



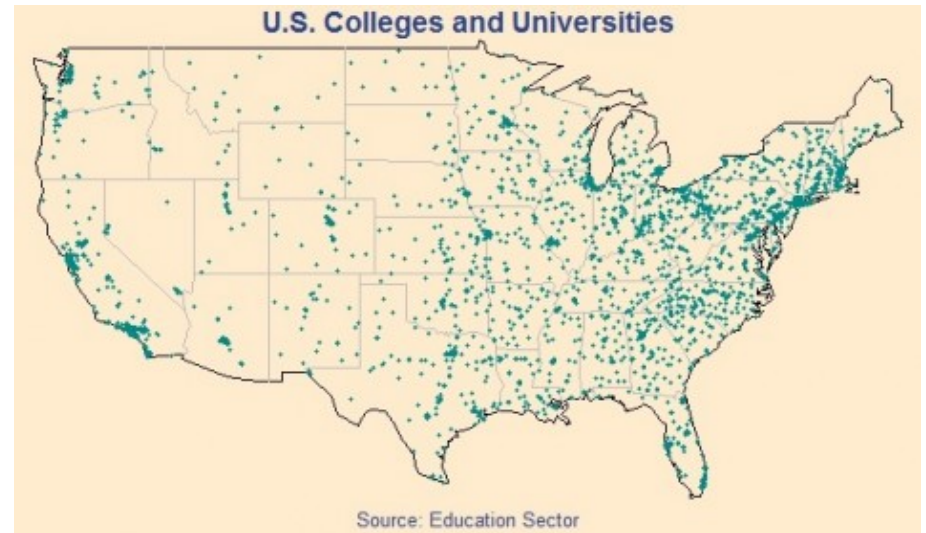
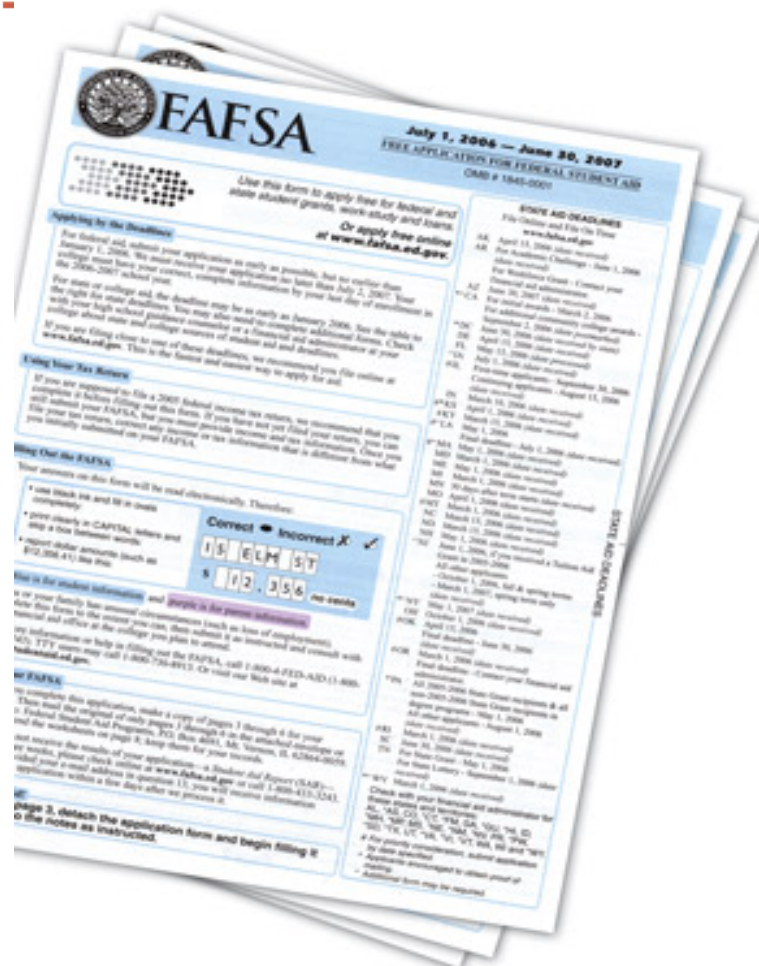
# Behavioral insights for scalable solutions in education

