

Helping or Hindering?

How Loans Impact Persistence among Community College Students

Lyle McKinney, Ph.D.

Assistant Professor of Higher Education
University of Houston

Andrea Backscheider Burridge, Ph.D.

Clinical Professor/Research Statistician
University of Houston

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Background

- Many students attend CCs to avoid debt, but some could not enroll and persist without loans
- Loan use increased faster 2003-09 for freshmen at CCs than at public four-years (Education Sector, 2012)
- CC students have lower levels of financial literacy
 - Misconceptions about loans, repayment, and interest rates (Matus-Grossman & Gooden, 2002; McKinney, Roberts, & Shefman, In Press)

Trends in CC Borrowing

- Less likely to borrow than 4-year students, but loan use has steadily increased (NPSAS:08)
 - 29% of full-time CC students with documented financial need in 2008
 - 38% of associate's degree grads in 2008
 - Median debt level = \$7,125
- Financial Hardships
 - Overrepresented among those with debt and no degree (Gladieux & Perna, 2005; Education Sector, 2012)
 - 31% of CC borrowers have defaulted within 15 years (Field, 2010)

Borrow or Not Borrow?

- A growing number of CCs elect not to participate in federal student loan programs
 - 9% of CC students nationwide denied access
- Is that good policy?
 - Project on Student Debt = that approach 'short changes' students and hinders success
 - AACC = institutional discretion is best
- Critical to understand.....***Do loans help, or hinder, the success of CC students?***

Prior Empirical Research

- Loans = No effect
 - (Hippensteel, St. John, & Starkey, 1996; St. John & Starkey, 1994)
- Negative Effect
 - (Dowd & Coury, 2006; Cofer & Summers 2001)
- Positive Effect
 - (Mendoza, Mendez, & Malcolm, 2009)
- Inconclusive/mixed findings are troubling due to:
 - Economic climate, changes to Pell Grant, shortages of need based aid = increases in CC borrowing

Contributions of this Study

- Explicitly controls for self-selection bias
 - Systematic differences in borrowers and non-borrowers that may influence persistence?
- Most recent national study (Dowd & Coury, 2006) used data from early 1990s
 - Rates of borrowing and debt levels have increased
 - So have maximum loan limits per year
- Many prior studies examined within-year persistence
- Provides findings that can inform current policy discussions and institutional practices

Research Questions

1. What are the characteristics of CC students who take out federal loans? Are there proportional differences between borrowers and non-borrowers?
2. After controlling for selection bias, are there significant differences in dropout rates among CC students who do, and do not, take out federal student loans?

Conceptual Framework

- Chen's Heterogeneous Research Approach (2008)
 - Model focuses on the relationship between financial aid and student dropout
 - Emphasizes importance of examining aid effects by income-status and race/ethnicity
- Views persistence as a function of:
 - Student background, educational aspirations, pre-college preparation, financial factors, college experience, institutional characteristics, interaction effects, and time in college

Methodology

- Data Source
 - Beginning Postsecondary Students (BPS: 04/09)
- Sample
 - First-time students enrolled in CC associate's degree program in the Fall 2003 semester (n = 4,530)*
 - International students excluded
 - Certificate students excluded (separate study)
 - Only White, African American, Hispanic students included (too few borrowers in other groups)

*All unweighted n's are rounded to nearest 10 per NCES data security guidelines

Propensity Score Matching

- Accounts for selection bias in observational studies
- When estimating a treatment effect, we want the treatment and control groups as similar as possible
- PSM summarized background information into single index that takes into account how likely a student is to borrow

Probability of treatment (i.e. borrowing) given a vector of observed variables:

$$\text{Propensity Score} = \Pr [T=1 | X=x]$$

where \Pr is the probability of experiencing an outcome, T is the treatment, and X is a vector of characteristics

