

Beyond the Diploma Divide: Field of Education and Ideological Divisions among College Educated

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Abstract

Education, conceived as the level of a person's education, is a key variable in explaining political attitudes and behavior. This study extends analysis of the effects of education to its substance – the field in which a person is educated. We adapt an educational skill schema developed by education sociologists to explain political attitudes and partisanship in Europe and the United States. An individual educated in a field conveying human-centered skills is likely to have distinctly more liberal attitudes on race, redistribution, the environment, trust in elections, and much more likely to identify with a progressive political party. Data from the General Social Survey and from surveys conducted by the authors in the United States and Europe suggest that a person's field of education explains more variation in liberal/conservative attitudes than whether that person went to college or not. In short, the reach of education for predicting political attitudes goes much beyond the diploma divide. Polarization in western societies extends to college educated. Dynamic data from Germany reveal that a person's field of education is not just a proxy for earlier socialization but has a direct effect during college.

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Education is widely acknowledged as a key variable in explaining political attitudes and behavior. Summarizing research on political behavior, Converse (1972, 324) describes ‘the level of formal education’ as everywhere the universal solvent’. In their ground-breaking analysis of democratic citizenship, Nie et al. (1996, 2) note that ‘Formal education is almost without exception the strongest factor in explaining what citizens do in politics and how they think about politics’. Consequently ‘it has become common, if not required, in quantitative work to ‘control for education’ (Garritzmann 2024, 6; Bornschier et al. 2022).

Yet the level of formal education captures only one aspect of education. With the help of a new measure and new data, we consider the possibility that *what* a person studies can be just, if not more, consequential for their political attitudes and behavior. This claim has plausibility in the college experience. A person’s major shapes whether they are concerned with the human or material world (Gambetta and Hertog 2009), what intellectual puzzles they confront (SurrIDGE 2016), the methods they use (Gross and Fosse 2012; Lazarsfeld and Thielens 1958), and their style of thinking (Ladd and Lipset 1973; van de Werfhorst and de Graaf 2004).

What a person studies tells us something important about their political worldview. Research on the topic has been limited, but it is informative. Its first classic statement is Ladd and Lipset (1973, 56) which found wide differences in the political attitudes and partisanship of American professors across fields, differences that were greater than those associated with race, religion, and income. Subsequent research has confirmed the Ladd/Lipset thesis for students in particular disciplines, documenting that the effect is due to experiences both during and prior to college (Martin et al. 2024). Panel studies find that

training effects – the acquisition of knowledge and participation in discussions relating to the subject matter – are important mechanisms alongside self-selection (Esaiasson and Persson 2014, 378; Neundorf and Smets 2017).

Notwithstanding its potential, field of study has not been marshalled to explain variation in voting or political attitudes in the general population. One reason is that a model using an array of nominal variables is both cumbersome and uninformative. Lack of data has also stymied research. Getting comparable information on a person's major requires multiple drop-down menus, and it is rarely done in public surveys.

Our cure is to identify what it is about a major that underlies its association with political worldview. We build on two influential lines of thinking: moral foundations theory and attribution theory.

Moral foundations theory argues that a person's political ideology is guided by a limited set of core beliefs of which caring, nurturing, and protecting vulnerable individuals are foundational for liberal morality, and ingroup loyalty, authority, and self-control are foundational for conservative morality (Haidt and Graham 2007). These beliefs are intuitive ways of seeing the world that shape the strategic choices that a person makes. Beyond the information they convey, fields of education also foster intuitive ways of seeing the world, from sociology or anthropology which conceives humans as situationally vulnerable to social pressures, to business economics which places greater stress on individual initiative and self-control (Bročić and Miles 2021).

Attribution theory focuses on how a person interprets human behavior and, in particular, whether they focus predominantly on personal characteristics or situational

factors in the environment (Heider 1958; Weiner 1985). Sniderman et al. (1986, 430) find that respondents who make situational attributions tend to have a liberal outlook on race, whereas those who make dispositional attributions tend to have a conservative outlook.

Consistent with this, Ladd and Lipset (1973, 118) point out that one of the reasons social scientists lean to liberalism is that they gather evidence on the contextual sources of life chances which alerts them to the ‘punitive character of social systems’ impact on the personalities and life chances of the offspring of the low-valued’. On the basis of eighteen survey items tapping attribution beliefs among college students, Guimond et al. (1989) find that social science students blame the system more and the person less than do administration and science students.

We expect the liberalizing effect of protection/care orientations and situational explanations to be particularly strong in fields that give more attention to human behavior in its diverse cultural and social environments—the arts, pedagogics, social sciences, biology—and weakest in fields that bracket human relations in dealing with the material world—engineering, ICT, aeronautics, accounting, or commerce. Human-centered fields teach sensitivity to the social and cultural context of a person’s choices and correspondingly prime students to situational rather than dispositional explanations (Guimond et al. 1989; Hooghe et al. 2024).

Measurement and Data

To estimate the extent to which a field of education is human-centered, we adapt a schema developed by education sociologists in a population-representative survey asking respondents to assess which skills were emphasized in their field of study (van de Werfhorst and Kraaykamp 2001). We replicate this schema in original 2024 quota-based surveys in the United States and the Netherlands, and expand the number of fields from 11 to 80 following the international ISCED categorization. Sixteen skills are grouped in four categories, of which two, cultural and communicative, pick up human-centered skills (Section F in online Appendix).

- **Cultural:** Historical analysis, artistic judgement, writing & reading, arts & literature.
- **Communicative:** Presentation skills & public speaking, social psychology, group conversation & discussion techniques, teaching.
- **Economic:** Management, accounting, commerce, law.
- **Technical:** Machinery use, automation, calculus, test procedures.

The variable *Field of Education* is the sum of cultural and communicative skills as a proportion of the four skill categories.

$$Field\ of\ Education = \frac{communicative_i + cultural_i}{cultural_i + economic_i + communicative_i + technical_i}$$

These field scores can then be imported into other datasets that collect information on respondents' field of study, including in this paper the US General Social Survey (GSS) for

2012-2022 (Davern et al. 2024), the 2023 YouGov survey for ten European countries (Hemerijck et al. 2023), and the German SOEP panel data for 1984-2022.

Results

We begin by estimating the effect of field of education on partisanship and policy attitudes in the United States using GSS data (**Table 1**) and in Europe using YouGov data (**Table 2**). An individual's field is significantly ($p < .00001$) associated with liberal/conservative self-placement, Democratic/Republican identification, and attitudes over redistribution, race, and gay marriage. The substantive effects are quite large. A unit difference in field, from zero to one, is associated with a difference of .143 (+/- .013) on the liberal/conservative scale and a shift from weak Democratic to Independent or from weak to strong Republican.¹

The effects for field in **Table 1** are greater than those for sex, income, rural/urban location, and age. Race is a powerful predictor of partisanship and religiosity is strongly aligned with opposition to gay marriage. Also, as we expect, those with 4-year college degrees are on average more liberal than those who finish college after two years.

¹ The power difference between 80 nominal variables and a continuous field variable is small. A model with the field variable accounts for 23.6% of the variance for liberal/conservative self-placement compared to 24.7% for a model with the entire array of nominal variables.

Table 1. Field of education predicts partisanship and policy attitudes in the United States

	Ideological self-placement	Party identification	Redistribution	Race discrimination	Gay marriage
	'Where would you place yourself on the scale on political views arranged from extremely liberal to extremely conservative?'	'Do you usually think of yourself as a [strong/weak] Democrat, [strong/weak] Republican, or independent?'	'The government in Washington ought to reduce the income differences between the rich and the poor.'	'Blacks have been discriminated against for so long that the government has a special obligation to help improve their living standards.'	'Homosexuals should have the right to marry one another.'
Field of education	-0.143*** (0.013)	-0.158*** (0.018)	0.125*** (0.023)	0.155*** (0.022)	0.114*** (0.020)
Level of education (ref. = two-year college)					
Bachelor	-0.051*** (0.008)	-0.041* (0.011)	-0.000 (0.014)	0.088*** (0.013)	0.061*** (0.012)
Graduate	-0.107*** (0.009)	-0.117*** (0.012)	0.057*** (0.015)	0.160*** (0.0148)	0.111*** (0.014)
Ethnicity (ref. = White)					
Black	-0.082*** (0.009)	-0.282*** (0.013)	0.159*** (0.017)	0.265*** (0.016)	-0.050*** (0.015)
Female	-0.031*** (0.006)	-0.056*** (0.008)	0.039** (0.010)	0.023 (0.010)	0.066*** (0.009)
Income	0.040*** (0.009)	0.055*** (0.012)	-0.117*** (0.015)	-0.028 (0.015)	0.040 (0.013)
Rural	0.068*** (0.012)	0.082*** (0.016)	-0.066 (0.020)	-0.092*** (0.020)	-0.080** (0.018)
Age	0.048* (0.013)	-0.024 (0.018)	-0.080* (0.022)	-0.049 (0.022)	-0.219*** (0.020)
Religiosity	0.175*** (0.010)	0.169*** (0.014)	-0.131*** (0.017)	-0.081*** (0.017)	-0.352*** (0.016)
Constant	0.569*** (0.018)	0.610*** (0.024)	0.494*** (0.030)	0.189*** (0.030)	0.622*** (0.028)
Observations	6,355	6,198	4,244	4,184	4,307
Adj R²	0.236	0.199	0.143	0.198	0.286

Note: ***<.00001; **<.0001; *<.001. General Social Survey, 2012-2022 (college educated). The table reports coefficients from linear regressions with standard errors in parentheses; variables rescaled from 0-1; some controls not shown (Table A.3).

Table 2 displays models for political attitudes in Europe. Field is highly significant ($p < .00001$) for economic left/right and GALTAN party identification and for attitudes over redistribution and it is moderately significant for attitudes over immigration ($p = .00007$) and the environment ($p = .0001$). A unit shift on field of education is associated with change on the outcome variables from 0.074 (+/- .018) to 0.094 (+/- .013).

Table 2. Field of education predicts partisanship and policy attitudes in Europe

	Party identification on GALTAN^a	Party identification on left/right^a	Redistribution	Immigration	Environment
	<i>'Which ONE of the following political parties do you feel CLOSEST to?' Parties arrayed from social liberal (GAL) to conservative (TAN)</i>	<i>'Which ONE of the following political parties do you feel CLOSEST to?' Parties arrayed from economic left to right</i>	<i>'Do you think the government should not or should redistribute income from those who are better off to those who are worse off?'</i>	<i>'What are the three most important issues facing you and your family at the moment?' Respondent selects 'immigration'</i>	<i>'What are the three most important issues facing you and your family at the moment?' Respondent selects 'the environment and climate'</i>
Field of education	-0.092*** (0.012)	-0.088*** (0.010)	0.094*** (0.013)	-0.074** (0.018)	0.077* (0.020)
Level of education (ref. = short-cycle postsecondary)					
BA or equivalent	-0.030* (0.009)	-0.003 (0.007)	0.004 (0.009)	-0.035 (0.013)	0.037 (0.014)
MA or PhD	-0.068*** (0.010)	-0.012 (0.008)	0.010 (0.010)	-0.063** (0.014)	0.125*** (0.015)
Female	-0.019 (0.007)	-0.021* (0.006)	-0.033** (0.008)	-0.059*** (0.011)	0.037 (0.012)
Urban	-0.033 (0.013)	-0.0107 (0.0106)	0.038 (0.013)	0.002 (0.019)	0.032 (0.020)
Age	0.060*** (0.011)	0.015 (0.009)	0.032 (0.012)	0.103*** (0.017)	0.074** (0.018)
Income	0.041 (0.014)	0.097*** (0.012)	-0.198*** (0.015)	0.001 (0.021)	0.094** (0.023)
Secular	-0.105*** (0.007)	-0.084*** (0.006)	0.048*** (0.008)	-0.060*** (0.011)	0.089*** (0.011)
Constant	0.564*** (0.019)	0.578*** (0.015)	0.633*** (0.019)	0.304*** (0.027)	0.150*** (0.029)
Observations	5,366	5,366	6,599	6,816	6,816
Adj R²	0.091	0.089	0.076	0.040	0.076

Note: ***<.00001; **<.0001; *<.001. YouGov for ten West-European countries in 2023 (college educated). The table reports coefficients from linear regressions with standard errors in parentheses; variables rescaled 0-1 (Table A.4). ^a2023 Chapel Hill Expert Survey (Hooghe et al. 2024).

Democracy in America

To assess the power of field of education for democracy in the United States, we conducted a survey of 3,541 college-educated respondents in Spring 2024. Field is significant at p<.00001 and is substantively strong in predicting attitudes on all five political issues in

Table 3. A unit shift on field from low human-centeredness (e.g. accounting or motor mechanics) to high human-centeredness (e.g. history or linguistics) is associated with the following unit changes: distrust in elections (-0.12), support for gerrymandering (-0.08),

taking the law into one's own hands (-0.13), Christian nationalism (-0.19); and affect for former president Trump (-0.17). Only religiosity and age are more powerful.

Table 3. Field of education predicts attitudes on democracy in the United States

	Distrust in elections 'It is hard to trust the results of elections nowadays.'	Support for gerrymandering 'It's OK for legislators to gerrymander.'	Take the law into own hands 'A time will come when patriotic Americans have to take the law into their own hands.'	Christian nationalism 'The federal government should advocate Christian values.'	Support for Trump 'How do you feel towards Trump supporters on a scale of 0 to 100?'
Field of education	-0.120*** (0.023)	-0.081** (0.019)	-0.129*** (0.025)	-0.190*** (0.021)	-0.171*** (0.025)
Level of education (ref. = two-year college degree)					
BA degree	-0.055** (0.014)	-0.026 (0.012)	-0.062** (0.015)	-0.038 (0.013)	-0.054* (0.015)
Graduate degree	-0.081*** (0.017)	0.022 (0.014)	-0.082** (0.018)	-0.045 (0.016)	-0.075 (0.019)
Ethnicity (ref.=White)					
Black	0.014 (0.017)	0.045 (0.015)	-0.042 (0.019)	0.045 (0.016)	-0.096*** (0.019)
Female	0.016 (0.012)	-0.050*** (0.010)	-0.044* (0.013)	-0.022 (0.011)	-0.072*** (0.013)
Income	-0.030 (0.022)	0.040 (0.019)	-0.030 (0.024)	-0.006 (0.020)	0.021 (0.024)
Rural	0.053 (0.021)	-0.102*** (0.018)	0.053 (0.023)	0.037 (0.020)	0.101** (0.024)
Age	-0.250*** (0.027)	-0.418*** (0.023)	-0.307*** (0.029)	-0.037 (0.025)	-0.147*** (0.029)
Religiosity	0.174*** (0.014)	0.170*** (0.012)	0.142*** (0.015)	0.378*** (0.013)	0.213*** (0.015)
Constant	0.330*** (0.024)	0.476*** (0.020)	0.608*** (0.026)	0.455*** (0.022)	0.525*** (0.026)
Observations	3,493	3,493	2,922	3,493	3,525
Adj R²	0.097	0.221	0.093	0.240	0.101

Note: ***<.00001; **<.0001; *<.001. TGM US field survey for 2024 (college educated). The table reports coefficients from linear regressions with standard errors in parentheses; variables rescaled 0-1 (Table A.5).

