

Paralysis by Analysis? Effects of Information on Student Loan Take-up

Benjamin M. Marx

Lesley J. Turner

Univ. Illinois - Urbana Champaign

Vanderbilt University & NBER

October 2019

Motivation

Large average private returns to college degree

(Barrow & Malamud 2015)

Motivation

Large average private returns to college degree

(Barrow & Malamud 2015)

College enrollment and completion may be suboptimally low

- ▶ Credit constraints, positive externalities
- ▶ Student optimization errors (e.g., wrt borrowing)
(Cadena & Keys 2013; Marx & Turner 2018)
- ▶ Increasing disparities in family-income gap in degree receipt
(Bound, Lovenheim, S. Turner 2010; Bailey & Dynarski 2011)

Motivation

Large average private returns to college degree

(Barrow & Malamud 2015)

College enrollment and completion may be suboptimally low

- ▶ Credit constraints, positive externalities
- ▶ Student optimization errors (e.g., wrt borrowing)
(Cadena & Keys 2013; Marx & Turner 2018)
- ▶ Increasing disparities in family-income gap in degree receipt
(Bound, Lovenheim, S. Turner 2010; Bailey & Dynarski 2011)

Rationale for expenditures (grants, loans, tax credits) by federal and state governments

Are students overborrowing?


Outstanding student loan debt \approx \$1.5 trillion (FRBNY 2019)

Risk of nonpayment, delinquency, and default, especially for sub-BA borrowers (Looney & Yannelis 2015)

68,270 views | Feb 25, 2019, 08:32am

Student Loan Debt Statistics In 2019: A \$1.5 Trillion Crisis




Zack Friedman Senior Contributor 
Personal Finance



68,270 views | Feb 25, 2019, 08:32am

Student Loan Debt Statistics In 2019: A \$1.5 Trillion Crisis



Zack Friedman Senior Contributor 

Personal Finance

The Washington Post

Democracy Dies in Darkness

Business

Student debt has kept home ownership out of reach for 400,000 young families, Fed reports

Young Americans dropping out of the housing market

Homeownership rate for all households and for those under age 35

Personal Finance

The Student Loan Debt Crisis Is About to Get Worse

BROOKINGS

CITIES & REGIONS GLOBAL DEVELOPMENT INTERNATIONAL AFFAIRS U.S. ECONOMY

SERIES: Evidence Speaks



REPORT

The looming student loan default crisis is worse than we thought

Judith Scott Clayton · Thursday, January 11, 2018

Are students overborrowing?

Policy response has focused on reducing borrowing through

- ▶ **Financial literacy and/or adtl. information**
- ▶ “Offering” loans < federal eligibility limit
- ▶ Comprehensive debt reduction initiatives
- ▶ Exiting from federal student loan programs

Background: Causes & Consequences of Borrowing

No effect of in-college information interventions (Booij, Leuven; Oosterbeek 2012; Darolia & Harper 2018)

Background: Causes & Consequences of Borrowing

No effect of in-college information interventions (Booij, Leuven; Oosterbeek 2012; Darolia & Harper 2018)

Nonbinding loan “offers” increase borrowing (Marx & Turner 2019)

Background: Causes & Consequences of Borrowing

No effect of in-college information interventions (Booij, Leuven; Oosterbeek 2012; Darolia & Harper 2018)

Nonbinding loan “offers” increase borrowing (Marx & Turner 2019)

Interventions at the time of the borrowing decision could affect borrowing through:

- ▶ Information about choice set
- ▶ Recommended/reference amounts

Background: Causes & Consequences of Borrowing

No effect of in-college information interventions (Booij, Leuven; Oosterbeek 2012; Darolia & Harper 2018)

Nonbinding loan “offers” increase borrowing (Marx & Turner 2019)

Interventions at the time of the borrowing decision could affect borrowing through:

- ▶ Information about choice set
- ▶ Recommended/reference amounts

Increased attainment when students have access to fed. loans (Dunlop 2013; Wiederspan 2016) or are nudged to borrow (Barr, Bird, & Castleman 2019; Marx & Turner 2019)

This study

Field experiment at anon. community college

This study

Field experiment at anon. community college

Information treatments via email

- ▶ Reminder of option to borrow less than the loan amount listed in award letter
- ▶ Reference to amounts borrowed by recent graduates (conditional and unconditional)

Setting: federal student loans

~90% of total educational lending

Setting: federal student loans

~90% of **total educational lending**

Students at participating colleges can borrow from fed govt

- ▶ Federal application (FAFSA)
- ▶ Subsidized loans for those with unmet need
- ▶ All FAFSA filers informed of federal loan and Pell Grant eligibility

Setting: Large Anonymous Community College

Similar rates of financial aid receipt as **average community college**

- ▶ 54% of students receive Pell Grants (vs. 41%)
- ▶ 15% of students with federal loans (vs. 19%)

Setting: Large Anonymous Community College

Similar rates of financial aid receipt as **average community college**

- ▶ 54% of students receive Pell Grants (vs. 41%)
- ▶ 15% of students with federal loans (vs. 19%)

Financial aid award letters include max subsidized loan



Financial Aid Awards Status

2015 : (Fall 2014 - Summer 2015)

Welcome Finny Aid

Your initial award is based on full time enrollment. Credited amount is based on your current enrollment. If your enrollment changes, your awards will be adjusted accordingly. Future sessions will be disbursed later in the term.

