Expanding the Understanding of High School Non-Graduates through a Comparison of High School Dropouts andPersisters in Maryland

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Why high school graduation?

- High school graduation = **key social determinant**
  - Transition from adolescence into adulthood
  - ↑ physical and emotional health
  - ↓ likelihood of poverty
  - ↑ Social & economic integration

  (Belfield et al., 2012; Rumberger, 2011)
Background on High School Dropout

- Dropout is a process that unfolds over time
- Individual- and school-level factors contribute to the likelihood of dropout (e.g., Rumberger, 2011)
  - Attendance, standardized test scores, student motivation
  - School type, school resources
- Typology literature highlights ”lost at the last minute” and “involved” dropouts (Bowers & Sprott, 2012; Menzer & Hampel, 2009)
- Early warning systems attempt to identify these students early to intervene and promote graduation
Introduction and Background on Persisters

• Most studies focus on dropouts
  • Early warning indicators or
  • Typologies (e.g. pushouts, pullouts)
• Who is missing from the conversation?
  • What about students who do not dropout, but do not graduate on time?
Useful Definitions

- **On-time graduate** – Students who graduate with a regular diploma four years after entering the ninth grade as first-time freshmen

- **Dropout** – Students who formally withdraw from school

- **Persisters** – Students who do not earn a regular diploma but are still enrolled on their expected graduation date
Research Questions

- What are the near-term (6-year) secondary, postsecondary, and workforce outcomes for persisters and dropouts?
- What academic and demographic characteristics help to differentiate persisters and dropouts?
- What are the longer-term (11-year) postsecondary and workforce outcomes for on-time graduates, late graduates, non-graduates, and GED earners?
Methods
Identifying the MLDS Cohort

Year 0
- Establish 8th Grade Enrollment using data from 2008-2009

Year 1
- Establish 9th Grade Enrollment
- 2009-2010 first time freshman \( (N = 64,130) \)

Year 4
- Establish Exit Status
- On time graduation would be in 2012-2013 academic year
Systems Diagram for Categorizing High School Graduation Outcomes
Systems Diagram for Categorizing High School Graduation Outcomes
Systems Diagram for Categorizing High School Graduation Outcomes
MLDS Data and Measures

Years 4-6; Year 11
Maryland workforce yes/no; Annual wages

- Wages
- Industry
- GED and NEDP
- Apprenticeship
- LACES
- Business Licenses

- Child Welfare (forthcoming)

- Occupational Licenses (forthcoming)

- Juvenile Delinquency Records

- Enrollment
- Degrees
- Courses
- Credits & Grades
- Financial Aid

- National Student Clearinghouse
- College Board
- MVA
- Computing Certifications
- Comptroller

- Attendance
- Completion
- Assessment
- Discipline
- Early Childhood
- Staff
- Schools

Years 4-6; Year 11
Enrollment yes/no
Degree yes/no
Analyses

- Descriptive statistics, including Sankey diagramming (Acquire Procurement Services, 2019)
- Multilevel modeling (Raudenbush & Bryk, 2002)
  - Logit link for binary outcomes
  - Random intercepts, fixed slopes
  - Group mean centered all predictors
  - Students nested in final year 4 enrollment
  - Indicators for LEA were added - one omitted
Results
## Descriptive Statistics in Year 4 (N = 4,962)

<table>
<thead>
<tr>
<th>Category</th>
<th>4th Year Dropout</th>
<th>4th YearPersisters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Female</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>Race</td>
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<td></td>
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<tr>
<td>Black</td>
<td>48</td>
<td>64</td>
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<tr>
<td>White</td>
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<tr>
<td>Other</td>
<td>16</td>
<td>15</td>
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<tr>
<td>Latinx</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>English Language learner</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Free and Reduced-priced Meals</td>
<td>76</td>
<td>77</td>
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<tr>
<td>Special Education</td>
<td>23</td>
<td>26</td>
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<tr>
<td>Prior Dropout</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>On Track</td>
<td>28</td>
<td>39</td>
</tr>
</tbody>
</table>
Sankey Diagram Years 4-6

Year 4
- Non-Graduates: 4,962
  - Year 4 Persisters: 3,991 (80%)
  - Year 4 Dropouts: 971 (20%)

Year 5
- Summer/Year 5 Persisters: 3,997
  - Late Graduates: 1,901 (38%)
  - GED Earners: 2,096 (4%)
  - No High School Credential: 1,910 (58%)

Year 6
- College: 472 (10%)
- Work: 1,321 (27%)
- No Participation: 3,169 (64%)
Sankey Diagram Years 4-6

Year 4 Graduation Status

- Total (N=4,962), %
- Persister (n=3,997), %
- Dropout (n=965), %

Post Y4 Enrollment

- Total: 81, 97, 14
- Summer: 80, 38, <1
- Year 5: 20, 81*, 14

Year 4 Persisters 80%

Year 4 Dropouts 20%

No High School Credential 58%

No Participation 64%
Year 4 Graduation Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Total (N=4,962)</th>
<th>Persister (n=3,997)</th>
<th>Dropout (n=965)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate</td>
<td>38%</td>
<td>47%</td>
<td>4%</td>
</tr>
<tr>
<td>GED</td>
<td>4%</td>
<td>2%</td>
<td>15%</td>
</tr>
<tr>
<td>No HS Credential</td>
<td>58%</td>
<td>52%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Year 4 Dropouts

