Changing Minds: The Impacts of College Majors on Political Views

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June 2024

The Israel Economic Association Conference 2024

How do college majors influence students' attitudes?

- People's attitudes are shaped by early life experiences (e.g., family, neighborhood)
- How much does education affect people's attitudes?
  - An ancient debate: the interaction between education and politics (e.g., Socrates, Marx)
  - Relevant to current debates about colleges in the US and worldwide
- This paper: college majors are a key influence
  - Like moving from a very democratic to a very republican county
  - Tied to current issues: e.g., Florida's attempt to ban specific majors

Related literature

- College students shift liberal during their studies (Hanson et al., 2012; Brońić and Miles, 2021; Strother et al., 2021; Scott, 2022; Apfeld et al., 2023; Firoozi, 2023)
  - *Contribution*: majors are a key factor in shaping political attitudes
- Econ students are self-selected and influenced (Frank et al., 1993; Rubinstein, 2006; Bauman and Rose, 2011; Fischer et al., 2017; Paredes et al., 2023)
  - *Contribution*: comprehensive analysis of the causal impact of all majors
- Politically-motivated curriculum changes have substantial impacts on students' attitudes (Voigtländer and Voth, 2015; Cantoni et al., 2017; Arold, 2022)
  - *Contribution*: education shapes attitudes even where (explicit) agendas are less salient
- The returns to academic degrees vary substantially by field of study (Altonji et al., 2016; Kirkeboen et al., 2016; Bleemer and Mehta, 2022; Heinesen et al., 2022)
  - *Contribution*: fields of study also shape students' worldviews

Surveys by UCLA's Higher Education Research Institute

- **Surveys' coverage**
  - *Two points in time*: first and last week of college studies
  - *Comprehensive information*: backgrounds, plans, attitudes, behaviors, experiences, ...
- **Study's sample**
  - 4-year college students who started their studies during 1990–2004
  - $\sim$ 150K students from 250 colleges
  - Aims to extend our analysis to later cohorts using new data
- Attrition is not correlated with attitudes within majors

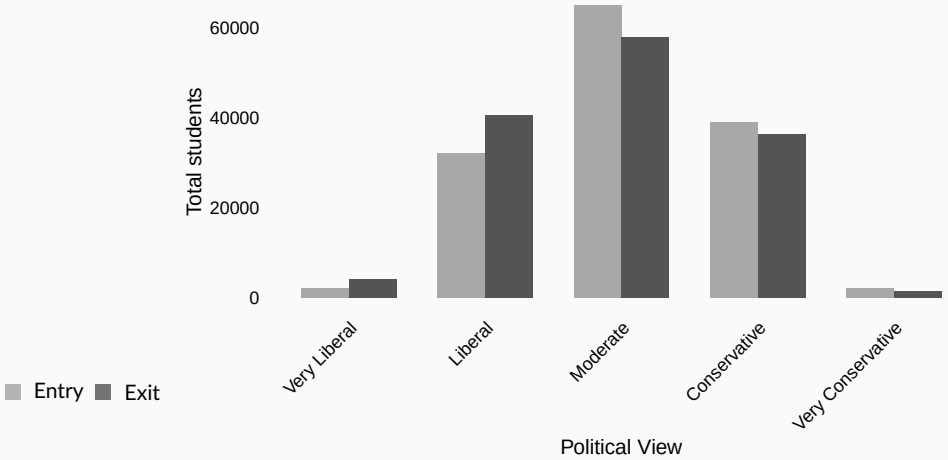
Details

Main outcomes: students' attitudes

- **Political views**: how would you characterize your political views? (5–Liberal 1–Conservative)
- **Policy opinions** (4–Agree 1–Disagree):
  - Abortion should be legal
  - It is important to have laws prohibiting homosexual relationships
  - Marijuana should be legalized
  - Racial discrimination is no longer a major problem in America
  - The activities of married women are best confined to the home and family
  - The death penalty should be abolished
  - The federal government should do more to control the sale of handguns
  - There is too much concern in the courts for the rights of criminals
  - Wealthy people should pay a larger share of taxes than they do now
  - A national health care plan is needed to cover everybody's medical costs

Correlations (opinions & views) Views & voting

Changes in the distribution of political views during college



- Students' views shift 0.1SD liberal on average during their studies Trend Changes matrix
- Shifts vary by major Economics Politics Theology Engineering

Identifying the impacts of college majors

- **Baseline**: comparing students with similar baselines and different majors
  - *Assumption*: majors are independent of factors affecting attitudes, cond on controls
  - *Controls*: pre-college views and opinions, preferred majors, ...
- **Potential violations and solutions**:
  - Experiences in first college years (e.g., friends)
    → Use pre-college preferred majors as IVs
  - Unobserved preferences (e.g., 2nd choice majors)
    → Use supply-side changes as IVs
- Results are highly consistent across all strategies

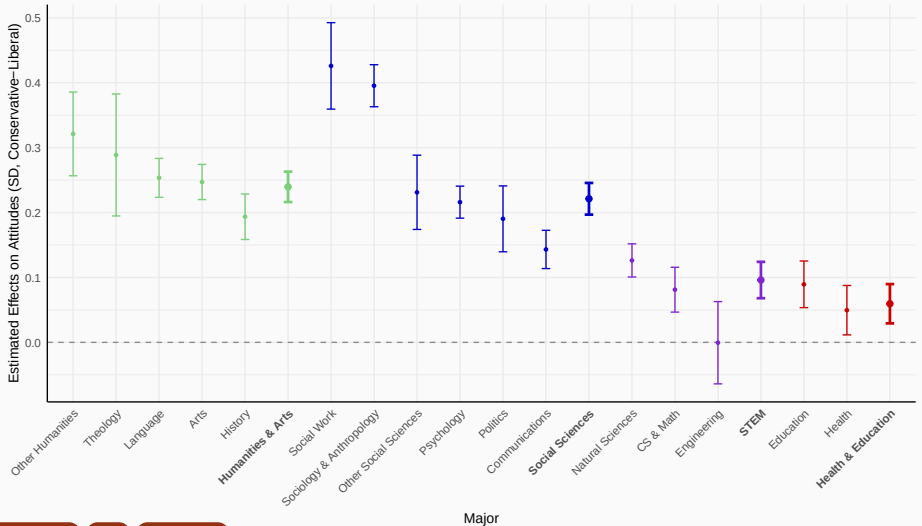
Estimating the impacts of college majors, baseline approach

$$p_i = \delta_{m_i} + \alpha_{p_i^0} + \sigma_{m_i^0} + X_i'\beta + \varepsilon_i \quad (1)$$

Where:

- δ_{m_i} are the coefficients of interest, capturing the effects of each major m
- $\alpha_{p_i^0}, \sigma_{m_i^0}$ includes fixed effects for entry political attitudes and preferred majors
- X_i includes college, year, opinions, behaviors, goals, and demographics Details
- Standard errors are clustered at the college level