To Accept/Decline/Reduce your Direct Subsidized Loan you must visit the Financial Aid "Application Status" screen.

Awards by Term	Fall		Winter		Summer	
	Award	Credited	Award	Credited	Award	Credited
DIRECT LOAN SUBSIDIZED	\$750.00		\$750.00			
Federal Pell Grant	\$2,865.00		\$2,865.00			
Total all awards	\$3,615.00		\$3,615.00			



Financial Aid Application Status

2015 : (Fall 2014 - Summer 2015)

Welcome Finny Aid




View Awards

Documents with RED FLAGS must be resolved. Click on a document for forms. Click on Document Details for more information.

Required Documents (3)

Document Details

Financial Aid Forms

- DOB Discrepancy 
- Conft: Marital stat 
- Entrance Interview 



Financial Aid Application Status

2015 : (Fall 2014 - Summer 2015)

Welcome Finny Aid

View Awards

Documents with RED FLAGS must be resolved. Click on a document for forms. Click on Document Details for more information.

Required Documents (3)

Document Details

Financial Aid Forms

- DOB Discrepancy
- Conft: Marital stat
- Entrance Interview

The experiment

Experimental sample ($N = 13,065$):

- ▶ 2016-17 FAFSA filers who had received a financial aid award
- ▶ Had not made a borrowing decision by late August
- ▶ Broadly similar to [2016 NPSAS comm. college students](#)

Control + 3 treatment groups

Baseline characteristics [balanced](#) across treatment groups

Control group email

An important email from your [LACC] Financial Aid Office

YOUR ID#:

Dear [student name],

Don't forget, your estimated financial aid package for 2016-17 has been posted to your [LACC] account.

Please make your student loan decision by Tuesday, September 6. You can accept, decline, or alter the Federal Direct Subsidized loan offer you have received by logging in to [LACC portal] -> Financial Aid -> Application Status and select the Accept/ Decline loan document.

Have a wonderful and successful year!

[LACC]

Office of Financial Aid

For more information please visit the financial aid website at [LACC website].

T1: Information treatment

An important email from your [LACC] Financial Aid Office

YOUR ID#:

Dear [student name],

Don't forget, your estimated financial aid package for 2016-17 has been posted to your [LACC] account.

Please make your student loan decision by Tuesday, September 6. You can accept, decline, or alter the Federal Direct Subsidized loan offer you have received by logging in to [LACC portal] -> Financial Aid -> Application Status and select the Accept/ Decline loan document.

The amount of Federal Direct Subsidized loan offered in your award letter is the maximum amount you are eligible to borrow through the program. ***You do not have to borrow this full amount.***

Have a wonderful and successful year!

[LACC]

Office of Financial Aid

For more information please visit the financial aid website at [LACC website].

T2: Information + high reference point

An important email from your [LACC] Financial Aid Office

YOUR ID#:

Dear [student name],

Don't forget, your estimated financial aid package for 2016-17 has been posted to your [LACC] account.

Please make your student loan decision by Tuesday, September 6. You can accept, decline, or alter the Federal Direct Subsidized loan offer you have received by logging in to [LACC portal] -> Financial Aid -> Application Status and select the Accept/ Decline loan document.

The amount of Federal Direct Subsidized loan offered in your award letter is the maximum amount you are eligible to borrow through the program. ~~You do not have to borrow this full amount!~~ Last school year, the average subsidized loan borrower who graduated borrowed about \$3000. Log into [LACC portal] if you wish to reduce or decline your loan.

Have a wonderful and successful year!

[LACC]

Office of Financial Aid

For more information please visit the financial aid website at [LACC website].

T3: Information + low reference point

An important email from your [LACC] Financial Aid Office

YOUR ID#:

Dear [student name],

Don't forget, your estimated financial aid package for 2016-17 has been posted to your [LACC] account.

Please make your student loan decision by Tuesday, September 6. You can accept, decline, or alter the Federal Direct Subsidized loan offer you have received by logging in to [LACC portal] -> Financial Aid -> Application Status and select the Accept/ Decline loan document.

The amount of Federal Direct Subsidized loan offered in your award letter is the maximum amount you are eligible to borrow through the program. ***You do not have to borrow this full amount.*** Last school year, the average student who graduated borrowed about \$800. Log into [LACC portal] if you wish to reduce or decline your loan.

Have a wonderful and successful year!