Variables Included in Propensity Scores

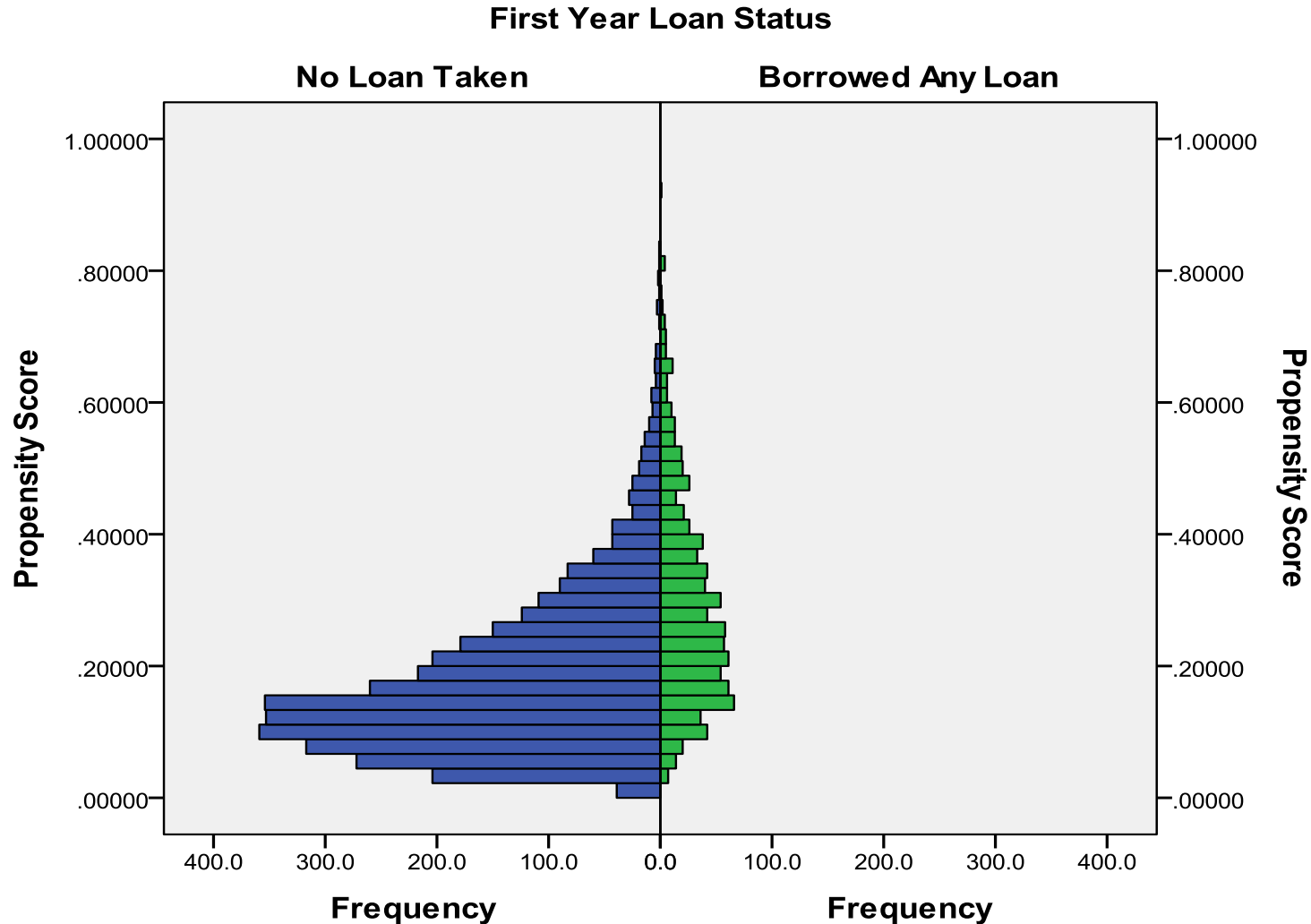
Gender	Hours worked per Week
Primary Language	Highest level of Ed expected
Age	Attendance Intensity
Dependency Status	Type of Associate's (AS, AA)
Race/ethnicity	Expect financial help from parents
Parent's Level of Ed	Tuition rate
Income Group	Family size
High School GPA	Unmet financial need
Intent to transfer	Delayed enrollment
Marital status	Declared major

Balance Check – PS Stratification

Predictor used in Propensity Model	Balance Before Stratifying By Propensity Scores			Balance After Regressing Covariates by Loan Status & Stratum Indicators		
	B	SE	p	B	SE	p
Gender	-.100	.029	.001	.008	.093	.931
Primary Language	-.444	.049	.001	-.225	.237	.340
Age	-.894	.099	.001	.050	-.050	.879
Dependency Status	.173	.123	.150	.046	.124	.932
Race/ethnicity*	.244	.041	.001	-.211	.193	.554
Parent Education*	-.239	.129	.172	-.079	.121	.753
Income Group	-.102	.016	.001	-.005	.048	.925
HS GPA	-.176	.095	.065	-.022	.118	.855
Job Hour	-3.66	.224	.001	-.264	.707	.709
Highest Level Expected	-.380	.102	.001	-.182	.104	.385
Attendance Pattern	.843	.066	.001	.041	.111	.712
Type of Associates	-.709	.042	.001	-.037	.099	.705
Parent Help	-.501	.104	.001	-.029	.133	.928
Need after Grant Aid	-.429	.090	.001	-.024	.108	.822

*For variables with multiple categories, the overall p is given, but coefficients represent category with the “least” balance.