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University of Virginia





# Complexity on the road to and through college





## Indicators that students struggle w/ complexity

- **FAFSA completion**
  - 10% of Pell-eligible college freshmen don't apply (King, 2004; Kofoed, 2013)
- **Summer Melt**
  - 20-30% of college-intending HS grads in urban districts don't enroll (Castleman and Page, 2014)
- **FAFSA renewal**
  - 16% of Pell recipients w/ 3.0+ GPA don't refile (Bird and Castleman, forthcoming)
- **Near completer withdrawal**
  - 25-30% of students w/ >50% of credits for degree withdraw before completion (Mabel and Britton, 2015)



# Behavioral strategies to support more informed decision making

## Reach

- Communicate with people through effective channels

## Simplify

- Reduce complex information into more digestible formats

## Nudge

- Prompt people to follow through on important actions

## Connect

- Make it easy for people to connect to professional advising



# Interventions to promote active and informed decision-making

Simplify and proactively deliver information

(Hoxby & Turner, 2013)



Reduce hassles and ease program entry

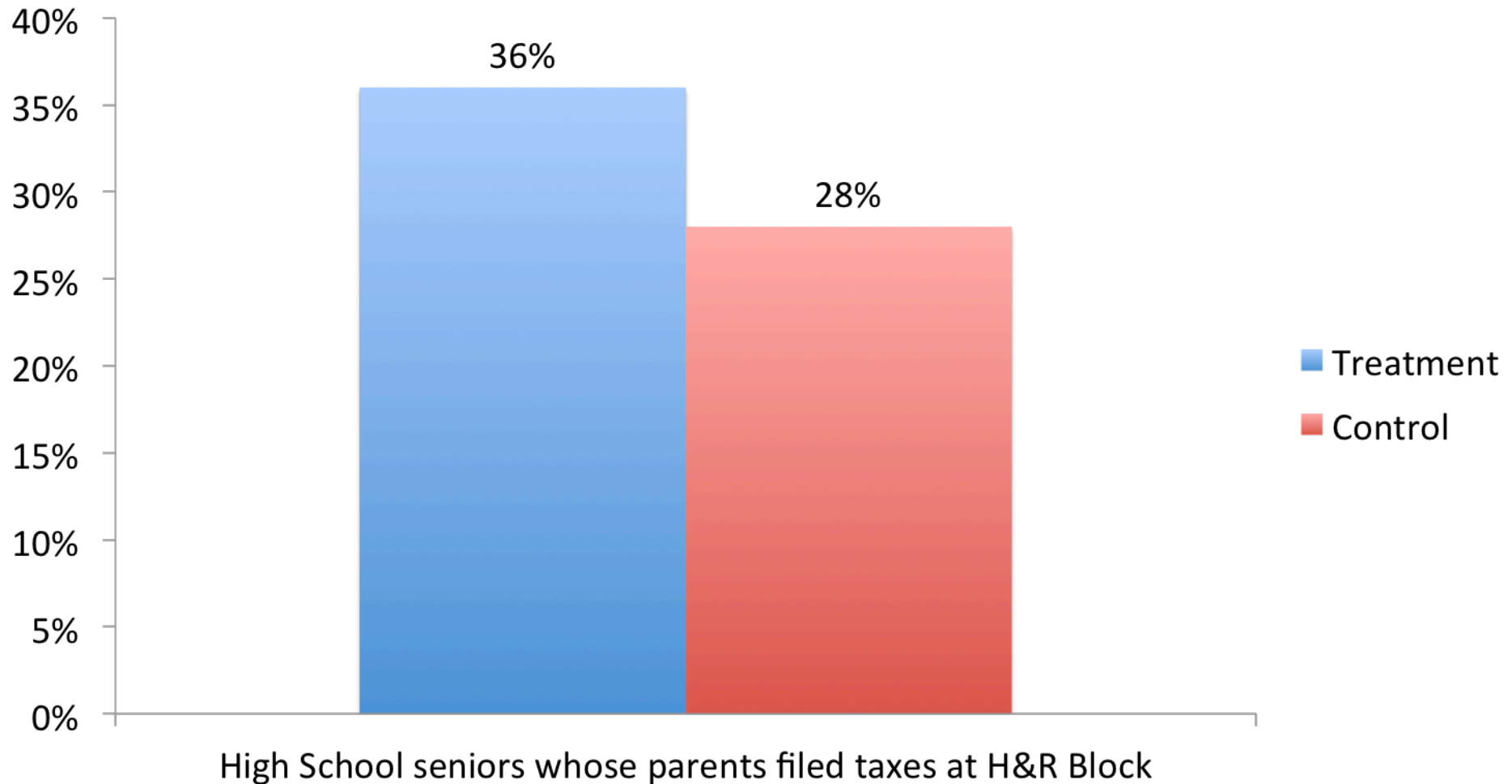
(Bettinger et al., 2012)