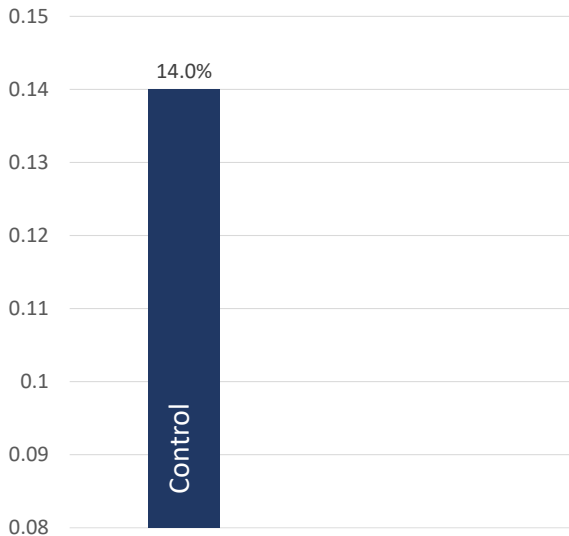
[LACC]

Office of Financial Aid

For more information please visit the financial aid website at [LACC website].

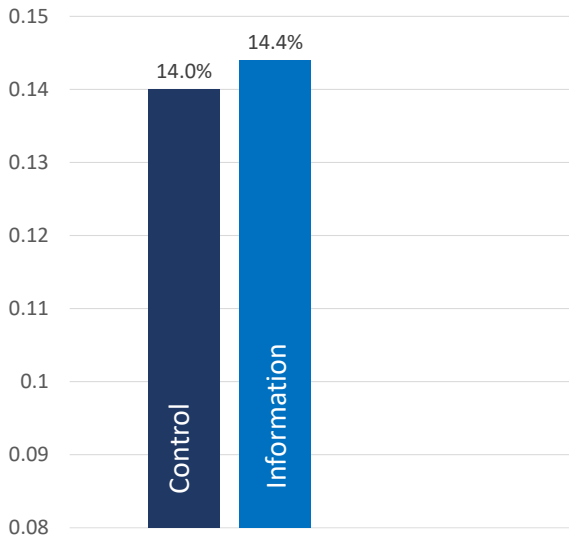
Effects on borrowing

Any borrowing?



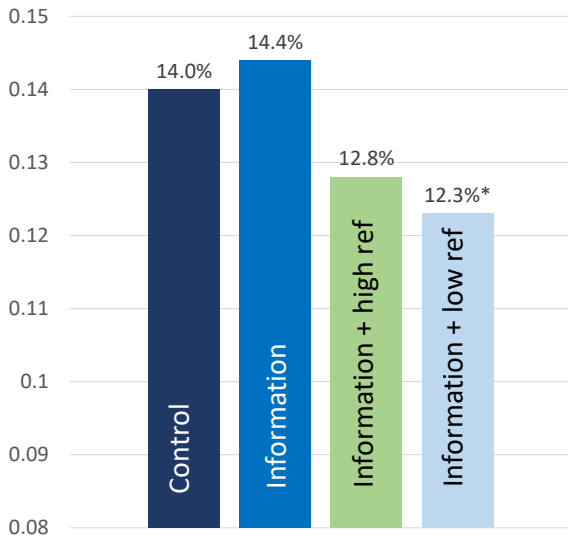
Notes: ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Any borrowing?



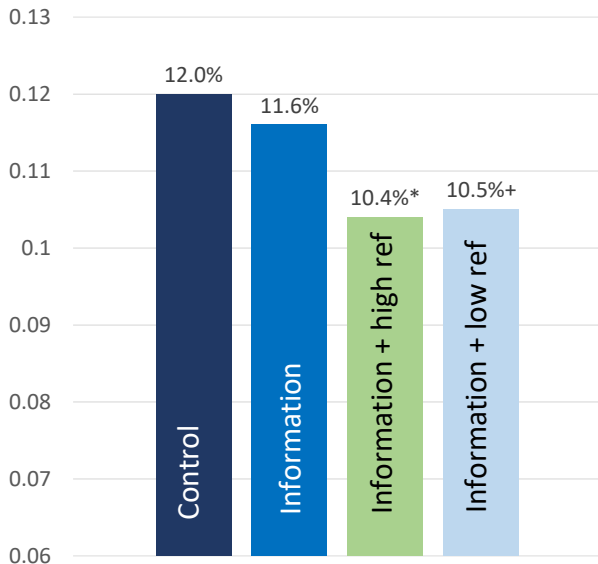
Notes: ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Any borrowing?



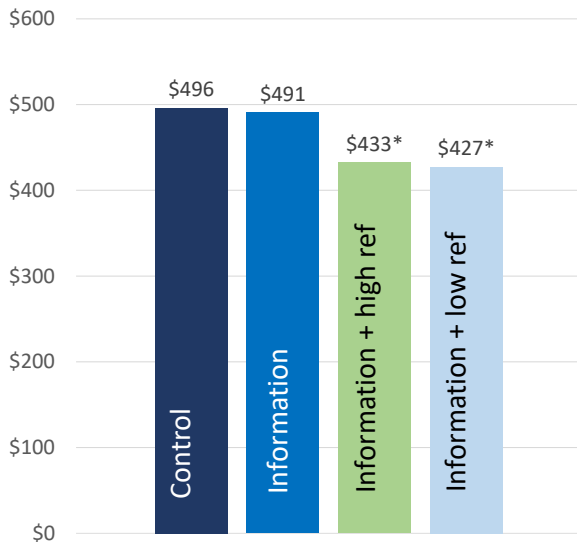
Notes: ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Borrowed max