Region of Common Support



Outcome Models

- Outcome:
 - 0 = Earned Degree, Transferred, Still Enrolled
 - 1 = Dropped out
- Persistence measured at three time points:
 - End of year one (2004), year two (2005), and year three (2006)
- Variables:
 - Key variables (income, race, GPA, attendance pattern)
 - Impact of loans, borrowing behavior, interaction effects

Data Analysis

- Analytic Methods
 - PSM (results indicated good balance)
 - Descriptive statistics
 - Logistic regression models
 - Accounted for BPS weighting and design effects
 - Analysis conducted in Stata 12.1
- Limitations
 - Does not include non-federal loans
 - Temporal nature of some variables not accounted for
 - Three year time frame doesn't capture all students
 - Small number of Hispanic borrowers

Descriptives: Background Characteristics

	Entire Sample		Borrowers	
	N	% of sample	N	% of sample
Gender				
Female	2,650	57.3	530	64.0
Male	1,880	42.7	340	36.0
Race/Ethnicity				
White	2,810	66.7	600	74.0
African American	740	16.7	170	20.2
Hispanic	590	16.6	50	5.7
Age				
24 or younger	3,730	77.1	700	77.0
25 or older	800	22.9	180	23.4
Income Status				
Lowest	1,550	31.4	280	31.2
Middle-Low	1,340	27.0	300	33.7
Middle-High	1,020	24.9	210	25.3
Highest	640	16.7	90	9.8

Descriptives: Enrollment Behaviors

	Entire Sample		Borrowers	
	N	% of sample	N	% of sample
Delayed Enrollment				
No	2,830	55.9	500	51.2
Yes	1,680	44.1	360	48.9
Attendance Intensity				
Full-time	2,760	47.6	630	65.0
Part-time	1,100	36.4	120	22.0
Mix of Full- and Part-time	670	16.0	120	13.5

Descriptives: Persistence

	Entire Sample		Borrowers	
	N	% of sample	N	% of sample
Year 1 Persistence				
Dropped Out	460	13.0	60	8.7
Transferred	740	15.0	180	20.0
Still Enrolled	3,290	71.2	620	70.7
Attained	50	0.9	10	0.7
Year 2 Persistence				
Dropped Out	1,080	28.7	170	23.0
Transferred	1,070	21.6	260	28.7
Still Enrolled	2,010	44.7	380	41.7
Attained	290	5.0	60	7.0
Year 3 Persistence				
Dropped Out	1,490	38.6	240	34.2
Transferred	1,470	30.2	320	34.7
Still Enrolled	820	18.1	150	16.5
Attained	750	13.2	160	14.6

Student Debt Levels

- Year One
 - 12% of sample borrowed in their first year
 - Average federal loan debt among borrowers = \$2,242.97
- Year Two
 - 56% of first year borrowers borrowed again in year two
 - Cumulative federal loan debt now = \$5,962.95
 - 8% of students borrowed in second year, but not in first year
- Year Three – (debt levels for those who borrowed in YR1)
 - Attained = \$8,394.63
 - Transferred = \$6,176.98
 - Still Enrolled No Degree = \$7,230.74
 - Dropped Out = \$4,014.75 (34% of borrowers)

Outcome Models (Non-Loan Variables)

	Year One-2004	Year Two-2005	Year Three-2006
	Odds Ratio	Odds Ratio	Odds Ratio
Race/ethnicity (white)			
African American	.61	.74	.86
Hispanic	.56	.41*	.84
Enrollment Intensity (full-time)			
Mix of full and part time	.32*	.68	1.36
Part-time	1.23	2.01**	2.23***
First-Year College GPA			
(.10 scale)	.98	.99	.97*
Lower-Income (Pell No)			
Pell Yes	1.17	2.00***	1.27

*p ≤ .05, ** p ≤ .01, *** p ≤ .001

NOTE: In model 2, Race (as set) not sig, p=.0516

Outcome Models (Loan Variables)

	Year One-2004	Year Two-2005	Year Three-2006
	Odds Ratio	Odds Ratio	Odds Ratio
Borrowed in First Year			
Yes	.79	1.73*	1.80*
Borrowed after Year One (no)			
Second Year		.29***	.90
Third Year			.31***
Level of Loan Debt			
Divided by \$1,000		.96	.88
<i>Loan x Race Interaction (model)</i>			
AA Borrowers	.54	.74	.48
Hispanic Borrowers	.28	.41*	.10***

*p ≤ .05, ** p ≤ .01, *** p ≤ .001

Discussion of Results

- Noteworthy trends
 - If borrowing, will typically do so during the first year
 - 34% of borrowers have dropped out by year three
 - Part-time attendance detrimental to persistence
 - Mix of full-time and part-time is not
 - Lower-income = higher odds of dropout at year two
- Effects of loans on persistence
 - No significant effect in first year, but strong negative effects show up in years two and three
 - Debt level not a significant predictor in this sample
 - Hispanic borrowers less likely to dropout at years two and three

Implications & Future Research

- Policy Changes

- Should students have to demonstrate some early 'success' before being allowed to borrow additional money?
- Should part-time students be allowed to borrow the same amount as full-time students?

- Institutional Efforts

- Financial literacy education, including info about loans
- More support and resources for CC financial aid offices
- Exercise caution when advising at-risk students about loans

- Future Research

- How does borrowing impact enrollment patterns, hours worked
- Event history analysis with longitudinal datasets

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