Year 4 Per 80%
Non-Graduates 4,962

Year 5 Graduation Status

<table>
<thead>
<tr>
<th>Status</th>
<th>Total (N=4,962)</th>
<th>Persister (n=3,997)</th>
<th>Dropout (n=965)</th>
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<tr>
<td>Graduate</td>
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<td>4%</td>
</tr>
<tr>
<td>GED</td>
<td>4%</td>
<td>2%</td>
<td>15%</td>
</tr>
<tr>
<td>No HS Credential</td>
<td>58%</td>
<td>52%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Year 6
College 10%
Non Participation 64%
No High School Credential 58%
Year 4 Dropouts 20%
Non-Graduates 4,962
### Year 5 Graduation Status

<table>
<thead>
<tr>
<th></th>
<th>Graduate (n=1,901)</th>
<th>GED (n=208)</th>
<th>No HS credential (n=2,853)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
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</tbody>
</table>

### Year 6 Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>College</th>
<th>Worked 3Q+</th>
<th>No Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>38</td>
<td>18</td>
<td>38</td>
<td>47</td>
</tr>
</tbody>
</table>

- **No High School Credential**: 58% of the Year 4 Dropouts (2,853) and 64% of the Year 5 Graduates (1,321) have no high school credential.
Odds of Persisting Versus Dropping out in the Fourth Year of High School (N=4,895)

<table>
<thead>
<tr>
<th>Sig. Results</th>
<th>Non-Sig. Results</th>
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</thead>
<tbody>
<tr>
<td><strong>Level-1 Fixed Effects</strong></td>
<td><strong>Level-1 Fixed Effects</strong></td>
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<tr>
<td>○ Black</td>
<td>○ Gender (Female)</td>
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<tr>
<td>○ Special Education</td>
<td>○ Other Race</td>
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<tr>
<td>○ Pass English HSA</td>
<td>○ Latinx</td>
</tr>
<tr>
<td>○ Dropped Out (Y1-3)</td>
<td>○ English Language Learner</td>
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<tr>
<td>○ Off Track</td>
<td>○ Free and Reduced Priced Meals</td>
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<tr>
<td>○ Chronically Absent</td>
<td>○ Homeless</td>
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<tr>
<td><strong>Level-2 Fixed Effects</strong></td>
<td>○ Discipline</td>
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<tr>
<td>○ Voc-Tec School</td>
<td>○ Alternative School</td>
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<tr>
<td>○ Combined School</td>
<td>○ Charter School</td>
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<tr>
<td>○ School Size</td>
<td></td>
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</table>
Descriptive Statistics by High School Achievement Type (N= 54,023)

<table>
<thead>
<tr>
<th></th>
<th>On-Time Graduate</th>
<th>GED Earner</th>
<th>Late Graduate</th>
<th>Non-Completer</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>2</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>39</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>Race</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>51</td>
<td>47</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>Black</td>
<td>33</td>
<td>38</td>
<td>61</td>
<td>59</td>
</tr>
<tr>
<td>Other</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>14</td>
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<tr>
<td>Hispanic</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>14</td>
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<td>FARMS</td>
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<td>62</td>
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<tr>
<td>Special Ed.</td>
<td>9</td>
<td>12</td>
<td>24</td>
<td>32</td>
</tr>
</tbody>
</table>
Postsecondary and Workforce Outcomes by High School Completion Status through Year 11 (N= 54,023)

- **Attend College**: 80%
  - On-time Graduate: 33%
  - Late Graduates: 44%
  - GED Earner: 7%
  - Non-completer: 22%

- **College Graduate**: 44%
  - On-time Graduate: 4%
  - Late Graduates: 3%
  - GED Earner: 1%

- **Working in Year 9 or 10**: 60%
  - On-time Graduate: 59%
  - Late Graduates: 58%
  - GED Earner: 41%
Median Annual Wages by High School Completion Type Calendar Years 6-11

- On-time Graduate
- Late Graduate
- Non-completer
- GED

[Graph showing wage trends over years with different completion types]
The Odds of Postsecondary and Workforce Outcomes 11 years after Freshman Year ($N=54,023$)

<table>
<thead>
<tr>
<th></th>
<th>Postsecondary Enrollment</th>
<th>Graduation</th>
<th>Workforce Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Time Graduate</td>
<td>↑</td>
<td>↑</td>
<td>≈</td>
</tr>
<tr>
<td>GED</td>
<td>↑</td>
<td>≈</td>
<td>≈</td>
</tr>
<tr>
<td>Non-completer</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

*Note.* Reference group is late graduates.
Summary, Limitations, and Implications
Summary

• Persisting students
  • Consistently outnumber dropouts (4:1 in Year 4)
  • Higher reenrollment (>7:1)
  • Higher Year 5 graduation rate (>12:1)
  • But > half have no HS credential – end of Year 5

• Postsecondary & Workforce Outcomes
  • On-time > late graduates & GED > Non-completers
  • $\text{GED} \approx \text{Late graduates}$
    • Value of GED? But there is a wage differential
    • Timing of GED attainment may matter
Limitations

- Students who left the Maryland public school system are not included
- Maryland UI data do not include federal employees, private contractors, self-employment, or out of state employment
- Possibility of unmeasured confounders (e.g., student motivation)
- Timing of measurements in Years 4-11
Implications

- Considering persisting *alongside* dropout provides a more informative analysis of high school graduation.
- Better identification and continued study ofpersisters
  - Increase high school graduation rates for persisters and dropouts
  - Promote a cascade of positive life outcomes
- Encouraging late graduating or GED earning may present viable alternatives
- Value of population-level linked longitudinal administrative data to identify rare populations
For More Information

- MLDS Center website
  https://mldscenter.maryland.gov/
Questions and Contact

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