Notes: ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Amount borrowed



Notes: ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

	(1) Any borrowing	(2) Amount borrowed	(3) Amount = max
<i>A. Control group mean</i>	0.14	496 (1287)	0.12
<i>B. OLS estimates</i>			
Pooled reference point treatments	-0.016 (0.006)**	-64.7 (21.7)**	0.014 (0.006)*
Percent change	-11%	-13%	12%
Observations	13,065	13,065	13,065

Notes: Robust standard errors in parentheses; ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

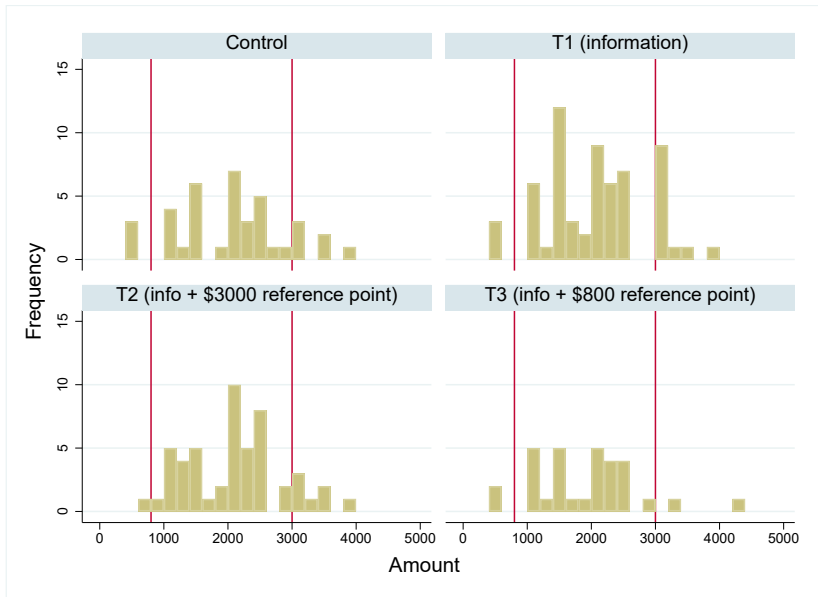
Estimates are robust to

Including randomization strata fixed effects

Including controls for baseline attainment

Including students who do not enroll

No evidence of shifting to loans $\in (0, max)$



Notes: LACC experimental sample students who borrowed a positive amount that was less than the maximum amount available to the student (N = 181).

Why?

Results do not appear consistent with information acquisition

Why?

Results do not appear consistent with information acquisition

Students may be overwhelmed by added reference points
("cognitive overload")

- ▶ Changes in intensive margin complexity affects extensive margin retirement and charitable giving decisions (Edwards & List 2014; Goldin et al. 2019)
- ▶ Similar to "choice overload" where contributing factors incl. choice set complexity and preference uncertainty (Scheibehenne et al. 2010; Chernev et. al. 2015)

Why?

Results do not appear consistent with information acquisition

Students may be overwhelmed by added reference points
("cognitive overload")

- ▶ Changes in intensive margin complexity affects extensive margin retirement and charitable giving decisions (Edwards & List 2014; Goldin et al. 2019)
- ▶ Similar to "choice overload" where contributing factors incl. choice set complexity and preference uncertainty (Scheibehenne et al. 2010; Chernev et al. 2015)

Testable?

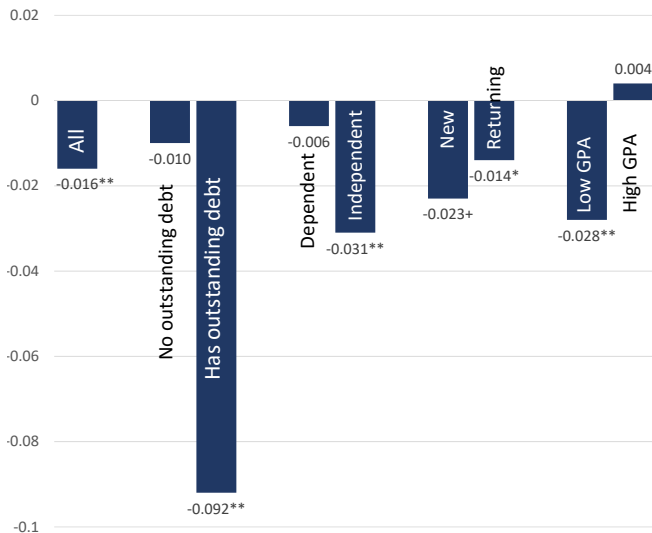
- ▶ Active non-borrowing vs. inaction
- ▶ Heterogeneity analysis

Reduction in borrowing driven by inaction

	(1) Any borrowing	(2) Active nonborrower	(3) No decision
<i>A. Control group mean</i>	0.14	0.22	0.64
<i>B. OLS estimates</i>			
Pooled reference point treatments	-0.016 (0.006)**	-0.0004 (0.007)	0.017 (0.008)*
Observations	13,065	13,065	13,065