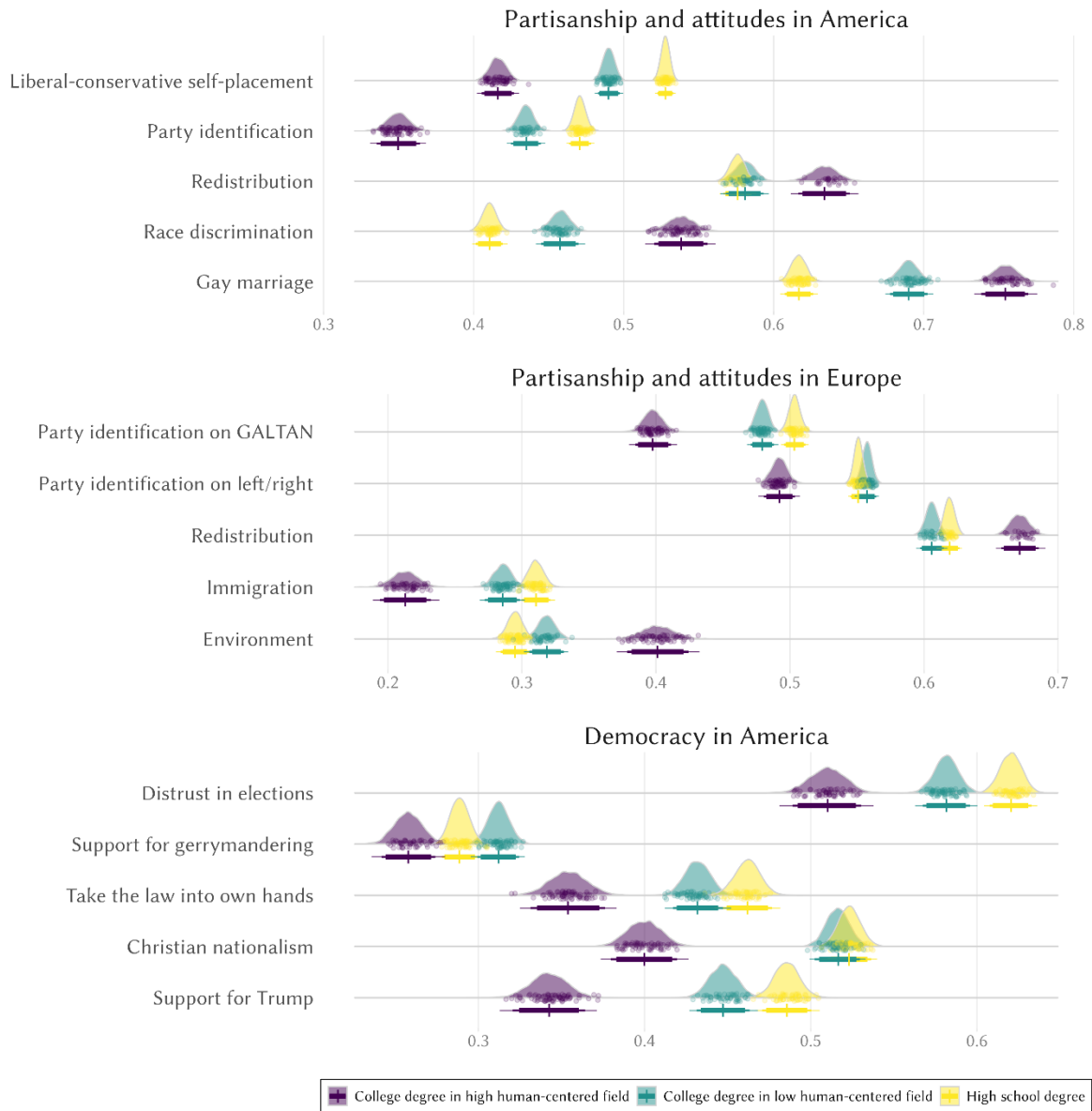
Bringing those with no college into the picture

We next compare those who never went to college with two groups of college educated: those with higher than average human-centered education and those with less than average human-centered education.

Research on the political effects of education focuses on the diploma divide, i.e. the expectation that college liberalizes (Grossman and Hopkins 2024). We find evidence for this in **Figure 1**, which visualizes bootstrap distributions of the predictive marginal effect of belonging to one of the three groups.

Those with only a high school degree (yellow) lean conservative. However, the difference between fields is even wider than the difference between the college educated and high school educated. This is the case for liberal-conservative self-placement, race discrimination, redistribution, distrust in elections, taking the law into one's own hands, Christian nationalism, and support for Trump. In Europe, the field divide exceeds the diploma divide on redistribution, immigration, and the environment, and in both the US and Europe, the field divide has greater influence on identification with liberal/conservative political parties. In Europe, these patterns broadly hold for each of the ten countries in our analysis (Table A.7).

Figure 1: The effect of field on political attitudes across three educational groups

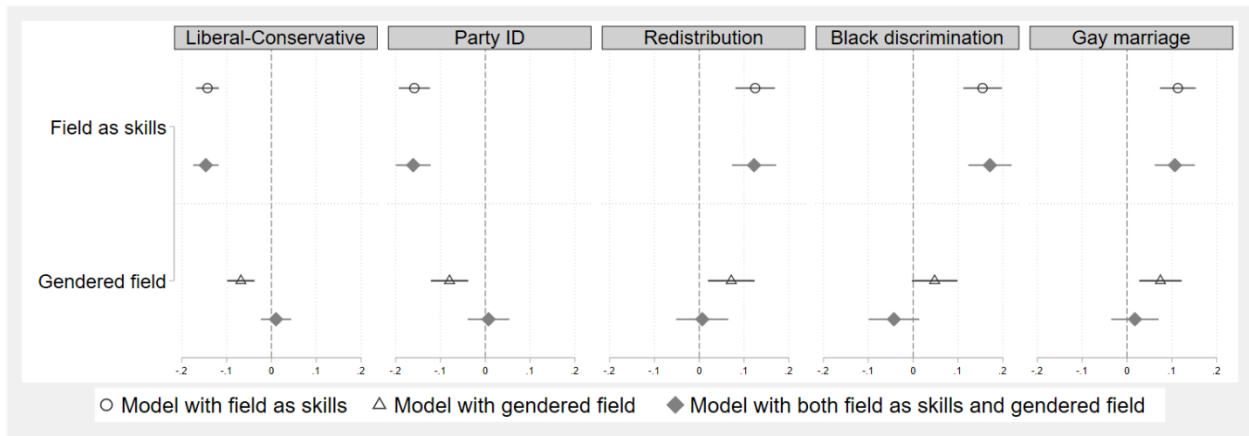


Note: Bootstrap distributions of the predictive marginal effect of level/field of education on outcomes (Y-axis) obtained from fitting linear regressions on 5000 resamples; variables rescaled 0-1. Ticks indicate the overall predictive marginal effect; intervals below each distribution indicate the 90, 95, and 99% confidence intervals (Table A.6).

Where do differences between fields of education come from?

We hypothesize that a person self-selects into an educational field which then shapes and reinforces their political ideology. Gender is a plausible confounder because women are more likely to major in the arts and humanities—precisely the fields associated with liberal ideology—and we also know that women tend to be more liberal than men (van Ditmars and Shorrocks 2024; van de Werfhorst 2017). To assess whether gender explains the effect of field, **Figure 2** calculates the proportion of females in each of 80 fields and shows that while this variable is significant under controls (circles), it loses significance when paired with field as skills (diamonds).

Figure 2. Gender is not a confounder for field of education



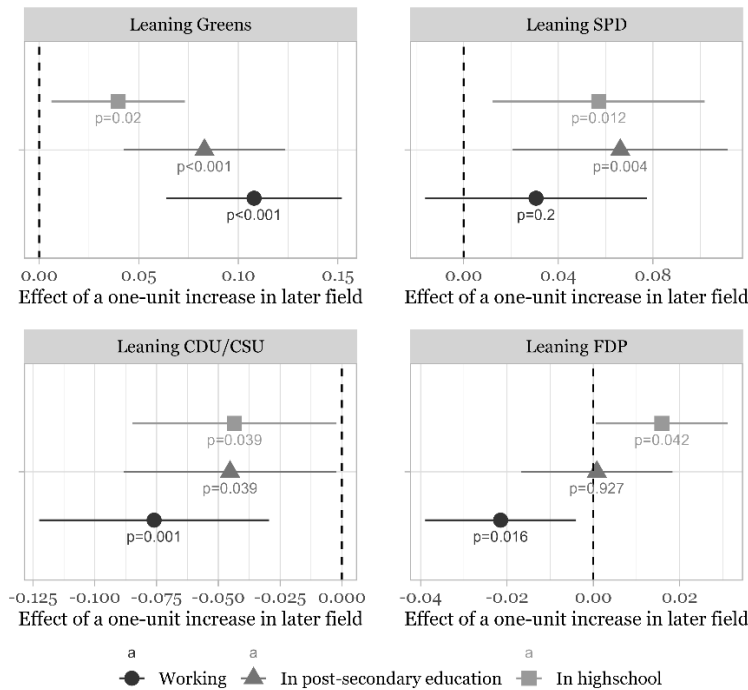
Note: GSS (2012-2022). The figure plots coefficients with 95% confidence intervals from linear regressions under controls; variables rescaled 0-1. Circles indicate coefficients from a model with field as skills; triangles indicate coefficients from a model with gendered field; diamonds indicate coefficients from a model that has both (Table A.10).

We turn to SOEP panel data to consider whether the effect of field is driven by self-selection into socialization. We restrict the sample to respondents who were in the panel in high school and who stayed in the panel for at least one wave after college. To estimate self-

selection, we back-predict a respondent's party sympathy in high school based on the field they select in college. If the link between voting and field is solely established during college, we would not detect it in high school. If, by contrast, a person's field in college predicts party sympathies in high school, this indicates selection into socialization. We run multivariate regression models controlling for gender and level of education. Our outcome of interest is whether a person leans towards the Greens, Social Democratic party (SPD), Christian Democratic/Christian Social party (CDU/CSU), or Free Democratic Party (FDP).

Figure 3 shows that, as we expect, field back-predicts party sympathy in high school. A difference from zero to one on the human-centered scale in college (i.e. engineering to teaching) corresponds to a 4.0% increase in the probability of leaning Green in high school, a 5.7% increase in leaning SPD, a 4.3% decrease in leaning CDU/CSU, and a 1.6% increase in leaning FDP. However, back-prediction does not exhaust the field effect. High human-centered education significantly increases the probability of leaning Green and decreases the probability of leaning FDP following high school, and it has a (weaker) positive association with SPD support and negative association with CDU support.

Figure 3. The effect of field of education in high school, college, and at work



Note: This figure plots the effect of an individual's field of education on their party identification in high school, college, and at work. SOEP data with standard errors clustered at the respondent level; p-scores with 95% confidence intervals (Table A.13).

We now estimate socialization by filtering out the effects of self-selection by comparing a person over time, that is, before and after they attend higher education, and comparing those in a high human-centered with those in a low human-centered field. We use a generalized difference in differences design and estimate the Average Treatment Effect on the Treated using a Fixed Effects counterfactual estimator (Lui et al. 2024). A respondent is coded as treated from the year they enrol in college.

Table 4 shows that college education has a liberalizing effect which is most pronounced for those in a high human-centered field. Graduating from university increases the propensity to lean Green by 2.1% and by 1.4% for the SPD, while there is no significant effect for the two conservative parties, CDU/CSU and FDP (column 1). Graduating in a high human-centered field amplifies the liberalizing effect: it is associated with a 3% increase in

the probability of leaning Green and a 1.9% increase for Social Democrats (column 3). This compares with a much smaller increase (1.4%) in leaning Green for those in a low human-centered field, and no significant effect for the SPD (column 2). The effect of field is reversed for the right-wing FDP, where it is graduating in a low human-centered field (e.g. commerce, engineering) that significantly increases support. These results are in line with the claim that the liberalizing effect of college education is refracted through the field in which one chooses to study.

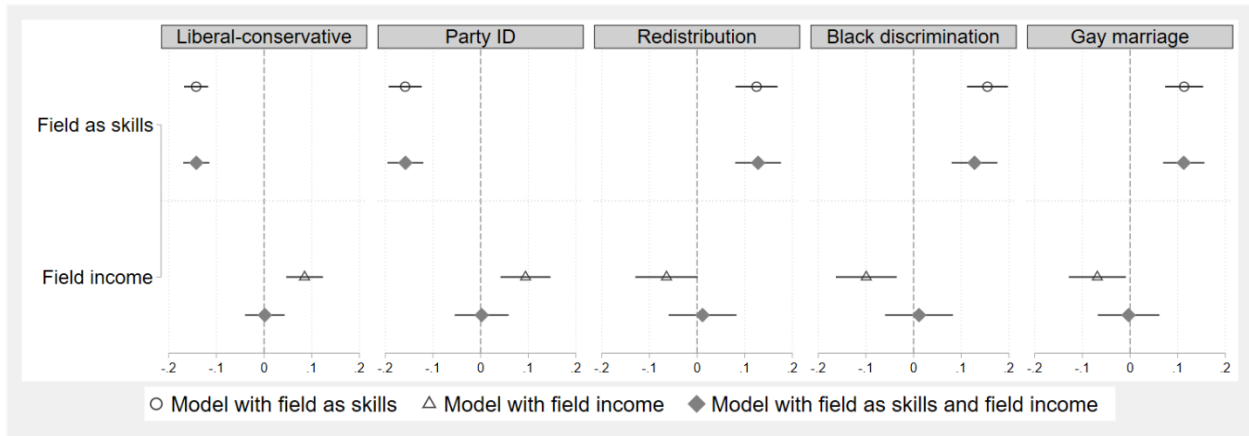
Table 4. IFect within-individual effect of attending college by field of study

	Effect of graduating from university	Effect of graduating in a low human-centered field	Effect of graduating in a high human-centered field
Greens	0.021*** (0.004)	0.014** (0.005)	0.030*** (0.008)
SPD	0.015* (0.006)	0.012 (0.007)	0.019* (0.009)
CDU/CSU	0.010 (0.010)	0.014 (0.008)	0.005 (0.008)
FDP	0.004 (0.003)	0.010** (0.004)	-0.002 (0.004)

Note: ***<.001; **<.01; *<.05. SOEP panel survey. Dependent variable is 0 or 1 for each party. IFect estimator (Liu et al. 2024). Parallel-trend plots in Figure A.3.

Finally, our argument suggests that educational fields have a socialization effect that is independent of their material consequences for an individual (Kim et al. 2015). In **Figure 4**, we calculate the average income for respondents based on their major. We find that individuals who majored in higher-income fields tend to be more conservative than those in lower-income fields (the triangles in Figure 4). However, when we include both field income and the human-centeredness of a field in the same model (diamonds), field income loses significance, while field as skills retains significance.

Figure 4. Income does not mediate the effect of field of education



Note: GSS (2012-2022). The figure plots coefficients with 95% confidence intervals from linear regressions under full controls; variables rescaled 0-1. Circles indicate coefficients from a model with field as skills; triangles indicate coefficients from a model with field income; diamonds indicate coefficients from a model that has both (Table A.11).

Discussion

One of the most observed regularities in the study of politics is that college encourages liberal attitudes and voting (Lazarsfeld and Thielens 1958; Kuhn et al. 2021; Scott 2024). We confirm this, but find that the substance of a person’s education has an independent effect on their ideology and party preference. Now that six in ten young people in the US and a rising proportion in Europe go to college, it is all the more important to find out what predicts differences within this group.

In modeling variation among 80 fields of study, we find evidence that human-centered skills are associated with liberal attitudes. We measure this latent dimension as a function of the relative emphasis of cultural/communicative skills compared to economic/technical skills. The relative skill content of a field is robust in surveys across educational systems as disparate as the United States (2024) and the Netherlands (2001

and 2024). These human-centered scores can be imported into any dataset that connects a respondent to a field of education.

We find that this variable is strongly and significantly associated with items tapping political ideology, party identification, attitudes on redistribution, the environment, race discrimination, immigration, or gay marriage in the United States and Europe.

If valid, educational field theory has wide-ranging implications for our understanding of political attitudes and voting. For one, the findings ask us to rethink the social basis of the contemporary cleavage in western democracies. The divide between those with and without tertiary education features prominently in accounts of voting. Besides race, it is the most influential variable predicting presidential voting in the 2024 US election, and the most influential variable predicting voting on the socio-cultural cleavage in Europe. Our results suggest that the contemporary cleavage is not chiefly a divide between the educated and the less educated, but a divide among the educated. It is perhaps not surprising that public funding for human-centered fields is politically contested (Neundorf et al. 2024).

Educational field theory appears to have considerable power over a wide range of attitudes across a wide range of democracies. At the same time, it is worth stressing that the scope of the theory is limited. Field of education does not have much to say about political attitudes that sit astride ideology, such as political efficacy (Niemi et al. 1991), political interest (Campbell et al. 1960), party affect (Tyler and Iyengar 2023), expressive partisanship (Huddy et al. 2015), and moral disengagement (Kalmoe and Mason 2022). Here field has little bite, as **Table 5** reveals.

Table 5. Attitudes that field of education does not predict

Political efficacy	Political interest	Party affect	Expressive partisanship	Moral disengagement
<i>I feel that I have a pretty good understanding of the important political issues facing our country.</i>	<i>How interested are you in politics and national affairs?</i>	<i>I'd like you to rate how you feel towards Republican, Democrat, Independent, Trump supporters on a scale of 0 to 100 (maximum score)</i>	<i>Criticism of my party is a personal insult; I feel connected with party supporters; I say 'my party'; praise for my party makes me feel good.</i>	<i>[Democrats/Republicans] are not just worse for politics—they are downright evil.</i>
0.032 (0.030)	0.035 (0.020)	0.004 (0.012)	-0.033 (0.018)	-0.001 (0.025)

Note: GSS survey (column 1) and US field survey (columns 2-5). Coefficients for field of education from linear regressions with controls and standard errors in parentheses (Tables A.8-9; Figure A.1).

We show that field of education has an independent causal effect; it is not just a proxy for prior experience in childhood and adolescence. Yet, it is also true that people select into majors for which they have an affinity. This raises the puzzle of the interaction of self-selection and socialization and the possibility that an individual self-selects into socialization within particular field. We still have much to learn about this process, and in particular, the role of social networking among childhood friends, co-students in college, and colleagues at work.