Effects of majors on political attitudes, baseline strategy



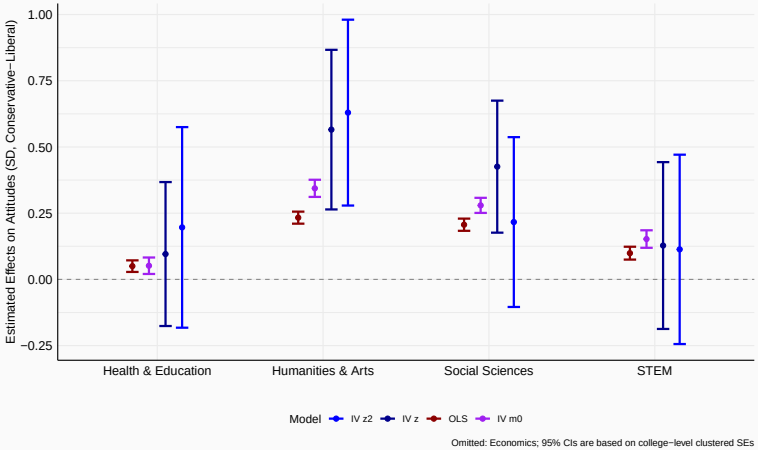
Controls | m_0 "effects" | FD | Cont. bias

95% CIs based on college–level clustered SEs; Omitted: Business & Econ (average change during college of 0.01 SD)

Validating the results with IV strategies

- **IV** m_0: preferred majors (declared on the entry survey) Changes matrix
  - Eliminate concerns regarding post-entry survey experiences that affect views and majors
- **IV** z: dummies for programs' availability ($\sim$ 700 dummies) Total Programs Programs size
  - Eliminate concerns regarding correlation between unobserved preferences and attitudes
  - *Assumption*: within-college changes are not correlated with unobserved attitudes
  - *Falsification test*: estimating the "impacts" on pre-college views yields desired null results Details
  - Alternative (z2): dummies for 50%+ decline in the share of students in each program

Effects of majors on political attitudes, all strategies



- Main results are consistent across different strategies

Do majors really change students' worldviews?

- College majors significantly influence students' worldviews
  - Majors affect both cultural and economic opinions Abortions Taxes
  - Liberal-leaning majors shift students' opinions in a liberal direction Index
- In progress: decompose the effects
  - Changes in cultural/economic views
  - Changes in priorities of cultural/economic views
  - Residual (identity?)

To what extent do peer effects and socialization drive these changes?

- No evidence that peers' attitudes affect students' attitudes
  - Exploit variation in peers' pre-college attitudes within college-major over time Estimation
  - Since actual majors may be endogenous, also use peers with the same preferred majors
  - Also examine each major separately, and find null results

View	Pre	Pre	Post	Post
Major variable	Preferred	Actual	Preferred	Actual
Mean	-0.008 (0.012)	0.005 (0.012)	0.008 (0.013)	0.014 (0.011)
% Highly Liberal (5)	0.062 (0.084)	0.018 (0.103)	-0.027 (0.096)	0.111 (0.079)
% Highly Conservative (1)	0.116 (0.084)	-0.095 (0.073)	-0.052 (0.091)	0.073 (0.085)

By major

- May suggest that faculty and teaching material are more important (may examine later)

What are the implications for political polarization?

- College majors significantly affect students' political views
- Do students sort into majors based on their pre-college views?
  - Students tend to choose majors that reinforce their views Details
  - This sorting implies that major choices increase polarization within the student body
- Students are also segregated into college majors with peers who share similar attitudes Details
- We will also examine how these phenomena vary over time

Conclusion

- College majors are important for shaping youths' political attitudes
  - Social sciences and humanities makes students $\sim$0.3SD more liberal relative to business
  - Equivalent to moving to 30p.p. more liberal neighborhood for ages 13–19 (Brown et al., 2023)
  - College graduates would be 0.2SD more conservative if all students studied business
- Results point toward a fundamental shift in worldview
- Peer exposure does not seem to matter much; perhaps faculty are more important?
- College major choices may increase polarization

Assessing attrition bias

	Pre-college political views		
	(1)	(2)	(3)
Business × CSS	0.0005	-0.006	-0.01
	(0.010)	(0.009)	(0.01)
Health&Education × CSS	0.002	-0.0006	-0.008
	(0.009)	(0.008)	(0.008)
Humanities&Arts × CSS	-0.01	-0.01	-0.009
	(0.010)	(0.01)	(0.01)
Other × CSS	0.02	0.007	-0.01
	(0.02)	(0.02)	(0.02)
Social × CSS	0.003	0.005	-0.0010
	(0.008)	(0.009)	(0.009)
Stem × CSS	0.02*	0.006	-0.002
	(0.009)	(0.008)	(0.008)
Major FE	✓	✓	✓
College-Year FE	✓	✓	✓
Demographics Controls		✓	✓
HS Behaviors Controls			✓
Within Adjusted R^2	0.009	0.006	0.004
Observations	1,261,290	1,093,162	829,347

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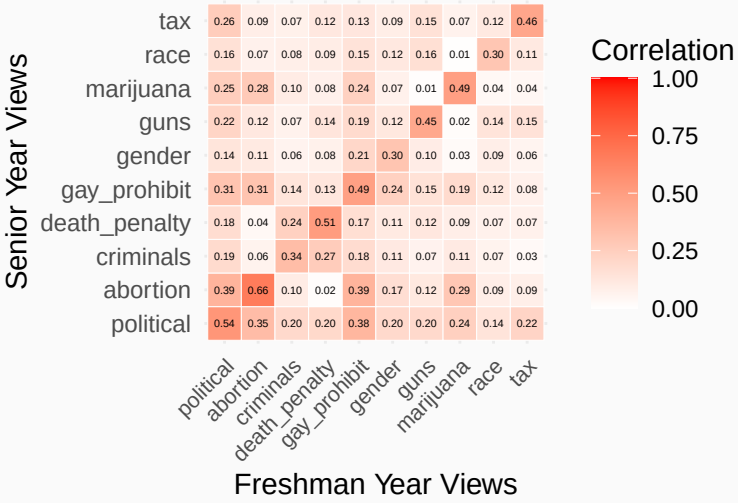
Correlations between attitudes



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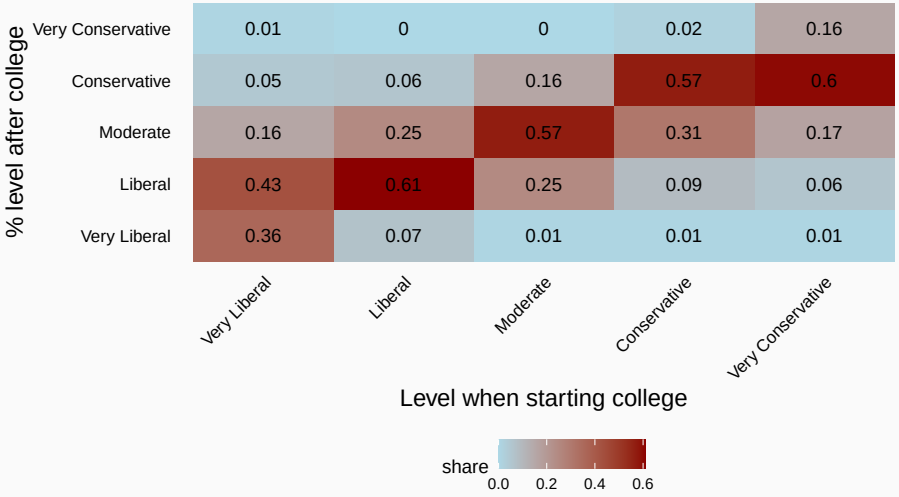
Changes in political attitudes during college