# Impacts of H&R Block FAFSA RCT

**Percent of students who completed two years of college**





## A foray into behavioral interventions: Summer melt

Even after being accepted to college and choosing where to attend, low-income students have to complete complex tasks...

FAFSA verification

Award letter review

Supplementary loan applications

Tuition payment plan set-up

Unanticipated fees (orientation, housing, etc.)

Orientation and placement test registration

Housing applications

Health insurance applications and waivers

...but typically have little access to professional help.



# Text messaging to mitigate summer melt

- **Text intervention consisted of 10 messages:**
  - Financial aid
  - Orientation, placement tests, and housing
  - Tuition bill and health insurance

Hi Alex! Have you signed up for the ANU orientation? Last one is 7/15. Need to register? <http://bit.ly/anuorient>. Need help? Reply to talk w/ an advisor.

Hi Alex! Have you chosen your courses for the fall term? If not, register this week so you don't miss out on the courses you want: <http://bit.ly/anucourses>. Can I help?



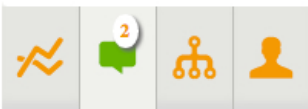
# Webmail applied to text messages: The SignalVine platform

9



UVA Classroom Pilot | [Logout](#) [Tools](#)

Welcome, Ben



All

Participant search

Select  Action  View

Showing 1 through 25 of 266

## Messages

All

Unread 1

Inbox 266

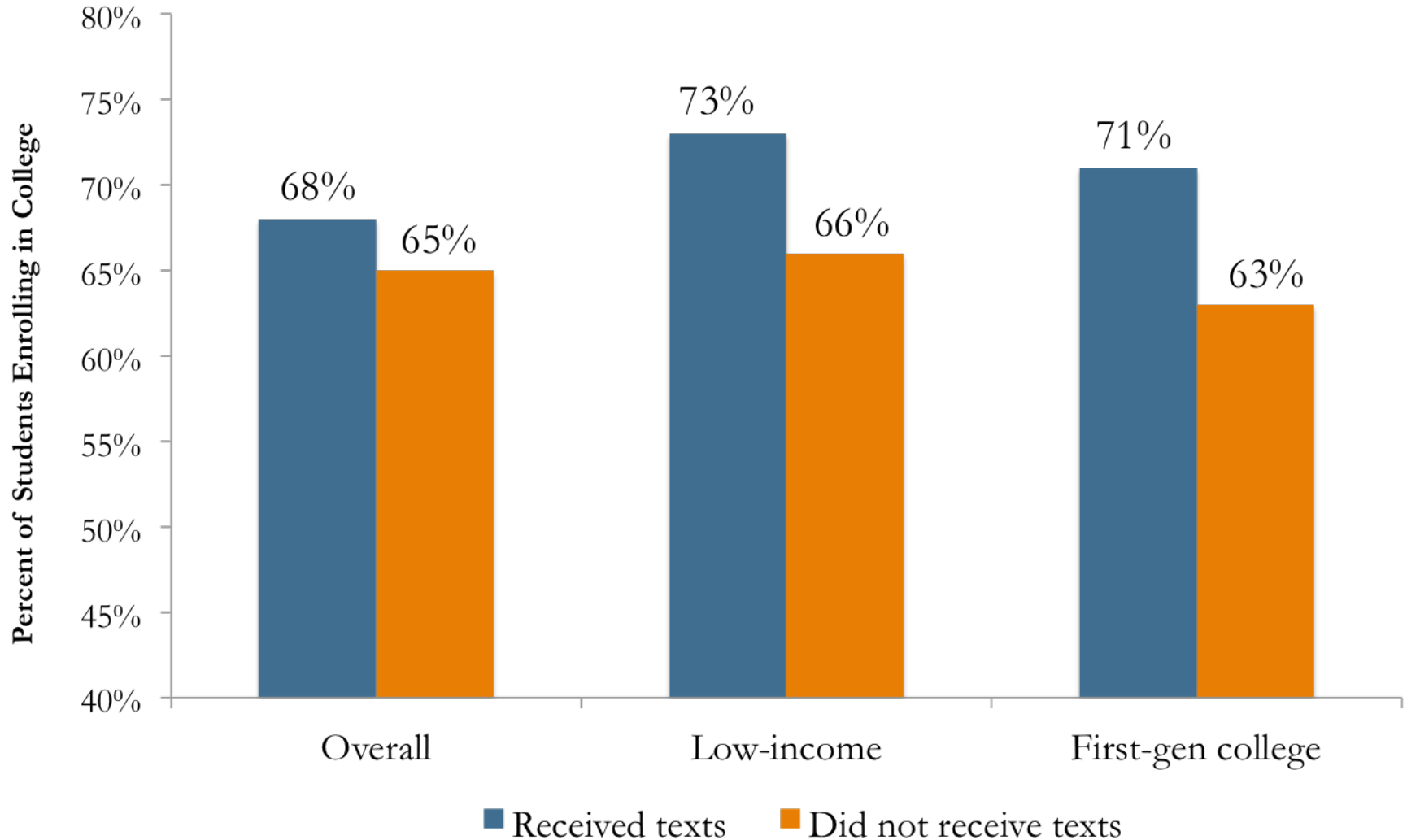
Sent 376

**Education-Innovations** 1

Name	Message	Program(s)	Signal	Date / Time
<input type="checkbox"/>	Hi Ben, I've made the quick switch to QuestBridge (low-income high-achieving application to address under matching) but will take other advice you gave	Education-Innovations	<input type="radio"/>	Dec 8, 2015 9:12:24 PM
<input type="checkbox"/>	Hey Ben, so for the SWAT I am really interested in the topic of alternative credentials to traditional academic credit. I've looked at Mozilla Open Badge <a href="http://openbadges.org">http://openbadges.org</a> and Coursera <a href="https://www.coursera.org">https://www.coursera.org</a> My two questions are do you think there is enough substance here for a thorough analysis, and is it okay for our program to already be well-backed/off the ground like Mozilla's. Best, -Grant	Education-Innovations	<input type="radio"/>	Dec 5, 2015 5:00:46 PM