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Online Appendix

Beyond the Diploma Divide: Field of Education and Ideological Divisions among College Educated

This file includes:

A. Survey Data and Descriptives

- Datasets
- Independent variable: field of education (Table A.1)
- Dependent variables (Table A.2a)
- Control variables (Table A.2b)

B. Crossectional analysis

- College educated, continuous field variable (Tables A.3-A.5)
- All educational groups, categorical variable (Table A.6 and A.7)

C. Non-findings

- College educated, continuous field variable (Table A.8-A.9)
- All educational groups, categorical variable (Figure A.1)

D. Confounders for field of education

- Gender as a potential confounder (Table A.10)
- Field income as an alternative mediator (Table A.11)

E. Panel analysis

- Descriptives (Figure A.2, Table A.12)
- Parallel trends (Figure A.3)
- Analysis (Tables A.13 and A.14)

F. Construction of the field measure and crossvalidation

- Origins: a Dutch study of education skills (Table A.15)
- The 2024 TGM field survey measuring skills by field of education in the US (Table A.16 and Addendum)
- Reliability of US field of education estimates (Tables A.17, A.18, A.19, A.20)
- From skills to a continuous measure of field
- Crosswalk the continuous measure into other surveys (Tables A.21 and A.22)

References

Other supporting materials for this manuscript (TBD):

- Datasets & Software for replication and crosswalks to external datasets

A. Survey Data and Descriptives

Datasets. This project uses four datasets. For analyses that employ the continuous operationalization of field of education, analyses use a subsample restricted to those with a college degree or, in Europe, a postsecondary degree. Analyses that employ the categorical variable of educational groups use the full sample.

a) The **General Social Survey (GSS)**, conducted by NORC, is a nationally representative survey of adults in the United States conducted since 1972 to monitor trends in opinions, attitudes, and behaviors (Davern et al. 2024). Our analysis uses the cumulative file from 2012 through 2022 because GSS only began collecting detailed information on college-educated from 2012. Maximum combined N=7,324 for college-educated (two-year, four-year, MA or PhD) and N=17,155 including those with high school or lower education. The survey data is downloadable from <https://gss.norc.org/>.

b) Author-conducted **survey in the United States**, administered by TGM, with population-based quotas for gender, age, education, rural/urban, region in Spring 2024 with detailed questions on the skills content of a person's chosen field of education alongside a range of political attitudes. Maximum N=3,541 for college-educated and N=6,435 including high school degree. Data will be made available for replication at publication.¹

c) A quota-based **YouGov survey** was conducted in ten West European countries (Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Spain, Sweden, UK) by a research team at the European University Institute in Spring 2023 (Hemerijck et al. 2023). This survey included questions on field of education alongside party identification, voting, and attitudes. Data is available from GESIS (<https://europeangovernanceandpolitics.eui.eu/eui-yougov-solidarity-in-europe-project/>).

d) The **German Socio-Economic Panel (SOEP)** is a true probability panel of about 15,000 German households since 1984 (<https://www.diw.de/>). The panel collects fine-grained information on field of education and vocational training alongside a measure of party identification (which party a respondent leans to) that is consistent over time. Maximum number of observations=463,503 for 23,414 individuals.

¹ This study was approved by the IRB of the University of North Carolina at Chapel Hill.

Independent variable: field of education. The table below summarizes question wording and information on the continuous and categorical operationalization. The source dataset is in green.

Table A.1. Operationalization of field of education

General Social Survey 2012-2022	2024 TGM field survey for the US	2023 YouGov survey for Europe
Categorical variable		
[major1]: ‘What was your major or field of study when you received your highest degree?’ [80 categories]	[EDU_field]: ‘Now I would like to know more about what field of education or specialization you pursued for your highest completed degree or diploma. I will ask you a few questions that help you describe what you have studied.’ [80 categories]	[Education_field]: ‘What is the field or subject of your highest qualification? (Please select the option that best describes your main subject. If you are still studying, describe your current main subject. This list is alphabetical).’ [21 categories]
Continuous variable (Tables 1, 2, 3)		
Human-centered skills content of a person’s field of education is estimated as the ratio of communicative plus cultural skills to the sum of four skill categories. The skill content of a field of education is calculated by taking the mean of the estimates provided by 3,541 college-educated respondents in the 2024 TGM field survey for their primary field of study; the list of skills is adapted from van de Werfhorst and Kraaykamp (2001: 301).		
Each of 81 majors in GSS is matched with the most similar field (or fields) in the TGM field survey for the purposes of assigning a unique human-centeredness score.	Each of 78 fields in the TGM field survey has a unique human-centeredness score, which is the mean score of responses by those who completed a college degree in that field. (Two of a total of 80 fields had no respondents.)	Each of 21 fields in the YouGov survey is matched with the most similar field (or fields) in the TGM field survey to assign a unique human-centered score.
Trichotomous variable (Figure 2)		
Divide the full sample in three groups [3 categories]: <ul style="list-style-type: none"> • High school: if respondent’s level of education is high school or less • Low human-centered college: <.5 on 0-1 scale • High human-centered college: >.5 on 0-1 scale 		

Dependent variables: political attitudes, party identification, democracy in the US and Europe

Table A.2a. Operationalization of dependent variables

General Social Survey (2012-2022)	
Party identification	"Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or what?" [Republican, Democrat, Independent, Other, No preference] [If Republican or Democrat]: "Would you call yourself a strong [Rep/Dem] or not a very strong [Rep/Dem]?" [Strong, not very strong, don't know] [If Independent or No preference]: "Do you think of yourself as closer to the Republican or Democratic Party?" [Republican, Democrat, Neither, Don't know] Combined into a 7-point scale from strong Democrat to strong Republican.
Liberal-conservative self-placement	"We hear a lot of talk these days about liberals and conservatives. Here is a seven-point scale on which the political views that people might hold are arranged from extremely liberal—point 1—to extremely conservative—point 7. Where would you place yourself on this scale?" [7-point scale]
Redistribution	"Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. Here is a card with a scale from 1 to 7. ...What score between 1 and 7 comes closest to the way you feel?" [7-point scale reversed].
Race discrimination	"Some people think that Blacks have been discriminated against for so long that the government has a special obligation to help improve their living standards. Others believe that the government should not be giving special treatment to Blacks. Where would you place yourself on this scale, or haven't you made up your mind on this?" [5-point scale, from 1=strongly agree should not be giving special treatment to 5=strongly agree government is obligated to help Blacks].
Gay marriage	"Do you agree or disagree with the following statement: 'Homosexuals should have the right to marry one another.'" [Five-point scale from 1=strongly disagree to 5=strongly agree].
Political efficacy	"I feel that I have a pretty good understanding of the important political issues facing our country." [Five-point scale from 1=strongly agree to 5=strongly disagree; reversed.]
Political participation	"Do you remember for sure whether or not you voted in the previous presidential election?" [1=voted, 2=did not vote, 3=ineligible, dichotomized so 1=voted, 0 otherwise].
TGM field survey in the United States (2024)	
Distrust in elections	"It is hard to trust the results of elections nowadays." (10-point scale from 1=disagree to 10=agree). Source: adapted from Bartels (2020)
Gerrymandering	"It's OK for legislators to gerrymander, i.e., redraw electoral districts so that their own party gets more seats with less votes." [10-point scale, from 1=disagree to 10=agree].
Take law in own hands	"A time will come when patriotic Americans have to take the law into their own hands." [5-point scale from 1=strongly disagree to 5=strongly agree]. Source: adopted from Bartels (2020).
Christian nationalism	"The federal government should advocate Christian values." [10-point scale, from 1=disagree to 10=agree]. Source: adopted from Whitehead and Perry (2020).
Support for Trump	"I'd like you to rate how you feel towards Republican, Democrat, Independent, Trump supporters on a scale of 0 to 100." Support for Trump is the temperature rating for Trump supporters (0-100). Source: adapted from affective polarization (Iyengar et al. 2019).
Political interest	"How interested are you in politics and national affairs?" [Four-point scale, from 1=very

Party affect	interested to 4=not at all interested; reversed.]
Expressive partisanship	<p>"I'd like you to rate how you feel towards Republican, Democrat, Independent, Trump supporters on a scale of 0 to 100." Affect = highest value of three.</p> <p>"When people criticize INPARTY, it feels like a personal insult."</p> <p>"When I meet someone who supports INPARTY, I feel connected with this person."</p> <p>"When I speak about INPARTY, I refer to them as 'my party.'"</p> <p>"When people praise INPARTY, it makes me feel good."</p> <p>[Four-point scale, from 1=always to 4=never; reversed.] Source: Huddy et al. (2015)</p> <p>Expressive partisanship averages responses ranging from 1 (lowest) to 4 (highest).</p>
Moral disengagement	<p>"[Democrats/Republicans] are not just worse for politics—they are downright evil." [Five-point scale, from 1=strongly agree to 5=strongly disagree; reversed]. Source: Kalmoe & Mason (2022).</p>

YouGov survey in Europe (2023)

Party identification	<p>"Which ONE of the following political parties do you feel CLOSEST to? (Please select the option that best applies?" Respondents see a list of parties and select one or none.</p> <p><u>Note on measuring party identification in Europe's multiparty systems:</u></p> <p>Political parties are categorized by their ideology in a two-dimensional policy space, with social liberal to conservative (GALTAN), and economic left to right. Expert judgments from the 2023 Chapel Hill Expert Survey (CHES) locate parties on those dimensions:</p> <ul style="list-style-type: none"> • GALTAN: "Parties can be classified in terms of their views on social and cultural values. 'LIBERTARIAN' or 'POSTMATERIALIST' parties favor expanded personal freedoms, for example, abortion rights, divorce, and same-sex marriage. 'TRADITIONAL' or 'AUTHORITARIAN' parties reject these ideas in favor of order, tradition, and stability, believing that the government should be a firm moral authority on social and cultural issues. Where did political parties stand on LIBERTARIAN/TRADITIONAL issues in the last three months [of 2023]?" [11-point scale from 0 (libertarian/postmaterialist) to 10 (traditional/authoritarian).] • ECONOMIC LEFT/RIGHT = "Parties can be classified in terms of their stance on ECONOMIC ISSUES such as privatization, taxes, regulation, government spending, and the welfare state. Parties on the economic left want government to play an active role in the economy. Those on the economic right want a reduced role for government. Where did political parties stand on ECONOMIC issues in the last three months [of 2023]?" [11-point scale from 0 (extreme left) to 10 (extreme right).] <p>A party's score is the average of the country expert judgments. Source: https://www.chesdata.eu/.</p>
Party identification GALTAN	Respondent receives the GALTAN score of the party they feel closest to, as estimated by the 2023 CHES wave.
Party identification Left/right	Respondent receives the economic left/right score of the party they feel closest to, as estimated by the 2023 CHES wave.
Redistribution	"Do you think the government should not or should redistribute income from those who are better off to those who are worse off?" [11-point scale from 0 (should not redistribute income) to 10 (should redistribute income).]
Immigration	"What are the three most important issues facing you and your family at the moment?" [16 options, plus none of the above and don't know.] Respondent receives a value of 1 if they mention 'immigration' as one of top-three, and zero otherwise.
Environment	"What are the three most important issues facing you and your family at the moment?" [16 options, plus none of the above and don't know.] Respondent receives a value of 1 if they mention 'the environment and climate' as one of top-three, and zero otherwise.

Controls: Level of education, sex, ethnicity, income, rural, age, religion, religiosity, other

Table A.2b. Operationalization of control variables

	GSS	2024 TGM field survey	2023 YouGov survey
Level of education	<p>Categorical [REDEGHI]- ‘What degree or degrees? If you have more than one, please select the highest degree that you have.’</p> <ul style="list-style-type: none"> • 0=less than high school • 1=high school • 2=associate/junior college • 3=bachelor’s • 4=graduate <p>College subsample: a trichotomous variable containing the last three options.</p>	<p>Categorical [EDU_degree] – ‘What is the highest level of education you completed?’</p> <ul style="list-style-type: none"> • 1=did not complete high school • 2=high school degree • 3=two-year college degree • 4=four-year college degree • 5=advanced college degree <p>College subsample: a trichotomous variable containing the last three options.</p>	<p>Categorical [education]- ‘What is your **highest** level of education? If you are currently in full-time education please put your highest qualification to date.</p> <ul style="list-style-type: none"> • 1=did not complete formal education • 2=early childhood education • 3=primary education • 4=lower secondary education • 5=upper secondary education • 6=post-secondary, non-tertiary education • 7=short-cycle tertiary education • 8=BA or equivalent level degree • 9=MA or equivalent level degree • 10=Doctoral or equivalent level degree <p>A trichotomous variable containing last four options: 1=short-cycle post-secondary (6 and 7); 2=BA or equivalent (8); 3=graduate degree (9 and 10)</p>
Female	<p>Self-reported [sex]</p> <p>0=male 1=female</p>	<p>Self-reported [IND_gender]</p> <p>0=male 1=female Other set to missing</p>	<p>Self-reported [sex]</p> <p>0=male 1=female</p>
Ethnicity	<p>Categorical [racecen1] – ‘What is your race?,’ recoded:</p> <ul style="list-style-type: none"> • 1=White • 2=Black • 3=Hispanic • 4=Asian • 5=Other 	<p>Categorical [IND_ethnicity] – ‘Racial or ethnic group that best describes you,’ recoded:</p> <ul style="list-style-type: none"> • 1=White • 2=Black • 3=Hispanic • 4=Asian • 5=Other 	<p>Not available</p>

Income	Quintiles [income06 and income16] by recoding, by year, income information into five equal ordinal categories.	Deciles [IND_income] – ‘How much was your household income during the past 12 months? This includes money from jobs, net income from business, pensions, investments, social security etc. by any members of your household.’	[income_raw]: values are normalized within each country and next combined in a single variable.
Rural	<ul style="list-style-type: none"> • Categorical [xnorcsiz] by recoding: • 1=city or urban (1, 2) • 2=suburban 3, 4, ,5 ,6) • 3=town (7, 8) • 4=open country or farm (9, 10) 	Categorical [IND_urban_rural]: ‘Do you currently live in . . .’ <ul style="list-style-type: none"> • 1=city or urban area • 2=suburbs • 3=rural town • 4=open country or a rural farm 	Categorical [Glob_areatype by recoding: <ul style="list-style-type: none"> • 1=centre of a city/large town) • 2=suburb or part of a city/large town, which is outside its centre • 3=small town • 4=village • 5=settlement or isolated dwelling < than a village
Age	[BRTHDATE] – ‘What is your date of birth?’ recoded by deducting from wave year+1	[IND_year_born] – ‘In what year were you born?’ recoded by deducting from 2024+1	[age_grouped] <ol style="list-style-type: none"> 1. 18 to 24 2. 25 to 34 3. 35 to 44 4. 45 to 54 5. 55+
Religion	Categorical [relig] by recoding: <ol style="list-style-type: none"> 1=Protestant 2=Catholic 3=Jewish 4=other religion 5=no religion (secular) 	Not available	Categorical [Q63, 13 categories] recoded into a dichotomy, with <ul style="list-style-type: none"> • 1= secular (Q63=6) • 0 = other (Q63!=6)
Religiosity	Ordinal [ATTEND] - ‘How often do you attend religious services? ranging from 1 (never) to 9 (several times a week)	Ordinal [REL_services] – ‘How often do you attend religious services, apart from holidays or special occasions?’ from 1 (never or almost never) to 4 (once a week or more)	Not available
Gendered field	Proportion of women in a field.		
Field income	Average income of all respondents in a person’s field.		
Other	Year dummies	District 2020 partisan composition, state union density, district GDP/capita and district employment rate	Country dummies

Note: all non-categorical variables are rescaled from 0 to 1.

B. Crosssectional analysis

Table A.3 reports full results for **Table 1** in the text. Models regress partisanship and several political attitudes on field and level of education alongside standard controls for college educated. This analysis employs GSS data.