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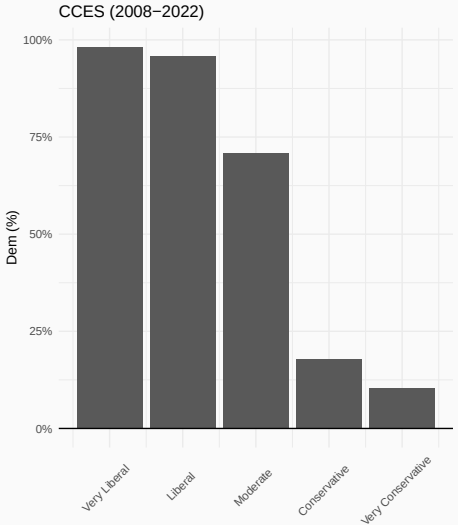
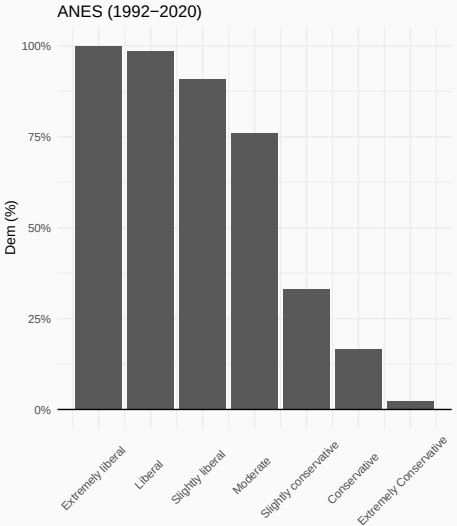
Students' attitudes and voting, based on national surveys





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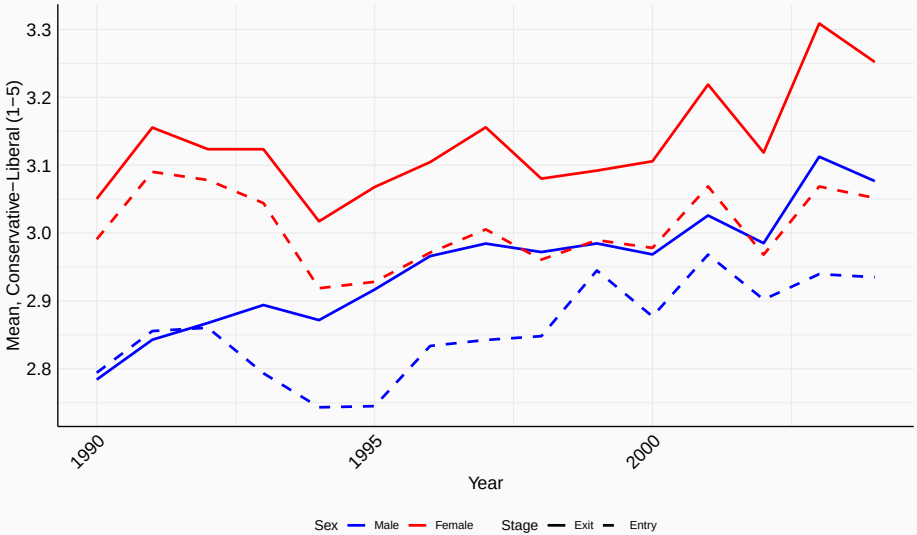
Students' entry and exit political views



* Each year's sample of colleges may differ

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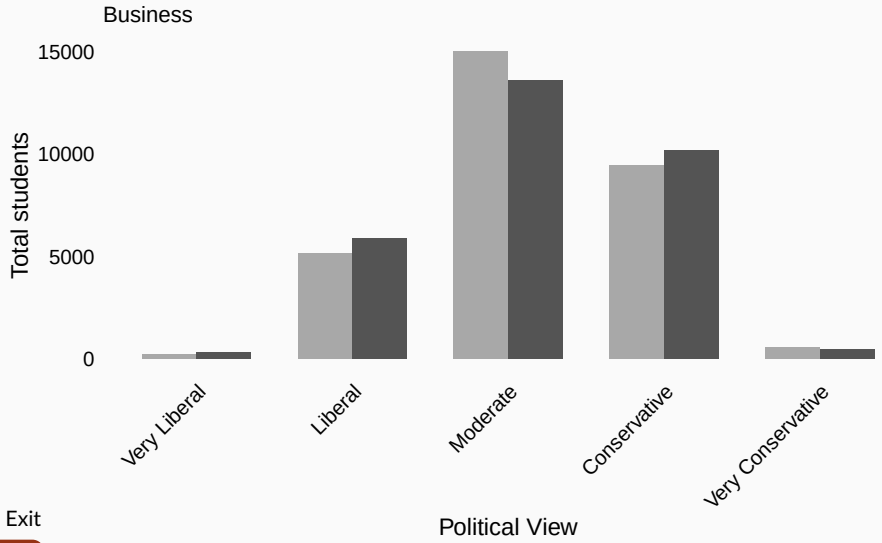
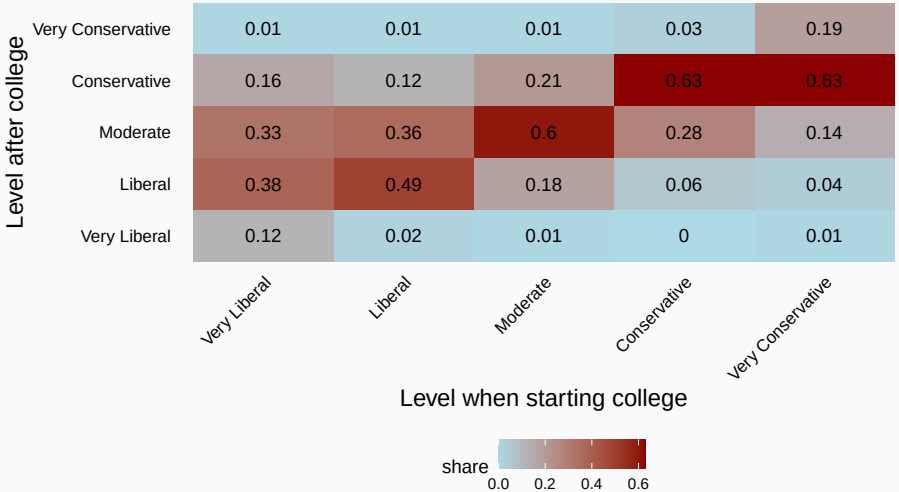
Changes in the distribution of attitudes during college, Econ & Business