<input type="checkbox"/>	Sweetness. Just one other question formatting wise... we don't need to do like a traditional times new roman double space paper. Would it be ok to format it as some type of study or report (I guess similar to some of the pdf type readings we get). Also I can post these questions to the collab forum!	Education-Innovations	<input type="radio"/>	Dec 1, 2015 11:32:42 AM
<input type="checkbox"/>	Hi Prof. Castleman -- I hope you guy had a great Thanksgiving. Quick question... Are we allowed to include charts/graphics in our swot papers?	Education-Innovations	<input type="radio"/>	Nov 30, 2015 10:53:08 PM
<input type="checkbox"/>	Do you prefer a poster board or a trifold board for the slide presentation? We are not sure if the set up will be on walls or on tables	Education-Innovations	<input type="radio"/>	Nov 29, 2015 9:49:55 PM



## Results: Substantial increases in enrollment for a small investment (\$5-\$10 per student)





# Other junctures for behavioral intervention

College application

FAFSA completion

College choice

Summer melt

Loan origination

Course selection

FAFSA renewal

Major choice

Loan repayment



# Nudges to improve college success

- Even conditional on academic achievement, low-income students persist at lower rates (Long & Mabel, 2012)
- Low-income students earn college degrees at much lower rates than high-income peers (Bailey & Dynarski, 2012)
- Behavioral obstacles contribute to these inequalities:
  - *Choice overload*: Many courses and majors to consider
  - *Limited attention*: Students spread thin academically/socially
  - *Social norms*: Students question their belonging in college
  - **Limited access to professional guidance or support**



# Why focus on FAFSA renewal?

- Students have to renew the FAFSA each year to maintain their financial aid
- There has been considerable attention to obstacles that FAFSA complexity creates during HS but little attention once students are in college (e.g., Bettinger et al, 2012)
- ~10-20% of freshman year financial aid recipients in good academic standing do not renew their aid  
(Bird & Castleman, forthcoming)