Table A.3: The effect of field on political attitudes in the United States

	Liberal- conservative self- placement	Partisan identification	Redistribution	Race discrimination	Gay marriage
	'Where would you place yourself on the scale on political views arranged from extremely liberal to extremely conservative?'	'Generally speaking, do you usually think of yourself as a [strong/weak] Democrat, [strong/weak] Republican, or independent?'	'The government in Washington ought to reduce the income differences between the rich and the poor.'	'Blacks have been discriminated against for so long that the government has a special obligation to help improve their living standards.'	'Homosexuals should have the right to marry one another.'
Field of education	-0.143*** (0.013)	-0.158*** (0.018)	0.125*** (0.022)	0.155*** (0.022)	0.113*** (0.020)
Level of education (reference = two-year college degree)					
Bachelor degree	-0.051*** (0.008)	-0.041* (0.011)	-0.000 (0.014)	0.088*** (0.013)	0.061*** (0.012)
Graduate degree	-0.107*** (0.009)	-0.117*** (0.012)	0.057*** (0.015)	0.160*** (0.015)	0.111*** (0.014)
Ethnicity (reference = White)					
Black	-0.082*** (0.009)	-0.282*** (0.013)	0.159*** (0.016)	0.265*** (0.016)	-0.050*** (0.015)
Hispanic	-0.018 (0.022)	-0.065** (0.030)	0.059 (0.037)	0.041 (0.036)	-0.022 (0.036)
Asian	-0.011 (0.013)	-0.043** (0.018)	0.056** (0.022)	0.030 (0.022)	-0.073 (0.021)
Other ethnicity	-0.015 (0.023)	-0.055* (0.032)	0.051 (0.041)	0.076 (0.040)	-0.042 (0.034)
Female	-0.031*** (0.006)	-0.056*** (0.008)	0.039** (0.010)	0.023 (0.010)	0.066*** (0.009)
Income	0.040*** (0.009)	0.055*** (0.012)	-0.116*** (0.015)	-0.028 (0.014)	0.040 (0.013)
Rural	0.068*** (0.012)	0.081*** (0.016)	-0.066 (0.020)	-0.092*** (0.020)	-0.080** (0.018)
Age	0.048* (0.013)	-0.024 (0.018)	-0.080* (0.022)	-0.049 (0.022)	-0.219*** (0.020)
Religious denomination (reference = Protestant)					
Catholic	-0.036*** (0.008)	-0.064*** (0.011)	0.036 (0.014)	0.008 (0.013)	0.101*** (0.012)
Jewish	-0.150*** (0.017)	-0.211*** (0.024)	0.137*** (0.029)	0.123** (0.028)	0.157*** (0.028)

Other religion	-0.074*** (0.012)	-0.096*** (0.016)	0.085** (0.020)	0.070* (0.019)	0.047 (0.018)
No religion	-0.149*** (0.008)	-0.162*** (0.012)	0.142*** (0.014)	0.146*** (0.014)	0.100*** (0.013)
Religiosity	0.175*** (0.010)	0.169*** (0.014)	-0.131*** (0.017)	-0.081*** (0.017)	-0.352*** (0.016)
Year (reference=2012)					
2014	0.009 (0.012)	0.027 (0.016)	-0.008 (0.020)	0.009 (0.020)	0.061 (0.019)
2016	-0.001 (0.012)	0.022 (0.016)	0.052 (0.020)	0.107*** (0.019)	0.089*** (0.018)
2018	-0.004 (0.012)	0.026 (0.016)	0.026 (0.020)	0.115*** (0.020)	0.116*** (0.019)
2021	-0.007 (0.011)	0.005 (0.014)	0.082 (0.018)	0.174*** (0.017)	0.126*** (0.017)
2022	-0.006 (0.011)	0.018 (0.015)	0.051 (0.019)	0.165*** (0.018)	0.102*** (0.018)
Constant	0.569*** (0.018)	0.610*** (0.024)	0.494*** (0.030)	0.189*** (0.030)	0.622*** (0.028)
Observations	6,355	6,198	4,244	4,184	4,307
Adj R-squared	0.236	0.199	0.143	0.198	0.286

Note: ***<.00001; **<.0001; *<.001. General Social Survey, 2012-2022 (Davern et al. 2024).

Table A.4 reports full results for **Table 2** in the main text, which shows models that regress partisanship and several political attitudes on field and level of education alongside standard controls for college educated. This analysis employs YouGov data covering 10 European countries.

Table A.4: The effect of field on political attitudes in Europe

	Party identification on GALTAN	Party identification on left/right	Redistribution	Immigration	Environment
	<i>"Which ONE of the following political parties do you feel CLOSEST to?" Parties arrayed from social liberal (GAL) to conservative (TAN)</i>	<i>"Which ONE of the following political parties do you feel CLOSEST to?" Parties arrayed from economic left to right</i>	<i>"Do you think the government should not or should redistribute income from those who are better off to those who are worse off?"</i>	<i>"What are the three most important issues facing you and your family at the moment?" Respondent mentions 'immigration'</i>	<i>"What are the three most important issues facing you and your family at the moment?" Respondent mentions 'the environment and climate'</i>
Field of education	-0.092*** (0.012)	-0.088*** (0.010)	0.094*** (0.013)	-0.074** (0.018)	0.077* (0.020)
Level of education (reference =short-cycle postsecondary)					
BA or equivalent	-0.030* (0.009)	-0.003 (0.007)	0.004 (0.009)	-0.035 (0.013)	0.037 (0.014)
MA or PhD	-0.068*** (0.010)	-0.012 (0.008)	0.010 (0.010)	-0.063** (0.014)	0.125*** (0.015)
Female	-0.019 (0.007)	-0.021 (0.006)	-0.033** (0.008)	-0.059*** (0.011)	0.037 (0.012)
Urban	-0.033 (0.013)	-0.011 (0.011)	0.038 (0.013)	0.002 (0.019)	0.032 (0.020)
Age	0.060*** (0.011)	0.015 (0.009)	0.032 (0.012)	0.103*** (0.017)	0.074** (0.018)
Income	0.041 (0.014)	0.097*** (0.012)	-0.198*** (0.015)	0.001 (0.021)	0.094** (0.023)
Secular	-0.105*** (0.007)	-0.084*** (0.006)	0.048*** (0.007)	-0.060*** (0.011)	0.089*** (0.011)
Country (reference=United Kingdom)					
Denmark	-0.024 (0.013)	-0.028 (0.011)	-0.098*** (0.014)	-0.039 (0.019)	0.086** (0.021)
Finland	-0.069* (0.017)	0.027 (0.014)	0.010 (0.019)	-0.070 (0.026)	-0.152*** (0.028)
France	-0.023 (0.017)	-0.009 (0.014)	0.057 (0.017)	-0.034 (0.024)	0.039 (0.026)
Germany	-0.094*** (0.014)	0.006 (0.012)	-0.087*** (0.015)	0.088** (0.021)	-0.019 (0.023)
Greece	0.008 (0.018)	-0.022 (0.015)	0.011 (0.018)	-0.076 (0.025)	-0.226*** (0.027)
Italy	-0.027 (0.021)	-0.094*** (0.017)	0.045 (0.020)	0.054 (0.029)	-0.109 (0.031)
Netherlands	-0.080 (0.018)	-0.016 (0.015)	-0.081** (0.018)	0.095 (0.026)	0.018 (0.028)
Spain	-0.008 (0.013)	0.060*** (0.011)	-0.024 (0.014)	-0.070 (0.019)	-0.161*** (0.021)
Sweden	-0.045 (0.013)	0.023 (0.011)	-0.025 (0.015)	0.034 (0.021)	-0.024 (0.022)

Constant	0.564*** (0.018)	0.578*** (0.015)	0.633*** (0.019)	0.304*** (0.027)	0.150*** (0.029)
Observations	5,366	5,366	6,599	6,816	6,816
Adj R-squared	0.091	0.089	0.076	0.040	0.076

Note: ***<.00001; **<.0001; *<.001. 2023 YouGov survey (Hemerijck et al. 2023).

Table A.5 reports full results for **Table 3** in the main text, which shows models that regress attitudes on democratic norms on field and level of education alongside standard controls for college educated. This analysis employs data collected by the authors' TGM field survey conducted in Spring 2024 in the United States. Results are similar with contextual controls for 2020 partisan composition of the district, state union density, GDP/capita and employment rate.

Table A.5: The effect of field on democracy in the United States

	Distrust in elections	Gerrymandering	Take the law in own hands	Christian nationalism	Trump affect
	"It is hard to trust the results of elections nowadays."	"It's OK for legislators to gerrymander."	"A time will come when patriotic Americans have to take the law into their own hands."	"The federal government should advocate Christian values."	"How do you feel towards Trump supporters on a scale of 0 to 100?"
Field of education	-0.120*** (0.023)	-0.081** (0.019)	-0.129*** (0.025)	-0.190*** (0.021)	-0.171*** (0.025)
Level of education (reference = two-year college)					
BA degree	-0.055** (0.014)	-0.026 (0.012)	-0.062** (0.015)	-0.038 (0.013)	-0.054* (0.015)
Graduate degree	-0.081*** (0.017)	0.022 (0.014)	-0.082** (0.018)	-0.045 (0.016)	-0.075 (0.019)
Ethnicity (reference = White)					
Black	0.014 (0.017)	0.045 (0.015)	-0.042 (0.019)	0.045 (0.016)	-0.096*** (0.019)
Hispanic	0.009 (0.024)	0.020 (0.020)	-0.044 (0.026)	-0.016 (0.022)	-0.098* (0.026)
Asian	0.003 (0.028)	-0.027 (0.024)	-0.034 (0.031)	-0.058 (0.027)	-0.062 (0.031)
Other	0.013 (0.040)	-0.065 (0.034)	-0.008 (0.043)	-0.104 (0.037)	-0.042 (0.043)
Female	0.016 (0.012)	-0.050*** (0.010)	-0.044* (0.013)	-0.022 (0.011)	-0.072*** (0.013)
Income	-0.030 (0.022)	0.040 (0.019)	-0.030 (0.024)	-0.006 (0.020)	0.021 (0.024)
Rural	0.053 (0.021)	-0.102*** (0.018)	0.053 (0.023)	0.037 (0.020)	0.101** (0.024)
Age	-0.250*** (0.027)	-0.418*** (0.023)	-0.307*** (0.029)	-0.037 (0.025)	-0.147*** (0.029)
Religiosity	0.174*** (0.014)	0.170*** (0.012)	0.142*** (0.015)	0.378*** (0.013)	0.213*** (0.015)
Constant	0.330*** (0.024)	0.476*** (0.020)	0.608*** (0.026)	0.455*** (0.022)	0.525*** (0.026)
Observations	3,493	3,493	2,922	3,493	3,525
Adj R-squared	0.097	0.221	0.093	0.240	0.101

Note: 2024 TGM US field survey. The table reports coefficients from linear regressions. All variables are rescaled 0-1. Standard errors in parentheses; p-values: ***<.00001; **<.0001; *<.001.

Table A.6 reports average support for 20 political attitudes by educational group – those with at most a high school degree, those with a college degree in a low human centered field, those with a college degree in a high human centered field. These statistics – averages and confidence intervals—are visualized in **Figure 2** (main text). This analysis uses GSS data, TGM field survey data, and YouGov survey data.

Table A.6: Average support for political attitudes by educational group

	High school	College in low human centered field	College in high human centered field	Sample coverage	Data source
Liberal-conservative self-placement	0.53 [0.52; 0.53]	0.49 [0.48; 0.50]	0.42 [0.41; 0.43]	US	GSS
Party identification (Strong Democrat to Strong Republican)	0.47 [0.46; 0.48]	0.43 [0.42; 0.44]	0.35 [0.34; 0.36]	US	GSS
Redistribution	0.58 [0.57; 0.59]	0.58 [0.57; 0.59]	0.63 [0.62; 0.65]	US	GSS
Race discrimination	0.41 [0.40; 0.42]	0.46 [0.44; 0.47]	0.54 [0.52; 0.56]	US	GSS
Gay marriage	0.62 [0.61; 0.63]	0.69 [0.68; 0.70]	0.75 [0.74; 0.77]	US	GSS
Party identification from GAL to TAN	0.50 [0.50; 0.51]	0.48 [0.47; 0.49]	0.40 [0.38; 0.41]	Europe	YouGov
Party identification from left to right	0.55 [0.55; 0.56]	0.56 [0.55; 0.56]	0.49 [0.48; 0.50]	Europe	YouGov
Redistribution	0.62 [0.61; 0.63]	0.61 [0.60; 0.61]	0.67 [0.66; 0.69]	Europe	YouGov
Immigration	0.31 [0.30; 0.32]	0.29 [0.27; 0.30]	0.21 [0.19; 0.23]	Europe	YouGov
Environment	0.29 [0.28; 0.31]	0.32 [0.31; 0.33]	0.40 [0.38; 0.42]	Europe	YouGov
Distrust in elections	0.62 [0.61; 0.63]	0.58 [0.57; 0.60]	0.51 [0.49; 0.53]	US	USField
Gerrymandering	0.29 [0.28; 0.30]	0.31 [0.30; 0.32]	0.26 [0.24; 0.27]	US	USField
Take the law in own hands	0.46 [0.45; 0.48]	0.43 [0.42; 0.45]	0.35 [0.33; 0.38]	US	USField
Christian nationalism	0.52 [0.51; 0.54]	0.52 [0.50; 0.53]	0.40 [0.38; 0.42]	US	USField
Support for Trump	0.49 [0.47; 0.50]	0.45 [0.43; 0.46]	0.34 [0.32; 0.36]	US	USField
Political efficacy	0.63 [0.62; 0.64]	0.69 [0.68; 0.71]	0.69 [0.67; 0.72]	US	GSS
Political interest	0.64 [0.63; 0.65]	0.68 [0.67; 0.70]	0.70 [0.68; 0.71]	US	USField
Party affect	0.82 [0.82; 0.83]	0.83 [0.82; 0.84]	0.82 [0.81; 0.83]	US	USField
Expressive partisanship	0.41 [0.40; 0.42]	0.46 [0.44; 0.47]	0.43 [0.41; 0.44]	US	USField
Moral disengagement	0.55 [0.53; 0.56]	0.55 [0.53; 0.56]	0.54 [0.52; 0.56]	US	USField

Note: Coefficients for field of education from linear regressions from 5000 cluster bootstrap resamples, with 95% percentile confidence intervals in square brackets; full controls. All variables rescaled on 0-1.

Table A.7 reports results for each European country in the YouGov sample. This table provides average support by educational group. Dark-gray cells indicate distinctiveness of the high human-centered college group from both high schoolers and low human centered college graduates at 95% level; light-gray cells indicate distinctiveness from one of these groups at 95% level.

High schoolers tend to be the most conservative group, but blue cells show where they are leapfrogged by lower human-centered college graduates.

Table A.7: Support by educational group for each European country

	DENMARK	GERMANY	GREECE	SPAIN	FRANCE	ITALY	NETHL	UK	FINLAND	SWEDEN
GALTAN										
High school	0.492 (0.471-0.513)	0.443 (0.420-0.466)	0.525 (0.491-0.560)	0.488 (0.460-0.515)	0.509 (0.485-0.532)	0.532 (0.507-0.556)	0.469 (0.439-0.500)	0.516 (0.493-0.539)	0.507 (0.480-0.534)	0.529 (0.514-0.545)
Low-CECT college	0.506 (0.491-0.521)	0.425 (0.398-0.451)	0.512 (0.478-0.546)	0.497 (0.472-0.522)	0.491 (0.450-0.532)	0.480 (0.419-0.542)	0.422 (0.390-0.455)	0.497 (0.476-0.517)	0.456 (0.420-0.492)	0.445 (0.425-0.465)
High-CECT college	0.390 (0.363-0.417)	0.337 (0.282-0.392)	0.494 (0.436-0.552)	0.431 (0.388-0.473)	0.374 (0.308-0.441)	0.442 (0.342-0.543)	0.335 (0.267-0.404)	0.430 (0.401-0.459)	0.350 (0.288-0.413)	0.391 (0.361-0.421)
ECONOMIC LEFTRIGHT										
High school	0.512 (0.495-0.530)	0.546 (0.529-0.562)	0.536 (0.498-0.573)	0.606 (0.586-0.626)	0.532 (0.515-0.550)	0.477 (0.461-0.493)	0.574 (0.544-0.604)	0.565 (0.547-0.583)	0.576 (0.560-0.593)	0.564 (0.550-0.577)
Low-CECT college	0.549 (0.536-0.561)	0.572 (0.553-0.591)	0.532 (0.495-0.570)	0.612 (0.594-0.630)	0.560 (0.529-0.590)	0.446 (0.405-0.486)	0.534 (0.502-0.565)	0.560 (0.544-0.576)	0.589 (0.567-0.611)	0.571 (0.553-0.589)
High-CECT college	0.470 (0.447-0.492)	0.467 (0.429-0.506)	0.492 (0.429-0.555)	0.566 (0.535-0.596)	0.465 (0.416-0.515)	0.445 (0.379-0.512)	0.470 (0.403-0.537)	0.504 (0.481-0.527)	0.529 (0.491-0.568)	0.521 (0.495-0.547)

	DENMARK	GERMANY	GREECE	SPAIN	FRANCE	ITALY	NETHL	UK	FINLAND	SWEDEN
REDISTRIBUTION										
High school	0.496 (0.467-0.525)	0.531 (0.509-0.552)	0.715 (0.684-0.746)	0.628 (0.603-0.654)	0.710 (0.694-0.725)	0.679 (0.663-0.695)	0.540 (0.509-0.571)	0.622 (0.596-0.647)	0.717 (0.693-0.741)	0.579 (0.558-0.600)
Low-CECT college	0.495 (0.474-0.516)	0.544 (0.518-0.569)	0.668 (0.638-0.699)	0.622 (0.599-0.644)	0.709 (0.683-0.735)	0.683 (0.644-0.722)	0.550 (0.517-0.583)	0.601 (0.577-0.625)	0.643 (0.610-0.677)	0.580 (0.552-0.607)
High-CECT college	0.589 (0.551-0.626)	0.602 (0.549-0.656)	0.711 (0.657-0.765)	0.648 (0.610-0.686)	0.780 (0.735-0.825)	0.781 (0.717-0.844)	0.574 (0.505-0.642)	0.674 (0.639-0.708)	0.673 (0.616-0.730)	0.662 (0.622-0.702)
IMMIGRATION										
High school	0.275 (0.236-0.314)	0.351 (0.319-0.383)	0.253 (0.209-0.296)	0.235 (0.202-0.267)	0.260 (0.234-0.285)	0.383 (0.357-0.410)	0.383 (0.333-0.433)	0.344 (0.309-0.379)	0.253 (0.217-0.290)	0.367 (0.337-0.398)
Low-CECT college	0.263 (0.234-0.291)	0.366 (0.328-0.404)	0.207 (0.163-0.251)	0.209 (0.181-0.238)	0.239 (0.195-0.283)	0.328 (0.264-0.391)	0.366 (0.312-0.419)	0.290 (0.256-0.323)	0.220 (0.169-0.271)	0.313 (0.273-0.353)
High-CECT college	0.162 (0.111-0.213)	0.309 (0.228-0.390)	0.178 (0.101-0.255)	0.157 (0.108-0.206)	0.251 (0.176-0.327)	0.279 (0.175-0.383)	0.296 (0.185-0.408)	0.207 (0.158-0.255)	0.136 (0.047-0.224)	0.229 (0.171-0.287)
ENVIRONMENT										
High school	0.488 (0.443-0.533)	0.331 (0.299-0.364)	0.087 (0.055-0.119)	0.226 (0.193-0.259)	0.325 (0.297-0.354)	0.263 (0.240-0.287)	0.341 (0.291-0.391)	0.297 (0.259-0.335)	0.165 (0.131-0.199)	0.302 (0.272-0.333)
Low-CECT college	0.432 (0.399-0.465)	0.340 (0.303-0.378)	0.118 (0.086-0.150)	0.203 (0.174-0.232)	0.410 (0.362-0.459)	0.260 (0.202-0.318)	0.415 (0.361-0.468)	0.367 (0.330-0.404)	0.212 (0.164-0.259)	0.373 (0.332-0.413)
High-CECT college	0.575 (0.516-0.634)	0.443 (0.362-0.524)	0.149 (0.092-0.205)	0.247 (0.198-0.296)	0.427 (0.344-0.510)	0.279 (0.183-0.374)	0.423 (0.312-0.535)	0.485 (0.432-0.539)	0.360 (0.278-0.443)	0.441 (0.382-0.500)
High school	490	862	370	639	1,166	1,305	366	611	541	948
Low-CECT college	878	618	353	806	418	226	313	645	276	544
High-CECT college	276	133	115	275	132	84	72	311	90	251
ALL	1,644	1,613	838	1,720	1,716	1,615	751	1,567	907	1,743

Note: group averages estimated from multivariate models with controls for gender, age, income, religion, rural-urban.