Changes in attitudes during college, Econ & Business



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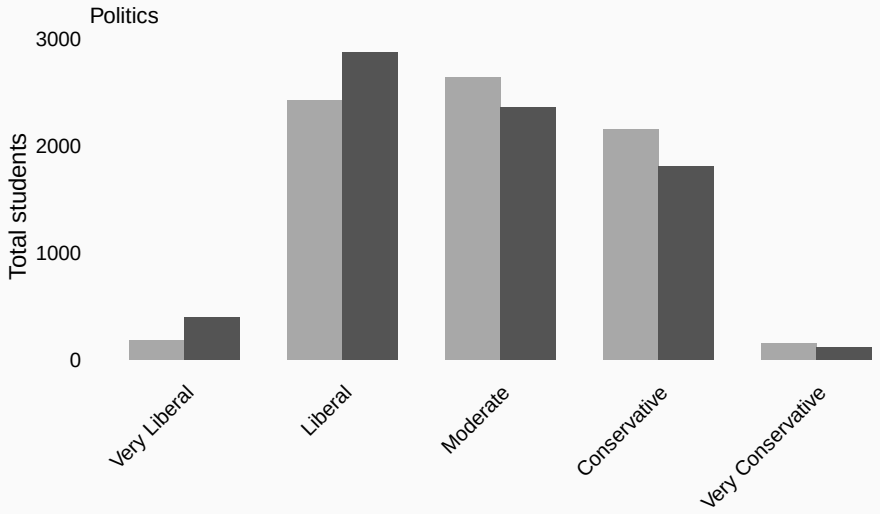
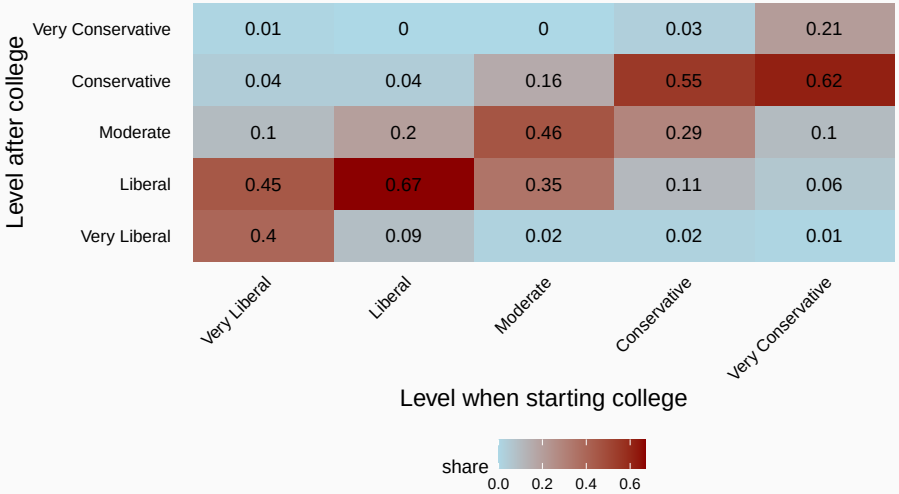
Changes in the distribution of attitudes during college, Politics

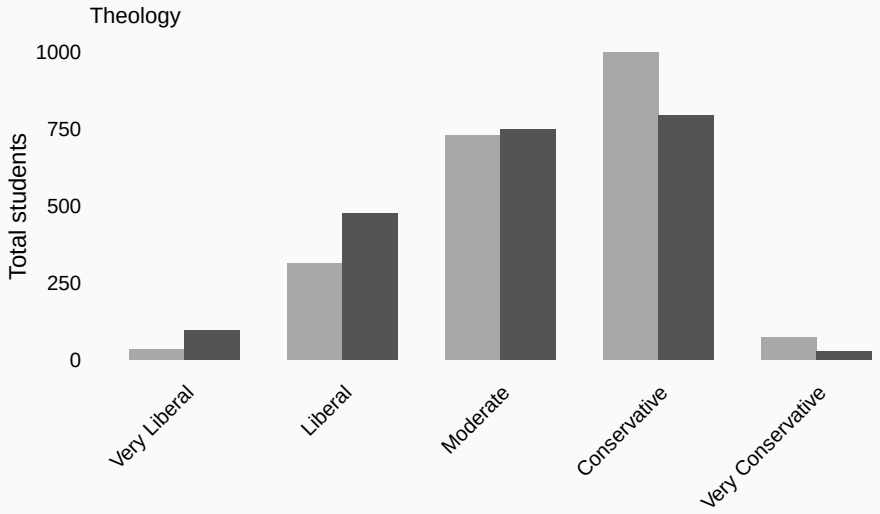


Changes in attitudes during college, Politics

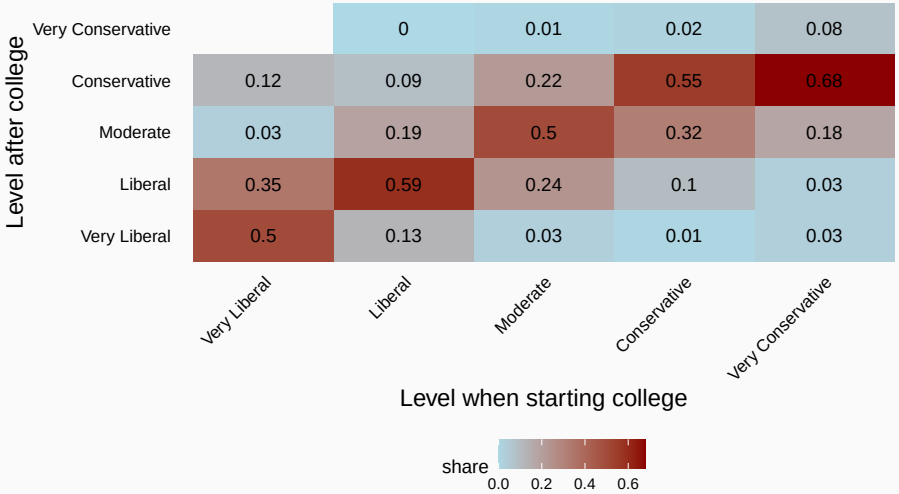


Return return (back)

Changes in the distribution of attitudes during college, Theology

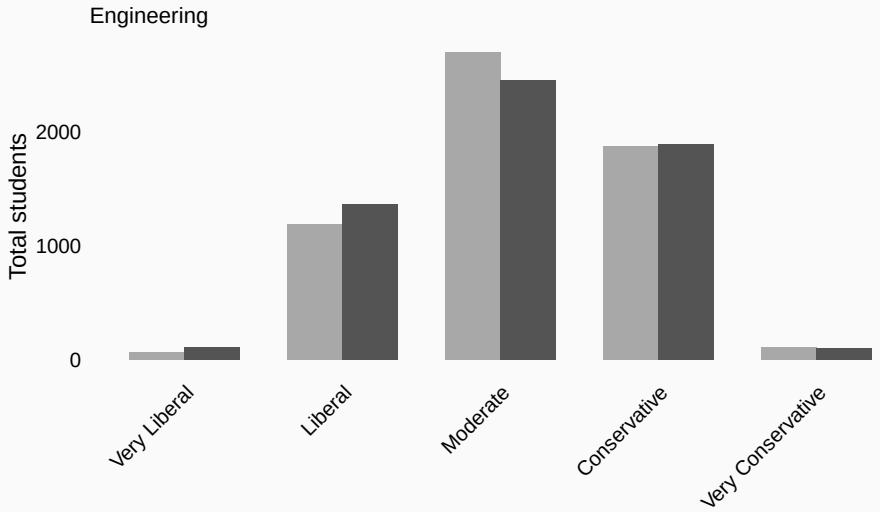


Changes in attitudes during college, Theology

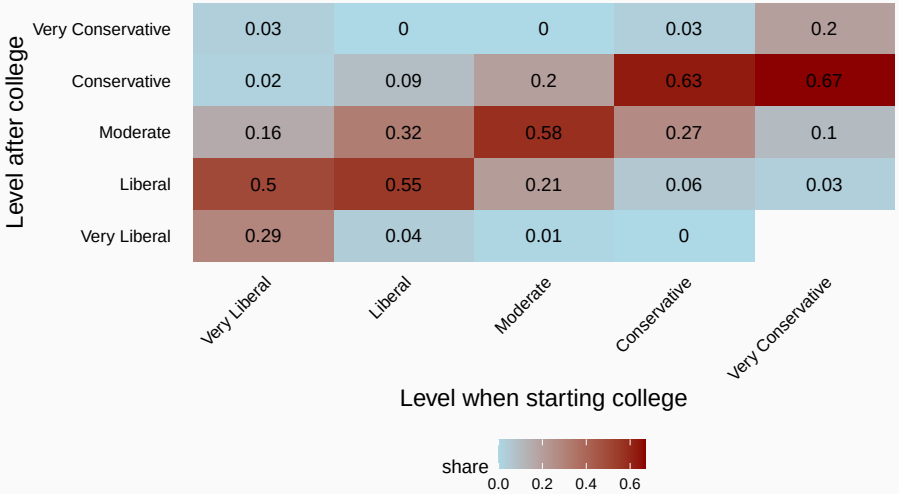


Return return (main)

