

The Effects of State Mandated Financial Education on College Financing Behaviors

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Motivation

- Returns to college degrees are high and rising (Goldin and Katz, 2009; Oreopoulos and Petronijevic 2013).
- Federal government subsidizes student borrowing for postsecondary education.
- Identifying optimal aid package for postsecondary education is challenging.
 - ▶ Current policy rhetoric around *reducing* student loan debt by limiting public loans. SL Default
 - ▶ Evidence students actually under-invest due to credit constraints (Avery and Turner, 2012; Lochner and Moge-Naranjo, 2011 & 2015; Hoxby and Turner, 2015; Hoxby and Avery, 2014).

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Do students have enough information to make borrowing decisions?

- First large financial decision young adults make.
- Most information about student loans online or focused on repayment (Fernandez. et. Al., 2015).
- Low financial literacy: 27% of 23-28 year olds correctly answer 3 questions on interest, inflation, and diversification (Lusardi and Mitchell, 2010).
- Lusardi (2016) reports statistics from NFCS:
 - ▶ 54% of student loan borrowers did not calculate their future monthly payments prior to choosing a loan.
 - ▶ 53% said they would make a change if they could make financial aid decisions again
 - ★ 11 percentage points higher for those with private loans.

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Federal Application for Student Aid (FAFSA) is a barrier for students:

- Dynarksi and Scott-Clayton (2006)
- Bettinger et Al. (2012)
- Castleman and Page (2016)
- 2.9 million undergraduate students do not apply for federal aid when they would have received Pell Grants (Kantrowitz, 2009)

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A Policy Response

One potential response is personal finance coursework in high school:

- Required for all students prior to graduation (22 states).

Research Question: Can financial education requirements in high school change students' initial financial aid packages?

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- Required for all students prior to graduation (22 states).

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Other Policy Responses

- Campus-based interventions suggest some groups change student loan behavior when they get more information:
 - ▶ Barr et. Al. (2016), Castleman and Page (2016), Schmeiser et. Al. (2016), Stoddard et. Al. (2016)
- Behavioral economics literature finds that framing, debt-aversion, fixed costs of borrowing, and self-control all play a role.
 - ▶ Marx and Turner (2016), Field (2009), Marx and Turner (2015), Cadena and Keys (2013)

Our Paper

- Use a difference-in-difference (DD) strategy to understand how students before and after the graduation requirement in states with and without personal finance course requirements change financial aid packages.
- Understand for whom financial education changes behavior?
- Use CPS data to show that personal finance education does not change college enrollment or institution choice.

High School Financial Education

Previous research has studied the effect of state-mandated financial education in high school on a variety of outcomes.

Knowledge: Tennyson and Nguyen (2001)

Savings: Bernheim et. Al. (2001), Cole et. Al. (2013)

Credit: Cole et. Al (2013); Brown et. Al. (2016); Urban et. Al. (2014)

High School Financial Education

What happens in high school financial education courses?

- Calculating and comparing interest rates
- Understanding credit scores
- Incurring long-term debt: mortgages, auto loans
- Using credit cards
- Examining how incomes may fluctuate
- Insuring against risk

High School Financial Education

Some states directly teaching student loans in curricula.

- For example, in Texas, the State Board of Education requires that all students “understand the various methods available to pay for college and other postsecondary education and training.”
- Includes
 - ▶ understanding how to complete the FAFSA
 - ▶ researching and evaluating scholarship opportunities
 - ▶ comparing grant options, comparing private and federal student loans
 - ▶ evaluating work-study options
 - ▶ investigating any non-traditional methods of financing college or training

Mechanisms

- Not sure if loan amounts should go up or down.
- Define other areas where financial education could change behavior:
 - ▶ Applying for aid
 - ▶ Obtaining grants or scholarship
 - ▶ Credit Card balances
 - ▶ Private vs. Public Loans
 - ▶ Stafford, subsidized/unsubsidized loans with lower interest rates than private.

National Postsecondary Student Aid Study (NPSAS)

- Nationally representative study of students enrolled in higher education.
- Detailed data on financial aid extracted from institutional data.
- Paired with student survey data: demographics, high school degree, family background, credit card balances, and work.
- 2000, 2004, 2008, 2012 waves.
- Focus on 4-year public and private institutions.
- First semester freshmen only.
- 17, 18, and 19 year olds.