C. Non-findings

Table A.8 reports full results for the first model in **Table 5** (main text) and **Table A.9** reports full results for models 2-5 in Table 5 (main text). Both show null-findings using the continuous field variable to assess variation among higher-educated. **Figure A.1** visualizes averages and confidence intervals for the same five political attitudes where field is non-significant, using the categorical variable educational groups that compares high schoolers with the two groups of college-educated.

Table A.8: Null effect of field on political efficacy (GSS)

	Political efficacy <i>I feel that I have a pretty good understanding of the important political issues facing our country.</i>
Field of education	0.032 (0.030)
Level of education (two-year college degree=reference)	
Bachelor	0.027 (0.019)
Graduate	0.061 (0.021)
Ethnicity (White=reference)	
Black	0.030 (0.021)
Hispanic	-0.001 (0.062)
Asian	-0.088 (0.031)
Other	0.051 (0.067)
Female	-0.097*** (0.014)
Income	0.010 (0.020)
Rural	-0.030 (0.026)
Age	0.163*** (0.031)
Religious denomination (reference=Protestant)	
Catholic	0.017 (0.018)
Jewish	0.080 (0.041)
None	0.003 (0.020)
Other	-0.007 (0.028)
Religiosity	-0.008 (0.024)
Survey year (reference = 2012)	

2014	-0.007 (0.019)
2016	-0.041 (0.019)
Constant	0.763*** (0.039)
Observations	1,082
Adj R-squared	0.090

Note: ***<.00001; **<.0001; *<.001. General Social Survey (Davern et al. 2024), college-educated.

Table A.9 reports full results for models 2-5 in **Table 5** (main text), showing null-findings using the continuous field variable to assess divisions among higher-educated.

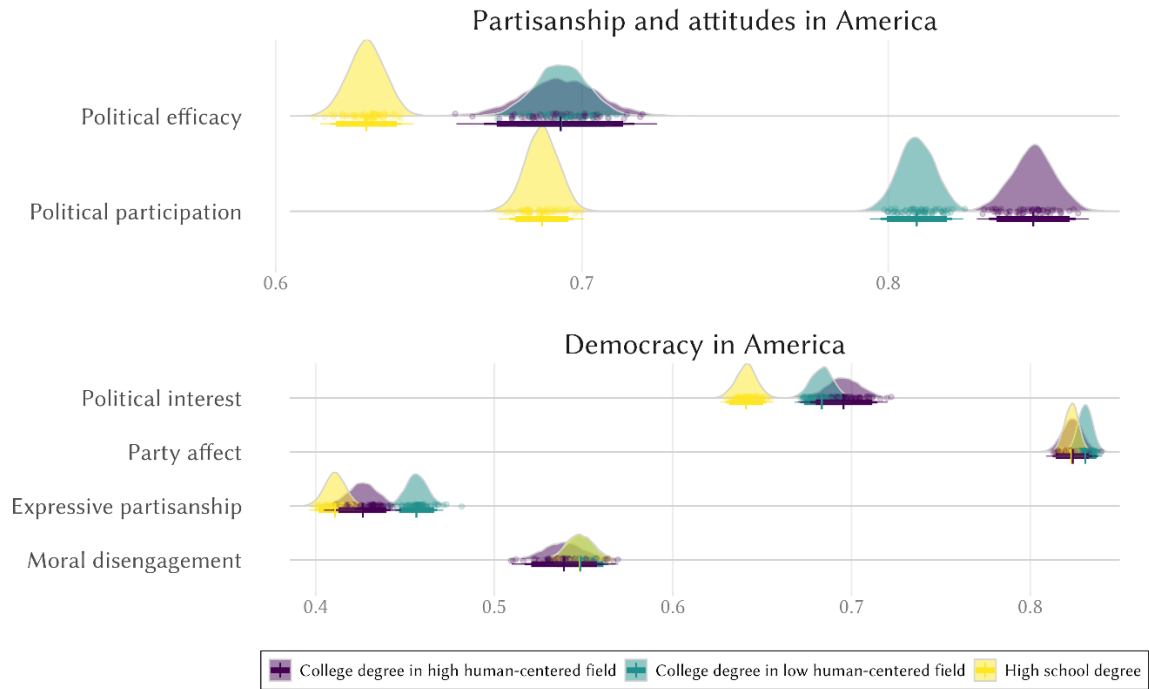
Table A.9: Null effect of field on several political attitudes (US field survey)

	Political interest	Party affect	Expressive partisanship	Moral disengagement
	<i>How interested are you in politics and national affairs?</i>	<i>I'd like you to rate how you feel towards Republican, Democrat, Independent, Trump supporters on a scale of 0 to 100 (maximum score)</i>	<i>Criticism of my party is personal insult; I feel connected with party supporters; I say 'my party'; praise for my party makes me feel good.</i>	<i>[Democrats/Republicans] are not just worse for politics—they are downright evil.</i>
Field of education	0.035 (0.020)	0.004 (0.012)	-0.033 (0.018)	-0.001 (0.025)
Level of education (reference=2-year college)				
Four-year college	0.023 (0.012)	-0.011 (0.007)	-0.010 (0.011)	-0.037 (0.015)
Advanced degree	0.048 (0.015)	-0.002 (0.009)	0.012 (0.014)	-0.034 (0.019)
Ethnicity – reference = White				
Black	0.047 (0.015)	0.010 (0.009)	-0.007 (0.014)	0.023 (0.020)
Hispanic	0.034 (0.021)	0.009 (0.012)	-0.017 (0.019)	0.055 (0.027)
Asian	-0.062 (0.025)	-0.053* (0.015)	-0.088* (0.023)	0.014 (0.032)
Other	-0.227*** (0.034)	-0.072* (0.021)	-0.165*** (0.032)	-0.041 (0.044)
Female	0.016 (0.010)	-0.005 (0.006)	-0.022** (0.010)	0.001 (0.013)
Income	0.063* (0.019)	0.033 (0.011)	0.063* (0.017)	-0.066 (0.024)
Rural	-0.113*** (0.019)	-0.003 (0.011)	-0.065* (0.017)	0.000 (0.024)
Age	-0.022 (0.023)	0.093*** (0.014)	-0.080* (0.021)	0.080 (0.029)
Religiosity	0.030 (0.012)	0.040*** (0.007)	0.171*** (0.011)	0.016 (0.015)
Constant	0.654*** (0.020)	0.770*** (0.012)	0.446*** (0.019)	0.549*** (0.026)
Observations	3,525	3,525	3,521	2,922
Adj R-squared	0.043	0.032	0.110	0.010

Note: ***<.00001; **<.0001; *<.001. 2024 TGM field survey, college-educated.

Figure A.1 visualizes averages and confidence intervals for political attitudes for which field is non-significant. These models use the categorical variable of **educational groups** that compares high schoolers with two groups of college educated.

Figure A.1: The non-effect of field on some political attitudes by educational group



Note: Bootstrap distributions of the predictive marginal effect of level/field of education on outcome variables (y-axis), obtained from fitting a linear regressions on 5000 resamples of the dataset. Small ticks indicate the overall predictive marginal effect. Intervals below each distribution indicate the 90, 95, and 99% confidence intervals around the average predictive marginal effect obtained from the bootstrap distributions.

D. Potential cofounders of field of education

Table A.10 addresses the possibility that the effect of field of education may be a proxy for the effect of gender. We test this possibility for five attitudes with GSS data. The table contains five sets of models. The first model in each set estimates the effect of field as skills; the second model in each set estimates the effect of gendered field, operationalized as the proportion of females in each of 80 fields; the third and final model in each set estimates the effect of both variables. All models are under full controls. While both field as skills and gendered field reach significance by themselves, gendered field loses significance in models with both variables and field as skills retains significance.

Table A.11 assesses to what extent the effect of field may be mediated by income. We test this possibility for the same five attitudes with GSS data organized in the same way as Table S.10. In separate models, field as skills and field income reach significance, though the effect of field income fails to reach significance at 0.01 level for attitudes on redistribution or gay marriage. In models with both variables, field as skills retains significance while field income loses significance.

The tables report coefficients with standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.10: Gender is not a confounder

	Liberal-Conservative scale			Party ID			Redistribution			Race discrimination			Gay marriage		
Field as skills	-0.143*** (0.013)	-0.146*** (0.014)	-0.158*** (0.018)	-0.161*** (0.020)	0.125*** (0.022)	0.122*** (0.025)	0.155*** (0.022)	0.171*** (0.025)	0.113*** (0.020)	0.107*** (0.023)					
Gendered field		-0.068*** (0.016)	0.010 (0.017)	-0.080*** (0.021)	0.007 (0.024)	0.071*** (0.027)	0.007 (0.030)	0.048* (0.026)	-0.043 (0.029)	0.075*** (0.024)	0.018 (0.027)				
Level of education: reference=associate															
Bachelor	-0.051*** (0.008)	-0.061*** (0.008)	-0.050*** (0.008)	-0.041*** (0.011)	-0.052*** (0.011)	-0.040*** (0.011)	-0.000 (0.014)	0.009 (0.014)	-0.000 (0.014)	0.088*** (0.013)	0.099*** (0.013)	0.087*** (0.013)	0.061*** (0.012)	0.069*** (0.012)	0.061*** (0.012)
Graduate	-0.107*** (0.009)	-0.119*** (0.009)	-0.107*** (0.009)	-0.117*** (0.012)	-0.130*** (0.012)	-0.117*** (0.012)	0.057*** (0.015)	0.067*** (0.015)	0.057*** (0.015)	0.160*** (0.015)	0.174*** (0.015)	0.159*** (0.015)	0.111*** (0.014)	0.120*** (0.014)	0.111*** (0.014)
Ethnicity: reference=White															
Black	-0.082*** (0.009)	-0.077*** (0.010)	-0.082*** (0.009)	-0.282*** (0.013)	-0.277*** (0.013)	-0.282*** (0.013)	0.159*** (0.016)	0.155*** (0.016)	0.159*** (0.016)	0.265*** (0.016)	0.261*** (0.016)	0.266*** (0.016)	-0.050*** (0.015)	-0.055*** (0.015)	-0.051*** (0.015)
Hispanic	-0.018 (0.022)	-0.020 (0.023)	-0.018 (0.022)	-0.065** (0.030)	-0.068** (0.030)	-0.065** (0.030)	0.059 (0.037)	0.062* (0.037)	0.059 (0.037)	0.041 (0.036)	0.044 (0.036)	0.040 (0.036)	-0.022 (0.036)	-0.022 (0.036)	-0.022 (0.036)
Asian	-0.011 (0.013)	-0.005 (0.013)	-0.011 (0.013)	-0.043** (0.018)	-0.037** (0.018)	-0.042** (0.018)	0.056** (0.022)	0.051** (0.022)	0.056** (0.022)	0.030 (0.022)	0.022 (0.022)	0.030 (0.022)	-0.073*** (0.021)	-0.077*** (0.021)	-0.072*** (0.021)
Other	-0.015 (0.023)	-0.011 (0.023)	-0.015 (0.023)	-0.055* (0.032)	-0.052 (0.032)	-0.055* (0.032)	0.051 (0.041)	0.046 (0.041)	0.051 (0.041)	0.076* (0.040)	0.071* (0.040)	0.078* (0.040)	-0.042 (0.034)	-0.043 (0.034)	-0.042 (0.034)
Female	-0.031*** (0.006)	-0.033*** (0.006)	-0.033*** (0.006)	-0.056*** (0.008)	-0.057*** (0.009)	-0.057*** (0.009)	0.039*** (0.010)	0.037*** (0.011)	0.038*** (0.011)	0.023** (0.010)	0.027** (0.011)	0.028*** (0.011)	0.066*** (0.009)	0.064*** (0.010)	0.063*** (0.010)
Income	0.040*** (0.009)	0.050*** (0.009)	0.040*** (0.009)	0.055*** (0.012)	0.065*** (0.012)	0.055*** (0.012)	-0.116*** (0.015)	-0.126*** (0.015)	-0.117*** (0.015)	-0.028* (0.014)	-0.041*** (0.014)	-0.028* (0.014)	0.040*** (0.013)	0.034** (0.013)	0.040*** (0.013)
Urban to rural	0.068*** (0.012)	0.071*** (0.012)	0.068*** (0.012)	0.081*** (0.016)	0.086*** (0.016)	0.081*** (0.016)	-0.066*** (0.020)	-0.069*** (0.020)	-0.066*** (0.020)	-0.092*** (0.020)	-0.098*** (0.020)	-0.092*** (0.020)	-0.080*** (0.018)	-0.083*** (0.018)	-0.080*** (0.018)
Age	0.048*** (0.013)	0.044*** (0.013)	0.048*** (0.013)	-0.024 (0.018)	-0.029 (0.018)	-0.024 (0.018)	-0.080*** (0.022)	-0.077*** (0.022)	-0.080*** (0.022)	-0.049** (0.022)	-0.045** (0.022)	-0.049** (0.022)	-0.219*** (0.020)	-0.217*** (0.020)	-0.220*** (0.020)
Religious denomination: reference=Protestant															
Catholic	-0.036*** (0.008)	-0.034*** (0.008)	-0.036*** (0.008)	-0.064*** (0.011)	-0.062*** (0.011)	-0.064*** (0.011)	0.036*** (0.014)	0.034** (0.014)	0.036*** (0.014)	0.008 (0.013)	0.007 (0.013)	0.009 (0.013)	0.101*** (0.012)	0.099*** (0.012)	0.101*** (0.012)
Jewish	-0.150*** (0.017)	-0.153*** (0.018)	-0.150*** (0.017)	-0.211*** (0.024)	-0.215*** (0.024)	-0.211*** (0.024)	0.137*** (0.029)	0.138*** (0.029)	0.137*** (0.029)	0.123*** (0.028)	0.124*** (0.029)	0.123*** (0.028)	0.157*** (0.028)	0.162*** (0.028)	0.158*** (0.028)
None	-0.149*** (0.008)	-0.152*** (0.009)	-0.149*** (0.008)	-0.162*** (0.012)	-0.166*** (0.012)	-0.162*** (0.012)	0.142*** (0.014)	0.145*** (0.015)	0.142*** (0.015)	0.146*** (0.014)	0.150*** (0.014)	0.146*** (0.014)	0.100*** (0.013)	0.103*** (0.013)	0.100*** (0.013)
Other	-0.074*** (0.012)	-0.075*** (0.012)	-0.074*** (0.012)	-0.096*** (0.016)	-0.096*** (0.016)	-0.096*** (0.016)	0.085*** (0.020)	0.087*** (0.020)	0.085*** (0.020)	0.070*** (0.019)	0.071*** (0.019)	0.069*** (0.019)	0.047** (0.018)	0.047** (0.018)	0.047** (0.018)
Religiosity	0.175*** (0.010)	0.175*** (0.010)	0.174*** (0.010)	0.169*** (0.014)	0.169*** (0.014)	0.169*** (0.014)	-0.131*** (0.017)	-0.131*** (0.017)	-0.131*** (0.017)	-0.081*** (0.017)	-0.081*** (0.017)	-0.081*** (0.017)	-0.352*** (0.016)	-0.351*** (0.016)	-0.352*** (0.016)
Constant	0.569*** (0.018)	0.559*** (0.018)	0.566*** (0.018)	0.610*** (0.024)	0.602*** (0.025)	0.609*** (0.025)	0.494*** (0.030)	0.499*** (0.031)	0.492*** (0.031)	0.189*** (0.030)	0.208*** (0.030)	0.198*** (0.030)	0.622*** (0.028)	0.624*** (0.028)	0.619*** (0.028)
R-squared	0.239	0.226	0.239	0.202	0.193	0.202	0.147	0.142	0.147	0.202	0.193	0.203	0.290	0.286	0.290

