Undergraduate Student Persistence and Completion: Do Pell Grants Matter?

Charles Hatcher, California Competes
CAIR Conference,
Tongshan Chang, University of California Office of the President
November 20, 2013
Motivation

What is the purpose of financial aid?

1. Incent Enrollment
   - Boost the Academic Profile of the incoming class
   - Promote/Advertise Socioeconomic Diversity

2. Provide Support : $$ could increase the likelihood of student success
(1) And (2) are not mutually exclusive, but they aren’t identical either...
Federal Pell Grant Program

- Federal Effort to exclusively provide SUPPORT
  - Financial Aid for College Students with no Bachelor’s Degree
  - Can be used at participating (accredited) institutions
  - Attached to Students, not schools
Federal Pell Grant Program

– Pell eligibility and amount based on federally determined Expected Family Contribution (EFC)
  • Amount determined additionally by the cost of attendance
– Maximum Grant is $5645 per year in 2013-14
– Maximum Duration of Eligibility is the equivalent of 6 years of full-time funding
## Federal Pell Grant Program

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Max Pell Award</th>
<th>Average Pell Award (US)</th>
<th>#UC Recipients</th>
<th>UC Pell Revenue ($MIL)</th>
<th>UC UG Resident Tuition &amp; Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>$4050</td>
<td>$2494</td>
<td></td>
<td>$148M</td>
<td>$6852</td>
</tr>
<tr>
<td>2007-2008</td>
<td>$4310</td>
<td>$2620</td>
<td>50,807</td>
<td>$7517</td>
<td></td>
</tr>
<tr>
<td>2008-2009</td>
<td>$4731</td>
<td>$2970</td>
<td>52,809</td>
<td>$191M</td>
<td>$8027</td>
</tr>
<tr>
<td>2009-2010</td>
<td>$5350</td>
<td>$3646</td>
<td>62,747</td>
<td>$269M</td>
<td>$9896</td>
</tr>
<tr>
<td>2010-2011</td>
<td>$5550</td>
<td>$4115</td>
<td>72,505</td>
<td>$317M</td>
<td>$11,279</td>
</tr>
<tr>
<td>2011-2012</td>
<td>$5550</td>
<td>$3650</td>
<td>75,376</td>
<td>$331M</td>
<td>$13,181</td>
</tr>
</tbody>
</table>
Common Factors that lead to student success?

• High School Grades
  – Difficulty of the curriculum
  – Highest level of math completed

• Standardized Test Scores

• Effects depend on race and gender

• Institutional Characteristics and “Match” is important
What are the effects of Financial Aid/Pell Grants on Student Success

• Schools that admit more Pell Student tend to have lower graduation rates

• Overall, the literature is mixed with respect to the effect of Pell on Student Success

• Studies which control for other factors of success tend to show a positive relationship between grant aid and success.
Our Research Questions:

• Who Are Pell Grant Recipients in the First Year?
• Who Receives Pell Grants in ANY of the first 4 years?
• Who Receives Pell Grants in ALL of the first four years?
• What Happens to them?
Our Study’s Population: The Fall 2006 UC System Freshman Cohort

- All Students: 37,461
- Never Received Pell: 25,037
- Received Pell at least 1yr: 12,424
- Received Pell in 1st yr: 9,749
- Received Pell 4yrs: 6,100
Who Are Pell Grant Recipients in the First Year?

- Received Pell Freshman Year: 9,749
- Never received Pell: 25,037
- "Total": 34,786
Fall 2006 cohort First-Year Pell students by GENDER

Pell Recipients as % of Enrollees in the Stated Gender Category

- **Female**: 30%
- **Male**: 25%

Red: 28%
Fall 2006 cohort First-Year Pell students by RACE/ETHNICITY

Pell Recipients as % of Enrollees in the Stated Ethnic Category

- American Indian: 22%
- African American: 44%
- Chicano/Latino: 51%
- Asian: 32%
- White: 11%
- Unknown: 21%

Red line indicates the overall Pell recipients rate of 28%
Fall 2006 cohort First-Year Pell students by FIRST-GEN STATUS

Pell Recipients as % of Enrollees in the Stated FG Category

- First Generation: 56%
- Not First Generation: 12%
- Unknown: 14%

The bar chart illustrates the percentage of Pell recipients among enrollees in the stated first-generation status categories.
Fall 2006 cohort First-Year Pell students by average SAT Critical Reading and Math scores

Pell Recipients as % of Enrollees in the Stated SAT Category

- SAT 200-499: 60%
- SAT 500-599: 34%
- SAT 600-699: 19%
- SAT 700-800: 11%
Fall 2006 cohort First-Year Pell students by HS RANK