Changes in the distribution of attitudes during college, Engineering



Changes in attitudes during college, Engineering



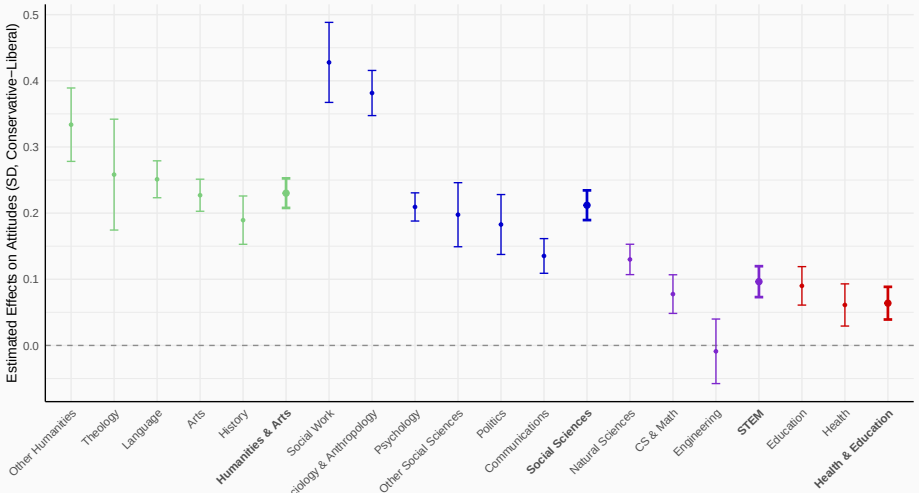
Return return (main)

Control variables

Group	Variables
Views	*political*, abortion, guns, death penalty, criminal rights, race, gay rights, marijuana
Behaviors (HS)	discussed politics, voted in student elections, volunteered, hours on activities (e.g., working, studying)
Goals	environmentalism, community action, racial equality, staying informed, and understanding politics, financial success, social values, family, meaning
Demographics	sex, race, citizenship, religion, parental income, education, and marital status

Return

Effects of majors on Δ political attitudes



95% CIs based on college−level clustered SEs; Omitted: Business & Econ (average change during college of 0.18 SD)

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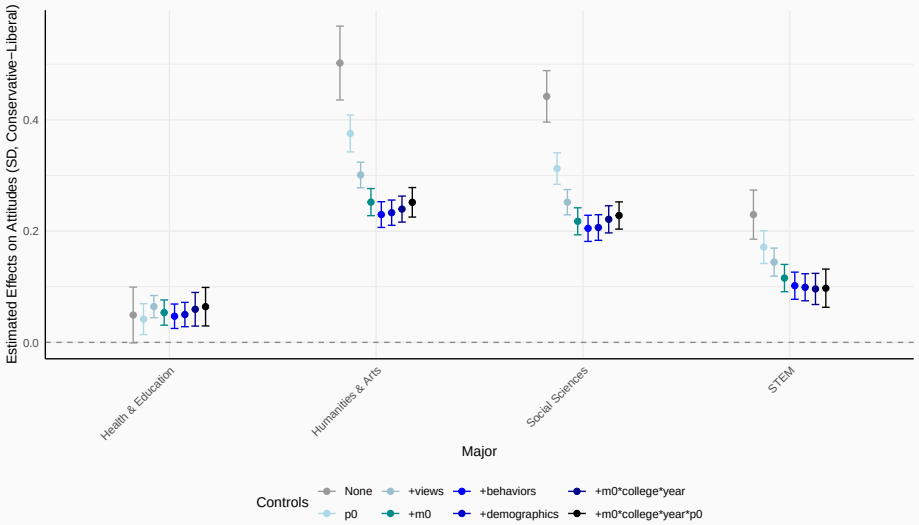
Effects of majors on political attitudes, control variables' influence



omitted: Economics; 95% CIs are based on college−level clustered SEs

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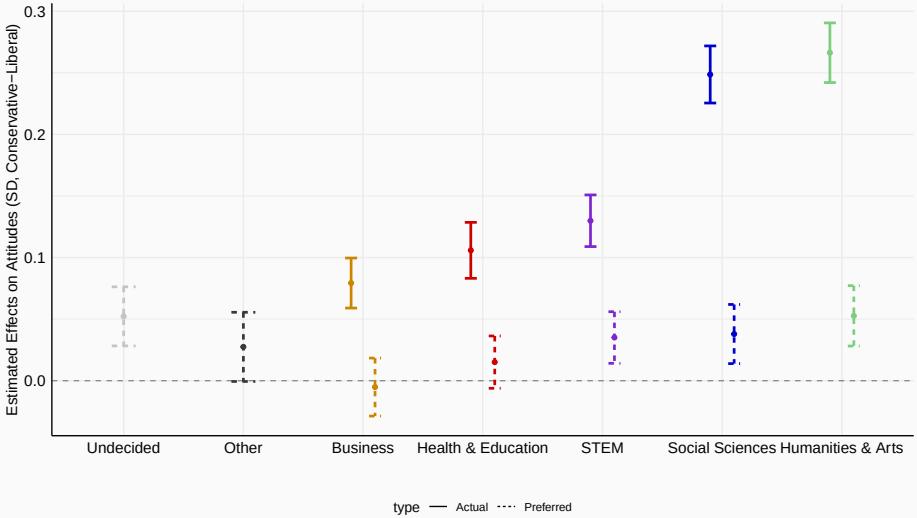
Effects of majors on political attitudes, *M*0 influence



Omitted group: Econ; 95% CIs based on college−level clustered SEs

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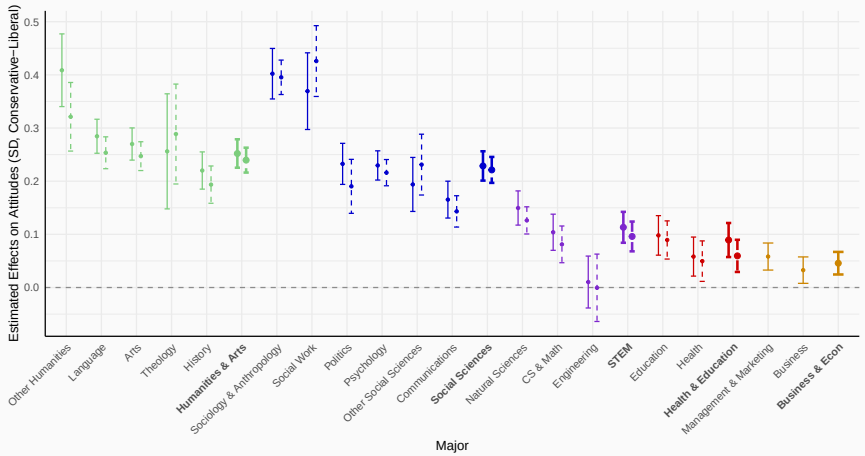
No contamination bias estimations