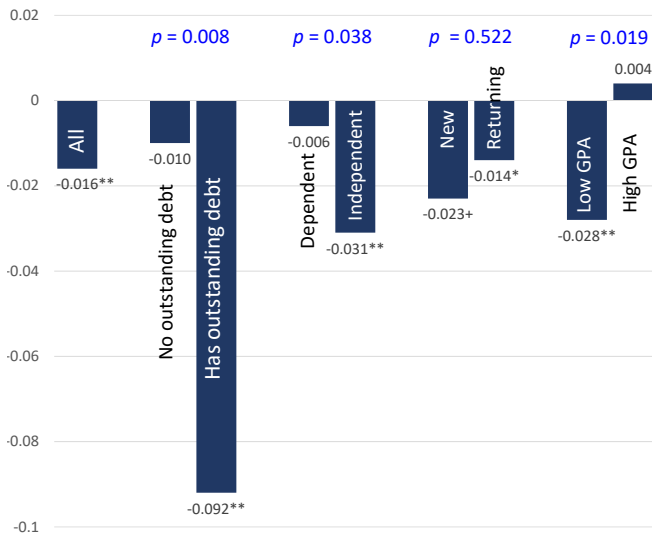
Notes: Robust standard errors in parentheses; ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.
[All treatments]

Heterogeneous effects: any borrowing



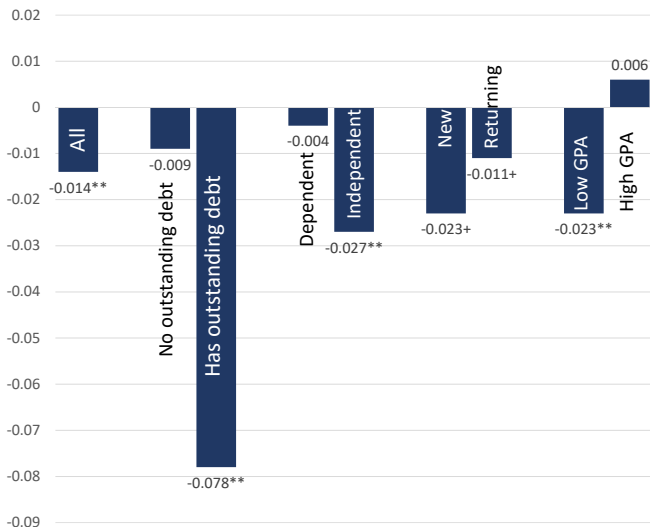
Notes: OLS estimates of reference-point treatment effects on the probability of borrowing. ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Point estimates\]](#) [\[Other outcomes\]](#) [\[Prior borrowers\]](#)

Heterogeneous effects: any borrowing



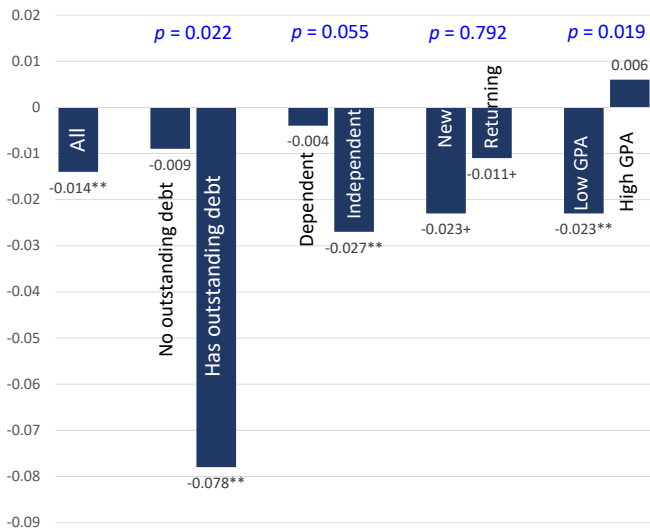
Notes: OLS estimates of reference-point treatment effects on the probability of borrowing. ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Point estimates\]](#) [\[Other outcomes\]](#) [\[Prior borrowers\]](#)

Heterogeneous effects: borrowing the max



Notes: OLS estimates of reference-point treatment effects on the probability of borrowing the maximum available loan. ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Point estimates\]](#) [\[Other outcomes\]](#) [\[Prior borrowers\]](#)

Heterogeneous effects: borrowing the max



Notes: OLS estimates of reference-point treatment effects on the probability of borrowing the maximum available loan. ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Point estimates\]](#) [\[Other outcomes\]](#) [\[Prior borrowers\]](#)

Summary

Student borrowers overwhelmingly take-up the amount listed on their award letter

- ▶ Not caused by a lack of awareness of the option to borrow less

Summary

Student borrowers overwhelmingly take-up the amount listed on their award letter

- ▶ Not caused by a lack of awareness of the option to borrow less

Providing an additional reference to amounts borrowed by recent graduates:

- ▶ Did not lead any student to borrow the referenced amount
- ▶ Reduced the likelihood a student took a loan of any amount
- ▶ Effects concentrated among past borrowers, nontraditional students, low-GPA students