Table A.11: Field income does not mediate the effect of field of education

	Liberal-Conservative scale			Party ID			Redistribution			Race discrimination			Gay marriage		
Field as skills	-0.143*** (0.013)	-0.142*** (0.014)	-0.158*** (0.018)		-0.158*** (0.019)	0.125*** (0.022)		0.128*** (0.025)	0.155*** (0.022)	0.152*** (0.024)	0.113*** (0.020)		0.113*** (0.022)		0.113*** (0.022)
Field income		0.085*** (0.020)	0.002 (0.021)		0.094*** (0.027)	0.002 (0.029)		-0.064* (0.033)	0.011 (0.036)	-0.099*** (0.033)	-0.010 (0.035)		-0.069** (0.031)		-0.003 (0.033)
Level of education: reference=associate															
Bachelor	-0.051*** (0.008)	-0.063*** (0.008)	-0.051*** (0.008)	-0.041*** (0.011)	-0.055*** (0.011)	-0.041*** (0.011)	-0.000 (0.014)	0.010 (0.014)	-0.001 (0.014)	0.088*** (0.013)	0.102*** (0.013)	0.089*** (0.013)	0.061*** (0.012)	0.072*** (0.012)	0.061*** (0.013)
Graduate	-0.107*** (0.009)	-0.124*** (0.009)	-0.107*** (0.009)	-0.117*** (0.012)	-0.136*** (0.012)	-0.117*** (0.012)	0.057*** (0.015)	0.071*** (0.015)	0.056*** (0.015)	0.160*** (0.015)	0.178*** (0.015)	0.161*** (0.015)	0.111*** (0.014)	0.126*** (0.014)	0.111*** (0.014)
Ethnicity: reference= White															
Black	-0.082*** (0.009)	-0.078*** (0.010)	-0.082*** (0.009)	-0.282*** (0.013)	-0.278*** (0.013)	-0.282*** (0.013)	0.159*** (0.016)	0.156*** (0.016)	0.159*** (0.016)	0.265*** (0.016)	0.263*** (0.016)	0.265*** (0.016)	-0.050*** (0.015)	-0.054*** (0.015)	-0.050*** (0.015)
Hispanic	-0.018 (0.022)	-0.017 (0.023)	-0.018 (0.022)	-0.065** (0.030)	-0.065** (0.030)	-0.065** (0.030)	0.059 (0.037)	0.061* (0.037)	0.059 (0.037)	0.041 (0.036)	0.043 (0.036)	0.041 (0.036)	-0.022 (0.036)	-0.026 (0.036)	-0.022 (0.036)
Asian	-0.011 (0.013)	-0.004 (0.013)	-0.011 (0.013)	-0.043** (0.018)	-0.035** (0.018)	-0.043** (0.018)	0.056** (0.022)	0.050** (0.022)	0.056** (0.022)	0.030 (0.022)	0.023 (0.022)	0.031 (0.022)	-0.073*** (0.021)	-0.081*** (0.021)	-0.073*** (0.021)
Other	-0.015 (0.023)	-0.013 (0.023)	-0.015 (0.023)	-0.055* (0.032)	-0.053* (0.032)	-0.055* (0.032)	0.051 (0.041)	0.048 (0.041)	0.051 (0.041)	0.076* (0.040)	0.073* (0.040)	0.076* (0.040)	-0.042 (0.034)	-0.041 (0.034)	-0.042 (0.034)
Female	-0.031*** (0.006)	-0.041*** (0.006)	-0.031*** (0.006)	-0.056*** (0.008)	-0.067*** (0.008)	-0.056*** (0.008)	0.039*** (0.010)	0.047*** (0.010)	0.039*** (0.010)	0.023** (0.010)	0.032*** (0.010)	0.022** (0.010)	0.066*** (0.009)	0.074*** (0.009)	0.066*** (0.009)
Income	0.040*** (0.009)	0.045*** (0.009)	0.040*** (0.009)	0.055*** (0.012)	0.060*** (0.012)	0.055*** (0.012)	-0.116*** (0.015)	-0.123*** (0.015)	-0.117*** (0.015)	-0.028* (0.014)	-0.035** (0.015)	-0.028* (0.015)	0.040*** (0.013)	0.038*** (0.014)	0.040*** (0.014)
Urban to rural	0.068*** (0.012)	0.071*** (0.012)	0.068*** (0.012)	0.081*** (0.016)	0.085*** (0.016)	0.081*** (0.016)	-0.066*** (0.020)	-0.069*** (0.020)	-0.066*** (0.020)	-0.092*** (0.020)	-0.097*** (0.020)	-0.092*** (0.020)	-0.080*** (0.018)	-0.083*** (0.018)	-0.080*** (0.018)
Age	0.048*** (0.013)	0.042*** (0.013)	0.048*** (0.013)	-0.024 (0.018)	-0.032* (0.018)	-0.024 (0.018)	-0.080*** (0.022)	-0.075*** (0.022)	-0.080*** (0.022)	-0.049** (0.022)	-0.044** (0.022)	-0.049** (0.022)	-0.219*** (0.020)	-0.215*** (0.020)	-0.219*** (0.020)
Religious denomination=Protestant															
Catholic	-0.036*** (0.008)	-0.035*** (0.008)	-0.036*** (0.008)	-0.064*** (0.011)	-0.062*** (0.011)	-0.064*** (0.011)	0.036*** (0.014)	0.035** (0.014)	0.036*** (0.014)	0.008 (0.013)	0.008 (0.013)	0.008 (0.013)	0.101*** (0.012)	0.099*** (0.012)	0.101*** (0.012)
Jewish	-0.150*** (0.017)	-0.153*** (0.018)	-0.150*** (0.017)	-0.211*** (0.024)	-0.215*** (0.024)	-0.211*** (0.024)	0.137*** (0.029)	0.138*** (0.029)	0.136*** (0.029)	0.123*** (0.028)	0.124*** (0.029)	0.124*** (0.028)	0.157*** (0.028)	0.161*** (0.028)	0.157*** (0.028)
None	-0.149*** (0.008)	-0.152*** (0.009)	-0.149*** (0.008)	-0.162*** (0.012)	-0.166*** (0.012)	-0.162*** (0.012)	0.142*** (0.014)	0.145*** (0.015)	0.142*** (0.014)	0.146*** (0.014)	0.150*** (0.014)	0.146*** (0.014)	0.100*** (0.013)	0.102*** (0.013)	0.100*** (0.013)
Other	-0.074*** (0.012)	-0.075*** (0.012)	-0.075*** (0.012)	-0.096*** (0.016)	-0.096*** (0.016)	-0.096*** (0.016)	0.085*** (0.020)	0.086*** (0.020)	0.085*** (0.020)	0.070*** (0.019)	0.070*** (0.019)	0.070*** (0.019)	0.047** (0.018)	0.047** (0.018)	0.047** (0.018)
Religiosity	0.175*** (0.010)	0.174*** (0.010)	0.175*** (0.010)	0.169*** (0.014)	0.168*** (0.014)	0.169*** (0.014)	-0.131*** (0.017)	-0.131*** (0.017)	-0.131*** (0.017)	-0.081*** (0.017)	-0.081*** (0.017)	-0.081*** (0.017)	-0.352*** (0.016)	-0.351*** (0.016)	-0.352*** (0.016)
Constant	0.569*** (0.018)	0.486*** (0.021)	0.567*** (0.023)	0.610*** (0.024)	0.520*** (0.029)	0.609*** (0.031)	0.494*** (0.030)	0.561*** (0.037)	0.486*** (0.039)	0.189*** (0.030)	0.285*** (0.036)	0.195*** (0.038)	0.622*** (0.028)	0.689*** (0.034)	0.624*** (0.036)
R-squared	0.239	0.226	0.239	0.202	0.193	0.202	0.147	0.141	0.147	0.202	0.194	0.202	0.290	0.286	0.290

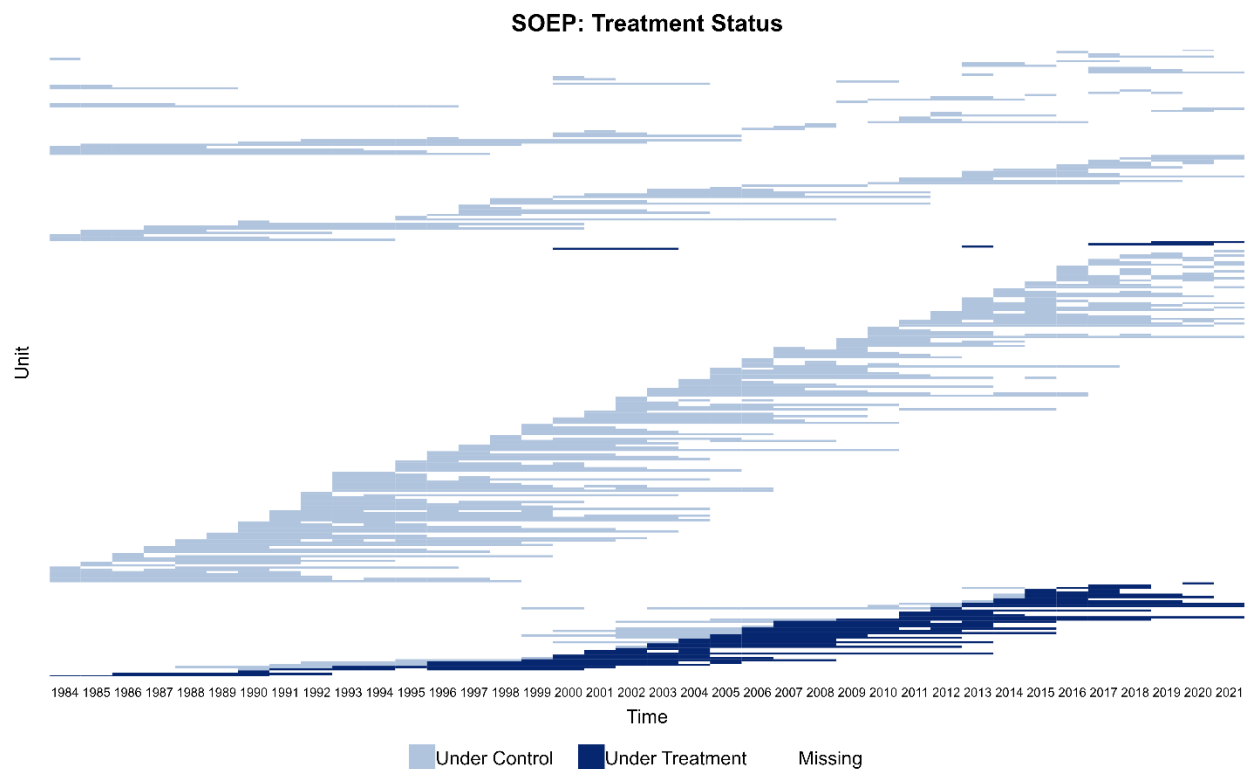
E. Panel analysis using SOEP data

This section provides supporting material for the panel analysis in the final section in the main text.

Descriptives

Figure A.2 provides a visual illustration of the SOEP panel analysis. For a random selection of 500 units, it shows the treatment status for units where the treatment condition is going to college in a high-human centered field. The x-axis shows the years, illustrating that it is a very long-running panel, with most units being in the panel for at least seven years.

Figure A.2: Illustration of the SOEP panel dataset for the within-individual analysis



The analyses that use SOEP data employ the following variables:

- *Leaning towards a particular party:* Respondents are first asked if they lean towards any of the political parties. If they indicate yes, they are asked which party they lean to. We code leaning to a party as 1 and not leaning to it as 0. The dependent variables are Greens, SPD, CDU, and FDP; we omit AfD because the panel information is limited.
- *Attending higher education:* Attending higher education is measured using variables related to occupation and variables asking respondents about education for people who are currently in education. We use both batteries to minimize missingness. Respondents are

coded 1 from the moment they attend higher education and remain coded as 1 for the rest of the panel. This way of coding this variable avoids treatment reversals.

- *Life-phases*: We measure a respondent's life-phase using variables on occupation and educational attendance. We re-code these variables to capture three distinct life-phases: in high-school, in college, or in the work force.
- *Educational field*: A respondent's educational field is captured using a variable that asks what they studied. We link this variable to the Werfhorst and Kraaykamp (2001) schema of educational fields to attach a field score to this variable. We use their information rather than our own US field information from 2024 because it corresponds better with the longitudinal time frame of the SOEP panel which runs from 1984 through 2021. For each respondent, we select the latest field of specialization in postsecondary education that we observe in the data. For the IFect analysis and the descriptives in Table S.12, we turn this information into a binary variable by dichotomizing the data in fields that are above or below the median human-centered field score for the sample.

Information on how we transformed the SOEP constituent variables into the variables used in our analyses can be found in the accompanying code-files.

Table A.12 reports the percentage of respondents in high school, higher education, and in the work force who say they lean to a particular party. These trends are consistent with the expectation that respondents select into socialization: people who later study a particular field already display a bias in their party preference in high school, and this bias tends to grow as they take up their field of study and later, when enter the labor market.

Table A.12: Propensity to lean to a particular party at a given life stage for the same individuals

Lean Green	In high school	In college	In labor market	N lean green
Low human-centered degree	6.91%	9.24%	8.21%	1206
High human-centered degree	9.01%	13.3%	14.6%	1621
Difference	+2.1%	+4.06%	+6.39%	
N lean Green	320	1025	1482	2827

Lean SPD	In high school	In college	In labor market	N lean SPD
Low human-centered degree	11.6%	14.5%	14.2%	2087
High human-centered degree	14.1%	17.1%	15.8%	1953
Difference	+2.5%	+2.6%	+1.6%	
N lean SPD	524	1471	2045	4040

Lean CDU	In high school	In college	In labor market	N lean CDU
Low human-centered degree	13.6%	17.2%	19.7%	2637
High human-centered degree	9.2%	11.3%	11.7%	1428
Difference	-4.4%	-5.9%	-8.0%	
N lean CDU	484	1362	2219	4065

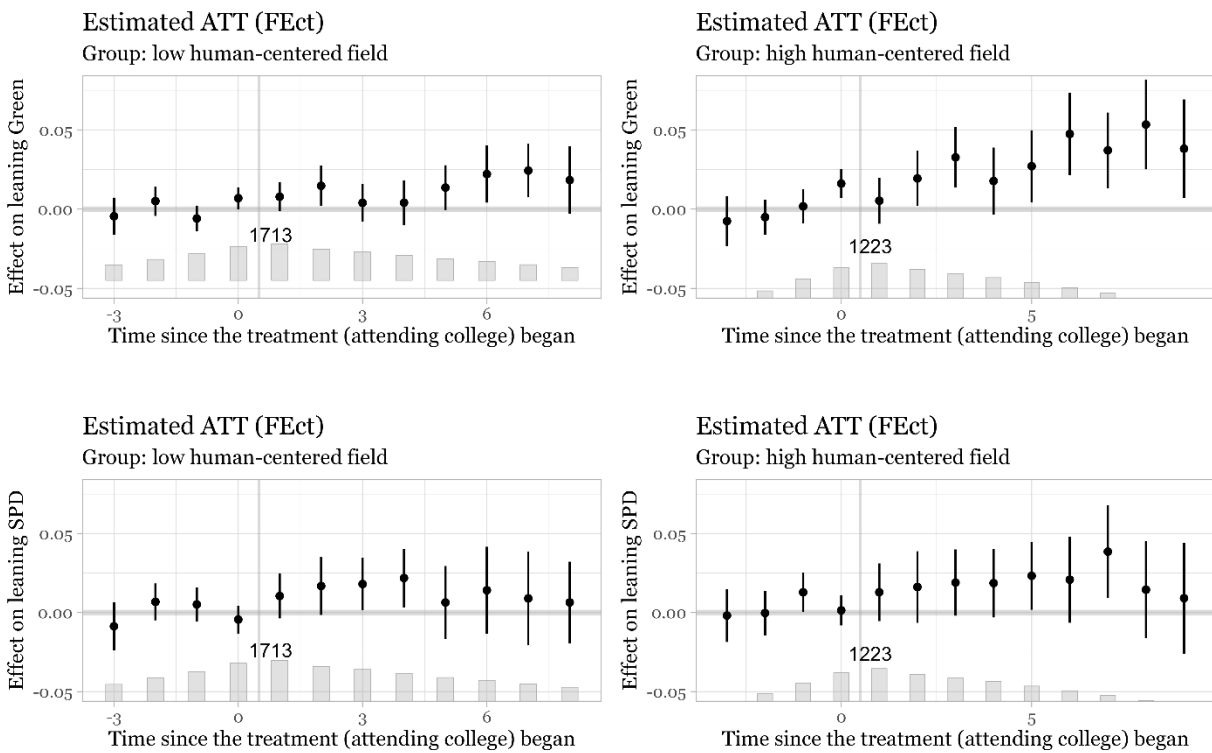
Lean FDP	In high school	In college	In labor market	N lean FDP
Low human-centered degree	1.73%	3.1%	3.5%	456
High human-centered degree	1.9%	2.3%	1.6%	229
Difference	+0.17%	-0.8%	-1.9%	
N lean FDP	74	253	358	685