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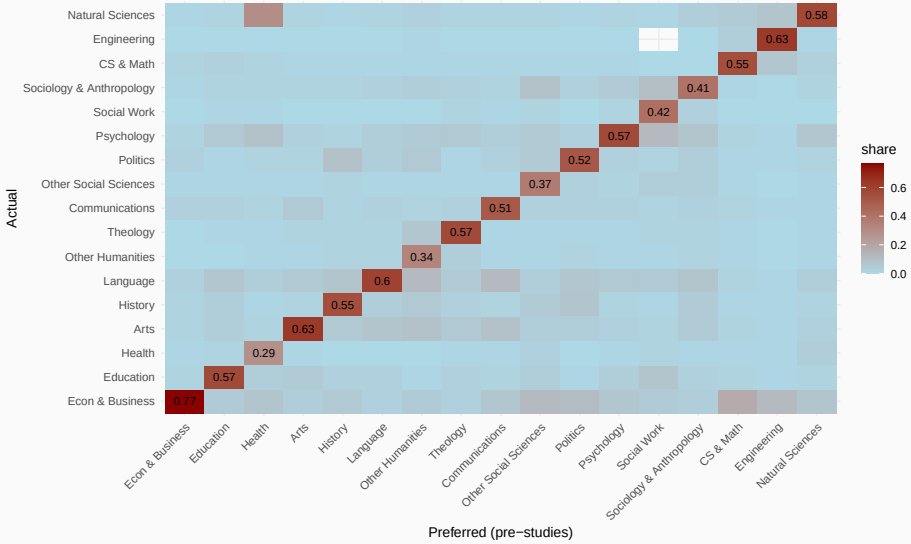
Major choice changes during college



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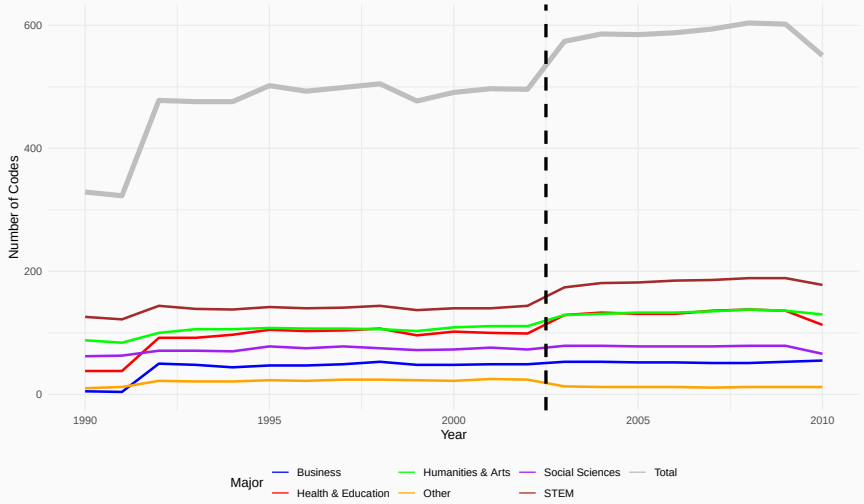
Annual IPEDS (CIP) codes



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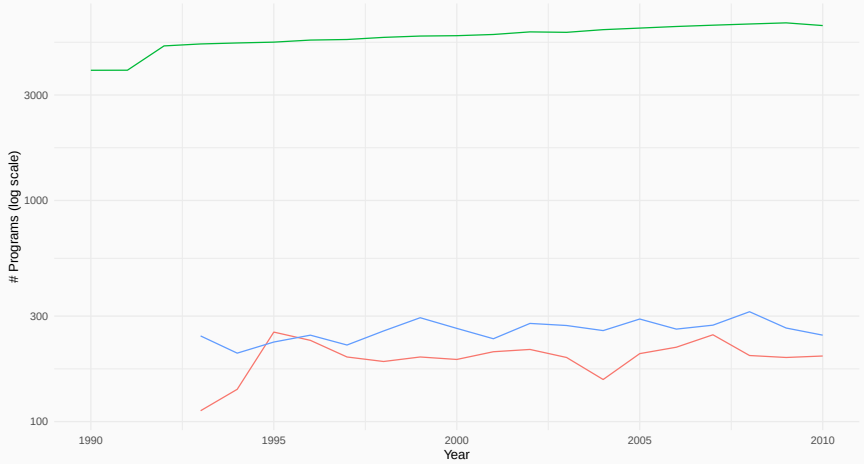
Annual IPEDS (CIP) Programs



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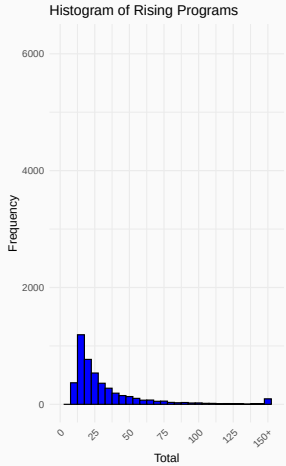
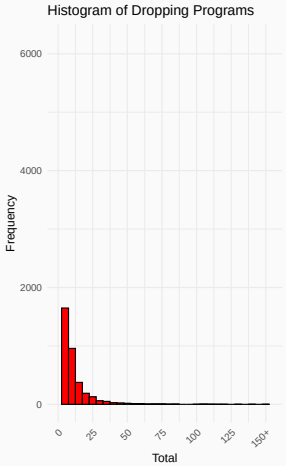
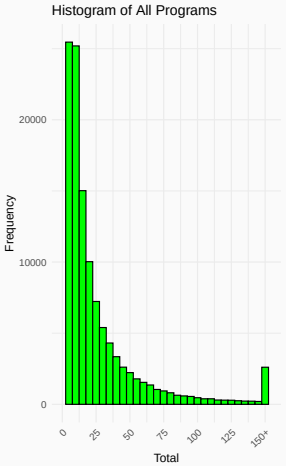
Academic Programs Size







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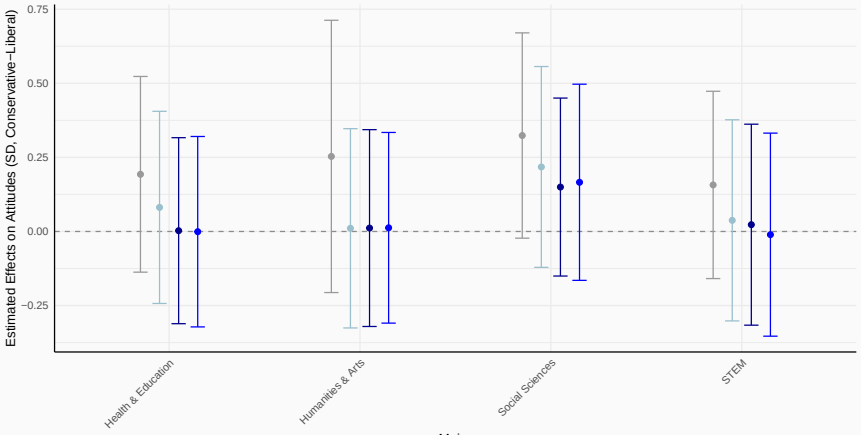
IV falsification, estimated effect on pre-college views