# Freshman year financial aid nudges

- **The intervention:** Text message reminders for college freshmen about important aid-renewal related tasks
  - The need to refile FAFSA
  - Important financial aid-related deadlines
  - Importance of maintaining Satisfactory Academic Progress (SAP)
  - Additional tasks following FAFSA submission
  - Campus- and text-based support resources
- **~15 total texts over several months**



# Experimental sample

- 808 college freshman who had worked with uAspire, a Boston-based college access organization, during HS
- The summer before college, students had received text message reminders or peer mentor outreach from uAspire
- **Sample characteristics:**
  - Predominantly low-income students of color
  - 72% enrolled at 4-year, 28% enrolled at 2-year
- ~50% of sample randomly assigned to get fin. aid texts
- Text recipients and control group well-balanced on baseline characteristics



# Text campaign interactions

	Responded to text message outreach	Text interaction	FAFSA renewal assistance
Treatment, 4-year	<b>0.197***</b> (0.023)	<b>0.133***</b> (0.020)	-0.026 (0.024)
Treatment, 2-year	<b>0.219***</b> (0.038)	<b>0.069*</b> (0.024)	<b>0.064~</b> (0.038)
Ctrl group rate, 4-year	0	0	0.101
Ctrl group rate, 2-year	0	0	0.059
N	808	808	808

~ p<0.10, \* p<0.05, \*\* p<0.01

Notes:

- Models control for baseline covariates including gender, race/eth, FRL status, and HS GPA
- Group fixed effects account for the level of randomization
- Coefficients present marginal effects from LPMs





# Persistence impacts

	Enroll sophomore fall	Enroll sophomore spring	Enroll full sophomore year
Treatment, 4-year	-0.035 (0.027)	0.011 (0.028)	-0.007 (0.031)
Treatment, 2-year	<b>0.115~</b> <b>(0.063)</b>	<b>0.141*</b> <b>(0.062)</b>	<b>0.138*</b> <b>(0.065)</b>
Ctrl group rate, 4-year	0.870	0.844	0.810
Ctrl group rate, 2-year	0.638	0.660	0.541
N	808	808	808

~  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$

Notes:

- Models control for baseline covariates including gender, race/eth, FRL status, and HS GPA
- Group fixed effects account for the level of randomization
- Coefficients present marginal effects from LPMs



## Suggestive variation by gender and sector

- **Among freshman at four-year institutions:**
  - Males who received outreach were more likely to persist at a four-year institution; less likely to transfer to a two-year school
  - Females more likely to transfer to a two-year school
- **Among freshman at two-year institutions:**
  - Males more likely to transfer to four-year institution
  - Females more likely to persist within a two-year institution
- **Potential explanations for gender variations in sector choice**
  - Gender differences in risk preferences for debt accumulation (e.g., Eckel & Grossman, 2008)?
  - Gender differences in employment preferences, with occupations requiring an associates degree more popular among females?



## Large impacts from a subsequent renewal experiment

- Email campaign conducted by ideas42 and Arizona State University, targeting current students
  - 18% of continuing ASU students submitted by 3/1 in 2014
- Emails focused on plan-making and parent engagement
- On-time filing increased by 72% (50% vs 29%)



