Working While Enrolled: The Effects of Federal Work Study Participation on Students’ Academic Outcomes

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Student Employment

Cost of college is rising while family incomes decline:
- Unmet need: In 2010, grants and tax benefits only 37% of tuition and fees (College Board, 2012)
- Students working more: 1970 → 2003, average hours worked increased from 5.0 to 9.6 per week (Scott-Clayton, 2012)

Ex ante, not clear how work effects students:
- Student work may detract from the time spent on studies
- On the other hand, working on campus may help students integrate into campus life
Federal Work-Study Program

Federal Work-Study Program:
- $1 billion spent on FWS in 2010-2011 (College Board, 2012)
- Subsidizes 50-80% of on-campus wages
- FWS given to students with low Estimated Family Contributions (EFC)
- FWS allocated as a lump-sum to institutions
- Some portion of allocation remains consistent from year to year ("base guarantee"), other portion may fluctuate ("fair share") (Smole, 2005)

FWS in Ohio:
- In OH $100 FWS ≈ 12.5 to 20 hours of work a semester
- Students encouraged to find a job related to course of study
- In OH, 65% of institutional allocation is base guarantee (Smole, 2005)
What do we know about the effect of working while enrolled?

Off-campus work:
- Some authors find negative effect on GPA, positive effect on credits earned (DeSimone, 2008; Dadger, 2012)
- Some evidence of a negative effect on cumulative credits earned (Darolia, 2014)

On-campus work:
- Some evidence of negative effect on GPA (Stinebrickner & Stinebrickner, 2003; Scott-Clayton, 2011)
## Data & Sample

### Administrative Data from Ohio Board of Regents
- Enrollment files
- Term by term credits and GPA
- Financial aid files including detailed information on financial aid received

### First time, full-time freshmen
- Students attending a four-year campus
- 70,800 students with complete FA files

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.53</td>
</tr>
<tr>
<td>White</td>
<td>0.78</td>
</tr>
<tr>
<td>Black</td>
<td>0.14</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.02</td>
</tr>
<tr>
<td>Asian</td>
<td>0.02</td>
</tr>
<tr>
<td>Dependent</td>
<td>0.95</td>
</tr>
<tr>
<td>Mother's Education</td>
<td>1.61</td>
</tr>
<tr>
<td>Has Work Study</td>
<td>0.06</td>
</tr>
<tr>
<td>Work Study Amount Received</td>
<td>0.11</td>
</tr>
<tr>
<td>First Semester GPA</td>
<td>2.74</td>
</tr>
<tr>
<td>Second Semester GPA</td>
<td>2.69</td>
</tr>
<tr>
<td>First Semester Credits Earned</td>
<td>13.11</td>
</tr>
<tr>
<td>First Year Cumulative Credits Earned</td>
<td>30.98</td>
</tr>
<tr>
<td>Persisted to Sophomore Year</td>
<td>0.85</td>
</tr>
<tr>
<td>N</td>
<td>70800</td>
</tr>
</tbody>
</table>

Data Source: Ohio Board of Regents
### FWS Allocations in Ohio 2007-09

<table>
<thead>
<tr>
<th>University</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Akron</td>
<td>15</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Bowling Green State University</td>
<td>20</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>University of Cincinnati</td>
<td>10</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Cleveland State University</td>
<td>7</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Kent State University</td>
<td>5</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Miami University</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Ohio University</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>University of Toledo</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Shawnee State University</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>University of Toledo</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Youngstown State University</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Data Source:** Ohio Board of Regents
### Estimating variation

#### Ohio State University, Allocation = $447.02

- **EFC = 0**
  - Student 1, \( \overline{WS_{received}} = $1260 \)

- **EFC = 10,000**
  - Student 2, \( \overline{WS_{received}} = $447 \)

#### Bowling Green University, Allocation = $218.05

- **EFC = 0**
  - Student 3, \( \overline{WS_{received}} = $426 \)

- **EFC = 10,000**
  - Student 4, \( \overline{WS_{received}} = $48 \)
Main Results

<table>
<thead>
<tr>
<th></th>
<th>1st Semester GPA</th>
<th>1st Year Cumulative GPA</th>
<th>1st Semester Credits Earned</th>
<th>1st Year Cumulative Credits</th>
<th>Persisted to Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS Received</td>
<td>-0.0339**</td>
<td>-0.0453***</td>
<td>-0.340***</td>
<td>0.569</td>
<td>-0.006</td>
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<tr>
<td></td>
<td>(0.0165)</td>
<td>(0.0157)</td>
<td>(0.0824)</td>
<td>(0.7660)</td>
<td>(0.0050)</td>
</tr>
<tr>
<td>N</td>
<td>61574</td>
<td>61574</td>
<td>61574</td>
<td>61574</td>
<td>39606</td>
</tr>
</tbody>
</table>

An additional $100 of FWS (working an additional 12-20 hours per semester) has a small, negative effect on 1st year GPA for freshman.

Some evidence participating in FWS increased the number of credits earned by the end of freshman year.

Data source: Ohio Board of Regents; Sample excludes Ohio State University
Discussion

Some evidence participating in work study has a small, negative effect on GPA, similar to previous studies (Stinebrickner & Stinebrickner, 2003; DeSimone, 2008; Scott-Clayton, 2011; Dadger, 2012)

Evidence that having a work-study job has a positive effect on credits earned, similar to previous studies (Dadger, 2012; Scott-Clayton, 2011)

Work study may have a more negative effect on dependent students

On the one hand, we do not find strong evidence that receiving FWS helps student persist or succeed in school

On the other hand, the negative effects are minimal and students may be benefitting in ways we don’t observe

- Labor market skills
- Building on-campus network
Can FWS be used to improve college completion?

FWS funds may not be targeted towards students who need it most

- Ohio State Allocation in 2007 > $4 million, approx 15% of students low-income*
  - $447 per pell elig student
- Youngstown State Allocation in 2007 ~ $700,000, approx 40% of students low-income*
  - $146 per pell elig student

Research suggests that financial aid administrators are interested in effective strategies for distributing FWS (NASFAA, 2016)

- Better access to data essential to improving understanding about how participation affects student outcomes
- Better data collection and access --> data-driven decision making about how best to target FWS

*Approximations based on entering cohorts
Thank you!

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Appendix
Variation in FWS funds received
Estimation strategy

Want to estimate the effect of participating in work study on student outcomes

- Participating in WS may be correlated with unobserved characteristics
- Use instrumental variables to overcome selection issue

Instrumental variables model:

- Need a source of variation correlated with WS received, but uncorrelated with student outcomes
  → following Scott-Clayton (2011) we use the interaction of institutional FWS allocation and student EFC (our “instrument”)
- First regress amount FWS received on interaction of institutional FWS allocation and student EFC ("first stage")
- Second regress students’ academic outcomes on amount FWS received predicted in the first stage ("second stage")