Pell Recipients as % of Enrollees in the Stated Ranking Category

- Rank 1 - 2: 69%
- Rank 3 - 4: 53%
- Rank 5 - 6: 37%
- Rank 7 - 8: 27%
- Rank 9 - 10: 19%
- Private HS: 12%

Ranks 1-4: 28%
Fall 2006 cohort First-Year Pell students by HS GPA

Pell Recipients as % of Enrollees in the Stated GPA Category

- 2.79 and Below: 42%
- 2.80 - 2.99: 37%
- 3.00 - 3.19: 36%
- 3.20 - 3.39: 32%
- 3.40 - 3.59: 32%
- 3.60 - 3.79: 29%
- 3.80 - 3.99: 28%
- 4.00 - 4.19: 25%
- 4.20 and Above: 20%
Who Receives Pell Grants in ANY of the first 4 years?

- Ever Received Pell: 12,424
- Never received Pell: 25,037
- Total: 37,461
Fall 2006 cohort Ever-Received Pell by GENDER

Pell Recipients as % of Enrollees in the Stated Gender Category

Female: 38%
Male: 32%

33%
Fall 2006 cohort Ever-Received Pell by RACE/ETHNICITY

- American Indian: 31%
- African American: 53%
- Chicano/Latino: 60%
- Asian: 41%
- White: 17%
- Unknown: 29%
Fall 2006 cohort Ever-Received Pell by FIRST-GEN STATUS

Pell Recipients as % of Enrollees in the Stated FG Category

First Generation: 66%
Not First Generation: 19%
Unknown: 20%
Fall 2006 cohort Ever-Received Pell by average SAT Critical Reading and Math Scores

Pell Recipients as % of Enrollees in the Stated SAT Category

- SAT 200-499: 68%
- SAT 500-599: 43%
- SAT 600-699: 26%
- SAT 700-800: 17%
Fall 2006 cohort Ever-Received Pell by H.S. RANK

Bar chart showing the percentage of Pell Recipients as % of Enrollees in the Stated Ranking Category:

- Rank 1 - 2: 77%
- Rank 3 - 4: 62%
- Rank 5 - 6: 45%
- Rank 7 - 8: 36%
- Rank 9 - 10: 27%
- Private HS: 18%
- Rank 7 - 8: 33%
Fall 2006 cohort Ever-Received Pell by H.S. GPA

Pell Recipients as % of Enrollees in the Stated GPA Category

- 2.79 and Below: 46%
- 2.80 - 2.99: 42%
- 3.00 - 3.19: 41%
- 3.20 - 3.39: 38%
- 3.40 - 3.59: 37%
- 3.60 - 3.79: 35%
- 3.80 - 3.99: 33%
- 4.00 - 4.19: 30%
- 4.20 and Above: 24%
Who Receives Pell Grants in ALL of the first 4 years?

- Pell all 4 yrs: 6,100
- Never Pell: 28,686
- "Total": 34,786
Fall 2006 4-Year Pell Students by GENDER

- Female: 19%
- Male: 16%

Overall Percent of Pell Recipients: 18%
Fall 2006 4-Year Pell Students by RACE/ETHNICITY

- American Indian: 10%
- African American: 27%
- Chicano/Latino: 31%
- Asian: 22%
- White: 6%
- Unknown: 13%

Pell Recipients as % of Enrollees in the Stated Ethnic Category
Fall 2006 4-Year Pell Students by FIRST-GEN STATUS

- First Generation: 37%
- Not First Generation: 7%
- Unknown: 8%

Pell Recipients as % of Enrollees in the Stated FG Category
Fall 2006 4-Year Pell Students by SAT SCORE

Pell Recipients as % of Enrollees in the Stated SAT Category

- SAT 200-499: 36%
- SAT 500-599: 22%
- SAT 600-699: 12%
- SAT 700-800: 7%
- SAT 900-999: 18%
Fall 2006 4-Year Pell Students by H.S. RANK

Pell Recipients as % of Enrollees in the Stated Ranking Category

- Rank 1 - 2: 44%
- Rank 3 - 4: 35%
- Rank 5 - 6: 23%
- Rank 7 - 8: 17%
- Rank 9 - 10: 12%
- Private HS: 7%
- Rank 6 - 7: 18%
Fall 2006 4-Year Pell Students by H.S. G.P.A.