Methods

- Compare students within the same treatment state that graduate the years before and after the requirement.
- Compare students in control states across years.
- Compare the difference within treatment states and the differences within control states.
- We cluster standard errors at the state level.

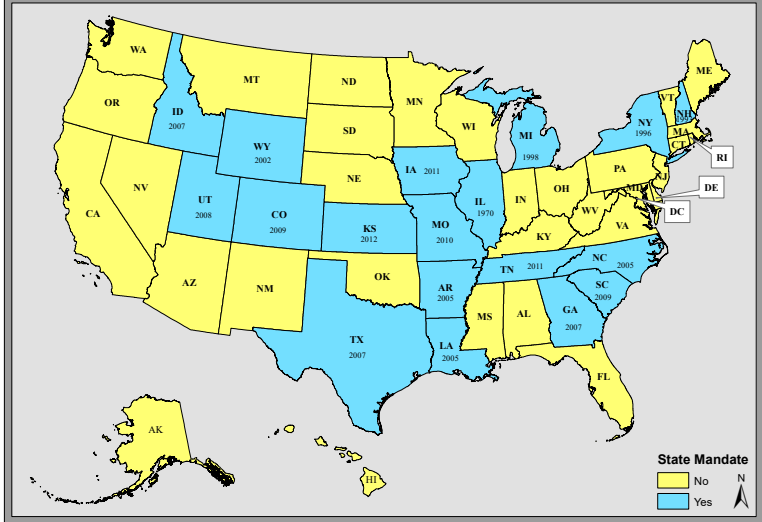
Methods

$$Y_{i,s,t} = \alpha_0 + \alpha_1 \text{PF Required}_{i,s,t} + \beta \mathbf{X}_i + \delta_s + \gamma_t + \epsilon_{i,s,t} \quad (1)$$

- $Y_{i,s,t}$ Apply for aid, no loans at all, Stafford (sub, unsub), credit card use, working status.
- PF Required $_{i,s,t}$ state required personal finance prior to graduation for individual i in state s graduating in year y
- \mathbf{X}_i contain: male, race dummies, age dummies, dependent status, EFC, parent education
- δ_s are state fixed effects
- γ_t are year fixed effects

State-mandated Personal Finance Education in US High Schools

Date: 06/30/2017



Predicting Personal Finance

	PF
Governor is Democrat	0.00125 (0.035)
Unemployment rate	-0.02940 (0.021)
Medicaid beneficiaries	-0.00006 (0.000)
SSI recipients	-0.00123 (0.002)
Gross State Product	0.00004 (0.001)
Poverty Rate	-0.00078 (0.007)
Population	0.09944 (0.098)
Food Stamp/SNAP Recipients	0.00008 (0.000)
N	1,145

Results

Financial Education increases applications for aid and federal aid taken.

	Applied for Aid	Have Stafford	Sub Stafford \$s	Unsub Stafford \$s	Have Grant
PF	0.033* (0.013)	0.053* (0.022)	106.25+ (61.95)	0.024 (76.92)	0.031+ (0.017)
N	25,354	25,354	25,354	25,354	25,354
Mean	0.92	0.558	\$1,275	\$1,007	0.748

Results

Financial Education decreases private lending and decreases credit card balances.

	Private Loan	Private Loan \$s	Have CC Balance	Work while Enrolled
PF	-0.003 (0.007)	-151.99* (65.83)	-0.021* (0.008)	-0.014 (0.014)
N	25,354	25,354	25,354	25,354
Mean	0.114	\$803	0.095	0.454

Results Across EFC

	Applied for Aid	Sub Staff	Unsub Staff	Have Grant	Private Loan	CC Bal	Work
<u>EFC < \$4K</u>							
PF	0.021* (0.009)	183.151+ (107.465)	77.248 (98.965)	0.032** (0.010)	42.802 (72.076)	-0.019 (0.015)	-0.046* (0.022)
N	9,400	9,400	9,400	9,400	9,400	9,400	9,400
Mean	0.968	1,878	922	0.935	529	0.125	0.479
<u>EFC > \$4K</u>							
PF	0.039* (0.017)	29.242 (51.608)	-41.603 (76.717)	0.028 (0.027)	-272.740** (86.435)	-0.021* (0.008)	0.011 (0.018)
N	16,307	16,307	16,307	16,307	16,307	16,307	16,307
Mean	0.884	924	1,053	0.640	958	0.079	0.439