# Other junctures for behavioral intervention

College application

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College choice

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Loan origination

Course selection

FAFSA renewal

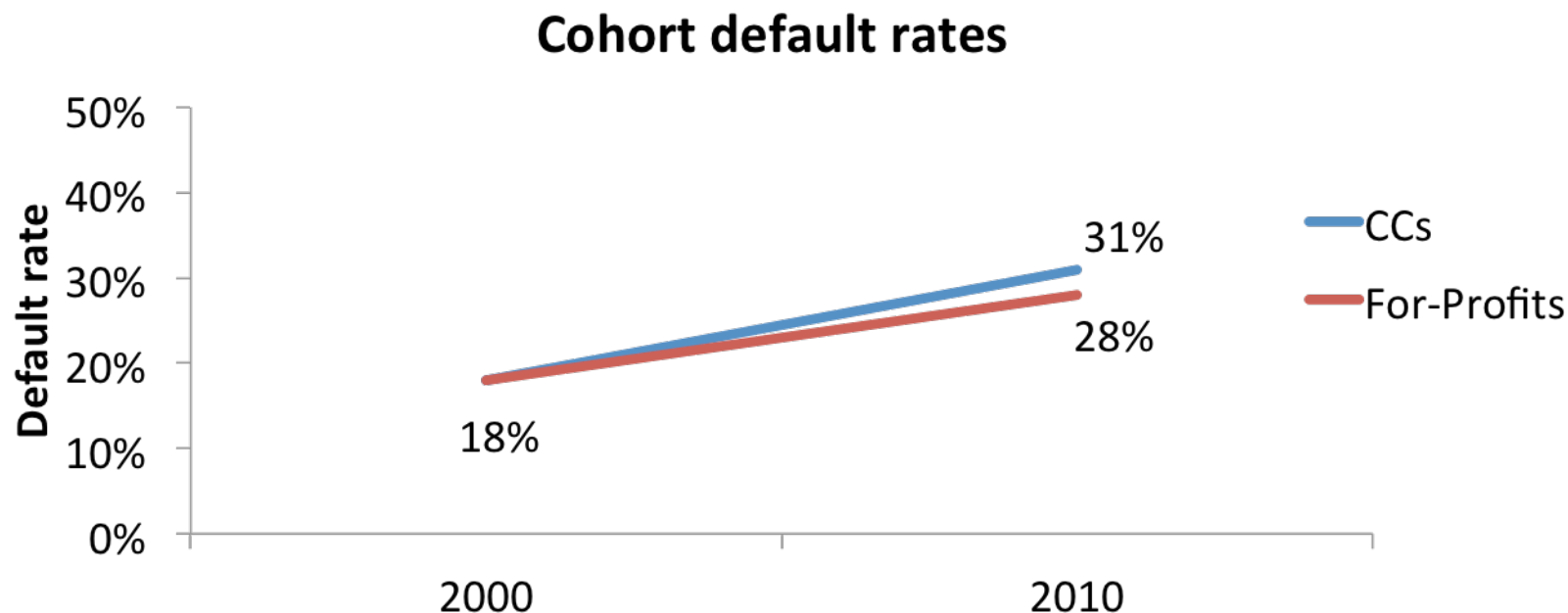
Major choice

Loan repayment



# How to nudge students about loans?

- On the one hand...



- On the other hand, access to loans can improve higher ed. outcomes



# Additional behavioral obstacles to informed borrowing decisions

- Powerful status quo bias
  - Loans auto packaged or not
  - Maximum loan offered or not
- Complex information
- Expenses far-off, needs immediate
- Lack of access to 1:1 counseling



# Strategies to promote more informed borrowing choices

- Prompt active choice
- Simplify information
- Make connections between present borrowing and future expenses
- Reduce barriers to one-on-one loan counseling



# Freshman year financial aid nudges

- **The intervention:** Text message prompts to make active choices about borrowing
  - Norm that loans can be confusing
  - Reinforce that students can choose how much to borrow
  - Connect present borrowing decisions with implications for future repayment amounts
  - Reduce barriers to loan counseling
- **8 total texts over one month**





# Experimental sample

- 2,807 students at the Community College of Baltimore County who applied for loans Dec 2014 – Dec 2015
- **Sample characteristics:**
  - Predominantly low-income students of color
  - 34% dependents
  - Mean age of 29
- ~50% assigned to receive text campaign
- Text recipients and control group well-balanced on baseline characteristics



# Results

	<b>Total Stafford</b>	<b>Unsub. Stafford</b>	<b>Total Fed. Grants</b>
Treatment	-147.30** (71.69)	-111.70** (52.05)	-38.63 (34.73)
Control	2,401 (58.80)	1,301 (41.06)	759.6 (27.48)

Notes:

- N=2,807

- Models include the full set of covariates and randomization wave FE

## **Intervention participation data:**

- 65 – 70 percent of loan applicants have responded to at least one text across waves

- Approximately 5 percent of students opted out of the campaign



# Heterogeneous effects – Total Stafford loans

	<b>Black</b>	<b>New Student</b>	<b>Low GPA</b>	<b>Low EFC</b>
Treatment	-438.8** (178.3)	-419.0*** (117.9)	-218.4* (123.7)	-358.4*** (119.4)
Control	2,928 (128.5)	1,575 (103.7)	2,320 (95.68)	2,743 (95.67)

Notes:

•N=2,807

•Models include the full set of covariates and randomization wave FE



## Next steps with CCBC analysis

- Impacts on academic and financial outcomes?  
Ongoing analyses to incorporate credits/GPA
- Impacts on other financial decisions and financial stress? Follow-up survey in the field
  - Effects on employment?
  - Effects on financial stress?
- Investigation of text interaction data for possible mechanisms
  - Role of financial counseling from CCBC?