Pell Recipients as % of Enrollees in the Stated GPA Category

- 2.79 and Below: 25%
- 2.80 - 2.99: 24%
- 3.00 - 3.19: 23%
- 3.20 - 3.39: 22%
- 3.40 - 3.59: 22%
- 3.60 - 3.79: 21%
- 3.80 - 3.99: 21%
- 4.00 - 4.19: 18%
- 4.20 and Above: 14%
OUTCOMES...

• The Relationship between Pell Status and Student Characteristics

  – “Focus Students” Defined
    • Black or Hispanic
    • First Generation
    • Low GPA (3.4 or lower)
    • (1173 of the Fall Freshman Cohort (3.3%))
Outcomes: First Year Persistence

- First Year Pell Recipient: 90.90%
- Never Received Pell: 92.98%
## Outcomes: First Year Persistence

**Logistic Regression Model on First Year Retention**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model I (Odds Ratio, p)</th>
<th>Model II (Odds Ratio, p)</th>
<th>Model III (Odds Ratio, p)</th>
<th>Model IV (Odds Ratio, p)</th>
<th>Model V (Odds Ratio, p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pell First Year</td>
<td>0.754 (0.0000)</td>
<td>0.753 (0.0000)</td>
<td>1.013 (0.8003)</td>
<td>0.948 (0.2737)</td>
<td>1.095 (0.0871)</td>
</tr>
<tr>
<td>Elite Campuses</td>
<td>3.592 (0.0000)</td>
<td>1.907 (0.0000)</td>
<td>3.472 (0.0000)</td>
<td>1.986 (0.0000)</td>
<td></td>
</tr>
<tr>
<td>HS GPA</td>
<td></td>
<td>2.489 (0.0000)</td>
<td></td>
<td>2.367 (0.0000)</td>
<td></td>
</tr>
<tr>
<td>Test Score</td>
<td></td>
<td>1.002 (0.0000)</td>
<td></td>
<td>1.001 (0.0000)</td>
<td></td>
</tr>
<tr>
<td>URM</td>
<td></td>
<td></td>
<td></td>
<td>0.572 (0.0000)</td>
<td>0.746 (0.0000)</td>
</tr>
<tr>
<td>First Generation</td>
<td></td>
<td></td>
<td>0.821 (0.0000)</td>
<td>0.938 (0.1561)</td>
<td></td>
</tr>
<tr>
<td>Focus Student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.815 (0.0200)</td>
</tr>
</tbody>
</table>
Outcomes: Second Year Persistence

- First Year Pell Recipient: 83.72%
- Never Received Pell: 85.34%
# Outcomes: Second Year Persistence

## Logistic Regression Model on Second Year Retention

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th></th>
<th>Model II</th>
<th></th>
<th>Model III</th>
<th></th>
<th>Model IV</th>
<th></th>
<th>Model V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
</tr>
<tr>
<td>Pell First Year</td>
<td>0.883</td>
<td>0.0002</td>
<td>0.882</td>
<td>0.0002</td>
<td>1.125</td>
<td>0.0018</td>
<td>1.006</td>
<td>0.8776</td>
<td>1.149</td>
<td>0.0006</td>
</tr>
<tr>
<td>Elite Campuses</td>
<td></td>
<td></td>
<td>2.770</td>
<td>0.0000</td>
<td>1.578</td>
<td>0.0000</td>
<td>2.712</td>
<td>0.0000</td>
<td>1.616</td>
<td>0.0000</td>
</tr>
<tr>
<td>HS GPA</td>
<td></td>
<td></td>
<td>2.348</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.260</td>
<td>0.0000</td>
</tr>
<tr>
<td>Test Score</td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
</tr>
<tr>
<td>URM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.640</td>
<td>0.0000</td>
<td>0.811</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Generation</td>
<td></td>
<td></td>
<td>0.941</td>
<td>0.0395</td>
<td>1.041</td>
<td>0.2219</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.833</td>
<td>0.0109</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outcomes: 4 Year Graduation Rates

- Ever Received Pell: 52.5%
- Never Received Pell: 64.8%
- Received Pell 1st Year: 50.1%
- Did NOT Receive Pell 1st Year: 64.4%
- Received Pell all 4 Years: 60.0%
- Did Not Receive Pell all 4 Years: 73.2%
Outcomes: 6 Year Graduation Rates

- Ever Received Pell: 81.6%
- Never Received Pell: 84.7%
- Received Pell 1st Year: 79.1%
- Did NOT Receive Pell 1st Year: 85.4%
## Logistic Regression: Ever-had-Pell on 4-Year Graduation