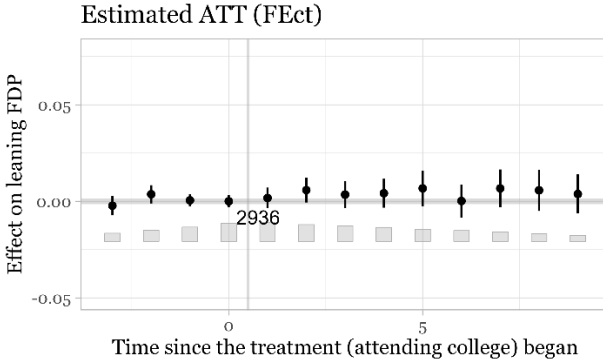
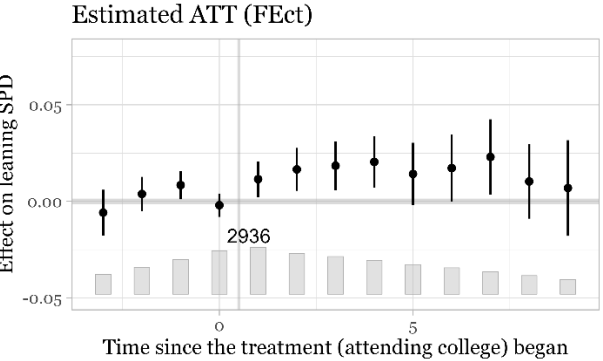
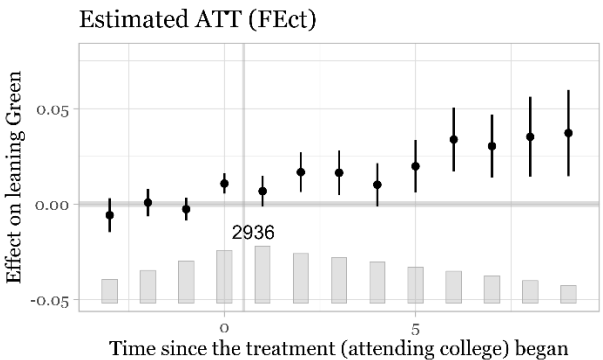
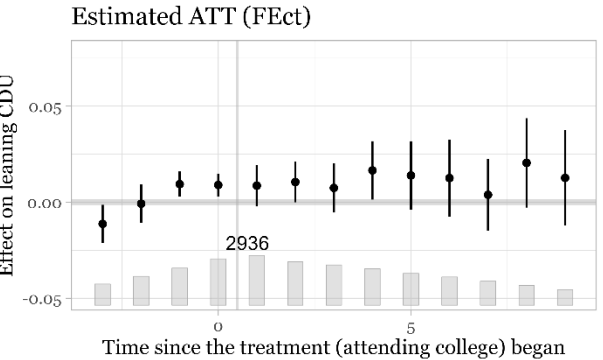
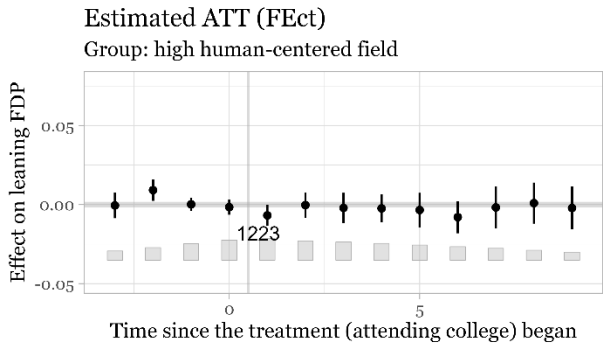
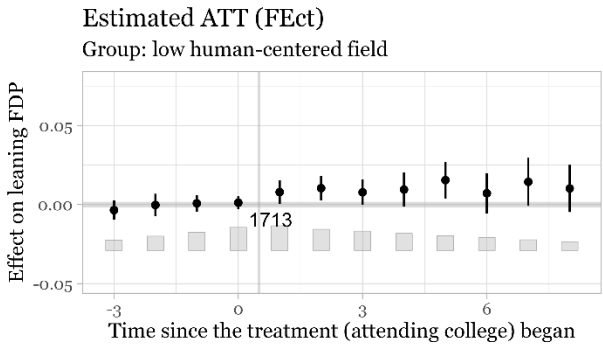
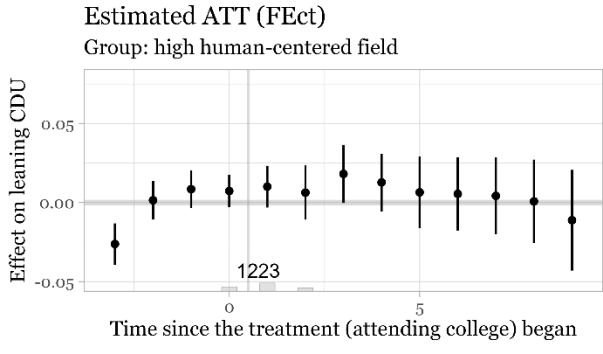
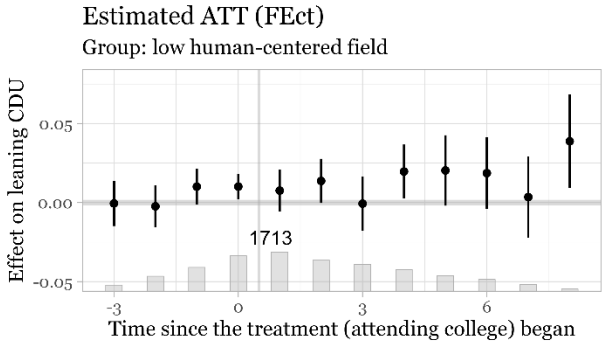
Note: SOEP data with 28,154 observations for graduate respondents for whom we have data at each life phase.

Parallel trends

The key identification assumption of the within-analysis is the parallel trends assumption: before treatment, treated and control units should follow similar trajectories. To test this assumption, **Figure A.3** shows a parallel-trends plot generated using the 'fect' package in R (Liu, Wang, and Xu 2024). The sample consists of university-educated from the year they enter higher education up to 30 years old to capture their most impressionable years (Scott 2024). The results indicate that, overall, trends are relatively parallel pre-treatment. In addition, the figures highlight that the effect of attending higher education in a particular field grows stronger the more time/experience a given respondent has in that field. This is particularly visible for high human-centered fields on Green voting.

Figure A.3: Parallel trend plots





Analysis

Table A.13 summarizes full regression models for **Figure 4** in the main text.

Table A.13: Full regression models for Figure 4

	Leaning Green	Leaning SPD	Leaning CDU/CSU	Leaning FDP
Field	0.040* (0.017)	0.057* (0.023)	-0.043* (0.021)	0.016 * (0.008)
In College	0.002 (0.008)	0.024* (0.010)	0.022* (0.009)	0.011 ** (0.004)
Working	-0.012 (0.008)	0.044*** (0.012)	0.050*** (0.011)	0.022 *** (0.005)
Later higher education	0.064*** (0.006)	0.031*** (0.009)	0.066*** (0.010)	0.013 *** (0.003)
Female	0.010 (0.008)	-0.024* (0.010)	-0.041*** (0.010)	-0.015 *** (0.003)
Field x In College	0.043* (0.020)	0.009 (0.023)	-0.002 (0.017)	-0.015 (0.011)
Field x Working	0.068** (0.023)	-0.026 (0.026)	-0.033 (0.023)	-0.037 *** (0.011)
Intercept	0.004 (0.007)	0.077*** (0.010)	0.091*** (0.010)	0.007 * (0.003)
R ²	0.028	0.006	0.019	0.007
Adj. R ²	0.028	0.005	0.019	0.007
Num. obs.	46659	46659	46659	46659
N Individuals	3656	3656	3656	3656

Table A.14 shows a Random Effects Within-Between model for the leaning Green outcome. Wooldridge (2021) has demonstrated the equivalence of this ‘within-effect’ and the TWFE estimator. One benefit of this estimator is that it models difference between and within individuals in the same model, allowing us to compare within and between effects. The middle column for attending post-secondary education in a high human-centered field highlights the overall effect of field is for about 1/5 determined by socialization in education (0.030) and for 4/5 by self-selection (0.122). This comparison assumes that between-individual differences are indicative of self-selection processes.

Table A.14: Random Effects Within-Between Model for Leaning Green

	Effect of attending post- secondary education	Attending post sec with > median CECT	Attending post sec with <= median CECT
Attending post-secondary (within effect)	0.019 *** (0.004)	0.030 *** (0.006)	0.015 *** (0.005)
Attending post-secondary (between effect)	0.085 *** (0.003)	0.122 *** (0.004)	0.045 *** (0.003)
Intercept	0.051 *** (0.004)	0.055 *** (0.004)	0.058 *** (0.004)
Num. obs	110256	94053	96877
Num. Respondents	21326	19854	20021

F. Construction of the measure of field of education and crossvalidation

To estimate the proportion of human-centered skills in a field of study, we build on a measurement exercise developed by sociologists in the early 2000s for Europe. We replicate their measure for the United States in 2024, and we use this information to convert a series of dichotomies for each field of study into a single continuous measure that taps the human-centered content in a person's education.²

Origins: a Dutch study of education skills

The Dutch sociologists van de Werfhorst, Kalmijn, Kraaykamp, and colleagues developed a four-fold categorization schema of educational resources (Kalmijn and van der Lippe 1997; Kraaykamp et al. 2013; van de Werfhorst 2001). Extending Bourdieu's (1984)³ theory that education is a powerful instrument for the transmission of cultural and economic capital that, in turn, shapes social status, income, and worldviews, they argue that in post-industrial societies one also needs to consider the role of education in transmitting communicative capital—because knowledge of human behavior is central in a service economy—and of technical capital—because mastery of technical tools and production processes sustains an advanced division of labor (Kalmijn and van der Lippe 1997; van de Werfhorst 2001). So of key importance in understanding social hierarchies is how education transmits—to a greater or lesser extent—a range of assets that can be summarized as spanning cultural, communicative, economic, and technical resources.

Importantly, they take steps to make this conceptual frame empirically tangible. They break cultural, economic, communicative and technical capital down into concrete skills, each of which are theorized to receive differential attention in a specific field of education or study (see van de Werfhorst and Kraaykamp 2001: Table 1, reproduced here as **Table A.15**). The list of 4x4 skills was developed from a close reading of the literature, triangulated with a survey among graduates of several educational programs, and validated through an expert survey (van de Werfhorst 2010: 165). Next, the list was used in a 1998 Family Survey of the Dutch Population (N=1,960), in which respondents are asked to assess how much each skill was emphasized in their particular field of education. The study divided educational specialization into eleven broad fields of study.⁴ Responses for each skill were then averaged for each of these fields (van de Werfhorst 2001; van de Werfhorst and Kraaykamp 2001). The authors employed this four-fold schema to analyze social stratification and, in two publications, shed light on socio-political attitudes in the Netherlands. However, they stopped short of transposing their resource-information into a single continuous variable; they model the four types of capital as discrete variables.

While there is a longstanding literature that theorizes an association between field of study and political attitudes (see e.g. Lazarsfeld and Thielens 1958; Ladd and Lipset 1975) and this line of

² A survey fielded in the Netherlands in Fall 2024 asks respondents (N=998) to assess how much these sixteen skills were emphasized in their field of study (approved by the ethical Board of the European University Institute). The survey uses the same list of 80 fields as in the 2024 TGM survey. The purpose is to assess to what extent educational content is evaluated differently in the US and Europe or in a generalist vs. early-track educational system. PCA analysis reveals a nearly identical latent structure underlying skills assessment as in the TGM US survey.

³ See also DiMaggio (1982) and DiMaggio and Mohr (1985) on how cultural capital among high schoolers predicts later educational attainment, marital selection, and social status.

⁴ A slightly expanded list of fields of study, from 11 to 14, was adopted by the European Social Survey (ESS) during three waves (2004, 2006, 2008). This is to our knowledge the only major crossnational survey that asked respondents to list their field of specialization alongside level of education until the 2023 YouGov survey. The ESS did not ask respondents to assess their exposure to concrete skills.

thinking has lately received new attention (Attewell and Zollinger 2024; Damhuis 2020; Hooghe and Marks 2022; Hooghe, Marks, Kamphorst 2024; Kunst 2022; Maxwell 2020). No study has tried to replicate the Dutch attempt to measure the content of fields of study. Our effort seeks to make headway on both fronts.

The 2024 TGM field survey measuring skills by field of education in the US

In Spring 2024 the authors fielded a survey in the United States to collect information on educational skills by field of study.⁵ This was conducted by the professional survey company TGM. We use the same list of sixteen skills and knowledge and the same wording as in the original Dutch study (barring minor stylistic changes) and we offer respondents the same five-point response scale (very limited extent to a very large extent). The skill items were presented in random order. The question wording follows at the end as an **Addendum**.

We made three improvements to the Dutch survey. First, the list of fields of study is more fine-grained (see Table **A.16**). Through a tiered drop-down menu respondents could locate their specialization among 80 educational fields.⁶ The list of subjects or field of education was developed under the auspices of UNESCO in 2013 as a three-tiered ISCED classification with 80 categories at the lowest level (Table A.1). While an internationally negotiated list will inevitably omit particulars of the US educational system, it has the distinct advantage of opening the door to crossnational comparison. Second, the survey is larger-scale-- 6,200 overall, of whom 3,541 college-educated—and while drawn from an online opt-in panel, population-representative quota for gender, age, level of education, urban-rural location, and region are observed strictly. Third, the calculation of skill scores is restricted to college-educated respondents on the force that in the late-track US educational system field specialization is most meaningful after high school. Henceforth, all statistics concern the subsample of college-educated—unless otherwise stated.⁷

Reliability of US field of education estimates

Analyses show that the cultural, economic, communicative, and technical scales are measured reliably: all four scales have a Cronbach's alpha ranging from 0.76 or higher (**Table A.17**). A principal components analysis using orthogonal varimax rotation produces four factors with an eigenvalue at or above 2 that correspond with the four skill types, except that “writing and reading” loads more strongly on communicative than on cultural. Recall that the order of these items was randomized which makes it reassuring to find the theorized structure reflected in the data (**Table A.18**). The structure is also quite robust among younger cohorts (<45years) and among older cohorts (>45years) (**Table A.19**).

If individual assessments of skill acquisition validly measure field content, they should vary systematically by an individual's field of education. And indeed, this is what we find. Analysis of Variance models of individual assessments of their cultural, economic, communicative and

⁵ This larger study was preceded by a pilot study (N=800) conducted in Spring 2023 in the United States, which adopted the same condensed list of fields of study employed in the YouGov survey. This research was approved by the IRB board of the University of North Carolina at Chapel Hill. Informed consent was obtained from all participants.

⁶ Two fields yielded no respondents at college-level (Crop and livestock production; Horticulture), so we are able to estimate scores for 78 fields.

⁷ This schema for 80 ISCED categories was replicated in a survey conducted by the authors in the Netherlands in 2024 (N=998). This research was approved by the Ethics Committee of the European University Institute, Florence. Informed consent was obtained from all participants. Reliability analysis confirms the same underlying structure of skills by majors as in the larger US survey.

technical skills reveals that field of education is by far the chief source of variation. In **Table A.20**, the adjusted R^2 for models with field of education outperform those with occupation (measured at ISCO-3 level), which is a distant second, and are much higher than level of education, income, gender, or age cohort.

From skills to a continuous measure of field

Our theory connects the relative preponderance of human-centered education to political attitudes and behavior. It draws attention to the prominence of cultural and communicative skills for understanding human coexistence relative to economic and technical skills for mastering the material world. This provides the conceptual foundation for combining these four sets of skills into a single continuous measure.

Because these skills are assumed to be independent of each other, and additive, in that their sum encompasses a person's range of educational resources, we combine them in a part-to-whole ratio measure. The field variable is estimated, for each field, as the ratio of communicative plus cultural skills to the sum of the four skill categories:

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

This operationalization has the virtue of combining conceptual meaning and statistical simplicity. For ease of interpretation this measure is rescaled 0-1.