# What makes these campaigns influential?

## **1. Access to student data:**

- Message content is personalized and salient; prompts concrete action

## **2. Proactive delivery of information about opportunities and required tasks**

- Messages bring publicly-available info directly to students, through channels they use

## **3. Active partnerships with orgs/agencies**

- Partners have contact info for and legitimacy with students

## **4. Behaviorally-informed content**

- Messages are written to maximize engagement



# Behavioral interventions at scale

## THE COMMON APPLICATION



**Work Smarter with the FAFSA**

1600 hours  
200 8-hour shifts  
40 40-hour weeks

OR

90 minutes to fill out the FAFSA

could earn you \$16,000 for college

**You're the kind of person who gets stuff done.**

You researched colleges, wrote personal statements and essays, and submitted applications.

**Set a reminder on your phone today.**

*I will complete the FAFSA before March 1.*

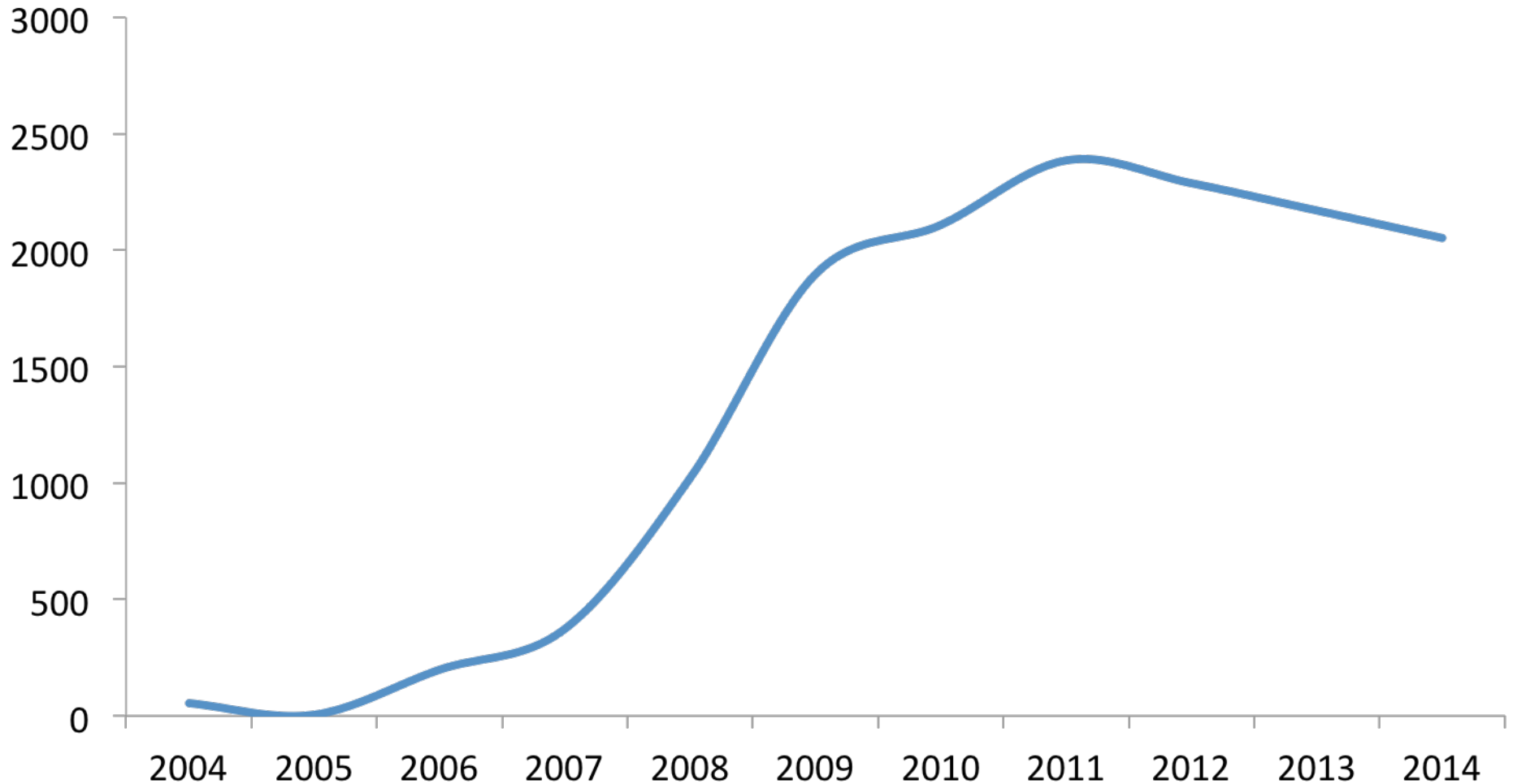
**I will spend 90 min. completing the FAFSA on:** \_\_\_\_\_, \_\_\_\_\_.