Effects Across Race

	Applied for Aid	Sub Staff	Unsub Staff	Have Grant	Private Loan	CC Bal	Work
<u>White</u>							
PF	0.034* (0.015)	9.95 (63.75)	-121.06 (76.55)	0.031 (0.026)	-230.70** (68.35)	-0.022* (0.010)	-0.014 (0.023)
N	17,996	17,996	17,996	17,996	17,996	17,996	17,996
Mean	0.898	1,176	983	0.723	898	0.078	0.452
<u>African American</u>							
PF	-0.001 (0.008)	261.21* (127.30)	452.14** (161.98)	-0.029 (0.023)	-51.36 (123.05)	-0.010 (0.029)	0.008 (0.032)
N	2,859	2,859	2,859	2,859	2,859	2,859	2,859
Mean	0.986	2,009	1,696	0.875	712	0.130	0.388
<u>Hispanic</u>							
PF	0.040* (0.015)	301.55* (127.38)	151.18 (130.55)	0.037 (0.024)	-162.78 (269.15)	0.031 (0.022)	0.038 (0.040)
N	2,524	2,524	2,524	2,524	2,524	2,524	2,524
Mean	0.959	1,461	953	0.822	704	0.131	0.465

Results are robust to:

- Controlling for family income instead of EFC, tuition with EFC, or SAT scores.
- Adding state linear time trends.
- Controlling for state unemployment rates or house prices.
- Accounting for other high school graduation policy changes:
 - ▶ Total math credits required.
 - ▶ Highest math level required.
 - ▶ Total credits required.
 - ▶ ACT/SAT required.
 - ▶ Common core.

Pre-Trends

- DD requires that the trends in the treatment and control groups are parallel in the pre-period (and would have remained parallel in the absence of the policy).
- Create 2 variables = 1 if the student was 19 or 20 in a state where personal finance was required in his high school for those 18 and younger.
- Not precisely a “pre trend” since the course was not *required* until the mandate took place, but some schools within states piloted programs early.
 - ▶ This is because mandates generally take at least 3 years to be a requirement.

Pre-Trends

	Applied for Aid	Sub Staff	Unsub Staff	Have Grant	Private Loan	CC Bal	Work
PF_{t+1}	0.007 (0.017)	94.185 (74.955)	7.912 (97.362)	0.076+ (0.044)	45.020 (188.144)	0.012 (0.022)	-0.014 (0.026)
PF_{t+2}	-0.012 (0.016)	86.455 (58.394)	-102.685 (68.318)	-0.017 (0.035)	43.349 (138.451)	0.029 (0.020)	-0.003 (0.020)
N	12,822	12,822	12,822	12,822	12,822	12,822	12,822

Choice of Institution

NPSAS Sample only includes college students.

- Are students exposed to financial education and more likely to:
 - ▶ Go to college.
 - ▶ Choose a college with a different tuition level.
 - ▶ Choose a different type of education.
 - ▶ Choose a more selective college.
 - ▶ Choose a different financing plan conditional on this initial choice.
 - ▶ Choose a different major.

Choice of Institution

Personal Finance courses do not change choice of institution in NPSAS data.

	Private	Tuition & Fees	In State	Four yr
PF	-0.002 (0.042)	-680.349 (669.963)	-0.020 (0.016)	-0.010 (0.051)
N	25,354	22,437	25,354	44,729

Choice of Institution

Obtain data from the CPS

- 1995-2013
- Keep 18-20 year olds
- Determine if personal finance requirements in high school affected college attendance.

Choice of Institution

	College	Full Time	Part Time
PF	-0.009 (0.017)	-0.008 (0.018)	-0.001 (0.005)
PF -1	-0.006 (0.019)	-0.010 (0.021)	0.004 (0.005)
PF -2	-0.000 (0.019)	-0.007 (0.020)	0.007 (0.006)
PF -3	-0.001 (0.016)	-0.003 (0.018)	0.001 (0.005)
PF -4	0.001 (0.015)	0.009 (0.018)	-0.008 (0.005)
PF -5	0.008 (0.017)	0.015 (0.018)	-0.007 (0.005)
PF -6	-0.018 (0.017)	-0.014 (0.018)	-0.004 (0.005)
PF -7	-0.013 (0.017)	-0.011 (0.019)	-0.002 (0.004)
...			
N	510,933	510,933	510,933

Conclusions

- High school financial education may change initial aid packages to result in more public loans, fewer private loans, less credit card balances, and more outside aid.
- Higher income families reduce private loans, while lower income families increase public borrowing (but reduce working).
- Fin ed may reduce barriers to financial aid (e.g., applying on time).
- Full picture needs to be studied in order to understand how more information can change borrowers' decisions.