Summary

Student borrowers overwhelmingly take-up the amount listed on their award letter

- ▶ Not caused by a lack of awareness of the option to borrow less

Providing an additional reference to amounts borrowed by recent graduates:

- ▶ Did not lead any student to borrow the referenced amount
- ▶ Reduced the likelihood a student took a loan of any amount
- ▶ Effects concentrated among past borrowers, nontraditional students, low-GPA students

Consistent with students being overwhelmed when provided with multiple reference points (between the offer letter and email)

Policy implications

Providing additional information via email may be effective in reducing borrowing

- ▶ Effects are comparable to or larger than those obtained by other initiatives
- ▶ Potentially negative effects on academic achievement

Policy implications

Providing additional information via email may be effective in reducing borrowing

- ▶ Effects are comparable to or larger than those obtained by other initiatives
- ▶ Potentially negative effects on academic achievement

Timing matters

Policy implications

Providing additional information via email may be effective in reducing borrowing

- ▶ Effects are comparable to or larger than those obtained by other initiatives
- ▶ Potentially negative effects on academic achievement

Timing matters

Information does not appear to help students and may have unintended consequences

Related work-in-progress

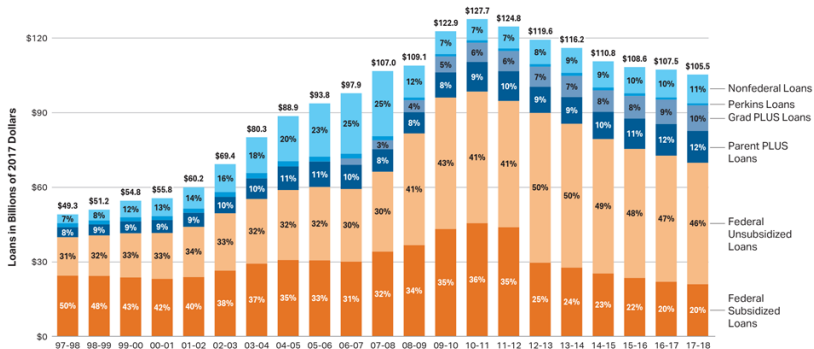
1. Effect of student loan debt on in-school labor supply and long-run attainment, earnings, and financial well-being (RCT + quasi-experimental variation)
2. Employer-provided loan repayment benefits and employee productivity, retention, and well-being
3. Effects of the Menu of Loan Contracts on Borrower Behavior

Thank you!

Lesley Turner
lesley.j.turner@vanderbilt.edu

Bonus slides

Federal and Nonfederal Loans over Time



Source: College Board, Trends in Student Aid 2018

[\[Back\]](#)

Community College Characteristics by Loan Offer Policies

	(1) Both	(2) Subsidized	(3) Neither
Number of institutions	323	19	454
Average undergraduate enrollment	14,037	18,483	11,642
Enrollment weighted percent of institutions	0.45	0.03	0.52
Offers BA degree(s)	0.12	0.05	0.07
Pell Grant aid			
Percent	0.40	0.36	0.37
Average receipt	\$3,663	\$3,784	\$3,670
Federal loan aid			
Percent	0.30	0.26	0.16
Average receipt	\$5,338	\$4,231	\$5,097
Cohort default rate	18.6	20.5	18.9

[\[Back\]](#)

Future work

End goal: develop low cost procedures that help students borrow the amount that is right for their circumstances

Additional information (provided with financial aid letter or via email)

- ▶ Ex: “You are eligible to take out a Federal Direct Loan from the U.S. government. After viewing your financial aid package, if you wish to take out a student loan then complete a loan request form at [URL link].”

Other potentially promising packaging policies:

- ▶ Active choice (choose desired loan amount) prior to award letter receipt
- ▶ Varying the amount of loan aid packaged (would \$1000 increase outcomes just as much as \$3500?)
- ▶ Providing students with a budgeting tool in conjunction with financial aid award

Reduction in borrowing driven by inaction

	(1) Any borrowing	(2) Active nonborrower	(3) No decision
T1 (can borrow other amt)	0.004 (0.009)	-0.001 (0.010)	-0.001 (0.012)
T2 (T1 + \$3000 ref point)	-0.012 (0.008)	-0.0001 (0.010)	0.012 (0.012)
T3 (T1 + \$800 ref point)	-0.017 (0.008)*	-0.003 (0.010)	0.020 (0.012)+
Tests of equality (p - val)			
All treatments	0.038	0.961	0.192
T1 = T2	0.058	0.842	0.244
T1 = T3	0.014	0.943	0.073
T2 = T3	0.573	0.786	0.532
Observations	13,065	13,065	13,065

Notes: Robust standard errors in parentheses; ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Comparison with nationally representative sample

	LACC experimental sample	2016 NPSAS CC students
<i>A. Demographics</i>		
Freshman	0.47	0.52
Gender = female	0.59	0.61
Race/ethnicity		
Black	0.44	0.22
Hispanic	0.39	0.25
White	0.34	0.69
Independent	0.44	0.49
<i>B. Finances</i>		
Expected family contribution	\$1,409	\$4,268
Pell Grant eligible	0.92	0.23
Financial need	\$8,419	\$9,695
Any fed. student loan debt	0.16	0.37
Outstanding federal student loans	\$766	\$5,062
<i>C. Outcomes</i>		
Borrowed	0.14	0.24
Amount borrowed	\$496	\$1,169
Academic year GPA	2.392	2.765
Degree receipt	0.15	0.16

Source: LACC experimental sample students who enrolled in fall 2016 (N=13,065) and FAFSA-filing community college students who enrolled in fall 2015 from the 2016 National Postsecondary Student Aid Study (NPSAS).