Signature: \_\_\_\_\_



# The twilight of text messaging?

**Billions of texts sent per year, North America**

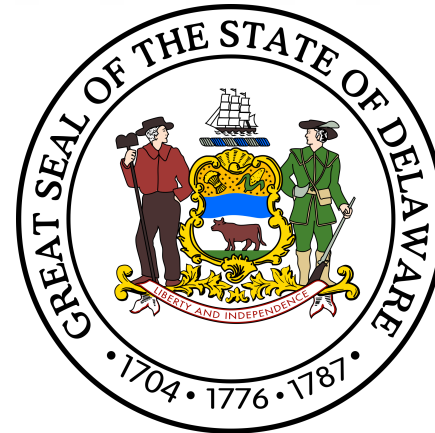
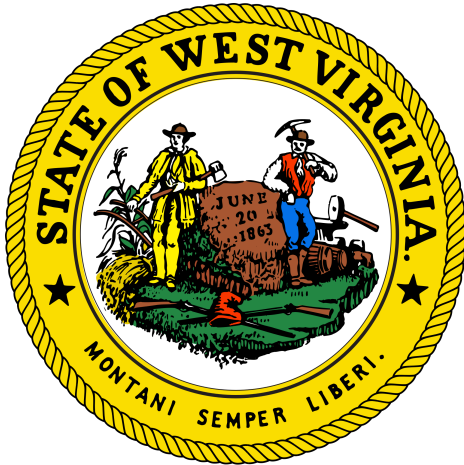




# Saturation of texting?



THE COMMON APPLICATION





# Going forward: new channels





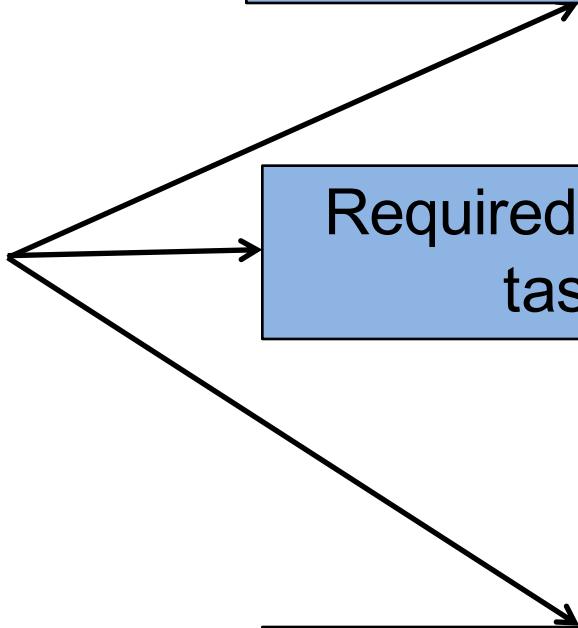
# Going forward: Big Data + Behavioral Science



Real-time FAFSA completion updates

Required summer tasks

Courses to complete a degree





# Going forward – interactive media



### Making Sense of Your Financial Aid

<b>Grants</b> Free money from your college or government 	<b>Loans</b> Money that you borrow from the government 
<b>Work Study</b> Money you earn once you get to campus 	<b>Cost of Attendance</b> Total you owe to enroll. This may be more than the financial aid you receive 

Still have questions? Reply to this text message

BETTER  
**MAKE ROOM**  
**SAYING THINGS OUT LOUD**  
MAKES THEM HAPPEN.  
[BETTERMAKEROOM.ORG](http://BETTERMAKEROOM.ORG)



# Thanks!

**Ben Castleman**



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