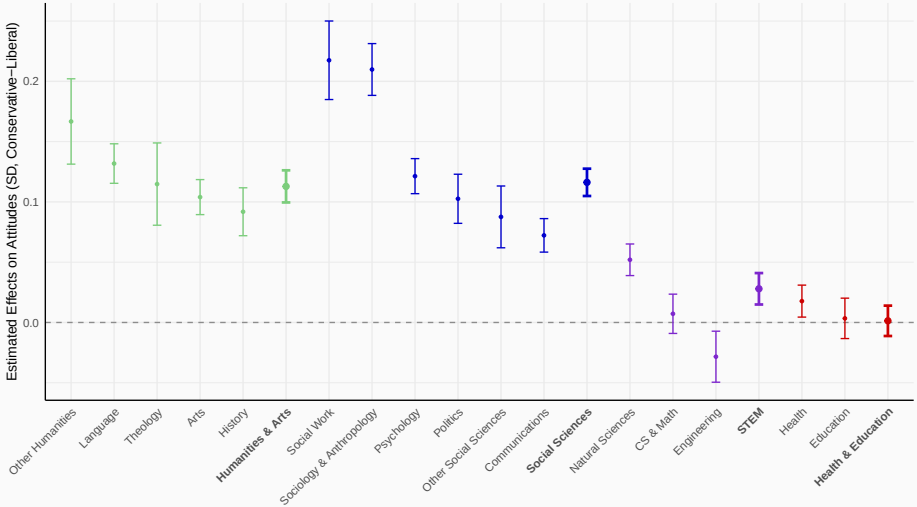


omitted: Economics; 95% CIs are based on college−level clustered SEs

Return

Effects of majors on index political attitudes

predicted political attitudes based on all other views

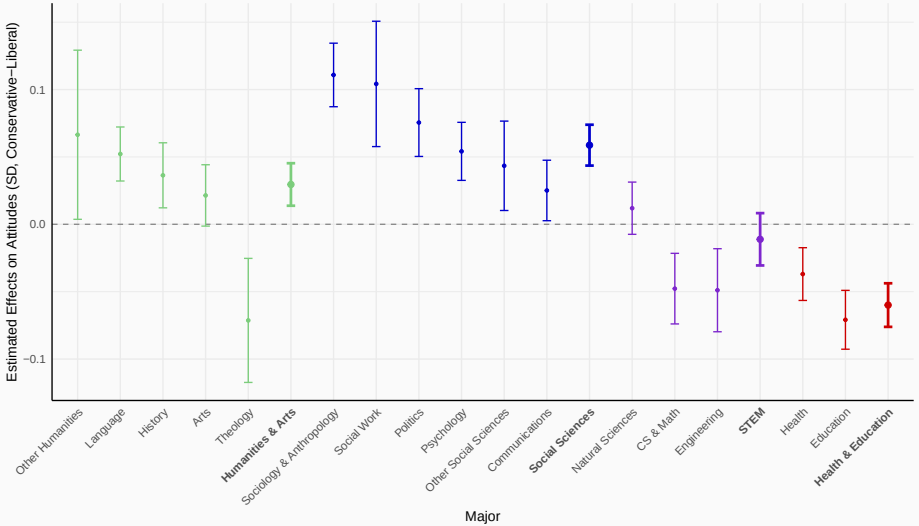


95% CIs based on college−level clustered SEs; Omitted: Business & Econ (average change during college of NaN SD)

Return

Effects of majors on attitudes toward abortion

Abortion should be legal



95% CIs based on college−level clustered SEs; Omitted: Business & Econ (average change during college of −0.23 SD)

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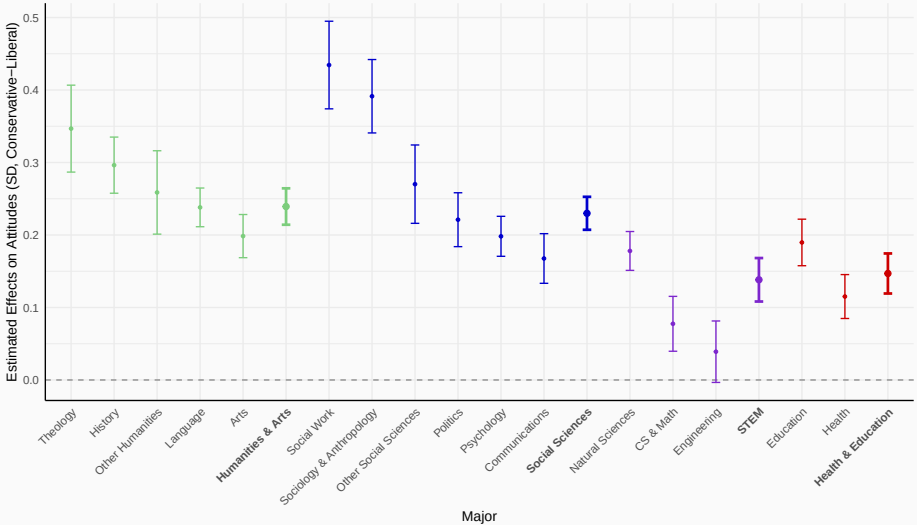
Effects of majors on attitudes toward tax

wealthy people should pay a larger share of taxes than they do now



95% CIs based on college−level clustered SEs; Omitted: Business & Econ (average change during college of −0.09 SD)

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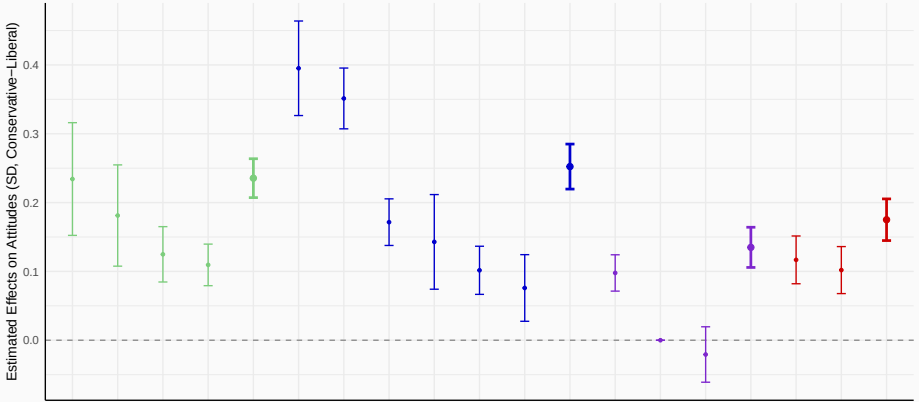
Effects of majors on attitudes toward healthcare

A national health care plan is needed to cover everybody's medical costs



95% CIs based on college−level clustered SEs; Omitted: Business & Econ (average change during college of 0.14 SD)

Return

Peer effects estimation

$$p_{icmt} = \sigma P_{cmt}^{-i} + \alpha_{p_{icmt}^0} + X_{icmt}'\beta + \nu_{cm} + \theta_{ct} + \lambda_{mt} + \varepsilon_{icmt} \quad (2)$$

