties on the Left from those on the Right. We suspect that majoritarian electoral systems (France, the UK, and the US) increase the association of field of education with mainstream parties that, by virtue of electoral disproportionality, encompass GAL and TAN constituencies.

Figure A.5: Field of education and Left or Right voting in France



Note: This figure plots models in Table A.12. The top panel compares the effect of CECT on voting for all Left parties including GAL parties (model 1) to voting for mainstream Left parties excluding GAL parties (model 2); the bottom panel compares the effect of CECT on voting for all Right parties including TAN parties (model 3)) to voting mainstream Right parties excluding TAN parties (model 4). The coefficients are log odds (with 95% confidence intervals), logistic regression with full controls pooled across waves 3 and 4 of the European Social Survey.

Table A.12. Field of education and voting Left or voting Right in France

	LEFT BLOC		RIGHT BLOC	
	(1) Entire Left (including GAL)	(2) Mainstream Left	(3) Entire Right (including TAN)	(4) Mainstream Right
Educational CECT	0.555***	0.318	-0.555***	-0.650***
	(0.215)	(0.213)	(0.215)	(0.232)
Occupational CECT	0.776**	0.649**	-0.776**	-0.533
	0.555***	0.318	-0.555***	-0.650***
Level of education - *Reference=did not complete lower secondary education:*				
Lower secondary	-0.088	0.186	0.088	0.256
	(0.355)	(0.358)	(0.355)	(0.380)
Upper secondary	-0.008	0.416	0.008	0.241
	(0.441)	(0.446)	(0.441)	(0.471)
Post-secondary	0.183	0.655	-0.183	0.547
	(0.925)	(0.907)	(0.925)	(0.943)
Tertiary	-0.035	0.898	0.035	0.410
	(0.642)	(0.648)	(0.642)	(0.687)
CONTROLS				
Field income	-0.311	-1.214	0.311	-0.135
	-0.085	-1.101	0.085	-0.178
Female	(0.856)	(0.865)	(0.856)	(0.918)
	0.067	0.026	-0.067	0.048
Rural	(0.106)	(0.105)	(0.106)	(0.114)
	-0.128***	-0.066	0.128***	0.181***
Income	(0.043)	(0.043)	(0.043)	(0.047)
	-0.094***	-0.051**	0.094***	0.121***
Age	(0.022)	(0.022)	(0.022)	(0.024)
	-0.012***	0.002	0.012***	0.019***
Secular	(0.004)	(0.004)	(0.004)	(0.004)
	0.342***	0.273***	-0.342***	-0.268***
Constant	-0.646	-1.825***	0.646	-1.513***
	(0.462)	(0.468)	(0.462)	(0.494)
Observations	1,853	1,853	1,853	1,853
Loglikelihood	-1277.9	-1239.3	-1196.4	-1080.3
BIC	2420.9	2499.3	2498.2	2266.0

Note: The coefficients are log odds, estimated by logistic regression. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Time fixed effects not shown.

H. Question wording in a 2023 US survey replicating the skills schema

We replicate the skills schema developed by van de Werfhorst (2001) for 21 educational fields in a new survey fielded in the United States in March 2023.[4] Each respondent who had at least completed high school was asked to select from a drop-down menu their main subject or field for their highest degree. We take the same subjects as used in the European Social Survey, but disaggregate some to provide separate entries for categories that have expanded over the past decades, such as environmental studies, computing and IT, sports & leasure, food and catering, public administration, and planning. Next, a list of sixteen kinds of skills and knowledge was presented to respondents in random order, and they were asked to evaluate to what extent their education paid attention to these.[5] We used the same wording as in the original study barring some minor stylistic changes, and the same five-point scale. The questions are reported at the end of this appendix.

Addendum: question wording in the 2023 US survey

EDU_degree. What is **the highest level of education** you completed?