Race/ethnicity categories are not mutually exclusive. [\[Back\]](#)

Heterogeneous effects by stratification variables

Subgroup	Any borrowing		Amount borrowed		Amount = max	
	(1) Control mean	(2) Estimates	(3) Control mean, sd	(4) Estimates	(5) Control mean	(6) Estimates
No outstanding debt (N = 12,088)	0.116	-0.010 (0.006)+	410 (1165)	-40 (21)+	0.104	-0.009 (0.005)
Has outstanding debt (N = 977)	0.400	-0.092 (0.030)** [0.008]	1532 (1959)	-362 (121)** [0.009]	0.349	-0.078 (0.029)** [0.022]
Pell eligible (N = 12,047)	0.135	-0.017 (0.006)**	488 (1272)	-67 (22)**	0.120	-0.014 (0.006)*
Pell ineligible (N = 1,018)	0.164	-0.005 (0.023) [0.595]	558 (1326)	-29 (82) [0.661]	0.153	-0.009 (0.022) [0.811]
New student (N = 3,373)	0.170	-0.023 (0.013)+	577 (1297)	-86 (43)*	0.160	-0.023 (0.012)+
Returning student (N = 9,692)	0.126	-0.014 (0.007)* [0.522]	464 (1267)	-56 (25)* [0.549]	0.110	-0.011 (0.006)+ [0.792]
<30 credits earned (N = 8,155)	0.150	-0.016 (0.008)*	501 (1240)	-47 (27)+	0.133	-0.013 (0.007)+
30 or more credits earned (N = 4,910)	0.123	-0.018 (0.009)+ [0.855]	480 (1334)	-91 (36)* [0.327]	0.104	-0.016 (0.008)** [0.527]
Dependent student (N = 7,575)	0.102	-0.006 (0.007)	347 (1061)	-23 (24)	0.090	-0.004 (0.006)
Independent student (N = 5,490)	0.186	-0.031 (0.010)** [0.038]	694 (1500)	-118 (39)** [0.037]	0.167	-0.027 (0.010)** [0.055]

Notes: OLS estimates of treatment effects on borrowing outcomes among subgroups. Regressions for subgroups in each row jointly estimated. Bracketed numbers contain p-values from tests of equality of effects between mutually exclusive subgroups. Robust standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1.

Heterogeneous effects by baseline academic performance

	<u>Any borrowing</u>		<u>Amount borrowed</u>		<u>Amount = max</u>	
	(1) Control mean	(2) Estimates	(3) Control mean	(4) Estimates	(5) Control mean	(6) Estimates
Below median baseline GPA (N = 5,543)	0.141	-0.028 (0.009)**	518 (1320)	-106 (34)**	0.126	-0.023 (0.009)**
Above median baseline GPA (N = 4,149)	0.111	0.004 (0.009) [0.015]	410 (1210)	10 (36) [0.020]	0.094	0.006 (0.009) [0.019]

Notes: OLS estimates of treatment effects on borrowing outcomes among returning students (N = 9,692). Regressions for above- and below-median baseline GPA jointly estimated. Bracketed numbers contain pvalues of tests of equality of effects between the two subgroups. Robust standard errors in parentheses; ** p<0.01, * p<0.05, + p<0.1.

[\[Back\]](#)

Heterogeneous effects by baseline outstanding debt

	(1) Any borrowing	(2) Active nonborrower	(3) No decision
T2 (\$3000 ref point)			
* Outstanding debt < \$3000	-0.076 (0.059)	0.032 (0.058)	0.045 (0.060)
* Outstanding debt ≥ \$3000	-0.075 (0.043)+ [0.990]	0.027 (0.042) [0.950]	0.048 (0.043) [0.962]
T3 (\$800 ref point)			
* Outstanding debt < \$800	-0.067 (0.273)	0.054 (0.274)	0.013 (0.274)
* Outstanding debt ≥ \$800	-0.108 (0.036)** [0.880]	0.053 (0.036) [0.996]	0.056 (0.037) [0.877]

Notes: OLS estimates of treatment effects on borrowing outcomes among students with outstanding debt (N = 977). Bracketed numbers contain p -values of tests of equality of point estimates. Robust standard errors in parentheses; ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Robustness of estimated effects on borrowing