- **Where**:
  - c college; m major (preferred or actual); t cohort
  - P_{cmt}^{-i} measure of peers **initial** views
  - σ is the coefficient of interest, capturing the effect of peers' initial views
- Require correcting for "Exclusion Bias" (Caeyers and Fafchamps, 2016)
- Observe only peers who were surveyed (focus on cohorts with at least 10%)
- In the main specification we also control for *college-(year/2)-major* FEs

Return

Peer effects estimation results, by major (mean peer attitudes)

View	Pre	Pre	Post	Post
Major variable	Preferred	Actual	Preferred	Actual
Social Sciences	-0.005 (0.036)	-0.002 (0.03)	0.024 (0.044)	0.021 (0.027)
Business	-0.015 (0.031)	-0.035 (0.025)	0.052 (0.033)	-0.038 (0.028)
Humanities & Arts	0.005 (0.054)	0.005 (0.031)	0.041 (0.052)	0.049 (0.031)
Health & Education	-0.001 (0.043)	-0.05 (0.049)	-0.006 (0.035)	-0.004 (0.045)
STEM	0.032 (0.03)	0.091** (0.035)	-0.032 (0.034)	0.042 (0.029)

Return

Political segregation across majors

- Students' baseline views align with their peers' views (slope=0.44)
- Controlling for college and year FEs decreases the est. slope to 0.11

→ College segregation is greater than major segregation within colleges

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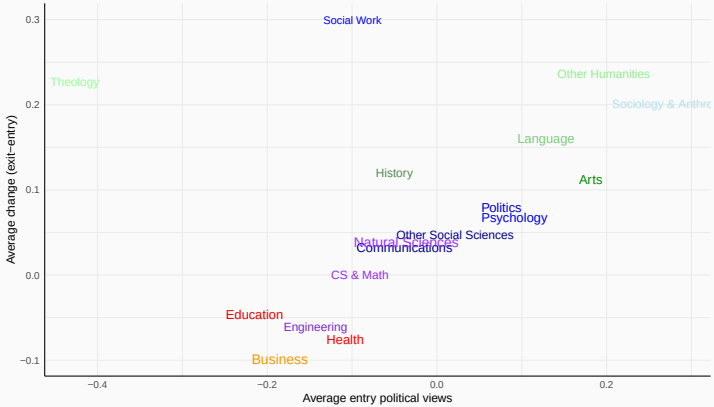
Selection into majors and the effects of majors



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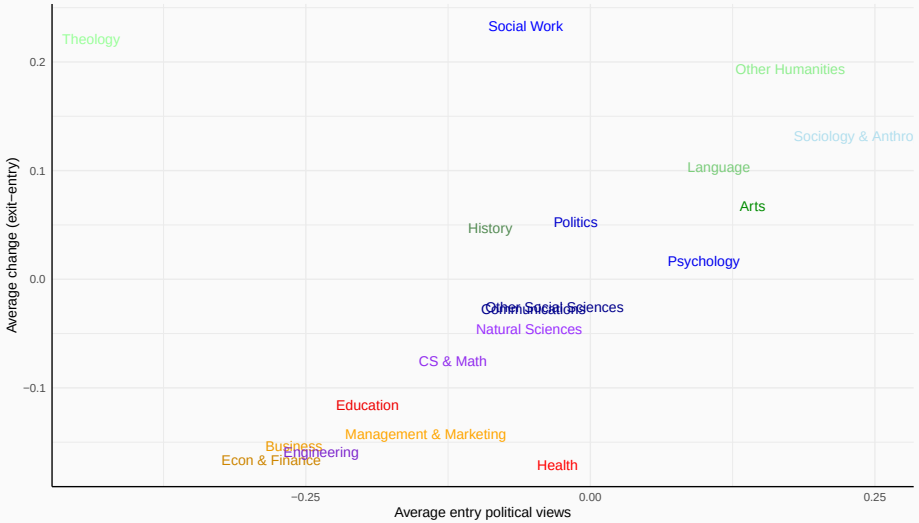
- Students' baseline views align with the effects of the majors they choose
- This may induce polarization
- A notable outlier is theology studies

Selection into majors and the effects of majors, 1990–1994



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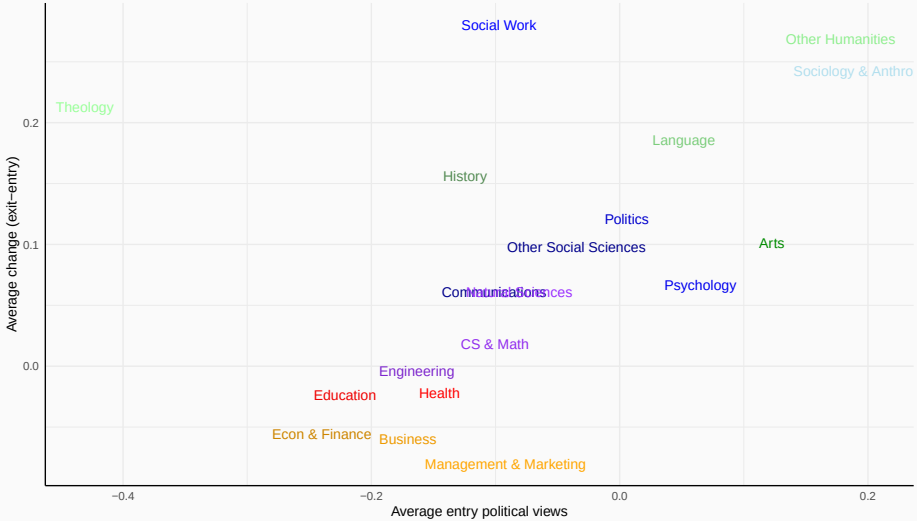
Selection into majors and the effects of majors, 1995–1999



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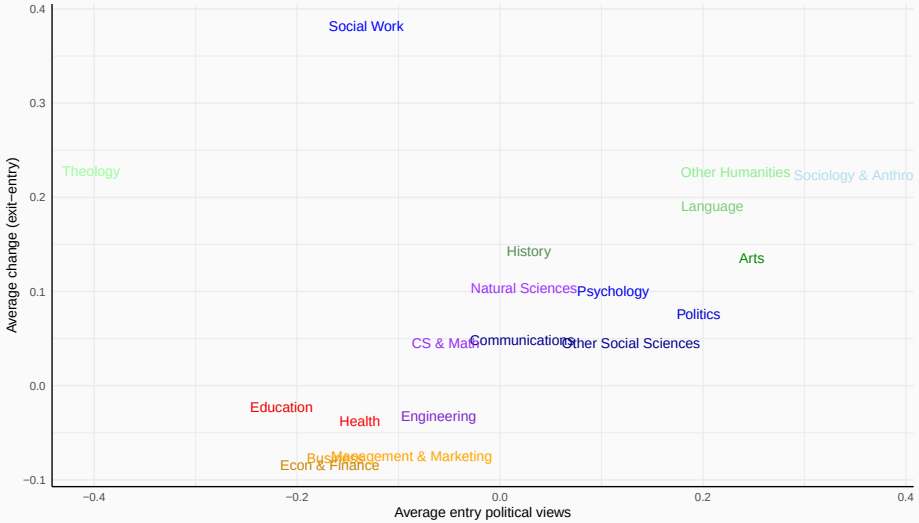
Selection into majors and the effects of majors, until 2000-2005



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