1. Did not complete high school
2. High school degree
3. Two-year college degree
4. Four-year college degree
5. Advanced degree

[If EDU_degree>1]
EDU_main_subject. What is the main subject or field that you studied for your highest degree? Please select what best describes your main subject. If you are studying, describe your current main subject or field of study. This list is alphabetical. [drop-down menu**]**

1. Agricultural studies
2. Arts -- fine or applied
3. Computing, IT, ICT
4. Economics, business administration, accountancy
5. Engineering

[4] This convenience sample was collected in March 2023 by TGM for 800 respondents (IRB 22-0061 at xxx). The survey slightly oversampled Democrats (34.7%) and Independents (22.9%) and undersampled Republicans (26.6%) – 15.8% identified as Democrat- or Republican-leaning Independents, with quotas on age, state, and education.

[5] We follow van de Werfhorst (2001) and our own ESS application in allocating a score of 1 (to a very limited degree) for each of the skills to respondents with less than a high school diploma.

6. Environmental studies, marine studies, forest management, land management
7. Food and catering
8. Humanities -- languages, history, philosophy, theology.
9. Law and legal services
10. Medical, health, nursing
11. Personal care—e.g. hair styling, make-up, cosmetology, domestic science
12. Planning -- including architecture, urban planning
13. Public administration, public policy, journalism
14. Public order and safety -- police, military, fire prevention, etc.
15. Science, mathematics, physics, etc.
16. Social and behavioral studies –social work, sociology, psychology, pedagogy, etc.
17. Sports & leisure studies
18. Teacher training or education
19. Technical -- crafts, building trades, industry, etc.
20. Transport, telecommunications
21. General education, or no specific field
22. OTHER:

EDU_main_subject. So the main subject of your degree was/is: …..

EDU_SKILLS. I am interested in the sort of skills that you learned with your highest degree. Can you tell me to what extent your education paid attention to these? [Very limited extent --- Very large extent] [1-5] **[**randomize**]**

EDU_skills_1	Arts and literature
EDU_skills_2	General knowledge or history
EDU_skills_3	Creativity, artistic expression
EDU_skills_4	Writing and reading
EDU_skills_5	Business, bookkeeping
EDU_skills_6	Law and regulations
EDU_skills_7	Business and commercial thinking
EDU_skills_8	Management skills
EDU_skills_9	Instruction, teaching methods
EDU_skills_10	Social psychology
EDU_skills_11	Group conversation, discussion techniques
EDU_skills_12	Presentation skills, public speaking
EDU_skills_13	Automation, computing
EDU_skills_14	Learning to use tools, technical instruments, production processes
EDU_skills_15	Calculus (technical or mathematical)
EDU_skills_16	How to conduct experiments, testing

References

Abou-Chadi, Tarik and Simon Hix. 2021. Brahmin Left versus Merchant Right? Education, class, multiparty competition, and redistribution in Western Europe. *British Journal of Sociology* 72: 79-92.

Bakker, Ryan, Erica Edwards, Liesbet Hooghe, Seth Jolly, Gary Marks, Jonathan Polk, Jan Rovny, Marco Steenbergen, Milada Vachudova. 2015. Measuring Party Positions in Europe: The Chapel Hill Expert Survey Trend File, 1999-2010. *Party Politics* 21 (1): 143-153.

Beyme, Klaus von. 1985. *Political Parties in Western Democracies*. St. Martin's Press.

Bornschier, Simon, Silja Häusermann, Delia Zollinger, Céline Colombo. 2022. How "Us" and "Them" Relates to Voting Behavior – Social Structure, Social Identities, and Electoral Choice. *Comparative Political Studies* 54(12): 2087-2122.

Budge, Ian, Hans-Dieter Klingemann, Andrea Volkens, Judith Bara, and Eric Tanenbaum. 2001. *Mapping Policy Preferences. Estimates for Parties, Electors, and Governments 1945-1998*. Oxford: Oxford University Press.

Congressional Research Service. 2018. *Science, Technology, Engineering, and Mathematics (STEM) Education: An Overview.* CRS Report R45223-version 4 – updated (authored by Boris Granovskiy).

Döring, Holger and Philip Manow. 2016/2019. *Parliaments and Governments database (ParlGov): Information on Parties, Elections and Cabinets in Modern Democracies*. Development version (available https://parlgov.org).

