

**Should I Work or should I Borrow?: The
Effect of Debt and Working While
Enrolled on Baccalaureate Completion**
A Counterfactual Analysis

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Introduction

- Affordability is one of the major barriers in college achievement (e.g., Chen 2008; St. John, et al., 2005; Swail et al., 2003)
- In 2007-08, among all B.S. recipients (College Board, 2008):
 - 66% graduated with education debt
 - The median debt was \$11,000
 - 66% borrowed a median of \$20,000
 - 10% borrowed a median of \$40,000 or more
- However some students:
 - Have high aversion to debt (Dowd, 2008; Gladieux & Perna, 2005)
 - Work more than 30 hours while enrolled (Perna, 2010)

Purpose

- The purpose of this study was to estimate the effect of debt and working while enrolled on college graduation controlling for self-selection bias

Theoretical Framework

- Factors associated with student persistence (e.g. Chen, 2008):
 - Student background characteristics
 - Educational aspiration
 - Pre-college preparation
 - College experiences
 - Organizational characteristics
 - Financial factors
- Factors associated with college student debt (e.g. Dowd, 2008; Kim, 2007):
 - Social and cultural capital
 - Unmet need
 - Expected returns from a college degree
- Factors associated with employment experiences while enrolled

Dataset

- This study used the 2007-2008 NCES National Postsecondary Student Aid Study (NPSAS:08)
 - Considered the most comprehensive and representative
 - Complex survey design
 - Representative of all students enrolled in all types of postsecondary institutions in the nation

Sample

- The sample included students who have any amount of college debt by 2007-2008 and:
 - Are U.S. citizens or permanent residents
 - Family dependent
 - Enrolled for the first time in a degree granting institution in 2002-2003 seeking their first bachelor's degree
 - Still enrolled by 2007-2008
 - $N_w=2,489.5$

Hypotheses

- Given the ratio Debt/EFC, the hypotheses of this study were:
 - I. Students with a ratio Debt/EFC above the median are more likely to graduate in six years
 - II. Students with a ratio Debt/EFC above the median work less than 30 hours a week while enrolled
 - III. Students who work less than 30 hours a week while enrolled are more likely to graduate in six years

Analysis: Propensity Score Matching

- Causal effects are best estimated when treatment is assigned randomly to cases and comparisons are made against a control group
- This is not possible in most observational studies in which individuals freely self-select into the treatment group
- A method to overcome this is to use a conditional probability of being assigned to the treatment group given predetermined characteristics. This conditional probability is known as the propensity score (Rosenbaum and Robin, 1983)

Models Specification

- For each of the three hypotheses, I ran a logistic regression with propensity scores and normalized student, cluster and sample weights:

$$\text{Log}(Y_{Degree}) = \alpha T_{Debt/EFC} + \vec{\beta} \vec{X}_{Degree} + \vec{\delta} \vec{P}_{Debt/EFC} + \varepsilon_1$$

$$\text{Log}(Y_{Working}) = \alpha T_{Debt/EFC} + \vec{\beta} \vec{X}_{Working} + \vec{\delta} \vec{P}_{Debt/EFC} + \varepsilon_2$$

$$\text{Log}(Y_{Degree}) = \alpha T_{Working} + \vec{\beta} \vec{X}_{Degree} + \vec{\delta} \vec{P}_{Working} + \varepsilon_3$$

Limitations

- Cross-sectional data
- Secondary data
- Self-reported measures
- Omitted variables
- Included students with debt only

Results: Descriptives

The distribution of students with income below \$25,000 was:

- Asian males: 33.3%
- Hispanic males: 31.9%
- African American males: 28.4%
- Asian females: 27.5%
- African American females: 21.7%
- Hispanic females: 21.4%
- Whites: 10%

Results: Descriptives

- 60.8% completed their degree program in six years
- 35.7% had a ratio of Debt/EFC above the median
- 58% work while enrolled on average 19 hours a week
- 30.8% worked more than 30 hours a week
- 82.0% of working students did to cover college costs
- The average cumulative debt was \$21, 905
- 26.5% expected help from parents with repaying loans

Results: Descriptives

- Regardless of race/ethnicity and gender, the lowest income bracket had the largest proportion of students with Debt/EFC above the median
- The higher the income was, the larger the proportion of students who have graduated by 2007-2008
- The proportion of students working more than 30 hours a week varied by race/ethnicity, gender and income

Results: Counterfactual

- Hypothesis I: ($p=.021$)
 - Students with a Debt/EFC greater than the median are 1.6 times more likely to graduate than students with a smaller Debt/EFC
- Hypothesis II: ($p=.009$)
 - Students with a Debt/EFC greater than the median are 1.5 times more likely to work less than 30 hours a week while enrolled than students with a smaller Debt/EFC
- Hypothesis III: ($p=.032$)
 - Students who work less than 30 hours a week are 1.4 times more likely to graduate than students who work more than 30 hours a week while enrolled

Discussion

- Most students acquired debt in order to obtain a B.S.
- Those with a debt of 4 times their EFC or more and who work less than 30 hours a week are more likely to graduate in six years
- However, 30.8% of students work more than 30 hours a week and are less likely to graduate in six years
- The distribution of students' debt, graduation rates, and work intensity varies by race/ethnicity, gender and income

Conclusion

- This study confirms the notion that higher education is increasingly becoming a private good
- This is particularly problematic for low income student and minority students with higher risk aversion than other groups
- Policymakers should re-evaluate the overemphasis on loans on current financial aid policies



Thank you.