	(1) Any borrowing	(2) Amount borrowed	(3) Amount = max
<i>A. Baseline estimates</i>			
Pooled reference point treatments	-0.016 (0.006)**	-64.7 (21.7)**	-0.014 (0.006)*
Observations	13,065	13,065	13,065
<i>B. Strata fixed effects</i>			
Pooled reference point treatments	-0.016 (0.007)*	-62.4 (27.6)*	-0.013 (0.007)+
Observations	13,065	13,065	13,065
<i>C. Controls for baseline attainment</i>			
Pooled reference point treatments	-0.016 (0.006)**	-63.3 (21.6)**	-0.014 (0.006)*
Observations	13,065	13,065	13,065
<i>D. Initial randomization sample</i>			
Pooled reference point treatments	-0.014 (0.005)*	-53.7 (19.9)**	-0.012 (0.005)*
Observations	14,784	14,784	14,784

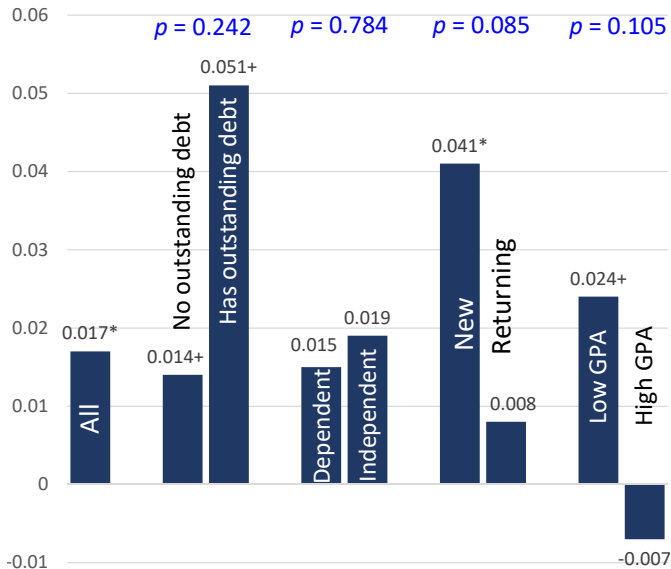
Notes: Robust standard errors in parentheses; ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Back\]](#)

Balance across treatment groups

<i>Dependent variable:</i>	(1) Freshman	(2) Female	(3) Black	(4) Hispanic	(5) White	(6) Independent	(7) New to LACC
Sample mean	0.624	0.586	0.424	0.396	0.347	0.420	0.258
T1 (can borrow other amount)	0.005 (0.012)	0.031 (0.012)*	-0.016 (0.012)	0.016 (0.012)	0.006 (0.012)	0.003 (0.012)	0.006 (0.011)
T2 (T1 + \$3000 ref. point)	0.0002 (0.012)	0.028 (0.012)*	-0.003 (0.012)	0.007 (0.012)	-0.003 (0.012)	-0.0004 (0.012)	0.002 (0.011)
T4 (T1 + \$800 ref. point)	0.001 (0.012)	0.012 (0.012)	-0.019 (0.012)	0.018 (0.012)	0.011 (0.012)	0.00005 (0.012)	0.003 (0.011)
Constant	0.623 (0.008)**	0.568 (0.009)**	0.434 (0.009)**	0.386 (0.009)**	0.343 (0.008)**	0.420 (0.009)**	0.255 (0.008)**
Test of joint sig. (<i>p</i> -value)	0.922	0.233	0.349	0.631	0.499	0.950	0.900
Observations	13,065	13,065	13,065	13,065	13,065	13,065	13,065
<i>Dependent variable:</i>	(8) EFC	(9) Need	(10) Prior borrowing	(11) Outst. student loans	(12) Packaged - days since 6/14	(13) Baseline credits earned	(14) Baseline GPA
Sample mean (std deviation)	1,301 (2715)	\$8,419 (5786)	0.075	\$371 (1699)	43.5 (26.1)	26.8 (19.2)	2.604 (1.093)
T1 (can borrow other amount)	-6 (66)	-95.102 (143.026)	-0.0003 (0.007)	-21 (44)	-1.0 (0.6)	-0.2 (0.6)	0.039 (0.031)
T2 (T1 + \$3000 ref. point)	34 (68)	-31.654 (143.988)	-0.002 (0.006)	-56 (42)	-1.4 (0.6)*	-0.02 (0.6)	0.030 (0.032)
T3 (T1 + \$800 ref. point)	-8 (66)	-97.296 (142.650)	0.002 (0.007)	-12 (44)	-0.2 (0.7)	-0.3 (0.6)	0.029 (0.032)
Constant	1,296 (47)**	8,475.108 (101.322)**	0.075 (0.005)**	393 (32)**	44.2 (0.5)**	27.0 (0.4)**	2.579 (0.023)**
Test of joint sig. (<i>p</i> -value)	0.788	0.874	0.811	0.500	0.143	0.86	0.946
Observations	13,065	13,065	13,065	13,065	13,065	9,692	9,692

Notes: Robust standard errors in parentheses; ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$. [\[Back\]](#)

Heterogeneous effects: inaction



Notes: OLS estimates of reference-point treatment effects on the probability of not making a borrowing decision. ** denotes statistical significance with $p < 0.01$, * $p < 0.05$, + $p < 0.1$.