Dugger, William E. 2010. Evolution of STEM in the United States. Unpublished (available on ResearchGate).

ESS Round 2: European Social Survey Round 2 Data (2004). Data file edition 3.6. Sikt - Norwegian Agency for Shared Services in Education and Research, Norway – Data Archive and distributor of ESS data for ESS ERIC. doi:10.21338/NSD-ESS2-2004.

ESS Round 3: European Social Survey Round 3 Data (2006). Data file edition 3.7. Sikt - Norwegian Agency for Shared Services in Education and Research, Norway – Data Archive and distributor of ESS data for ESS ERIC. doi:10.21338/NSD-ESS3-2006.

ESS Round 4: European Social Survey Round 4 Data (2008). Data file edition 4.5. Sikt - Norwegian Agency for Shared Services in Education and Research, Norway – Data Archive and distributor of ESS data for ESS ERIC. doi:10.21338/NSD-ESS4-2008.

Eurostat. 2008. *NACE Rev. 2 Statistical Classification of Economic Activities in the European Community.* Luxembourg: European Commission, Eurostat Methodologies and Working papers, 369pp.

Familie-enquete Nederlandse Bevolking 1998 (FnB98). Netherlands Institute for Scientific Information Services, Steinmetz Archive Documentation Set, version 1.0, Amsterdam, p. 21. (https://ssh.datastations.nl/dataset.xhtml?persistentId=doi:10.17026/dans-zzu-yw93)

Goebel, Jan, Markus M. Grabka, Stefan Liebig, Martin Kroh, David Richter, Carsten Schröder, Jürgen Schupp (2018) The German Socio-Economic Panel Study (SOEP). *Jahrbücher für Nationalökonomie und Statistik/ Journal of Economics and Statistics* (online first), doi: 10.1515/jbnst-2018-0022.

Häusermann, Silja and Hanspeter Kriesi. 2015. What do voters want? Dimensions and configurations in individual-level preferences and party choice. In Pablo Beramendi, Silja Häusermann, Herbert Kitschelt, and Hanspeter Kriesi eds., *The Politics of Advanced Capitalism*, 202-230. Cambridge: Cambridge University Press.

Häusermann, Silja, Tabea Palmtag, Delia Zollinger, Tarik Abou-Chadi. 2023. Economic foundations of sociocultural politics: how new left and radical right voters think about inequality. Unpublished paper.

Hix, Simon and Christopher Lord. 1997. *Political Parties in the European Union*. Oxford: Oxford University Press.

Hooghe, Liesbet and Gary Marks. 2018. Cleavage Theory and Europe's Crises: Lipset, Rokkan and the Transnational Cleavage. *Journal of European Public Policy* 25 (1): 109-135.

International Labour Organization (ILO). 2012. *International Standard Classification of Occupations: Structure, Group Definitions, and Correspondence Tables*. Geneva: ILO.

Jolly, Seth, Ryan Bakker, Liesbet Hooghe, Gary Marks, Jonathan Polk, Jan Rovny, Marco Steenbergen, Milada Vachudova. 2022. Chapel Hill Expert Survey Trend File, 1999-2019. *Electoral Studies* 75 (Feb 2022), 102420 https://doi.org/10.1016/j.electstud.2021.102420.

Kalmijn, Matthijs and Tanja van der Lippe. 1997. Type of schooling and sex differences in earnings in the Netherlands. *European Sociological Review* 13(1): 1-15.

Kitschelt, Herbert. 2018. Party Families and Political Ideologies. *Oxford Research Encyclopedias: Politics*, available online [DOI: 10.1093/acrefore/9780190228637.013.626.]

Klingemann, Hans-Dieter, Andrea Volkens, Judith Bara, Ian Budge, and Michael McDonald. 2006. *Mapping Policy Preferences II: Estimates for Parties, Electors, and Governments in Eastern Europe, European Union, and OECD 1990-2003*. Oxford: Oxford University Press.

Knutsen, Oddbjørn. 2018. *Social Structure, Value Orientations and Party Choice in Western Europe*. Palgrave.