Conclusions

- Policy responses to student loan decisions need to consider pre-college interventions vs. current solutions centered around repayment.
- Other policies are costly (i.e., individualized counseling).
- ...or are not necessarily externally valid (i.e., RCTs on one college campus at a time).

Descriptive Statistics

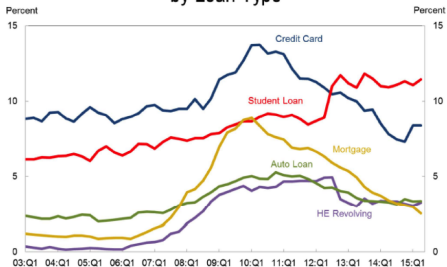
	No PF	PF	Both
Applied for Aid	0.907 (0.291)	0.934 (0.248)	0.915 (0.279)
Stafford Loan	0.540 (0.498)	0.599 (0.490)	0.558 (0.497)
Subsidized Stafford \$s	1,195 (1,488)	1,464 (1,598)	1,275 (1,526)
Unsubsidized Stafford \$s	912 (1,601)	1,232 (1,839)	1,007 (1,681)
Have Grant	0.865 (0.342)	0.664 (0.472)	0.748 (0.434)
Private Loan	0.111 (0.314)	0.120 (0.325)	0.114 (0.317)
Private Loan \$s	782 (3,034)	852 (3,133)	803 (3,064)
Have CC Balance	0.096 (0.295)	0.094 (0.292)	0.095 (0.294)
Work while Enrolled	0.468 (0.499)	0.420 (0.494)	0.454 (0.498)

Descriptive Statistics

	No PF	PF	Both
Male	0.442 (0.497)	0.441 (0.497)	0.442 (0.497)
White	0.732 (0.443)	0.657 (0.475)	0.710 (0.454)
Black	0.097 (0.296)	0.150 (0.357)	0.113 (0.316)
Hispanic	0.091 (0.288)	0.120 (0.325)	0.100 (0.299)
Age 19	0.364 (0.481)	0.319 (0.466)	0.351 (0.477)
Dependent	0.974 (0.160)	0.971 (0.169)	0.973 (0.163)
EFC (000s)	14.7 (18.7)	14.6 (19.4)	14.7 (18.9)
Parent HS Grad	0.182 (0.386)	0.184 (0.388)	0.182 (0.386)
Parent Some Coll	0.204 (0.403)	0.222 (0.416)	0.209 (0.407)

Motivation

Percent of Balance 90+ Days Delinquent by Loan Type



Source: FRBNY Consumer Credit Panel/Equifax

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Descriptive Statistics

	No PF	PF	Both
Only Loans in Aid Pkg	0.0802 (0.2716)	0.0561 (0.2302)	0.0725 (0.2594)
Private loan	0.0807 (0.2724)	0.0785 (0.2689)	0.0800 (0.2713)
Private loan \$s	519 (2,424)	510 (2,404)	516 (2,418)
Have CC Balance	0.1129 (0.3165)	0.1108 (0.3139)	0.1122 (0.3157)
Work while Enrolled	0.5640 (0.4959)	0.5377 (0.4986)	0.5556 (0.4969)

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Policy Heterogeneity

Rigorous, 11

AR (2005), CO (2009), GA (2007), ID (2007), IA (2011), MO (2010), NC (2005), SC (2009), TN (2011), TX (2007), UT (2008)

Pre-2000 Mandates, 4 states

IL (1970), MI (1998), NH (1993), NY (1996)

Less Rigorous, 4

NE (2011), NM (2003), SD (2006), WY (2002)

Excluded, 8

AZ (various), CT (various), KS (2012), LA (2005), NJ (2011)
OR (2013), VA (2008), WV (various)

Controls, 23 states

AL, AK, CA, DE, FL, HI, IN, KY, ME, MD, MA, MN, MS, MT, NV, ND,
OH, OK, PA, RI, VT, WA, WI

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