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th></th>
<th>Model II</th>
<th></th>
<th>Model III</th>
<th></th>
<th>Model IV</th>
<th></th>
<th>Model V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
<td>Odds</td>
<td>p</td>
</tr>
<tr>
<td>Ever had Pell</td>
<td>0.577</td>
<td>0.0000</td>
<td>0.575</td>
<td>0.0000</td>
<td>0.687</td>
<td>0.0000</td>
<td>0.693</td>
<td>0.0000</td>
<td>0.739</td>
<td>0.0000</td>
</tr>
<tr>
<td>Elite Campuses</td>
<td></td>
<td></td>
<td>1.829</td>
<td>0.0000</td>
<td>1.032</td>
<td>0.3320</td>
<td>1.785</td>
<td>0.0000</td>
<td>0.0740</td>
<td>0.0257</td>
</tr>
<tr>
<td>HS GPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.683</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>2.679</td>
<td>0.0000</td>
</tr>
<tr>
<td>Test Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
</tr>
<tr>
<td>URM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.574</td>
<td>0.0000</td>
<td>0.679</td>
<td>0.0000</td>
</tr>
<tr>
<td>First Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.849</td>
<td>0.0000</td>
<td>0.904</td>
<td>0.0000</td>
</tr>
<tr>
<td>Focus Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.030</td>
<td>0.5981</td>
</tr>
</tbody>
</table>
## Logistic Regression: First-Year-Pell on Four-Year Graduation

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th></th>
<th>Model II</th>
<th></th>
<th>Model III</th>
<th></th>
<th>Model IV</th>
<th></th>
<th>Model V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
</tr>
<tr>
<td>Pell First Year</td>
<td>0.556</td>
<td>0.0000</td>
<td>0.552</td>
<td>0.0000</td>
<td>0.666</td>
<td>0.0000</td>
<td>0.669</td>
<td>0.0000</td>
<td>0.715</td>
<td>0.0000</td>
</tr>
<tr>
<td>Elite Campuses</td>
<td>1.844</td>
<td>0.0000</td>
<td>1.045</td>
<td>0.1801</td>
<td>1.798</td>
<td>0.0000</td>
<td>1.088</td>
<td>0.0112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS GPA</td>
<td></td>
<td></td>
<td>2.655</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>2.653</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Score</td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>1.001</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>URM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.572</td>
<td>0.0000</td>
<td>0.672</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.854</td>
<td>0.0000</td>
<td>0.909</td>
<td>0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.039</td>
<td>0.5416</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Logistic Regression: All-4-Years-Pell on Four-Year Graduation

<table>
<thead>
<tr>
<th></th>
<th>Model I</th>
<th></th>
<th>Model II</th>
<th></th>
<th>Model III</th>
<th></th>
<th>Model IV</th>
<th></th>
<th>Model V</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
<td>Odds Ratio</td>
<td>p</td>
</tr>
<tr>
<td>Pell All 4 Years</td>
<td>0.462</td>
<td>0.0000</td>
<td>0.459</td>
<td>0.0000</td>
<td>0.512</td>
<td>0.0000</td>
<td>0.515</td>
<td>0.0000</td>
<td>0.533</td>
<td>0.0000</td>
</tr>
<tr>
<td>Elite Campuses</td>
<td></td>
<td></td>
<td>1.473</td>
<td>0.0000</td>
<td>0.994</td>
<td>0.6786</td>
<td>1.455</td>
<td>0.0000</td>
<td>1.017</td>
<td>0.5796</td>
</tr>
<tr>
<td>HS GPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.261</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>2.281</td>
<td>0.0000</td>
</tr>
<tr>
<td>Test Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td>0.0000</td>
<td></td>
<td></td>
<td>1.000</td>
<td>0.0000</td>
</tr>
<tr>
<td>URM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.681</td>
<td>0.0000</td>
<td>0.730</td>
<td>0.0000</td>
</tr>
<tr>
<td>First Generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.947</td>
<td>0.0000</td>
<td>0.976</td>
<td>0.0000</td>
</tr>
<tr>
<td>Focus Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.094</td>
<td>0.0593</td>
</tr>
</tbody>
</table>
Findings

• Pell and non-Pell students have similar rates of first and second year persistence

• When controlling for other factors, Pell students persist slightly better than non-Pell students

• Pell students have significantly lower 4 year graduation rates, even when controlling for student characteristics.
Further Questions

• What happens between 2 years and graduation?
• What about 6-year Graduation?
• How are CSU and CCC Different?
• What are the effects of other types of aid?
• How will the new six-year eligibility limit effect these results?
Questions?

• THANK YOU!