Knutsen, Oddbjørn. 2018. *Social Structure, Value Orientations and Party Choice in Western Europe*. Palgrave.

Kunst, Sander, Theresa Kuhn, and Herman G. van de Werfhorst. 2022. As the twig is bent, the tree is inclined? The role of parental versus own education for openness towards globalization. *European Union Politics* (first view, Nov 2022) https://doi.org/10.1177/146511652211402

Langsæther, Peter Egge. 2023. *Party Families in Western Europe*. Routledge. London.

LISS (Longitudinal Internet studies for the Social Sciences) panel administered by Centerdata (Tilburg University, The Netherlands).

Marks, Gary, and Carole Wilson. 2000. The Past in the Present: A Theory of Party Response to European Integration. *British Journal of Political Science* 30(3): 433–59.

Marks, Gary, David Attewell, Liesbet Hooghe, Jan Rovny, Marco Steenbergen. 2023. The social bases of political parties: A new measure and survey. *British Journal of Political Science* (online first, Feb 2022) 53(1): 249 – 260.

Oesch, Daniel. 2006. Coming to grips with a changing class structure. *International Sociology* 21(2): 263-288.

Piketty, Thomas. 2020. *Capital and Ideology.* Cambridge: Harvard University Press.

Polk, Jonathan, Jan Rovny, Ryan Bakker, Jelle Koedam, Seth Jolly, Liesbet Hooghe, Gary Marks, Marco Steenbergen, Milada Vachudova. 2017. Explaining the Salience of Anti–Elitism and Reducing Political Corruption for Political Parties in Europe with the 2014 Chapel Hill Expert Survey Data. *Research &* Politics 1 (January–March): 1–9.

Schmader, Toni. 2023. Gender inclusion and fit in STEM. *Annual Review of Psychology* 74: 9.1-9.25.

Schmitt, Hermann, Evi Scholz, with Iris Leim and Meinhard Moscher. 2005 (2009). *The Mannheim Eurobarometer Trend File 1970–2002*. Mannheim: MZES [ZA3521].

SOEP (German Socio-Economic Panel Study (SOEP-Core) Available at DOI (doi:10.5684/soep-core. v37o).

Steenbergen, Marco and Gary Marks. 2007. Evaluating expert judgments. *European Journal of Political Research* 46(3): 347-366.

Strello, Andrés, Rolf Strietholt, Isa Steinman, Charlotte Siepman. 2021. Early tracking and different types of inequalities in achievement: difference-in-difference evidence from 20 years of large-scale assessments. *Educational Assessment, Evaluation and Accountability* 33: 139-167.

Stubager, Rune. 2008. Education effects on authoritarian-libertarian values: A question of socialization. *British Journal of Sociology* 59(2): 327-50.

UNESCO. 2014. ISCED *Fields of Education and Training 2013 (ISCED-F 2013). Manual to accompany the International Standard Classification of Education 2011.* Montreal: UNESCO institute for statistics.

Van de Werfhorst, Herman G. and Gerbert Kraaykamp. 2000. Culturele, economische, communicatieve en technische hulpbronnen van onderwijsrichtingen: De WK-indeling. *Mens en Maatschappij* 75(1): 62-74.

Van de Werfhorst, Herman G. and Gerbert Kraaykamp. 2001. Four field-related educational resources and their impact on labor, consumption, and sociopolitical orientation. *Sociology of Education* 74(4): 296-317.

Van de Werfhorst, Herman G. 2001. *Fields of Study and Social Inequality. Four types of Educational Resources in the Process of Stratification in the Netherlands.* PhD Dissertation. Katholieke Universiteit Nijmegen.

Van de Werfhorst, Herman G. 2010. Cultural capital: strengths, weaknesses and two advancements. *British Journal of Sociology of Education* 31(2): 157-169.

Volkens, Andrea, Tobias Burst, Werner Krause, Pola Lehmann, Theres Matthieß, Nicolas Merz, Sven Regel, Bernhard Weßels, Lisa Zehnter. 2020. *The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2020.* Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB). https://doi.org/10.25522/manifesto.mpds.2020a.