The unit of observation is the field – not the individual. There are two reasons for this. First, aggregation at the level of the field provides more robust measures. We use the respondents as experts with valuable insight into what sort of skills or knowledge has been conveyed during their education, but each expert's insight is imperfect. Similar to what one finds in most expert-based studies we expect a certain amount of *white noise*. This could be because respondents experience the same specialization differently due to school, teacher, or temporal variation or it could be because respondents have flawed memories of what they were exposed to during education. However, we have reason to believe that there is little *systematic* bias. One major source of systematic bias could be that some educational fields recalibrated their skill content substantially over time while others did not, e.g. by intensifying the teaching of technical skills at the expense of cultural skills. If that were the case, we would see younger and older cohorts assess the skill distribution differently, which we do not detect in our data (**Table A.19**).

A second reason for preferring field as unit of analysis is that estimates can be imported in any survey that collects information on respondents' field of study. Indeed, while we certainly hope that others will replicate and improve on how we assess skills by field, it is not reasonable to expect every survey to ask respondents to provide detailed information on what skills, and how much, they were exposed to. We illustrate below how to do this for the General Social Survey and for the 2023 YouGov survey.

Crosswalk the continuous measure into other surveys

The 2024 TGM field survey—the origin survey—furnishes the raw material for estimating the human-centeredness of 78 fields of study. We now explain how we import these field scores into the General Social Survey (GSS) and the YouGov survey (host surveys). The US General Social Survey (GSS) (2012-2020) provides information on 81 college majors, hence it is as fine-grained as the TGM origin survey though it uses a slightly different categorization. The 2023 YouGov survey provides field information on 21 fields of study, which requires aggregating up the more fine-grained information available in the origin survey. We take each in turn.

2012-2022 GSS survey

The relevant question in the GSS posed to college-educated respondents is “What was your major or field of study when you received your [RDEGHIFILL] degree?” Responses are coded by the interviewers into one of 81 possible majors. There is also an option to take down a second major.

We match these 81 majors with the 78 field categories from the 2024 TGM field survey. In the large majority of cases this is straightforward. The few exceptions relate to generalist majors – liberal arts, general science, general studies—that are not provided for in the ISCED-based classification. For those we combine the relevant codes from ISCED. Hence, the liberal arts major combines in equal measure arts, social sciences, mathematics and statistics, and natural sciences from the TGM survey.

Where more than one ISCED code informs a major in GSS the scores of these ISCED categories are weighted by their sample size in the US survey.

The output is a field score for each major whereby higher scores indicate greater human-centeredness. These scores are rescaled from 0 to 1. **Table A.21** lists, for each major, the matched fields in the US study and the produced field score.

2023 YouGov Survey

In 2023, a research team at the EUI conducted a survey in 16 European countries that tapped a variety of political attitudes and voting outcomes (Hemerijck et al. 2023). The team gave the authors the opportunity to include a question on field of study.

The relevant question in the YouGov survey posed to respondents with post-secondary education is “What is the field or subject of your highest qualification? (Please select the option that best describes your main subject. If you are still studying, describe your current main subject. This list is alphabetical).” Respondents were offered a drop-down menu with 21 fields plus a don’t know option.

These 21 options are matched with the 78 field categories from the 2024 TGM field survey, as shown in **Table A.22**. This exercise is straightforward because the field of study list in YouGov is essentially a simpler version of the ISCED list of educational fields that was used in the US field survey. No weighting is necessary.

The output is a field score for each of the 21 field categories, whereby higher scores indicate greater human-centeredness. These scores are rescaled from 0 to 1. **Table A.22** lists, for each major, the matched fields in the TGM field study and the produced field score.

Table A.15: Dutch survey on skills by field of study

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Four Field-Related Educational Resources

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

	Field of Study											Total
	General	Teacher Education	Humanities/ Arts	Agriculture	Technical	Medical	Economics/ Administration	Law	Social-Cultural	Social/ Personal Care	Police/ Military	
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 during a field of study was paid 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.

Table A.16: Field of education options in the TGM field survey

Tier 1		Tier 2		Tier 3	
0	Generic programs and qualifications	1	Basic programs & qualifications	11	Basic programs & qualifications
		2	Literacy and numeracy	21	Literacy and numeracy
		3	Personal skills & development	31	Personal skills and development
1	Education	11	Education	111	Education science
				112	Training for pre-school teachers
				113	Teacher training without subject specialization
				114	Teacher training with subject specialization
2	Arts and humanities	21	Arts	211	Audio-visual techniques and media production
				212	Fashion, interior and industrial design
				213	Fine arts
				214	Handicrafts
				215	Music and performing arts
		22	Humanities (except languages)	221	Religion and theology
				222	History and archaeology
				223	Philosophy and ethics
		23	Languages	231	Language acquisition
				232	Literature and linguistics
3	Social sciences, journalism, information	31	Social and behavioral sciences	311	Economics
				312	Political science and civics
				313	Psychology
				314	Sociology and cultural studies
		32	Journalism and information	321	Journalism and reporting
				322	Library, information, archival studies
				41	Business and administration
4	Business, administration, law	41	Business and administration	411	Accounting and taxation
				412	Finance, banking and insurance
				413	Management and administration
				414	Marketing and advertising
				415	Secretarial and office work
				416	Wholesale and retail sales

			417	Work skills
		42	Law	421
5	Natural sciences, math, statistics	51	Biological and related sciences	511
				512
		52	Environment	521
				522
		53	Physical sciences	531
				532
				533
		54	Mathematics and statistics	541
				542
6	Information & Communication Technology (ICTs)	61	ICTs	611
				612
				613
7	Engineering, manufacturing, construction	71	Engineering and engineering trades	711
				712
				713
				714
				715
				716
		72	Manufacturing and processing	721
				722
				723
				724
		73	Architecture and construction	731
				732
8	Agriculture, forestry, fisheries, veterinary	81	Agriculture	811
				812
		82	Forestry	821
		83	Fisheries	831
		84	Veterinary	841
9	Health and welfare	91	Health	911

			912	Medicine	
			913	Nursing and midwifery	
			914	Medical diagnostic and treatment technology	
			915	Therapy and rehabilitation	
			916	Pharmacy	
			917	Traditional and complementary medicine and therapy	
	92	Welfare	921	Care of the elderly and of disabled adults	
			922	Child care and youth services	
			923	Social work and counselling	
10	Services	101	Personal services	1011	Domestic services
				1012	Hair and beauty services
				1013	Hotel, restaurants and catering
				1014	Sports
				1015	Travel, tourism and leisure
		102	Hygiene and occupational health services	1021	Community sanitation
				1022	Occupational health and safety
		103	Security services	1031	Military and defense
				1032	Protection of persons and property
		104	Transport services	1041	Transport services

Table A.17: Cronbach's alpha analysis of four skill sets

Cronbach's Alpha	Cultural	Economic	Communicative	Technical
Average interitem covariance	0.72	0.99	0.71	0.86
Scale reliability coefficient	0.76	0.83	0.76	0.77

Note: N=3,541 college-educated American citizens.

Table A.18: Principal Components Analysis Analysis (rotated) of sixteen skills

	Communicative	Economic	Technical	Cultural
Arts and literature	0.000	-0.007	-0.050	0.663
General knowledge or history	0.192	0.053	-0.020	0.309
Creativity, artistic expression	-0.033	0.027	0.057	0.619
Writing and reading	0.350	-0.012	-0.081	0.155
Business, bookkeeping	-0.074	0.566	-0.017	0.050
Law and regulations	0.297	0.266	0.003	-0.164
Business and commercial thinking	-0.008	0.547	-0.018	0.027
Management skills	0.171	0.416	-0.006	-0.090
Instruction, teaching methods	0.308	-0.121	0.212	0.068
Social psychology	0.424	-0.092	0.027	0.036
Group conversation, discussion	0.492	-0.030	0.026	-0.088
Presentation skills, public speaking	0.402	0.103	-0.054	-0.010
Automation, computing	-0.110	0.231	0.393	0.038
Learning to use tools, instruments	-0.009	0.028	0.475	0.006
Calculus	-0.112	0.108	0.484	0.032
Experiments, testing	0.118	-0.180	0.569	-0.050
Eigenvalue	3.119	2.656	2.371	1.896

Note: N=3,541 college-educated American citizens. Orthogonal varimax (Kaiser), Rho=0.628. The four strongest loadings are bolded.

Table A.19: Principal Components Analysis (rotated) of sixteen skills for younger and older cohorts

	Under 45 year old				Over 45 year old			
	Com	Econ	Tech	Cult	Com	Econ	Tech	Cult
Arts and literature	0.001	0.010	-0.050	0.670	-0.011	-0.020	-0.054	0.645
General knowledge or history	0.264	0.001	0.005	0.246	0.139	0.081	-0.014	0.356
Creativity, artistic expression	-0.036	0.018	0.047	0.627	-0.028	0.023	0.066	0.604
Writing and reading	0.396	-0.004	-0.102	0.145	0.291	0.008	-0.059	0.206
Business, bookkeeping	-0.089	0.561	0.001	0.063	-0.078	0.562	-0.022	0.034
Law and regulations	0.274	0.366	-0.100	-0.162	0.304	0.256	0.007	-0.149
Business and commercial thinking	-0.013	0.537	-0.013	0.021	-0.016	0.546	-0.003	0.033
Management skills	0.110	0.397	0.031	-0.016	0.200	0.409	-0.009	-0.116
Instruction, teaching methods	0.234	-0.060	0.231	0.095	0.355	-0.150	0.187	0.043
Social psychology	0.379	-0.067	0.024	0.097	0.447	-0.093	-0.001	0.012
Group conversation, discussion	0.506	-0.062	0.065	-0.136	0.490	-0.018	0.006	-0.057
Presentation, public speaking	0.412	0.099	-0.020	-0.060	0.389	0.108	-0.068	0.021
Automation, computing	-0.132	0.193	0.425	0.046	-0.093	0.240	0.392	0.026
Learning to use tools, instruments	0.103	0.020	0.397	-0.054	-0.039	0.037	0.497	0.043
Calculus	-0.127	0.126	0.489	-0.002	-0.094	0.088	0.492	0.018
Experiments, testing	0.093	-0.172	0.581	-0.021	0.141	-0.190	0.553	-0.061
Eigenvalue	2.987	2.613	2.358	1.803	3.104	2.693	2.287	1.996

N=1,526 under-45 year old college-educated citizens; 1,948 over-45 year old college-educated citizens. Orthogonal varimax (Kaiser), Rho=0.610 and 0.630 (>45y). The four strongest loadings are bolded.

Table A.20: Analysis of variance of a range of predictors on individual skill assessments

Independent variable	Dependent variables: skill set			
	Cultural	Economic	Communicative	Technical
Field of education (78)	0.105	0.214	0.069	0.204
Length of education (3)	0.007	0.003	0.027	0.002
Occupation (106)	0.037	0.111	0.044	0.129
Income (10)	0.000	0.027	0.016	0.034
Gender (2)	-0.000	0.028	-0.000	0.046
Age cohort (4)	0.040	0.034	0.034	0.064

Note: Cells report adjusted R2. The figure in brackets in column 1 refer to the number of categories for that categorical variable.

Table A.21: Field scores by major in the General Social Survey

GSS majors	Matched with TGM field categories	Field score
1 Accounting/bookkeeping	411	0.015
2 Advertising	414	0.235
3 Agriculture/horticulture	821	0.226
4 Allied health	914, 915, 917	0.354
5 Anthropology	314	0.614
6 Architecture	731	0.285
7 Art	211, 212, 213, 214, 215	0.624
8 Biology	511, 512	0.324
9 Business administration	411, 412, 413, 414, 415, 416, 417	0.150
10 Chemistry	531	0.203
11 Communications/speech	321, 322	0.643
12 Communication disorders	915	0.458
13 Computer science	611, 612, 613	0.203
14 Dentistry	911	0.320
15 Education	111, 112, 113, 114, 115	0.562
16 Economics	311	0.352
17 Engineering	711, 713, 714, 715, 716	0.073
18 English	231	1.000
19 Finance	412	0.157
20 Foreign language	231	1.000
21 Forestry	821	0.226
22 Geography	532	0.198
23 Geology	532	0.198
24 History	222	0.737
25 Home economics	1011	0.214
26 Industry & technology	721, 722, 723, 724	0.139
27 Journalism	321	0.679
28 Law	421	0.335
29 Law enforcement	1032	0.360
30 Library science	322	0.354
31 Marketing	414	0.235
32 Mathematics	541	0.128
33 Medicine	912	0.328
34 Music	215	0.737
35 Nursing	913	0.373
36 Optometry	914	0.306
37 Pharmacy	916	0.199
38 Philosophy	223	0.721
39 Physical education	1014	0.333
40 Physics	533	0.182
41 Psychology	313	0.611

42	Political science/international relations	312	0.489
43	Sociology	314	0.614
44	Special education	114	0.606
45	Theater arts	215	0.737
46	Theology	221	0.573
47	Veterinary medicine	841	0.330
48	Liberal arts	22, 31, 53, 54	0.431
49	Other	11, 21, 31	0.350
50	General sciences	51, 61, 313	0.285
51	Social work	922, 923	0.600
52	General studies	22, 31, 53, 54	0.410
53	Other vocational	721, 722, 723, 724	0.139
54	Health	911, 912, 913, 914, 915, 916, 917	0.356
55	Industrial relations	314	0.614
56	Child/human/family development	313	0.614
57	Food science/nutrition/culinary arts	1013	0.251
58	Environmental science/ecology	521, 522, 712	0.214
59	Social sciences	312, 313, 314	0.586
60	Human services/human resources	417	0.176
61	Visual arts/graphic design/design& development	211	0.586
62	Fine arts	213	0.614
63	Humanities	221, 222, 223	0.708
64	Ethnic studies	314	0.614
65	Educational administration	111, 112, 113, 114	0.562
66	Television/film	211	0.586
67	Aviation/aeronautics	716	0.000
68	Statistics/biostatistics	542	0.116
69	Criminology/criminal justice	1031, 1032	0.347
70	Administrative science/public administration	312	0.489
71	Electronics	714	0.068
72	Urban and regional planning	731, 732	0.190
73	Mechanics/machine trade	715	0.090
74	Dance	215	0.737
75	Gerontology	921	0.713
76	Public relations	414	0.235
77	Textiles/cloth	723	0.337
78	Parks and recreation	1015	0.308
79	Information technology	611, 612, 613	0.203
80	Fashion	212	0.548
81	Counseling	313	0.614

Table A.22: Field scores by field of study in the YouGov Survey

Fields of study in YouGov	Matched TGM field categories	Field score
1 Agricultural studies	821, 831, 841	0.232
2 Arts (fine or applied)	211, 212, 213, 214, 215	0.815
3 Computing, IT, ICT	611, 612, 613	0.188
4 Economics, business administration, accountancy	311, 411, 412, 413, 414, 415, 416, 417	0.131
5 Engineering	711, 713, 714, 715, 716	0.000
6 Environmental studies, marine studies	511, 512, 521, 522, 712	0.263
7 Food and catering	1013	0.207
8 Humanities – e.g., languages, history, philosophy, theology	221, 222, 223, 231, 232, 322	1.000
9 Law and legal services	421	0.393
10 Medical, health, nursing	911, 912, 913, 914, 915, 916, 917	0.393
11 Personal care—e.g., catering, domestic science, hair styling	1011, 1012	0.269
12 Planning -- including architecture, urban planning	731, 732	0.183
13 Public administration, public policy, journalism	321	0.884
14 Public order and safety – police, military, fire prevention, etc.	1021, 1022, 1031, 1032	0.376
15 Science, mathematics, physics, etc.	531, 532, 533, 541, 542	0.151
16 Social & behavioural studies -- e.g., social work, sociology, psychology, pedagogy	921, 922, 923, 312, 313, 314	0.709
17 Sports & leisure studies	1014, 1015	0.371
18 Teacher training or education	111, 112, 113, 114	0.715
19 Technical -- crafts, building trades, industry, etc.	721, 722, 723, 724	0.110
20 Transport, telecommunications	1041,	0.090
21 General education, or no specific field	11, 21, 31	0.406

Addendum: Excerpt from the 2024 TGM field survey in the US

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

Now I would like to know more about what field of education or specialization you pursued for your highest completed degree or diploma. I will ask you a few questions that help you describe what you have studied.

We begin with a short list that contains broad subjects of education. **Which of these fits best with the main subject or field of study of your highest degree or diploma? [three-tiered drilldown]**

If you are a student, please select the one that best describes your current field of study.

Within this field, your degree or diploma could focus on one of **several specializations**. Which of the following describes best **your specialization**?

If more than one, please select the most important to you.

Can you select from the dropdown menu **the further specialization** that best fits what you have studied for your highest degree or diploma?

If you are still working on your degree, just select the option that best describes what you are currently studying.

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? RANDOMIZE ORDER]

	1:very limited extent	2	3	4	5: very large extent
Arts and literature					
General knowledge or history					
Creativity, artistic expression					
Writing and reading					
Business, bookkeeping					
Law and regulations					
Business and commercial thinking					
Management skills					
Instruction, teaching methods					
Social psychology					
Group conversation, discussion techniques					
Presentation skills, public speaking					
Automation, computing					
Learning to use tools, technical instruments, production processes					
Calculus (technical or mathematical)					
How to conduct experiments, testing					

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